Contributions to Management Science

Hongmu Lee · Gianni Nicolini ·
Man Cho *Editors*

International Comparison of Pension Systems

An Investigation from Consumers' Viewpoint

Contributions to Management Science

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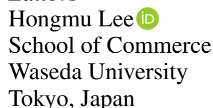
Hongmu Lee
School of Commerce
Waseda University
Tokyo, Japan

Gianni Nicolini
Department of Management and Law
University of Rome Tor Vergata
Rome, Italy

Man Cho
Department of Public Policy
and Management
KDI School of Public Policy
and Management
Sejong-si, Korea (Republic of)

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Preface

As the average life expectancy is rapidly increasing globally, properly managing the longevity and other risks for old-age population has become an urgent policy task in many countries. With this backdrop, this book aims to document key policy implications out of an international comparative study on the pension systems of 11 diverse countries, in particular, on the viewpoint of financial consumers.

What do we mean by 'the consumers' point of view'? The meaning is that, in comparing the national pension systems, we, first, assess them in terms of three policy dimensions—coverage (of the public pension program in terms of consumer segments covered), adequacy (of the total pension compensation for ensuring old-age income security), and sustainability (of the public pension program with respect to fiscal safety and soundness), and, second, attempt to come up with the implications of our findings as to consumers' financial planning and nudges to help guide that. It is fair to say that, while many international comparisons of the pension systems tend to take the perspective of public policy (e.g., social insurance, public medical care, and redistribution for vulnerable groups) or that of corporate personnel affairs, this book examines the perspective of financial consumers in those countries as to whether their pension systems secure a proper standard of living, how well they plan financially for their old-age living, and what enabling mechanisms are offered to that end. Specifically, we survey the multi-tier pension programs of 11 countries (i.e., those administered by governments, corporations, and individuals), including two benchmarking countries (the U.S. and Japan), three European countries (Italy, Poland, and Switzerland), and six Asian countries except Japan (Korea, Singapore, China, Bangladesh, Indonesia, and Vietnam). In addition, three special topics of relevancy are included as separate chapters—the evolution and current role of the private pension programs, the taxation and inter-country portability of pension benefits, and the home equity release programs observed from nine different countries.

This book represents the second book of the book projects initiated by the International Academy of Financial Consumers (IAFICO), to advance our understanding of various consumer-related issues in the financial markets. In the first edition, entitled "An International Comparison of Financial Consumer Protection (Springer, 2018)", our objective was to add insights to our body of knowledge as to the workings of the

policy regimes established to protect financial consumers. We hope that this book does the same as to the strengths and the weaknesses observed from those pension systems surveyed, and, further, the policy remedies to be employed to advance the welfare of financial consumers in those countries.

Tokyo, Japan Hongmu Lee
Rome, Italy Gianni Nicolini
Sejong-si, Korea (Republic of) Man Cho

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Introduction

The National Pension Systems and Financial Consumers: An International Comparative Perspective on the Key Linkages

Man Cho, Gianni Nicolini, and Hongmu Lee

Abstract A secure and adequate pension system is central to establishing a welfare state. Given that, this book aims to document a set of diverse public policy issues on the financial consumers' standpoint that are observed in different countries. In this introductory chapter, we attempt to summarize those policy issues that emerged from the survey of the countries included with respect to each of the three dimensions—adequacy, coverage, and sustainability. We hope that, from a financial consumer perspective, reading this book will help individuals to be aware of the functioning of the pension system and to develop reasonable expectations about their generosity and eventually to adjust their current saving behaviors to plan for a secure and comfortable retirement. At the same time, policymakers can benefit from reading by learning from the different countries' experiences and from the analysis of different available approaches to face different challenges.

1 Introduction

For a long while in human history, supporting elderly people was done through voluntary intergenerational family assistance: that is, parents raised and invested in their children, who in turn provided old-age support for the former. That scheme, however, changed with the collapse of the extended family system in Europe after the first industrial revolution, and it became a state's role, at least partially, to ensure old-age income security through a public pension system. The first such system introduced was the mandatory public pension program by the Bismarck regime in Germany in

M. Cho (✉)
KDI School of Public Policy and Management, Yeongi-gun, Korea
e-mail: mancho@kdischool.ac.kr

G. Nicolini
University of Rome, Rome, Italy

H. Lee
Waseda University, Tokyo, Japan

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1889.[1] Since then, there has been a wide array of state-sponsored pension programs in different countries, which mostly rely on societal intergenerational support, i.e., the unfunded or partially funded Pay-as-you-go (PAYG) system, in which premiums paid by the working-age population at a given time span are used to pay pension benefits to the elderly in the concurrent period. Another large shift that has occurred during the last several decades in a global proportion is demographic change, i.e., the steady increase in the share of the old-age population, which makes the PAYG systems in many countries unsustainable. In response, various private pension programs, both voluntary and compulsory, are being promoted and implemented across the globe.

Given this backdrop, this volume aims to document similarities and dissimilarities in the national pension systems of a group of countries with diverse socioeconomic conditions for the purpose of documenting welfare implications from a financial consumer viewpoint. In fact, the main driving force of this project is the international academic association of which most of the contributors to chapters in this book are members, the International Academy of Financial consumers (IAFICO). In particular, we survey the multitier pension programs of 11 countries: three European countries (Italy, Poland, and Switzerland), seven Asian countries (Bangladesh, China, Indonesia, Japan, Korea, Singapore, and Vietnam), and the United States. In addition, three special topics of relevancy are included as separate chapters—the evolution and current role of private pension programs and taxation issues, as shown in the US system, and the home equity release programs observed from nine countries. The main focus of our survey is on developing a set of international good practices that can serve as a benchmark in reforming a given country's pension system to ensure that financial consumers have a secure and comfortable life in their old age.

In comparing the national pension systems, we identify three main policy dimensions: (1) coverage (of the public pension program in terms of which consumer segments are included); (2) adequacy (of the total pension compensation for ensuring old-age income security); and (3) sustainability (of the public pension program with respect to fiscal safety and soundness). In addition, we focus on three main classes of pension programs in this summary chapter, as listed below:

- Public pension (1), as a social safety net: The means-tested and tax-funded welfare programs for low-income and other vulnerable old-age consumer cohorts with a primary policy objective of ensuring a social safety net
- Public pension (2), as insurance for old-age income security: The contribution-based compulsory public pension programs as insurance for old-age income security, which generally take a PAYG structure and represent a centerpiece of the national pension system
- Private pension, as an old-age income supplement: The private pension programs of various sorts, both corporate-driven and individual-driven, which are usually

[1] See Arza and Johnson (2006), Kim and Klump (2010), and Chap. 14 of this volume for the development of the public pension systems.

Table 1 Key consumer issues that have emerged

	Coverage	Adequacy	Sustainability
Public pension (1)	Targeting efficiency Breadth versus depth	MIG as an option Holistic assistance	Spending limit (e.g., % to GDP)
Public pension (2)	Gradual expansion Vulnerable groups	Benefit versus premium Portability	Reform, parameters Reform, structure
Private pension	Financial literacy Pensionification	Sound return Equity conversion	na

Source The authors

promoted through tax incentives and include two general categories—defined benefit (DB) and defined contribution (DC).[2]

Combining the above three policy dimensions with the three classes of pension programs, we establish a matrix in Table 1 to discuss those issues relevant to financial consumers that are specific to each cell in the table. To our end, financial consumers are defined as current and prospective subscribers of public and private pensions. Regarding the current state of our understanding, it is fair to say that existing studies tend to focus on public and private pension plans separately and independently and on the standpoint of supervisory or administrative agencies. However, as will be argued below, those pension programs work as a complement to each other from the viewpoint of financial consumers, which warrants a holistic approach if one examines their adequacy to financial consumers in a given country.

The Type A public pension is primarily redistributive in nature and aims to provide a social safety net for low-income and other vulnerable consumer groups. Examples of such programs observed from our survey include the Supplemental Security Income Program in the US and the Public (Income) Assistance System in Japan. One inherent tradeoff in offering a program of this type is between breadth and depth: that is, how broadly the program covers consumers in a country versus how deep (or shallow) the amount of allowance can be. It is generally the case that the broader the coverage is, the more attractive that option is politically, although the depth of coverage is likely to be a more effective policy dimension in reducing old-age poverty. A couple of policy options that can be considered in this vein include an aggregate spending limit, e.g., as a share of GDP or of total government budget, and a minimum income guarantee (MIG) subject to related socioeconomic conditions of a given country. Another policy to be contemplated is the linkage between the Type A pension and other welfare programs. That is, this means-tested pension program should be designed in the context of holistic welfare assistance for vulnerable old-age consumer groups, i.e., welfare programs targeting senior citizens for housing, medical service, and disability allowance, among others.

[2] There exist various categorizations of public and private pension programs, e.g., the three-tier system by the OECD (2013) and the four-pillar system by the World Bank (2012). Our classification slightly differs from theirs, but covers the types that are encompassed by them.

The Type B public pension, which we believe is the centerpiece of the national pension system in most countries, offers insurance-like protection against various risks that old-age consumers usually face. As Bajtelsmit (Chap. 2, this volume) elaborates in this volume, those risks include longevity risk (through life annuities), inflation risk (due to its annual cost-of-living adjustments), disability risk (through the disability insurance program), and survivor risk (replacing income to survivors after the death of the wage earner). Examples of this type of public pension include the Old Age and Survivor Insurance (OASI) in the US, which is generally referred to as social security, and the National Basic Pension in Japan.

Expanding the coverage of the Type B pension while preserving fiscal sustainability is shown to be a major policy challenge for most countries surveyed. For most Asian countries (with the exception of Japan and Korea), another policy challenge to be addressed is the fact that their Type B programs are fairly limited in covering consumer cohorts and generally tilt toward a particular segment (e.g., public sector employees). Hence, extending the inclusiveness of the program is called for, which, however, tends to be a long and incremental process. Taking the Korean experience, its Type B pension program started in 1960 only for government officials, which extended to private school teachers and staff in 1975, to post office employees in 1982, and eventually to all private sector workers in 1988 and to self-employed persons in 1999. Therefore, it was the 40-year process of the gradual expansion of the public pension system that eventually covered most of the workforce. However, even in advanced economies, it is shown that several particular consumer segments are less likely to be covered, e.g., self-employed households, informal sector workers, and farmers and rural area residents.

Regarding adequacy, the benefit level is generally higher in high-income countries. For example, the ratio of the average income of people over the age of 65 years to that of the total population is 99% in Italy, 93% in the US, and 83% in the UK, with some countries having ratios over 100% (e.g., 105% in Luxembourg and 103% in France).[3] As another indicator, the net replacement ratios by the mandatory public and private pensions, i.e., an individual net pension entitlement divided by net pre-retirement earnings, also show a positive correlation with the income level, e.g., 83% in the US and 61% in Japan (as other references, 73% in France, 68% in Germany, and 61% in the UK). But the ratio is only 43% in Korea and is generally lower in less affluent countries. However, even in advanced economies, public pension programs do not generally provide a sufficient level of income security for old-age consumers. For example, the National Retirement Risk Index, created by the Center for Retirement Research at Boston College, estimates that 50% of households are at risk of not having enough to maintain their living standards in retirement.[4]

To explore the sustainability of the public pension, we surveyed the authors of the chapters in this volume (see Appendix 1 for a summary of the findings). In their answers, most authors claim that their systems are weak in that regard (either

[3] The coverage ratio related statistics are quoted from Chap. 14 of this volume, which utilizes the data from the OECD (2019).

[4] Bajtelsmit (Chap. 2, this volume).

moderately or strongly) and that reform is warranted by changing the key parameters such as starting age, level of benefit, and amount of contribution. For example, in the case of the US, without any increase in the payroll tax or reduction in benefit promises, the Social Security Trustees estimate that it would be able to pay 75% of benefit promises after the Trust Fund is depleted.[5] Nonetheless, the actual progress for such reform is reported to be generally slow in most countries. One unique exception to that was Singapore, where its primary pension fund, the Central Provident Fund (CPF) established in 1955, was established as a fully funded DC-type program to which all citizens and permanent residents in the country were required to make compulsory contributions from their salaries (20% by employee and 17% by employer).

The core of policy reform to enhance the sustainability of the Type B pension appears to be in achieving an actuarially fair matching between the premium and benefit level, which is very often not the case and poses a political challenge to move toward that. For example, the equilibrium premium in Korea is reported to be 25% of income among premium payers, while it is only 9% right now.[6] Narrowing the gap, which is necessary from the viewpoint of actuarial efficiency, will be politically unpopular and will also exacerbate intergenerational inequity. In some countries, an automatic adjustment scheme is adopted to change both contribution and benefit levels based on the current state of the Type B pension fund along with sociodemographic conditions (e.g., Japan, Germany, and Sweden). Taking Japan as a case, due to the rapidly declining birth rate and the increasing share of the aged population, the pension contributions have been raised, and at the same time, the benefit levels have been lowered since the 2004 revision of the pension finance framework.

Type C pensions include various private pension programs, both corporate-driven and individual-driven, and can work as an important mechanism of income supplementation and old-age income and longevity. Examples of this type include the Individual Retirement Account (IRA) in the US and the iDeCo program—a mandatory individual DC-type pension—in Japan. As expected, the subscription of this type is generally higher in high-income countries: 62% in the US, 54% in Japan (and 74% in Germany and 51% in the UK), but only 16.9% in Korea.[7] The penetration of private pension programs, regardless of whether they are mandatory or voluntary, is shown to be generally low in emerging market countries.

While reforming the first two types (A and B) is mostly affected by policy decisions in the public sector, extending the Type C program is primarily influenced by individual consumers' decisions regarding long-term financial planning and savings behavior, for which proper nudging mechanisms by the government can work as an inducement. Financial education for college students and pre-retirement adults will also represent a potentially effective means to that end. Nonetheless, there exists an important role to be played by government in terms of providing appropriate tax incentives to induce subscriptions as well as to increase the life annuity contracts. In addition, delivering a competitive risk-adjusted return, in the case of DC-type

[5] Bajtelsmit (Chap. 2, this volume).

[6] Kim (Chap. 13, in this volume).

[7] OECD (2019).

programs, is another important factor to increase subscriptions. In that vein, it has recently been observed in the US, Korea, and other countries that there is a long-term tendency of a rising (lowering) share of DC-type (DB-type) programs, which poses a concern as to whether financial consumers are informed enough to make an appropriate investment choice. As another source of Type C pension, the "house-rich-cash-poor" characteristics among retirees in most countries call for a safe and efficient means to monetize home equity as an alternative measure to enhance old-age income security. In fact, we identified and discussed diverse forms of such instruments that are being utilized in different countries.

From a consumer's viewpoint, designing a welfare-enhancing retirement package requires a set of important financial decisions in the long run, such as periodic saving, asset allocation, and annuitizing pensions and other financial assets. This self-management paradigm will certainly benefit from enhanced financial literacy on the part of consumers and well-designed pension policies on the part of government. In particular, the public sector will have to develop and implement policy measures that enhance the fiscal sustainability of Type A and Type B programs (e.g., a target spending limit and a target replacement ratio) and reduce the uncertainty involved with them by doing so. As the last point to make, it also appears necessary to establish a proper control tower that can coordinate public policies relevant to all three types from the viewpoint of financial consumers.

The rest of this introductory chapter includes four interrelated sections—the consumer issues that have emerged, a summary of each chapter, the pension reform issues identified, and concluding remarks.

2 Current States and Trends Observed

The pension system in a country is generally complicated and has a multitier structure. The categorization also varies across the international agencies, as shown in Fig. 1. In terms of overall policy objectives, the government-administered pension programs are both redistribution- and efficiency-oriented; that is, the system includes not only those tax-funded and means-tested subsidy programs (Pillar 0 and Tier 1 below) but also the income proportionality in benefit embedded in the contribution-based public pension programs (Pillars 1 and 2 and Tier 2 in Fig. 1). (Nonetheless, there is a redistributive element in the latter in that the premium schedules thereof are often progressive.) Private pensions, whether they are mandatory or voluntary in nature, generally work as a supplement to public pensions only if consumers have enough resources or are in the right workplaces to do so. In addition, some countries often institute a special pension program for specific consumer groups (e.g., veterans, public sector employees, and teachers), which usually provides a better deal compared to the core public pension programs.

One obvious correlation shown across the OECD countries is a fairly pronounced negative relationship between two pension-related variables—the share of public pension transfer in total income of people aged 65 years or older (in each country)

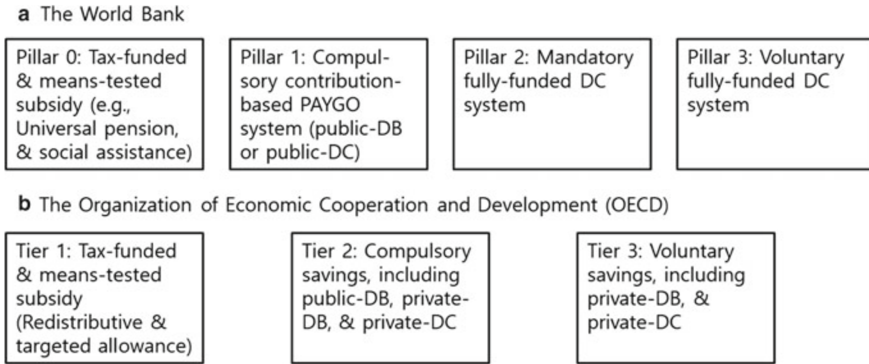

Fig. 1 Alternative classification pension programs. *Source* The World Bank (2012), OECD (2013)

and that of work-related income for the same consumer cohort. That is, as shown in Fig. 1,[8] the lower the public pension coverage is, the higher the share of work-related income becomes. From the figure, one can argue that for countries with relatively low shares of public pension benefits (Group E countries), raising the adequacy of pension benefits should be a policy priority, while it should enhance sustainability for the opposite group (Group A countries). The question is how, which we will attempt to elaborate in this section. Nonetheless, our survey among the authors indicates that the sustainability of the public pension is a universal policy issue that is applicable to all countries in this volume. For the Asian countries covered (except Japan and Korea), it shows expanding the coverage of the public pension programs to include more consumer segments (as discussed in the prior section) (Fig. 2).

Regarding sustainability, several countries (e.g., Japan, Germany, and Sweden) have employed a macroindexation approach to automatically adjust pension parameters (e.g., pension premium, benefit level, and pension-starting age) according to changes in socioeconomic indicators of relevancy (e.g., the number of working-age people insured, the number of elderly people or beneficiaries, and the financial health of pension funds). This approach is worth considering in other countries; however, a proper explanation to financial consumers as to expected changes is shown to be an important success factor of the policy of this sort. Taking the Japanese case as an example, the pension agency operates the Pension Periodic Notification Scheme

[8] The underlying data is from Chap. 15 in this book. From the chart, we identify five groups of countries: (1) those with high shares of public transfers and low shares of work-related income (Group A, the Western and Southern European counties including France, Germany, and Italy); (2) those with moderate shares of the public transfers and low shares of work-related income (the Northern and Nordic European countries including the UK, Switzerland, and the Netherlands); (3) those with high shares of public transfers with moderated shares of work-related income (the transition economies in Europe including Poland and Slovakia); (4) those with moderate shares public transfers and moderate shares of work-related income (the US and Japan); and (5) those with low shares of public transfers and high shares of work-related income (Group E including Korea and Chile).

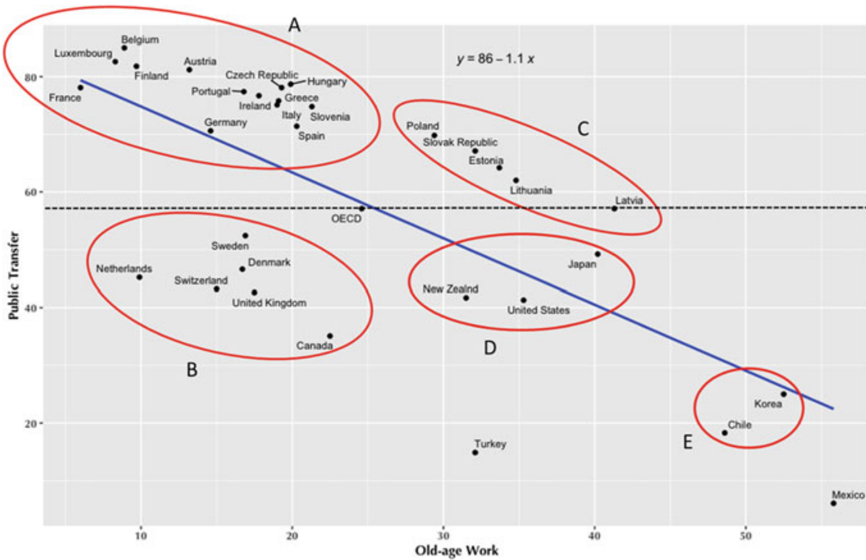

Fig. 2 Public pension transfer versus income from old-age work. *Data source* OECD (as referenced in Chap. 15 of this volume)

(PPNS) to provide accurate information on public pensions, for which consumers can also obtain relevant information online through the internet.[9]

One important way to increase the adequacy of the total pension benefit to financial consumers is to expand the private pension programs (Pillars 2 and 3 and Tiers 2 and 3 in Fig. 1). That would be a more viable policy option for many countries than extending the public pensions given the worsening fiscal conditions because of the on-going trend of population aging. To that end, mandatory enrollment in a savings program offered by corporations or by individuals themselves with tax incentives would be a desired policy direction, as instituted in the US, Japan, and other countries.[10] However, as documented in the literature, there also exist some important enabling factors for developing an active private pension system, e.g., a well-functioning capital market and a well-developed insurance sector, of which policy designers should be cognizant in developing their private pension systems.

Regarding corporate pension programs, there is one long-lasting trend to note, i.e., the transition from DB-type to DC-type plans, as also depicted in Chap. 2 and observed in the US and other countries, which causes a disintermediation of pension asset management. That is, the burden of financial management is in the hands of

[9] See Hongmu Lee (Chap. 3) in this volume for more details on this policy approach.

[10] Japan has established a universal pension system in which all citizens between the ages of 20 and 60 are enrolled into a pension plan, which forces the self-employed to join the public pension system. In addition, the pension of the dependent spouse pays the premiums for the basic pension of the housewife. However, as the number of nonregular jobs increases, the scope of employee pension coverage is being expanded to prevent the pension gap from widening.

consumers under DC plans, whereas under DB plans, the plan participants did not have to manage their own assets, and the plan sponsors (i.e., employers) are in charge of managing the pension assets. Hence, a concern is raised as to whether financial consumers are informed enough to make appropriate investment decisions for their pension-related savings.[11] In addition, protecting consumers against a firm's (or pension provider's) bankruptcy under a DB-type pension program is another important consumer protection measure, which is available in the US and UK but not in most Asian countries.[12]

There also exist a number of risks in the case of private pensions that should be properly managed and shared. First, there exist cases where the amount of the pension was reduced by a large amount if the life insurance company went bankrupt. In addition, individual annuities with investment risks, such as variable annuities, are also sold, and if stock prices fall, the principal can be reduced significantly. In addition, corporate pensions are also subject to reductions in pension amounts if the employer's company goes bankrupt and has insufficient reserves. These risks can lead to distrust of private pensions among financial consumers, so it is necessary to educate them on the risks of life insurance company bankruptcy and private pension products. Furthermore, it is necessary to establish a system of protection for financial consumers in the event of life insurance company bankruptcy and a system of guaranteed payments for corporate pensions.

Another way to enhance old-age income security is to utilize an alternative income source, such as monetizing home equity. On this, Chap. 15 documents that there in fact exist diverse and creative programs to that end observed from nine different countries, which are grouped as follows: (1) those where a reverse annuity mortgage (RAM) product is traded with a government guarantee (the US, Korea, and Hong Kong); (2) those where a private (i.e., no government involvement) home equity release product is in place (the Lifetime Mortgage in the UK, CHIP Reverse Mortgage in Canada, and Equity Protection Option in New Zealand); and (3) those where a partial equity sale/release program with or without government involvement is utilized (the Lease Buyback Scheme in Singapore, Home Reversion Scheme in Australia, and Viager in France). In general, the penetration of these programs to eligible consumers is low. Nonetheless, the product in the UK, which is in fact run by insurance companies, is seemingly accepted well in the marketplace, as evidenced by the rising subscriptions in recent years. Given that the shares of the "house-rich-cash-poor" elderlies are substantial and increasing in most countries, an efficient and safe home equity release instrument is an important way to secure old-age income streams in those countries.

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[11] However, the question of whether a plan is advantageous or disadvantageous to its members varies by country and time period. For example, in countries at a high stage of economic development, defined contribution plans are often more advantageous to participants because of the greater opportunity for excess profits, and in periods of inflation, defined contribution plans are also often more advantageous to participants. If a defined-benefit plan is implemented in such a period, the excess profits will accrue to the company. Therefore, this decision requires financial knowledge to determine the risks and opportunities for profit.

[12] See Estreicher and Gold (2007), Kim et al. (2016), and Chap. 2 of this volume for the welfare implications of the shift toward DC-type programs.

In so doing, the devil's in the detail, in that the key design criteria of such products, as well as appropriate risk management mechanisms (particularly for the crossover risk embedded, i.e., the likelihood of total outlay of principal and interest paid exceeding the liquidation value of the property), are quoted as the key market makers.[13]

Regarding the information provision, the mass mailing campaign in Italy, *Busta Arancione* (Orange Envelope), initiated in 2016, is worth noting. The underlying idea of the project is to periodically send a written communication to all the participants of the pension system to update them about their contribution balance and to provide a forecast of their future pension if they will go on with their contribution. The assumption is that doing so, people will be stimulated to take care of their pension planning, and they will adjust their behavior if they realize the expected pension will not be satisfying. This idea to stimulate people to think about their pension in that manner was originally applied in Sweden and then replicated in other European countries. In 2020, the project was renewed with the will to send those communications first to workers in the private sector (employees and self-employed) and then to extend it to all contributors. More recently, the traditional mail-based communication channel has been replaced with an Internet-based approach, where individuals should be able to access a simulation tool online and be able to determine how different financial behavior (e.g., to increase their contribution, to start or enhance the contribution to a private pension scheme) can affect the amount of their pension, once in retirement. A first trial version of the software is available, but thus far, it is limited to the cases of craftsmen and traders.

3 Summary of Each Chapter

Each chapter of the book provides a different perspective and tells a different story. A pension system is always the result of an evolution made by adjustments and reforms to (1) extend the coverage of the system, (2) maximize the benefits for the participants, and (3) address the long-term sustainability of the system. Some countries show a well-structured pension system that was developed over decades (sometimes more than a century), while others have a simpler structure. The reading of each chapter will provide a deep understanding of the single national cases, but to provide a big picture and to facilitate a comparison between countries in a broad international perspective, we anticipate some of the key messages of the national cases.

In the US, the Social Security system was established in 1935 to prevent old-age poverty. Today, it represents a primary source of retirement income for a large percentage of the population. However, the American pension system includes employer-sponsored pensions and retirement plans—especially from large companies—and individual retirement accounts. The system is largely based on voluntary

[13] See Mayer and Molton (2020), Bailey et al. (2019), Merton and Lai (2016), and Davidoff (2015) for various issues related to extending the market penetration of the RAM.

savings (much more than in other countries), and only social security is the mandatory component. The federal tax code provides incentives for both employers and employees in the form of tax deductibility of contributions and deferral of taxation on investment earnings. Private retirement saving is also incentivized through special tax rules for individual retirement accounts (IRAs). However, not every worker is enrolled by definition, with farm workers, long-term unemployed or disabled, and undocumented workers remaining at the greatest risk of retirement income inadequacy. Regarding the effectiveness of the system, several studies have concluded that 25–35% of the US population will be unable to maintain their pre-retirement standard of living throughout their retirement period. Another factor making it more difficult to meet retirement needs in the US is the generally low rate of participation in employer-sponsored retirement plans. Approximately half of all private sector workers do not participate in any workplace retirement plan, and very few have access to a pension plan. The fact that the American system is essentially based on defined contribution schemes, the lack of participation or the low contributions to the system (social security, employer-sponsored plans, Individual Retirement Accounts) should be a source of concerns for a large part of the American workers. The "normal retirement age" is 67, but individuals can choose to begin receiving benefits as early as age 62 (with a percentage reduction for each month short of their full retirement age). At the same time, a worker can choose to delay retirement up to the age of 70, receiving benefits. Retirement at age 62 can cost up to 30% a year of the "normal pension," and retirement at age 70 can guarantee an increase of 8% per year. The main challenge of the American system is related to demographic issues. The generation born between 1946 and 1964—the so-called "baby boomers"—is going on retirement, putting some pressure on the system, caused by the lack of contributions and the beginning of pension payments required for the system. The extended life expectancy compared with previous "new retirees" represents an additional issue.[14]

The pension system in Japan shows similarities with the American pension system. It includes public pension (1st floor of the system) and private pension (2nd floor), and complementary to this system, there is a noncontributory public assistance system (a "zero floor"). In Japan, the first floor is made by a public pension—compulsory for those 20–60 living in Japan—and employee pension—compulsory for all employees and contributed to by labor and management half and half, so employees receive two pensions. The self-employed are forced to enroll in the national pension only and can voluntarily enroll in the national pension fund, whose contribution is fully deducted from the subscriber's income tax. Private pensions include corporate pensions and personal pensions. A corporate pension is a pension of a retirement allowance, and a personal pension is insurance sold by life insurance companies. Furthermore, the iDeCo (individual type DC) is a personal pension—similar to the American IRA—that allows all citizens aged between 20 and 60 to voluntarily enroll, but as a general rule it cannot be withdrawn by the age of 60. In principle, the receipt of public pension benefits begins at the age of 65, with the chance to anticipate until 60 (with a reduction of the pension) or to postpone up to 75. The benefit of deferring retirement

[14] See Bajtelsmit and Rappaport (2018) for a literature review on US retirement income adequacy.

is 0.7% per month, so retiring at 70 means a +42% pension, and doing it at 75 involves a +84% monthly pension. The discount in the case of early retirement is 0.4% a month. Hence, retirement at 60 involves a discount of 24% of the monthly pension. As in many other countries, the extension of life expectancy and the aging population is a serious challenge in Japan and it is required to raise the contribution rate for current workers to guarantee the balance of the national pension system. The current contribution rate is 18.3% of gross salary.

The Italian pension system is a three-pillar system with the public pension system as the first pillar, the private pension funds representing the second pillar, and the individual pension plans as the third pillar. The current system is the result of several reforms from the mid-1990s to 2011 that shaped the current system. The public pension system is mandatory for almost all categories of workers, and the transition from a pure defined benefit system to a defined contribution system (started in 1995) is almost complete. The current retirement age is 67, with the chance to anticipate or postpone retirement with discounts and premiums. However, for early retirement, a minimum number of years of contribution is necessary. As a defined contribution system, the amount of the pension depends on the sum of the contribution during the working life of the individual. Those contributions are re-evaluated according to the national (Italian) GDP average annual growth rate, and the balance of the individual account is used to assess the pension amount according to a transformation parameter defined by the Minister of Labor. The normal retirement age is self-adjusted according to the life expectancy data provided by the Italian official bureau of statistics. The aging of the population is a serious issue in Italy as well as the very low fertility rate. To keep the system on track, the contribution rates are pretty high and equal to 33% of the gross salary for the employees. The private part of the pension system—made by private pension funds and individual retirement plans—is growing, but the number of individuals who still mainly rely on the public pension system is still high. To raise the attention on the need to save for retirement beyond the contribution to the public pension system, the Italian national pension institute INPS promotes communication campaigns to help people realize their pension needs. The most famous campaign is the *Busta Arancione* (Orange Envelope), which replicates an initiative promoted in Sweden that sends paper mail to the contributors to the system to inform them of the current balance sheet of their personal pension accounts and to forecast the value of their pension if their contributions remain stable.

The case of Poland is interesting due to the transition that the country experienced in the 1990s from a Communist regime to an open market economy. The Polish pension system turned into a defined contribution system in 1989, promoting public pension funds (open pension funds) and the implementation of occupational pension schemes. The current structure of the Polish pension system is made by three tiers: (1) the public tier, (2) the occupational tier, and (3) the individual tier. The evolution of the system has seen a systematic reduction of funding in the public pension tier and the development of voluntary or quasi-voluntary pension savings. According to the reform of 1999, which changed the previously defined benefit system into a defined contribution system, those who were born after 1968 must participate in both the first and second pillars; those born between 1948 and 1969 must participate only

in the first pillar, while participation in the second pillar is voluntary; and those born before 1948 are not covered by the system. In the meantime, there are several special schemes for farmers, selected civil servants, judges and prosecutors, and special rules for miners. As in many other countries, the main challenge of the system is the aging population and the growing expenses to pay the pensions of old and new retirees.

In Switzerland, the pension system is a three-pillar pension system introduced by popular voting in 1972 and has remained substantially unchanged. The first pillar is a state-run pay-as-you go system mainly financed by mandatory wage-dependent contributions of all people working in Switzerland. It aims to provide a small pension for the basic needs of insured people. The second pillar consists of mandatory capitalized private pensions run by investment foundations tied to employers. Finally, the third pillar consists of private savings/investments that benefit from tax advantages. The system is a pay-as-you-go system with no substantial accumulation of capital financed by several sources. The largest part of funding comes from mandatory, income-dependent contributions of AHV members in the form of a proportional payroll tax on labor income (as of today, ca. 75% of all inflows). The second-largest cash inflows come from public contributions of the federal state (ca. 20% of all inflows). Additionally, there are revenues linked to the VAT (ca. 5% of all inflows) and to taxes on alcohol, tobacco, and gambling (ca. 0.7% of all inflows). From an individual perspective, as of January 2020, the contributions of the self-employed reached a maximum of 9.95% of income; those of employees amounted to 4.3% of income to be paid by the employee and 4.3% to be paid by the employer, with a minimum annual contribution of 496 Swiss francs. In general, the old-age pension is a function of the number of contribution years, the average annual income over those years, and, when applicable, so-called education and support credits. Education credits and support credits represent fictive additional income granted as compensation for raising children and supporting family members in need of assistance, respectively. As of today, occupational pension schemes are mandatory for all employees of age 24 or older with an annual salary that exceeds 21,330 Swiss francs and voluntary for all other employees or self-employed individuals. Pensions may be requested starting from the age of 64 for males and 65 for females. However, it is possible to anticipate or postpone the beginning of old-age pension payments by a maximum of five years (i.e., 69 years for men and 70 years for women). The old-age dependency ratio of the country is growing due to increasing life expectancy but remains quite below 50% (42.65%). This value is even affected by the role that migration plays in determining the development of the characteristics of the population of permanent residents, with a net migration rate on an annual basis that is systematically positive (more immigrants than emigrants) and ranging between 0.5 and 1% a year of the total Swiss population.

The case of Bangladesh helps to emphasize the differences between more developed countries, such as the European countries described above, and developing countries. At present, Bangladesh does not have a public pension scheme covering a large part of the population. Bangladesh was originally part of the British Empire, and the first regulatory framework for the pension system dates to 1871. The so-called Indian Pension Act was passed to give native employees the British government

pension upon their retirement. Pension schemes for elderly people were first adopted in 1924, but they were only for government servants. After the end of the British Empire, Bangladesh became part of Pakistan until 1971, when it became an independent country. However, the structure of the pension system remains close to the previous time. At present, there is no formal pension system in Bangladesh at a national scale, except for only employees in government service (civil and military). The number of government servants is approximately 1.4 million, which accounts for only 5% of the total employed population. Moreover, almost 50% of the total work force (accounting for approximately 40% of the total GDP) is related to the agricultural sector that does not have any pension system. For those who are covered by the pension system, the system is a pay-as-you-go system, and the pensionable period of service is five to 25 years of service with a maximum rate of pension equal to 90% of the last basic pay of the employee. Regarding the private sector, the practice of corporate pensions is rarely found, and no dedicated authority for pensions exists.

Even in China, the development of the pension system is recent. The Chinese pension system is a three-pillar system. The first pillar of the pension system includes the Employee Basic Pension (EBP) and Resident Basic Pension (RBP), which provide the major retirement security for the Chinese population. The second pillar of the pension system includes the enterprise annuity for employees in urban enterprises, which is mostly provided by large and profitable enterprises, and the occupational annuity for employees in the government and public institutes. The third pillar of the pension system is personal annuity insurance, which has been developed in recent years and is still in an early stage. Two major problems exist in the current pension system in China. The first problem is the fragmented public pension system, which provides unequal retirement security between employees who are formally employed and other residents. Moreover, the pension benefits in the public pension system vary among regions since employees in municipalities and east coast provinces earn much higher incomes than those in the inland provinces so that the basic pension is higher in these regions since it is related to average wages. For instance, in 2019, the Chinese government provided an Old Age Pension Allowance to maintain adequate retirement security for the oldest old aged 80 and over. Most provinces provide 100 yuan per month for the oldest old, while the more developed regions provide higher benefits. For example, in Beijing, the elderly aged between 80 and 89 can receive 200 yuan per month, the elderly aged between 90 and 99 can receive 500 yuan per month, and the elderly aged 100 and over can receive 800 yuan per month. In Gansu Province, the elderly aged between 80 and 89 can receive 100 yuan per month, the elderly aged between 90 and 99 can receive 200 yuan per month, and the elderly aged 100 and over can receive 300 yuan per month.

The second problem is the low demand for private pension programs and the less-developed market for the private pension market. Even though the Chinese government announced the pilot program of individual income tax deferred annuity insurance products and initiated a pilot program to facilitate the take-up of reverse mortgage products, the Chinese population showed less interest in these programs

than expected. The current old age dependency ratio is quite low (15%), even if it is expected to grow (45% in 2050).

Indonesia is another interesting scenario. Indonesia is the fourth most populous country in the world, with approximately 273.5 million citizens in 2020, and half of them are less than 30.2 years old. The total population in the retirement age group is 8.4% (22.6 million). The current pension system is a three-pillar system made by the Public Pension Plan, the Occupational Pension Plan, and the Voluntarily Pillar. Unlike other countries, the public pension plan in Indonesia is not 100% supported by general or specified tax revenues. Only several parties, such as government employees, can benefit from this scheme. The Public Pension Plan is also categorized as a mandatory pension plan. The occupational pension plan is mandatory for all companies (except small companies with fewer than 10 workers and for the self-employed), and the benefits are paid as a lump sum with accrued interest. The contributions between employers and employees are 3.7% and 2%, respectively. Regarding the third pillar, as in many other countries, it is not yet well developed. Statistics show a coverage of active participants only at 30.3% of the total eligible workers. The active participants are dominated by workers in formal sectors, while the largest percentage of the Indonesian workforce is informal workers.

The story of the Korean pension system started in 1960 with a limited program for public sector employees and evolved over time into a fairly comprehensive multitier program that includes various public and private pension programs covering retirees from different employment categories. According to the recommendations of the OECD and others, Korea also has a multitiered pension structure. Public assistance and the Basic Pension are located on the zero floor (zero tier). Both public assistance and the Basic Pension are financed by general taxes. The basic pension is paid to the elderly aged 65 years or older who are below 70% of the median income level. The 1st floor (1st tier) consists of the National Pension and public occupational pensions. The National Pension and the public occupational pensions are operated as a funding system that pays benefits from the contributions of insured persons. However, when the reserve is depleted, the government is required to cover the shortfall with general taxes. Employees and employers in workplaces and the self-employed are obligated to participate in the National Pension Plan, and others can also participate voluntarily. The employer pays half of the pension premium for employees in a workplace. The age from which one can start receiving pension benefits is currently 62 with at least 10 years of contributions. The pension age will gradually increase to 65 from 2033.

In the 2nd floor (2nd tier), there is a corporate retirement pension (corporate pension). Enterprises are obligated to accumulate some money for employees' retirement pay every year by law and must pay the benefit when the employee retires. Enterprises may operate a retirement pension plan instead of accumulating retirement pay by agreement with the employee. Therefore, it is not mandatory and can be selected voluntarily.

There is a personal savings pension and reverse mortgages on the 3rd floor (3rd tier). Anyone can enroll in the personal savings pension. In the case of enrollment, people must be enrolled for a certain period or longer, and at a certain age they can

receive pension benefits for a certain period. Premium payments are borne entirely by individuals, but there are tax reductions or income deductions for premium payments.

The public official pension pays the retirement pension to insured persons who reach the age of 60 and have participated for more than 10 years. The starting age for retirement pension receipt is expected to gradually increase to 65 years from 2022 to 2033. The retirement pension amount is calculated by multiplying the average standard monthly income (calculated using the value converted to present value) with a "pension payment rate" that varies depending on the period (1.79% as 2020). Regarding the private pension, there is the "Retirement Pension," which is a corporate pension that pays retirement benefits to an insured employee when he/she retires. The employer fully contributes pension premiums for them, and there are two types of retirement pensions: defined benefits type and defined contribution type. According to the act on the guarantee of employees' retirement benefits, which regulates the operation of the Retirement Pension, employers select the defined benefit type and the defined contribution type after surveying opinions of the employee's representative on preferred type. In some cases, both types can be operated together in a workplace. In addition to both types, the employee can have an individual retirement pension account. Retirement pension programs have more defined benefit types than defined contribution types, but the rate of defined benefit types is gradually decreasing, and conversely, the rate of defined contribution types is increasing. There are two issues with the system. The first issue concerns the extent of the intergenerational transfer of burdens in public pension programs. Since the contributions are less than benefits, when the reserves are exhausted, future generations will have no choice but to bear the burden of the costs that should have been that of the current generation. To solve this problem, it is necessary either to lower the benefit level or to increase the contribution amount (or both) while delaying the starting age for receiving benefits.

The second issue is that the income replacement rate of the National Pension is very low, so the national pension benefits are not sufficient in financing a reasonable level of living expenditure by the elderly. Assuming a 40-year contribution, the replacement rate is only 40%. However, in Korea, people usually get a job around the age of 25, so the period of participation in the National Pension cannot exceed 35 years, for which the replacement rate is at most 35%. Related to the coverage issue, retirees in Korea generally have a period of five to 10 years between the end of working and the start of the public pension. That is, partly because of the rigid labor market in Korea, workers tend to retire between 55 and 60 years old, whereas the starting age for public pension benefits will be set at 65 in the near future. Private pension programs (e.g., the Retirement Pension and the Personal Pension Savings in particular) are supposed to fill this gap, but these programs are subscribed to on a voluntary basis, and the subscription rate is still fairly low.

The Singapore pension system is based on the Central Provident Fund (CFP). This program was set up as a public pension system where all Singapore citizens and permanent residents pay compulsory contributions in this fully funded program in which individuals save for their old age. The CFP was established in 1955 as a pension scheme but gradually expanded into a multifaceted social security plan that covers health care, housing, family protection, and investments. However, there are some

limitations to avoiding individuals overspending, and there will be not enough money in their accounts at retirement age. Between the alternative uses of the fund, today, the use of CPF funds to finance housing has become one of the most common uses. Housing equity constitutes a dominant fraction of household wealth for the elderly in Singapore. Over the course of one life cycle, many households face the dilemma of being "asset-rich, yet cash-poor" in their golden years. Housing monetization, which refers to the conversion of household wealth from a more illiquid source, such as housing, to a more liquid one, is often relied upon by elderly people to finance living expenses after retirement. The option to monetize becomes increasingly important as households age and have a large proportion of wealth locked in housing. The average life expectancy of Singaporeans stands at 84.8 years old, and almost one in six Singaporeans is 65 years or older. The CPF forms the pillar of Singapore's pension system and provides for most of the social security functions, but there are other schemes, such as the Supplementary Retirement Scheme (SRS), to complement the CPF. Beginning in 2001, the SRS is operated by Singapore's three main banks—DBS Ltd., OCBC Ltd. and UOB Ltd. It is a voluntary scheme for all residents as well as foreigners, with the advantage of tax benefits on the contributions.

The pension system in Vietnam includes two types: compulsory pension and voluntary pension. In the compulsory pension system, public pension funds are managed by the government and sponsored by payroll taxes on employers and employees. However, only 23.5–30% of the elderly had pension and welfare from the state budget and social insurance fund. The development of voluntary pension funds in Vietnam has been in effect since 2013, and voluntary pension programs are currently implemented under the government's regulations through voluntary pension insurance products (annuity) provided by life insurance companies, investment funds or other financial institutions. To date, Vietnam's population has approximately 10% participating in life insurance, in which pension insurance packages account for a small proportion. There are some critical points of the Vietnamese pension system that need to be fixed. First, women are more likely to lack adequate older age protection. Second, a large proportion of informal employees do not have access to public social insurance benefits. Third, voluntary pension programs have not been shown to be effective and developed. Fourth, the small contributed public pension funds are inadequate with the growing number of beneficiaries in the future. Finally, the current tax-funded pension schemes have provided only a small number of elderly individuals with low benefits, not enough to ensure a decent living in old age. The government needs to launch solutions to support women employees. Possible options included (1) encouraging employees working in informal economic sectors to participate in social insurance and unemployment insurance, (2) changing the current tax-funded schemes to increase the amount of public insurance funds and, at the same time, (3) supporting voluntary pension market development to share the burden of the public funds. Regarding the generosity of the public pension system, the maximum pension entitlement rate of the employee is 75% of the average monthly salary paid for social insurance, corresponding to the retirement age of 55 for women and 60 for men, except for some specific cases according to profession or field.

If the chapters on national pension systems aim at understanding the different scenarios of each country and appreciating the different approaches to retirement issues, the last chapters of the book address some of the topics that refer to a cross-country perspective. The shift from a defined benefit to a defined contribution system for most of the national pension systems sheds light on the need to develop private pension programs. However, the chances of people starting to save for retirement privately and on a voluntary basis depend on their awareness of the need to do it. The risk that the new generations of workers will rely on the generosity of the public pension system of former generations (e.g., the one of their parents) can be a large obstacle to the development of private pension programs. Chapter 14 will discuss how to activate those kinds of programs. Contributions to the pension system and the benefits received on retirement are both related to taxation. The need to define how contributions should be treated from a tax point of view, if (and how) retirement benefits should be taxed, and the structure of incentives to nudge people to save for retirement are other relevant issues that refer to each welfare system. Chapters on single countries analyze national tax strategies, while Chap. 15 addresses tax issues from an international point of view, referring to the case of the intercountry portability of pensions. The chapter presents examples of how contributions and benefits are treated from a fiscal point of view in the case of workers who have spent their working life inside and outside the US (e.g., US and the UK, US and Japan) or the eligibility and Social Security Benefits for US persons abroad. In a globalized world, the chances that people will not remain for their whole life in the same country are increasingly more likely, requiring different pension systems to deal with these cases. The last chapter analyses the chances that individuals will include their assets in retirement planning. In particular, the chapter addresses the use of housing properties to smooth the differences between pre- and post-retirement income. Practices related to reverse mortgages are already included in several national laws, even though they may be more or less popular in different countries.

4 On Welfare-Enhancing Pension Reform

4.1 Reforming the Public Pensions

Due to the ongoing phase of population aging, the main challenge in operating public pensions in many countries is to ensure both "financial sustainability" and "sufficiency of benefits," which pose competing policy objectives. To cope with this challenge, there are several specific reform measures that are observed from different countries. First, regarding the adjustment of benefit levels, Japan, Germany, Sweden, and other countries have introduced a system to balance benefit levels and insurance premiums. One example is "macroeconomic indexing" introduced in Japan in 2004, which prevents the amount of pension payments from rising faster than the growth of general price and wage levels and reflects changes in the working-age population

and in average life expectancy. However, this adjustment method has the problem of a "nominal lower limit measure" that does not reduce the nominal pension amount from the previous year, and in addition, it is not triggered when wages and prices do not rise.

Second, a number of countries attempt to enhance the sustainability of their public pension programs by raising the starting age for the benefits, by extending the contribution period, and by increasing the contribution rate and/or lowering the benefit level. In particular, many countries are raising the starting age for pension payments in response to the increase in life expectancy. The starting age for employees' pensions in Japan has been raised in stages from the original age of 55–65 and will reach 65 by 2025 for men and by 2030 for women.

Third, some countries adjust the pension benefits for early or delayed retirees. This is a mechanism to curb early retirement by reducing pension benefits when the recipient starts receiving pension benefits earlier than the normal starting age (early receipt of benefits) and increasing pension benefits when the recipient delays the start of receiving benefits (early receipt of benefits). Currently, recipients of public pensions in Japan can choose when to start receiving benefits within the range of 60–70 years old, but from April 2022 the upper age limit will be raised to 75 years old. The current rate of reduction for receiving benefits early is 0.5% per month (6% per year), and the rate of increase for receiving benefits late is 0.7% per month (8.4% per year). The rate of increase for receiving benefits 10 years early at age 75 after April 2022 will be 84%.

Fourth, in countries where there is a system to reduce the pensions of the elderly with working income, there is a tendency to encourage the elderly to continue working by taking mitigating measures, such as not reducing pensions after reaching a certain age, regardless of income. In other words, the elderly are encouraged to continue working. In most major countries, the reduction of pensions on the basis of employment is mainly applied to those who have not yet reached the starting age for benefits, and after reaching the starting age, pensions are not reduced regardless of employment income. In Japan, however, pensions are reduced even after reaching the starting age if certain working income exceeds a certain amount.

Fifth, in most countries, public pensions are insured to those with income above a certain amount. However, in some cases, such as Japan, the basic pension is compulsory for all people aged 20 and above until 60, regardless of whether they have income. Even in this case of Japan, only those who have income are members of the income proportional part of the second floor of the public pension. On the other hand, in many countries, the number of nonregular workers with low incomes tends to increase, and this income disparity leads to a disparity in pensions in old age. Therefore, it is necessary to expand the scope of participants in the income-proportional part of the public pension system to include those with low incomes. In some countries, such as China, there is a large disparity in pensions between urban areas with high incomes and rural areas with low incomes.

Sixth, with the trend of internationalization, there has been an increase in the movement of the working population between nations. To cope with this, social

insurance agreements have been concluded between countries to prevent duplication of social insurance coverage and to allow for aggregation of pension coverage periods. In the case that the period of participation in another country's pension system alone does not meet the eligibility requirements, the period of participation in the home country's pension system is regarded as the period of participation in the other country's pension system, and the period of participation in the other country's pension system is aggregated so that the pension of the other country can be received. On the other hand, if the period of participation in the home country alone does not satisfy the eligibility for the home country's pension, the period of participation in the other country's pension system is added to determine the eligibility. This aggregation of the period of pension participation is for the purpose of determining the eligibility for pension benefits, and only the period of actual participation in the relevant pension plan is entered when calculating the pension amount.

This aggregation of the period of participation in the pension system is not a mechanism for receiving a pension from one country by summing up the period of participation in the pension system of both countries but is a mechanism for adding up the period of participation in the pension system of the other country when determining the period requirements for obtaining the right to receive a pension in each country. Therefore, when you receive a pension, you will receive a pension from each country according to the period of your participation in the pension systems of both countries.

4.2 Reforming the Private Pensions

A corporate pension is an annuity of retirement benefits. In some countries, such as Korea, retirement benefits are compulsory, but in most countries they are voluntary. There are two types of corporate pension plans: defined benefit plans and defined contribution plans, and in between are cash balance plans and risk-sharing plans. Defined-contribution pension plans are managed at the participants' own risk. In some countries, such as Japan, defined-benefit corporate pension plans allow for reductions under certain conditions, and the lack of a guaranteed payment system has been identified as a problem. Furthermore, these corporate pensions are often used to purchase housing when one is young and are not used as income in retirement. It is desirable to ensure that corporate pensions are fully utilized as retirement income.

In addition, corporate pensions are mainly provided by major corporations and not by the self-employed, which has led to the problem of pension disparity by occupation. There is a need to establish and implement a corporate pension-like system for these self-employed workers. In addition, because defined-benefit corporate pension plans involve asset management risks on the part of companies, there has been a shift to defined-contribution pension plans.

On the other hand, as an increasing number of people change jobs, some countries have instituted a system of totalization, also known as portability. Portability means that if a person changes jobs or leaves a company, the pension assets accumulated

at the original company can be carried over under certain conditions. In the case of corporate pension plans, it is a system that allows employees to transfer their pension assets to the corporate pension plan of the new company and have their years of service at the former company counted. This totalization system allows the pension fund and the period of participation to be totaled, making it possible to qualify for pension benefits even after repeated job changes. If this totalization system is not established, when a person changes jobs, the corporate pension fund up to that time will be paid as a lump sum and cannot be used as a pension for retirement.

Regarding reforming individual pensions, the environment for the management of individual annuities has deteriorated in recent years due to virtually zero policy interest rates, and investment-type annuities such as variable annuities have emerged. Although the history of variable annuities is short, insurance products similar to a combination of mutual funds (Mutual Funds) and life insurance have been sold in the world. However, since variable annuities are life insurance products, they are often required to have a guarantee function attached to them, which guarantees a minimum amount of insurance at death or maturity, even if investment performance deteriorates. In addition, many countries provide tax benefits to variable annuities that are not available to mutual funds.

5 Conclusion

A secure and adequate pension system is central to establishing a welfare state. Given that, this book aims to document a set of diverse public policy issues on the financial consumers' standpoint that are observed in different countries. In this introductory chapter, we attempt to summarize those policy issues that emerged from the survey of the countries included with respect to each of the three dimensions elaborated at the outset—adequacy, coverage, and sustainability. Some of the issues covered are common among most countries (e.g., the worsening fiscal sustainability due to the ongoing trend of population aging), while others are specific to those of different socioeconomic conditions (the need to extend the coverage of the main public pension program and the acceleration of the private pension programs of various sort). We also emphasize the role of long-term planning on the part of financial consumers and of information sharing on the part of administrative bodies of public and private pensions. For the former, means to enhance financial literacy, such as pension-related education for college students and pre-retirement adults, are warranted, while online information provision and timely updates on pension parameters to financial consumers are discussed as potentially effective policy instruments.

We hope that, from a financial consumer perspective, reading this book will help individuals to be aware of the functioning of the pension system and to develop reasonable expectations about their generosity and eventually to adjust their current saving behaviors to plan for a secure and comfortable retirement. At the same time, policymakers can benefit from reading by learning from the different countries' experiences and from the analysis of different available approaches to face different

challenges. Finally, regarding the role of the international research community, we hope that this book will help promote further collaboration among interested scholars from different countries to expand our understanding of the various structural and reform issues touched upon in this volume.

Appendix 1: The Survey Results of the Pension Systems

	1 (VW)*	2	3	4	5 (VS)	NA
Coverage (1), public pension (via replacement ratio or other quantitative indicator)**	BD	CH IN PO VT	KR SW IT	US JP	SG	
Coverage (2), public pension (via inclusiveness of consumer segments, and other qualitative indicators)		IN VT	BD	CH PO SW US JP	KR SG IT	
Redistributive effect, public pension (e.g., effect on poverty alleviation and other factors)		BD	IN PO VT	CH KR US SG SW JP IT		
Sustainability, public pension (fiscal soundness of the public pension system)		IN KR US IT	BD PO SG VT SW	CH JP		
Need for reform, public pension (in terms of starting age, premium, and benefit)		IT	SG JP	BD CH IN PO SW	KR US VT	

(continued)

(continued)

	1 (VW)*	2	3	4	5 (VS)	NA
Progress for reform (in terms of public policy decision to ensure fiscal soundness)	PO US	KR SW	BD CH IN SG VT JP IT			
Role of the private pension system (in terms of its availability and utilization)	SG	BD CH IN PO IT	KR US VT JP	SW		
Safety of the private pension system (via protection mechanism or government supervision)	SG	BD CN VT JP	IN	KR PO SW US	IT	
Preference for secure private pension programs (for consumers, e.g., DB over DC)		CH SG JP	BD IN KR SW US VT IT			PO
Utilization of alternative retirement products (e.g., various home equity release programs)	BD IN PO IT	CH SG SW US VT JP		KR		
Need for consumer education (on early saving, retirement planning, and product choice)***			SG VT	KR SW US JP	CH IN IT	PO

*1 ~ very weak; 2 ~ weak; 3 ~ moderate; 4 ~ strong; 5 ~ very strong; NA ~ not applicable
**Please refer to the attached PowerPoint file for additional information for the above items
***You can provide a short elaboration for your answer, which is not required but only optional
Legend: BD—Bangladesh; CN—China; IN—Indonesia; IT—Italy; JP—Japan; KR—Korea; PO—Poland; SG—Singapore; SW—Switzerland; US—USA; VT—Vietnam

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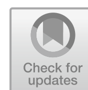
Country Chapters

Retirement Income Security in the United States: An Overview of the Public and Private Retirement System



Vickie Bajtelsmit

Abstract The social safety net for retirees in the US is provided through mandatory participation in Social Security, a public-defined benefit pension program funded through payroll taxes on employers and employees. Coverage is nearly ubiquitous, with 97% of the population receiving current benefits or expecting to receive them in the future. For the very poor and disabled, the Supplemental Security Income (SSI) program provides a minimum level of income, but most people receive Social Security benefits based on a redistributive formula that incorporates average lifetime earnings, subject to a minimum period of participation. Social Security provides protection for dependent spouses, children, and divorced spouses who can qualify for benefits based on the participant's earnings history. Although the program has been quite successful in alleviating old age poverty in the US, the solvency of the program has been negatively impacted by demographic shifts over the last decades. Without significant reforms in the near future, the program will not be able to meet its benefit promises. The US does not have public options for mandatory or voluntary individual retirement saving but instead incentivizes retirement saving through tax incentives for employment-based pensions and private saving. Although participation in employment-based retirement plans is mandatory for federal employees and most state employees, only approximately half of all private sector workers have access to an employer plan, and most are voluntary contributory plans. Individuals also have access to purchasing a variety of pension-like products on their own, although the sustained low-interest environment of the last decade has made these options less attractive for generating retirement income. Taken as a whole, the US retirement system does a fairly good job of replacing pre-retirement income for lower income people (through SSI and Social Security), public employees (who participate in mandatory defined benefit plans), and for workers with access to employment-based retirement plans. Those who do not qualify for Social Security (farm workers, long-term unemployed or disabled, undocumented workers) are at greatest risk of retirement income inadequacy, and evidence suggests that many retirees rely heavily on modest Social Security benefits as their main source of retirement income.

V. Bajtelsmit (✉)
Colorado State University, Fort Collins, CO, USA
e-mail: vickie.bajtelsmit@colostate.edu

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1 Retirement Income Security in the United States

This chapter provides an overview of the public and private retirement system in the United States. Old-age poverty is significantly lower in the US than it was prior to the enactment of the public Social Security system in 1935. However, by many metrics, widespread retirement income adequacy is still an unachieved goal. The US retirement system relies more heavily on voluntary saving than many other countries, with the only mandatory component being Social Security, the public pension plan. Social Security was originally designed to be a social safety net program but has evolved into a primary source of retirement income for a large percentage of the population. Employer-sponsored pensions and retirement plans are offered by most large firms but are less common at small firms and for lower-wage workers.

1.1 Retirement Income Adequacy

Ultimately, the political objective of public retirement programs and tax incentives for private savings around the world is to ensure that citizens have an adequate retirement income. Retirees in the US rely on a combination of income from public programs, employer-sponsored retirement plans, and personal savings. Several studies using a variety of data sources have concluded that 25–35% of the US population will be unable to maintain their pre-retirement standard of living throughout the retirement period.[1] Although some have referred to this as a retirement crisis, a majority of Americans are on track to support their retirement needs. However, certain populations face greater challenges. Least at risk are those who have participated in employer-sponsored pensions and retirement plans throughout their career and those in the highest-income groups, who have many types of income and assets to support their retirement. For the lowest-income groups, the Social Security public pension replaces a substantial proportion of pre-retirement income. In contrast, some groups remain vulnerable to income shortfalls in retirement. These include individuals who have been long-term disabled and/or unemployed, widowed, or divorced and people who do not have access to employment-based plans. There is some counter-evidence that retirement adequacy studies have overestimated retirement income needs by basing metrics on pre-retirement spending. For example, analysis by the Government Accountability Office (US GAO 2013) shows that older-cohort households spend less than younger cohorts. In addition, research by the Society of Actuaries based on surveys, focus groups, and in-depth interviews indicates that many retirees are able to reduce their standard of living to match their lower levels of income in retirement (SOA, 2016, 2019).

[1] See Bajtelsmit and Rappaport (2018) for a review and synthesis of research on US retirement income adequacy. Mutchler et al. (2016) report that half of older adults living alone and one in four living in two-elder households lack the financial resources to pay for basic needs.

1.2 Sociodemographic Trends

Several sociodemographic trends have important implications for future retirement income adequacy and the overall health of the retirement system in the United States. First, like most developed economies, the U.S. has been experiencing a demographic shift that has gradually increased the percentage of older people in the population. A large cohort (individuals born between 1946 and 1964), commonly called the "Baby Boom," has been steadily retiring since 2006 when the oldest in the cohort hit age 60. They are different from earlier cohorts in that they have longer life expectancy, higher female labor force participation, and fewer children.

The well-documented gain of several years of life expectancy over the last few decades in the US (Schanzenbach et al., 2016), absent commensurate delays in retirement age, implies lengthening retirement periods. Although many pre-retirees indicate an interest in working longer (SOA, 2019), the US Census reports that the average retirement age in the US is 65 for men and 63 for women and has not changed substantially over time. The rate of labor force participation for people over age 55 is less than 40% (Copeland, 2018) and is likely to be lower after labor market changes precipitated by the COVID pandemic. Female labor force participation gains over the last few decades, which have also impacted fertility rates, have declined since the 2008 financial crisis, and evidence suggests that females experienced more job losses during the pandemic than males.

Although the effects of life expectancy, labor force participation, and fertility have not been uniform throughout all demographics,[2] the combined effect is that the ratio of workers to retirees in the US has fallen significantly over time, placing financial strain on the pay-as-you-go Social Security public pension system and on employer pensions as they attempt to fund future benefit promises. The actuarial impact on Social Security of this demographic shift was slowed by increasing the payroll tax rate more than a decade ago and by a small increase in the normal retirement age (from 65 to 67) that is being phased in through 2027. Despite these changes, current forecasts show that the Social Security program is in serious actuarial imbalance and will be unable to meet its benefit promises without programmatic changes in the near future (SSA Trustees Report, 2020a).

Another factor making it more difficult to meet retirement needs in the US is the generally low rate of participation in employer-sponsored retirement plans. Approximately half of all private sector workers do not participate in any workplace retirement plan, and very few have access to a pension plan. Compared with other developed countries, the national savings rate in the US is one of the lowest. As a percentage of disposable personal income, it has ranged between 5 and 8% over the last few decades (with a one-time surge in 2020 due to COVID-relief fiscal stimulus checks)

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[2] Household income is a strong predictor of gains in life expectancy, with the highest quantiles of income expected to outlive the lowest quantiles by 12 years for men and 13 for women. Most gains in life expectancy in recent decades have accrued almost entirely to high-income individuals (National Academy of Sciences, 2015). Labor force participation rates also tend to be higher for those with higher income.

(FRBSL, 2021). Lower coverage by workplace pensions and low individual savings rates result in lower wealth accumulation, such that a large percentage of US retirees rely heavily on Social Security to meet their income needs. Among 2020 Social Security beneficiaries, 21% of married couples and 45% of unmarried persons relied on Social Security for 90% or more of their income (Social Security, 2020b).

The remainder of this chapter is organized as follows. Section 2 provides an overview of the US retirement system, Sects. 3, 4, 5, 6, and 7 describe each of the retirement system components in more detail, and Sect. 8 discusses the consumer perspective.

2 The US Retirement System

The retirement system in the US comprises several tiers, as illustrated in Fig. 1. At the base is the Supplemental Security Income (SSI) program, which provides a minimum level of income to the very poor and disabled. To qualify for this program, individuals must also have worked long enough and paid into Social Security, which is the primary public-defined benefit pension plan. Dependent spouses are eligible for Social Security benefits based on their spouse's earnings history. However, because these programs are based on work history, undocumented workers, the extremely poor, long-term unemployed or disabled often do not qualify. The categories of workers participating in Social Security have been expanded over the years such that 97% of the elderly either receive benefits or are expected to receive them in the future (CBPP, 2020).

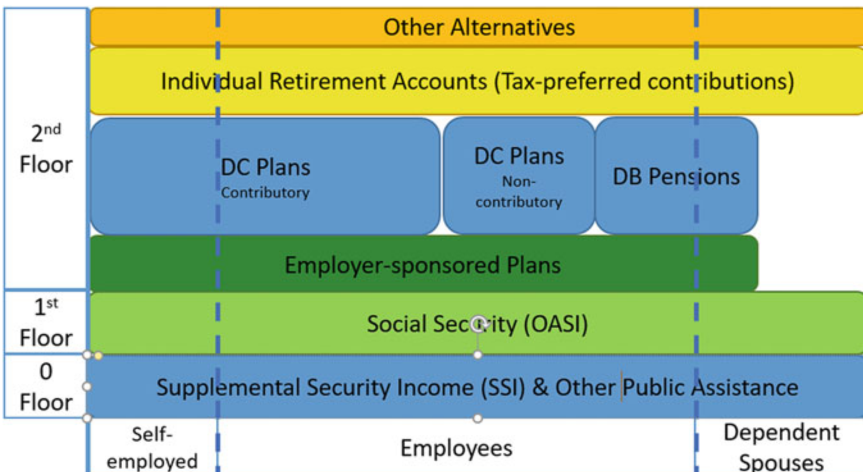

Fig. 1 Overview of the pension system in the US

Nearly all Americans are required to participate in the Old Age and Survivor Insurance (OASI) program, commonly called Social Security. Together, the SSI and OASI programs serve as the Tier 1 social safety net in the US, and there is no mandatory or voluntary public option for retirement savings. Although participation in employment-based retirement plans is mandatory for federal employees and most state employees, there is more variation in arrangements among private employers. Not all firms offer pensions or retirement savings plans for their employees, and individual contributions are often voluntary. The federal tax code provides incentives for both employers and employees in the form of tax deductibility of contributions and deferral of taxation on investment earnings. Private retirement saving is also incentivized through special tax rules for individual retirement accounts (IRAs). Individuals also have access to purchasing a variety of pension-like products, although the sustained low interest environment of the last decade has made these less attractive for generating retirement income.

3 Social Security

Nearly all citizens participate in Social Security (OASI), a pay-as-you-go defined benefit plan funded by payroll taxes at a rate of 5.3% assessed on both the employer and employee. An additional 0.9% tax goes to the Disability Insurance program (DI), which pays income to age 65 for qualified workers who become disabled. The Social Security and Disability (OASDI) payroll taxes are assessed on annual wages to a maximum of $147,000 (in 2022, increasing with inflation each year). The self-employed pay both the employer and the employer payroll taxes, for a total of 12.4%. Payroll taxes collected from workers and employers in a given period are used to pay for benefits to current beneficiaries.

3.1 Participation in Social Security

Table 1 documents the historical, current, and projected participation in social security as well as the declining ratio of beneficiaries to participating workers. The Social Security Administration estimates that nearly nine out of 10 individuals aged 65 and over receive Social Security benefits, and while these benefits are relatively modest, they represent approximately one-third of the total income of the elderly. Approximately 73% of total benefits paid go to retired workers and their dependents, with the remainder going to disabled workers, survivors of deceased workers, and their dependents. With the US population estimated at approximately 331 million in 2020, approximately one in six Americans are currently receiving retirement or survivor benefits (Social Security, 2020b). Of greater concern for a system in which funds benefit from taxes on current workers, the ratio of workers to beneficiaries has declined over time and is projected to reach only 2.4 by the end of this decade. This

Table 1 Social security (OASDI) statistics (1990–2020)

	1990	2010	2020	2030*
Covered workers	133,007	157,059	177,864	186,135
Total receiving benefits	39,459	53,398	64,759	77,893
OASI (retirement/survivors)	35,255	43,440	54,892	67,948
DI (disability)	4,204	9,958	9,867	9,944
Covered workers/beneficiary	3.4	2.9	2.8	2.4
Average monthly benefit	$550	$1,180	$1,514	

* Estimate by the Social Security Administration based on current trends
Source 2020 OASDI Trustees Report (Social Security Administration, Washington DC)

is clearly unsustainable for a pay-as-you-go funding scheme without increasing the tax rate or decreasing the benefits.

3.2 Redistribution Benefit Design

US Social Security benefits are not means-tested, but the benefit formula is redistributive, replacing a higher percentage of pre-retirement earnings for lower income individuals.[3] Taxes collected for the OASI program also fund income for survivors of deceased participants (children under age 18 and nonworking spouses caring for children) and retirement benefits for nonworking or lower-earning spouses. The average monthly benefit in 2020 was $1,514, or $18,168 per year. This was equivalent to 140% of the poverty level for singles and 105% of the poverty level for two-person households. Dependent spouses and divorced spouses who have not remarried are entitled to a benefit equal to the maximum of the benefit they would qualify for on their own earnings history or 50% of their spouse's (or ex-spouse's) qualified benefit.

3.3 Social Security Benefits

As mentioned previously, the "normal retirement age" at which a person qualifies for full benefits has been gradually increasing to age 67 from 65. However, individuals can choose to begin receiving benefits as early as age 62, subject to a percentage reduction for each month short of their full retirement age. For example, a person whose normal retirement age is 67 would have their benefit reduced by 30% if they

[3] The calculation of benefits follows a two-step process: First, a worker's top 35 years of covered earnings are adjusted using a wage index to determine Average Indexed Monthly Earnings (with zeros averaged in for missing years). The AIME is used in a redistributive formula: 0.09 × (first $1,024 of AIME) + 0.32 × (AIME up to $6,172–$895) + 0.15 × (AIME—$6,172). The dollar amounts in this formula are for 2022, and are adjusted each year for inflation.

chose to retire at age 62. Similarly, there is delayed credit for the late claiming of benefits. The monthly benefit amount is increased by 8% per year (in addition to any inflation increases during the delay period) up to age 70.

3.4 Insurance Protection Elements

Taken as a whole, the Social Security program provides important insurance-like elements that would be difficult to replicate in a savings-style public retirement program. It currently provides protection against longevity risk (through life annuities), inflation risk (due to its annual cost-of-living adjustments), disability risk (through the DI program), survivor risk (replacing income to survivors after the death of the wage earner), and provides retirement income for nonworking spouses and the divorced. Although politicians have suggested changes to the Social Security program in the past that include personal savings accounts, heavy reliance by so many Americans on these safety-net elements makes reform of the program a very complex problem that is not easily solved.

4 Employer-Sponsored Retirement Plans

The second tier of the US system comprises employer-sponsored pensions and retirement savings plans. The first employer pension plan in the US was established in 1759 to benefit the widows and children of Presbyterian ministers (EBRI, 2009), but it took more than two centuries for workplace retirement plans to become more common.

4.1 Participation

Several federal statutes are now in place to incentivize employers to sponsor plans for their workers and to incentivize workers to participate in the plans.[4] However, workplace coverage is still far from universal, with only approximately half of private sector workers participating in employer plans. As shown in Table 2, retirement plans are more likely to be available to higher income workers and to those at large firms.

In contrast to the widespread qualification for Social Security benefits, access to and participation in employer plans is much lower. As reported in Table 2, only 55%

[4] The most important of these are the Employee Retirement Income Security Act of 1974, the Tax Reform Act of 1986, the Economic Growth and Tax Relief and Reconciliation Act of 2001, and the Pension Protection Act of 2006, which together govern the design, operation, and tax qualifications for pension and retirement plans.

Table 2 Access and participation rates in employer-sponsored pension plans, March 2020

	Either DB or DC		Defined benefit		Defined contribution	
	Access	Participation	Access	Participation	Access	Participation
All civilian workers						
All workers	71%	55%	25%	20%	60%	43%
Full-time	80	66	30	24	68	51
Part-time	40	22	10	7	34	16
Private sector workers						
All workers	67%	51%	15%	11%	64%	47%
Full-time	77	61	18	14	73	57
Part-time	39	20	7	5	36	17
Union	91	82	64	54	61	51
Nonunion	65	48	11	8	64	47
By average wage						
Lowest 25%	42%	22%	4%	2%	41%	21%
Second 25%	67	48	12	8	62	44
Third 25%	79	64	18	14	75	59
Highest 25%	88	78	31	24	84	72
By number of employees						
1–49	49%	34%	6%	4%	47%	32%
50–99	69	46	10	8	66	43
100–499	80	60	15	12	76	56
500+	88	77	39	28	82	69

Source Congressional Research Service (2020)

of workers participate in any employer retirement plan, although the rate is much higher for unionized workers (who are primarily public sector employees), higher-wage workers, and those at larger firms. Access rates continue to be much higher for all groups than participation, with only half of low-income and part-time workers choosing to participate in plans to which they have access. In recent years, employers have been attempting to encourage retirement plan participation, with some success, by making matching contributions conditional on employee participation and by changing from opt-in to opt-out arrangements for new workers.[5]

[5] See, for example, Beshears et al. (2018) and Mitchell and Utkus (2004).

4.2 Tax Preferences

Qualified employer plans receive the following tax preferences under US tax law: (1) contributions to the plan by employers and employees are deductible from income in the period made; (2) contributions to employee accounts are not counted as currently taxable income to the employee; (3) taxes on contributions and investment earnings accruing to employees are deferred until they are received as distributions from the plan (usually in retirement). If an individual withdraws funds from a qualified account prior to reaching age 59½, the withdrawal is subject to a 10% penalty (in addition to any income taxes owed on the withdrawal).

4.3 Employer Plan Types

There are several different types of employer plans in the US, although most fall into two broad categories: defined benefit plans and defined contribution plans. In a defined benefit (DB) plan, commonly referred to as a pension plan, the employer promises to provide the employee a benefit at retirement based on a predefined formula, which usually incorporates years of service and some measure of salary (e.g., career-average or final-average). An alternative sometimes offered by union plans pays a flat dollar amount per year of service. Some plans are integrated with Social Security, such that they promise an amount of wage replacement based on a formula but take into account that some of the income replacement will come from Social Security. The DB plan sponsor is obligated to manage plan assets for the benefit of the participants, determine annual contributions to the plan, and invest plan assets.

DB plans offered by private employers are usually noncontributory, but nearly all state and local employees are required to share the cost of their DB retirement plans, contributing a percentage of pay that is tax-deferred. According to recent data from the National Association of State Retirement, approximately 61% of the public plan revenue comes from investment earnings on plan assets, 27% from employer contributions, and 12% from employee contributions. The contribution rates for many employers and employees increased in the wake of the 2009 financial crisis because sharp asset price declines led many plans to be actuarially underfunded (NASRA, 2020). The median contribution rate for state and local employees in 2020 was 6% of the salary for those employees participating in Social Security and 8% for those who were exempt from Social Security,[6] with employers contributing an average of

[6] More than 25% of state and local government employees are exempt from Social Security, including most public employees in seven US states, and approximately 40% of public school teachers, firefighters and police officers. Social Security original exempted state and local workers because of concerns over the constitutionality of levying a federal payroll tax on state and local governments. Later, states were allowed to opt into Social Security, but coverage still varies widely

20%. Even with these changes, many state and local government plans continue to be underfunded.

In contrast to DB plans that place most of the cost and risk on the employer, defined contribution (DC) plans place more risk on the employees. The employer's obligation is limited to its current contribution to the employee's plan, but there is no guarantee that the plan will result in adequate retirement income. Although the specifics of different types of DC plans vary, the commonality is that they establish individual accounts for each employee, and benefits at retirement depend on accumulated values in the accounts by the time of retirement. Some DC plans are entirely funded by employer contributions, but it is increasingly common for employees to contribute as well. Most private employer plans in the US today are DC plans, with the most common type of plan being the 401(k) plan, which allows tax-deductible contributions from both employer and employee. The employee typically makes investment allocation decisions for their plan assets from a menu of mutual funds that differ in risk and return characteristics.

A third category of employer plans that trended upward in the late 1990s is the cash balance (CB) plan. Although technically a DB plan, it is somewhat of a hybrid of DB and DC from the participant's perspective. It is designed to look like a DC plan, with each participant assigned a "hypothetical" account that appears to accumulate assets over time but is actually only a record-keeping function, reflecting the participants built up credits (e.g., through years of service) toward their ultimate benefit. Similar to DB plans, CB benefits are determined by a plan formula rather than the "account" assets. CB plans are attractive to employers because it is easier to communicate current pension wealth and future increments to employees and easier to accommodate the short job tenures of an increasingly mobile workforce. These plans are typically noncontributory, and participants are not subject to any investment risk.

4.4 Trends in Plan Type

Over the last several decades, there has been a dramatic decrease in the number of workers covered by DB plans (including CB plans) relative to DC plans. As illustrated in Fig. 1, 39% of private sector workers participated in a defined benefit (DB) pension in 1980, whereas less than 14% of full-time private sector workers participated in that type of plan in 2017 (EBRI, 2019). This shift places greater responsibility on individuals to make difficult decisions for which they may be ill-equipped, including how much to contribute, how to allocate their investments, and how to plan their withdrawals throughout retirement.

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by state. State pensions for exempt workers tend to offer higher benefits to compensate for the absence of Social Security.

The shift to DC plans has been attributed to the higher employer administrative costs[7] and risks associated with DB plans, but employees have tended to favor DC plans as well. Experts warn, however, that average annual contributions and observed accumulations are insufficient to provide adequate replacement income in retirement. The annual maximum employee contribution in 2022 is $20,500 (increasing annually with inflation), with an additional $6,500 catch-up contribution allowed for employees who are age 50 or older. Including employer contributions, the maximum of all contributions to a plan is $61,000 ($67,500 for age 50+), and there are some additional limitations for highly compensated employees.

Similar to 401(k) plans for private sector employees, public sector and nonprofit employers can offer their employees a tax-deferred salary reduction plan called the 403(b) plan. Educational institutions have long used these plans to offer tax-deferred annuity contracts for faculty, but these plans also now allow mutual fund investment options. Maximum contribution limits for 403(b) plans parallel to those for 401(k) plans.

While the limits on DC plan contributions would seem to be sufficient to fund future retirement needs, few people contribute to the limits. According to a Vanguard study of 1,800 plans covering 5 million participant accounts, the average 401(k) elective deferral in 2019 was 7% of pay by employees and 4% by employers. Employee elective deferrals increased with income, age, job tenure, and account balance (Vanguard, 2020).

5 Individual Retirement Savings

The third tier of the US retirement system is personal savings plans. Since the early 1980s, individuals have been able to make tax-deferred contributions to federally authorized individual retirement accounts (IRAs). The Tax Reform Act of 1986, the Tax Relief Act of 1997, and the Economic Growth and Tax Relief Reconciliation Act of 2001 together define the types of IRAs that are available, the tax preferences involved and the contribution limits. The two main types of savings vehicles are the traditional (deductible) IRA and the Roth IRA.

Traditional IRAs are subject to rules that are very similar to those governing qualified defined-contribution plans offered by employers. Earnings on plan assets are tax-deferred, and contributions are deductible from income for the tax year in which they are made. The Roth IRA takes a different approach, requiring that contributions be made with after-tax dollars but allowing investments to accumulate tax-free with no tax due to withdrawal. The contribution limits for both types of IRAs are $6,000 in 2022 (plus $1,000 catch-up for age 50+), and they both impose a 10% penalty on withdrawals made prior to age 59½, unless the proceeds are being used for qualified educational or medical expenses or a first-time home purchase. Due to income limitations that take into account marital status and employer plan coverage,

[7] See Estreicher and Gold (2007) for additional discussion of the reasons for the shift to DB plans.

IRAs are most useful for low- to moderate-income taxpayers, but the total number of people contributing to them is still a fairly low percentage of those who would be eligible. In tax year 2018, as shown in Fig. 2, approximately 7 million people made new contributions to a Roth IRA and less than 5 million to a traditional IRA. However, the total dollar amount held in IRA accounts has grown substantially over time because they are the preferred vehicle for rollovers from tax-deferred employer plans after job changes (Fig. 3).

Total retirement savings accumulations (including 401(k) and IRA balances) have grown over time with the aging of the population, but this disguises the dispersion

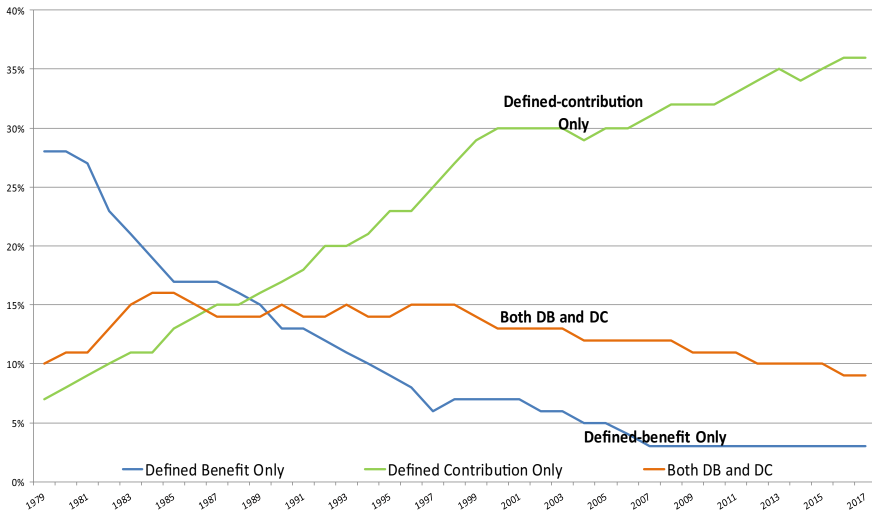

Fig. 2 Percentage of private-sector wage and salary workers participating in employment-based retirement plan, by plan type, 1979–2017. *Source* Copeland (2019)

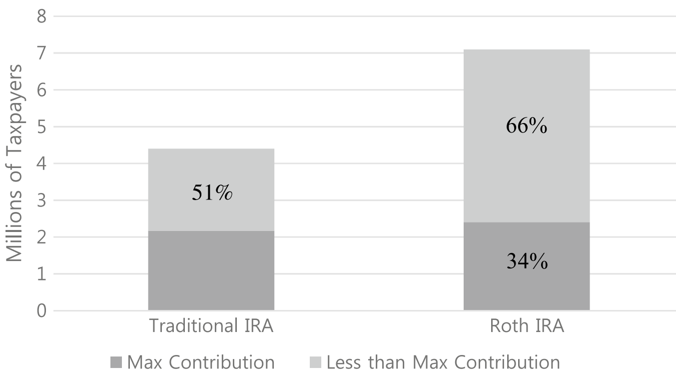

Fig. 3 Number and percentage of taxpayers contributing to IRAs, by size of contribution, 2018. *Source* Internal Revenue Service (2018)

of this growth. At the bottom end of the spectrum, nearly half of all households have no retirement account savings at all. Morrissey (2019) reports that for pre-retiree households (ages 56–61) in 2016, the median amount of retirement savings was only $21,000, and the gap between retirement "haves" and "have-nots" has grown. The differences can be seen based on income, education, and race, with Black and Hispanic households being much less likely to have retirement savings, and when they do, they tend to have less.

6 Retirement Plans for the Self-Employed

A recent study using data from the Health and Retirement study suggests that only 13% of those who are self-employed in single-person firms and 30% of those in multiperson firms are participating in a retirement plan at their current jobs (Pew Charitable Trusts, 2019). It is usually not cost effective to set up a DB plan for a small firm or sole proprietorship, but there are several retirement plan options available for the self-employed to save for retirement on a tax-deferred basis. Although self-employed persons can contribute to the types of IRAs discussed in the previous section, subject to income limitations, their low annual maximums make them less attractive than regular corporate plans. In addition to the 401(k) described above, there are also qualified retirement plans specifically designed for small businesses. These include the Simplified Employee Pension (SEP), which allows elective deferrals of as much as 25% of income, up to the normal maximum for DC plans ($61,000 in 2022), and the Savings Incentive Match Plan for Employees (SIMPLE IRA), which allows contributions of net earnings from self-employment up to $14,000 in 2022 (plus $3,000 if age 50+).

7 Required Minimum Distributions

One of the nuances of the tax-based retirement laws in the United States is that individuals are not able to continue to defer taxation on retirement account assets indefinitely. Required minimum distribution (RMD) rules that apply to nearly all tax-deferred accounts mandate that individuals begin withdrawing a percentage of their assets (and paying taxes on the distributions) by April 1 of the year in which they reach age 72.[8] The distribution period is based on uniform life expectancy tables and requires distributions of 1/24.7 of the balance at age 72, with the fraction gradually increasing as the retiree ages. The advantage of this arrangement is that the bulk of deferred taxes are paid, even by wealthy savers, prior to death. The disadvantage is

[8] Previously the age to begin RMDs was 70½, but this was increased to age 72 by the Setting Everything Community Up for Retirement Enhancement (SECURE) Act in 2019.

that it does not allow for optimization of retirement income streams or to plan for an extremely long life.

8 Alternative Sources of Retirement Income

In addition to the pensions and savings plans described in the previous sections, US retirees can also buy individual annuities to provide income in retirement. There are several types of annuities, but they are all similar in that the purchaser is paying some amount of money today to provide an income stream in the future. In some cases, an annuity is purchased with a sum of money at the retirement date, and benefits begin immediately ("immediate annuity"). In others, the purchaser buys the annuity in a lump sum or over time in advance for benefits to be received in retirement ("deferred annuity").

Annuities are an insurance product because the seller promises to pay the benefit in the future for a period of time and takes on the investment risk. The ideal type of retirement income stream is an inflation-adjusted life annuity, similar to Social Security benefits. In that type of product, the seller also provides the annuitant with insurance against longevity risk. Although retirement experts have long argued that retirees should annuitize at least some of their wealth, the take-up rate for these products has been lower than expected, a phenomenon that has been labeled the "annuity puzzle." The private market suffers from significant adverse selection, which, combined with the prolonged low interest rate environment, has made annuity products fairly expensive.[9] Potential buyers also cite bequest motives, the need for emergency funds, and the worry that they might not live long enough to get their "money's worth" as reasons for not annuitizing their wealth.

Two interesting annuity products that are more recent entrants in the retirement menu in the US are qualified longevity annuity contracts (QLACs) and reverse annuity mortgages. One of the problems created by RMDs discussed in the previous section is that it makes it more difficult for individuals to plan for an extremely long life. A longevity annuity is a deferred annuity contract that is paid for in advance but does not begin making distributions until much later in life, e.g., age 75, 80, or 85 (maximum). Because there are more years for the insurer to earn returns on the premium and because higher mortality risk at these extreme older ages makes the payouts less likely to occur, these annuities are fairly inexpensive. Furthermore, if a QLAC meets the requirements established by the Internal Revenue Service, they are not included in assets for calculation of the RMD. Under current rules, an individual can spend 25% or $145,000 in 2022 (whichever is less) of their retirement savings account or IRA in a single premium to buy a QLAC, thus reducing their RMD

[9] Adverse selection in insurance markets occurs when higher risk people have higher demand for a product, leading an insurer to have to price the product accordingly. This drives lower risk customers out of the market. In the annuities market, individuals who expect to live longer than average would be more likely to want to purchase life annuities, than those who expect to live an average or shorter number of years.

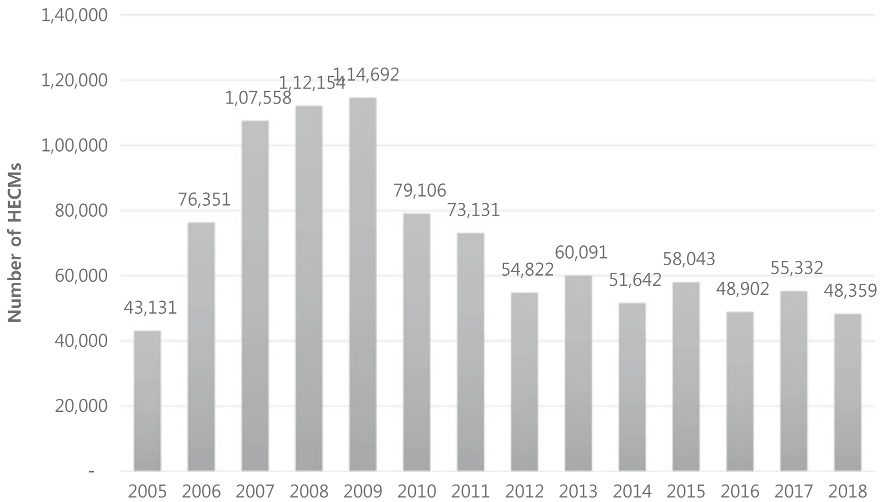

Fig. 4 Number of home equity conversion mortgages. *Source* US Department of Housing and Urban Development (2019) (Brookings paper)

and guaranteeing continued income in the event of higher-than-expected longevity. QLACs are typically fixed annuities, but buyers may have the option of adding a cost-of-living adjustment to their contract.

Reverse mortgages are another method of generating lifetime retirement income. Many people approaching retirement have accumulated substantial equity in their home but may prefer to retire in place. Rather than take on additional debt with associated mortgage payments (either through a refinanced primary mortgage or a second mortgage), a reverse mortgage allows the homeowner to convert the equity in their home to an income stream without making payments. Home Equity Conversion Mortgages (HECMs) are federally insured reverse mortgages that are supported by the US Department of Housing and Urban Development. Individuals age 62 or over, who own and occupy the property, and who have the financial resources to continue paying property taxes and insurance on the property are eligible to participate in this program. The amount that can be borrowed depends on the age of the borrowers, the value of the property, and current interest rates.

Compared to a normal loan in which the borrower makes regular payments to the lender, an HECM lender pays the homeowner, either a lump sum or a series of payments that can be for as long as the home is occupied. Although the fees and costs for these products are higher than normal mortgages, the homeowner has the advantage of not having to make any payments on the loan. Their annuity payments are added to the amount owed over time with interest but will be repaid out of the proceeds from the sale of the home when the borrower dies or leaves the home (for example, to enter a long-term care facility). If the balance has grown larger than the value of the home by that time, the remainder will be repaid from required mortgage insurance. Figure 4 shows the trends in these types of mortgages in recent years. The

lower number of HECMs also coincides with a lower average loan-to-value ratio, which in 2018 averaged less than 50%. Bailey et al. (2019) provides a summary of recent developments in the reverse mortgage market and suggests reasons for the lack of consumer demand for this product.

9 The Consumer Perspective

The US retirement system is relatively mature and offers a range of ways that consumers can fund adequate retirement income. However, the savings components of the system are largely based on personal responsibility and have lower participation than is desirable. Based on an analysis of large nationally representative databases, a substantial percentage of Americans have not saved enough to support a comfortable retirement. The National Retirement Risk Index, created by the Center for Retirement Research at Boston College, estimates that 50% of households are at risk of not having enough to maintain their living standards in retirement. Inclusion of health care costs in the index further drives up the share of households that are at risk.[10] Similarly, the Employee Benefit Research Institute regularly estimates retirement income shortfalls using their proprietary Retirement Security Projection Model. Prior to the pandemic, their model predicted that 41% of US pre-retirement households would run short of money in retirement. Under both models, future reductions in Social Security benefits would make the situation even worse. Of course, one solution is for people to work longer and retire later, but this may not be an option for some workers. Issues of major concern include the future solvency of Social Security caused by long-run demographic shifts, the trend toward self-managed retirement funds, and low levels of financial literacy leading to suboptimal retirement planning. All of these factors are expected to have a greater impact on lower income and other vulnerable populations.

9.1 Social Security Solvency

Until recently, Social Security payroll tax inflows exceeded benefit outflows due to the Baby Boom being in their highest earning years. Excess tax collections were used to purchase special Treasury Bonds for the Social Security Trust fund, essentially helping the government fund fiscal deficits. The equation has now reversed, and Social Security will need to draw on those reserves to meet future benefit promises until the Trust Fund is fully depleted. Based on current estimates, the Social Security Trustees estimate that the OASI Trust Fund will be depleted by 2034 and the combined OASDI Trust Fund will be depleted by 2035. Given that the US government is already running a significant annual budget deficit and has increased stimulus

[10] Munnell et al. (2021).

spending significantly to minimize the pandemic's economic impact, its ability to fund the excess through the general budget is limited. In 2022, large expenditures to support Ukraine are also making retirement reforms a lower budget priority.

Without any increase in the payroll tax or reduction in benefit promises, the Social Security Trustees estimate that it would be able to pay 75% of benefit promises after the Trust Fund is depleted. Various reforms have been proposed over the years, but federal legislators have been unable to reach a consensus. This should be a major concern for consumers, particularly in light of the great reliance on this program by current retirees. Although small tweaks to the program 20 years ago could have ensured actuarial balance for the long term, more significant changes will be necessary to do it now. Proposals include various combinations of an increase in the normal retirement age, the payroll tax, the maximum taxable, or reductions in benefits, e.g., higher earners.

9.2 Trend Toward Self-Managed Retirement Funds

As discussed in the previous sections of this chapter, there has been a recent shift away from traditional pension plans toward retirement plans that require self-management. The predominant type of employer plan requires employees to make decisions about how much to contribute and how to invest their funds. This is also true for individual retirement accounts (IRAs). The decumulation phase in retirement is also quite complex, and although established federal RMDs provide some guidance for reasonable annual withdrawals, individuals are free to spend down their funds faster than recommended.

Whereas a higher proportion of retirees in older generations participated in defined benefit plans that provided life annuities at retirement, these types of plans are now relatively uncommon in the private sector, and most retirees do not annuitize their individual plan assets at retirement. Of concern for consumers is that the system places great responsibility on people who may be ill-equipped to make financial decisions that will ensure a secure retirement. The Society of Actuaries has conducted significant research in the area of retirement risks and has consistently found that individuals tend to underestimate life expectancy and long-term care needs and have short planning horizons (SOA, 2020).

9.3 Financial Literacy

In a retirement system that requires citizens to make important financial decisions about saving, asset allocation, and systematic withdrawal in retirement, the financial literacy of the population is an essential prerequisite for success. Average levels of financial knowledge are low, and most people report feeling unprepared to make these

important decisions with confidence. Approximately half of US adults say they typically live paycheck-to-paycheck, and a large percentage of households experienced serious financial setbacks during 2020 as a result of the global pandemic (NEFE, 2021).

Fortunately, opportunities for financial education have improved over the last two decades. Forty-five states now include personal finance in their state education standards (up from only 16 in 2000), and 24 require that a specific course in personal finance be offered in high school (up from only seven in 2000). However, only six states make this mandatory for graduation.[11]

10 Conclusions

As explained in this chapter, the US has a rich and multi-layered system designed to provide a secure retirement for its citizens. The social safety net is provided through mandatory participation in Social Security, a public-defined benefit pension program funded through payroll taxes. Most retirees receive benefits from this program, and the Supplemental Security Income (SSI) program provides a minimum level of income for the extreme poor and disabled. Social Security is redistributive in benefit calculation and also provides protection for dependent spouses, children, and divorced spouses who can qualify for benefits based on the participant's earnings history. Although the program has been quite successful in alleviating old age poverty in the US, the solvency of the program has been negatively impacted by demographic shifts over the last decades. Without significant reforms in the near future, the program will not be able to meet its benefit promises.

Unlike many other developed countries, the US does not provide a public option for mandatory or voluntary individual retirement saving, but instead incentivizes retirement saving through tax incentives for employment-based pensions and private saving. Although participation in employment-based retirement plans is mandatory for federal employees and most state employees, only half of all private sector workers have access to an employer plan, and most are voluntary contributory plans. Individuals also have access to purchasing a variety of pension-like products on their own, although the sustained low interest environment of the last decade has made these options less attractive for generating retirement income. Taken as a whole, the US retirement system does a fairly good job of replacing pre-retirement income for lower income people (through SSI and Social Security), public employees (who participate in mandatory defined benefit plans), and for workers with access to employment-based retirement plans. Those who do not qualify for Social Security (farm workers, long-term unemployed or disabled, undocumented workers) are at greatest risk of retirement income inadequacy, and evidence suggests that many retirees rely heavily on modest Social Security benefits as their main source of retirement income.

[11] Council for Economic Education (2020) *2020 Survey of the States.*

From a consumer perspective, increased longevity makes it more challenging to finance an adequate retirement. Social Security was never intended to be the primary source of retirement income in the US, and the program's looming insolvency makes private saving even more important. Public policies focused on increasing financial literacy, with a particular focus on retirement saving, could improve future outcomes for US retirees.

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Retirement Income Security in Japan: An Overview of the Public and Private Pension System

Hongmu Lee

Abstract The purpose of this study is to examine the issues of the pension system as a comprehensive means of measures for old age from the standpoint of pensioners as financial consumers in Japan. This study covers public and private pension schemes, as well as reverse mortgages in Japan. Japan's public pension system consists of the National Pension Plan, which all citizens between the ages of 20 and 60 are enrolled in, and the Employees' Pension Plan, which is added to the National Pension Plan. Private pensions include corporate pensions and individual pensions sold by insurance companies. In addition, there are reverse mortgages provided by public institutions or financial institutions.

1 Demographics and Pensions

1.1 Situation of the Aging Population

The total population of Japan was 125.71 million as of 1 October 2020. Those aged 65 and more in Japan's population were less than 5% of the total population in 1950, but exceeded 7% in 1970 and 14% in 1994. The aging rate has continued to rise, reaching 28.8% as of 1 October 2020, and this is projected to reach 38.1% by 2060.

There was 12.1 working population which included persons between the ages of 15 and 65 for every one person aged 65 and older in 1950. The working population was 2.0 for one person aged 65 or older in 2020.

In the future, the aging population will continue to increase, and the percentage of the working generation will decrease. By 2060, the ratio of working population will be 1.4 for one person aged 65 or older (Fig. 1).

As of 2020, the average life expectancy in Japan was 81.64 years for men and 87.74 years for women. The average life expectancy will increase for both men and women, and it will be 84.95 years for men and 91.35 years for women by 2065.

H. Lee (✉)
Waseda University, Tokyo, Japan

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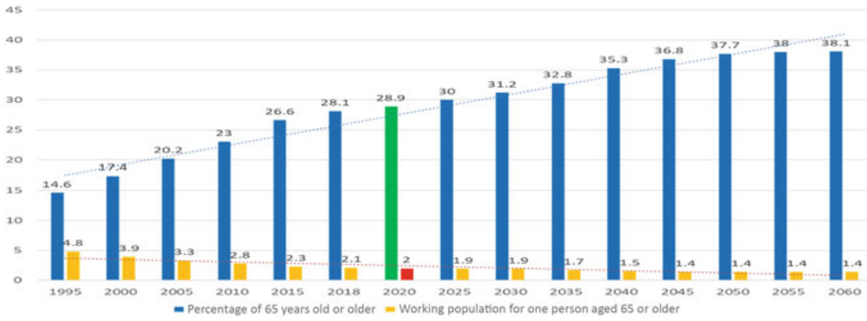

Fig. 1 Aging ratio trends and future estimation (%)
Source: Annual Report on the Aging Society FY 2019, June 2019 Cabinet Office of Japan

1.2 Living Costs and Pensions for the Elderly

Among the elderly households receiving public pension benefits, more than half of all households (52.2%) rely solely on public pension benefits for all household income. The role of public pensions as a living cost for the elderly is large (Fig. 2).

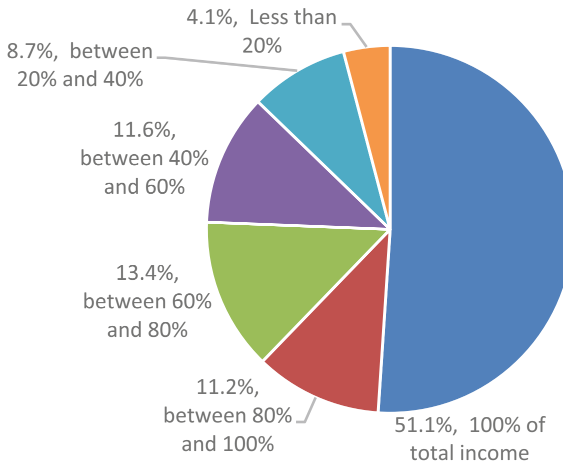

Fig. 2 Composition of elderly households receiving public pensions by percentage of total income from public pensions
Source: Annual Report on the Aging Society FY 2020, Sept. 2021 Cabinet Office of Japan

2 Framework of the Pension System in Japan

2.1 Overview of the Pension System

The overview of the pension system in Japan is as follows (Fig. 3).

In Japan, there are two types of contribution-based pension programs: public pension (mandatory, 1st floor) and private pension (voluntary, 2nd floor). Complementary to this public and private pension system is tax-based public assistance (0 floor). In other words, private pensions are funded by contributions (2nd floor), while public pensions are funded by both taxes (0 floor) and contributions (1st floor). In fact, the national pension of the 1st floor is supported by a tax equivalent to half of the benefit.

Public pension programs (mandatory and contribution-based) include national pension, employees' pension (national pension), and national pension funds. The national pension is compulsory for all persons c living in Japan for more than one year to enroll in. In addition to the national pension, employees are forced to enroll in the employees' pension in which the contributions are paid by labor and management half and half. On the other hand, self-employed persons can voluntarily enroll the national pension fund. This contribution to the public pension is fully deducted from the subscriber's income tax.

Private pensions include corporate pensions and personal pensions. A corporate pension is a pension for a retirement allowance, and a personal pension is insurance sold by life insurance companies. Furthermore, the iDeCo (individual type DC) is a personal pension in which all citizens aged between 20 and 60 can voluntarily enroll, but it cannot be withdrawn before the age of 60. This iDeCo was introduced in a

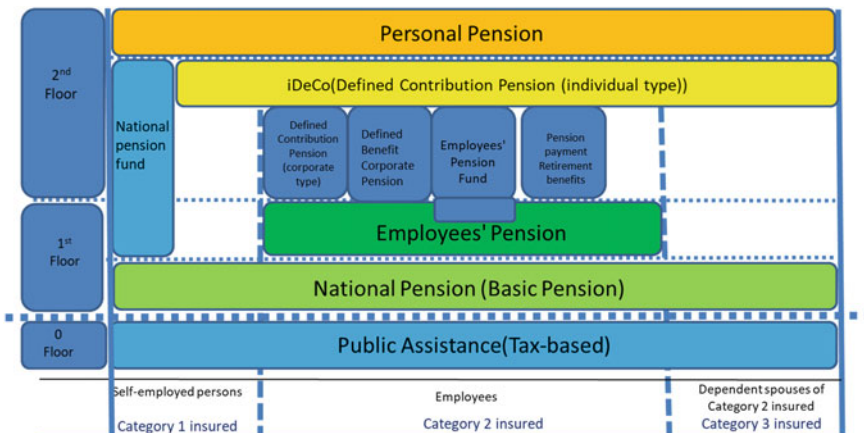

Fig. 3 Overview of the pension system in Japan
Source: Prepared by the author with reference to various documents

form that complements corporate pensions, with reference to the US IRA (Individual Retirement Account).

As mentioned above, employees doubly enroll in the national pension and employees' pension, and most of them also enroll in a corporate pension. Many employees also enroll voluntarily in the iDeCo and personal pensions sold by life insurance companies. Employees who have worked to the age of retirement (65 years old) are therefore receiving a relatively wealthy pension benefit because they will benefit from these multiple pension plans after retirement.

However, although self-employed people can voluntarily enroll in the national pension fund, they are only forced to enroll the national pension only, and many people lack living funds after retirement. Furthermore, it has also been pointed out that the dependent spouses of employees are enrolled only in the national pension; if they get divorced, they will run out of living funds in their old age. Therefore, employees' dependent spouses and self-employed people need to enroll in the iDeCo to prepare for their old age.

Under the "employees' pension unification law 2015" that came into effect in October 2015, the "employees' pension" for corporate employees, the "mutual aid pension" for (national and local) public employees, and the "private school faculty mutual aid pension" for private teachers were integrated into the employees' pension (welfare pension).

Traditionally, those who had worked for a company could receive the national pension and employees' pension, and public employees and private school teachers could receive the national pension and mutual aid pension. Corporate employees paid higher contributions than public employees and private school faculty, and they received a small amount of pension. This was called the "public–private disparity" problem. To eliminate this "public–private disparity" the employees' pension unification law was enforced in October 2015, and these mutual aid pensions were unified in the employees' pension.

2.2 Type of Insured in the National Pension

There are three categories of the insured under the national pension system depending on occupation, working style and payment method of pension contributions (Table 1).

If you are an employee, you are a Category II insured person. For this Category II insured, your employer is responsible for completing your enrollment in the public pensions plan on your behalf. Persons under the age of 70 years who are employed at a business establishment employing regular employees must enroll in employees' pension. In principle, the receipt of public pension benefits begins at the age of 65, but enrollment from the age of 65 will be added to the amount of pension benefits later. The term "regular employee" means that the salary or wage as consideration for labor is regular regardless of whether there is an employment contract, including the case of

Table 1 Types of categories insured and enrolled in the public pension system

–	Category I insured	Category II Insured	Category III insured
Insured person	Self-employed person, farmer, unemployed person, students aged between 20 and 60	Company employees and public employees	Spouse supported by company employees and public employees
Enrollment in pension system	National pension	National pension Employees' pension	National pension

Source National Pension Law, Employees' Pension Law

only employers. Part-time workers are also required to enroll in employees' pension if they have regular employment relationships with the business establishment.

If you are a dependent spouse (person whose annual income is less than 1.3 million yen) of a Category II insured person and are aged between 20 and 60 residing in Japan, you are a Category III insured person. You do not need to pay contributions because Category III insured persons are collectively covered by the contributions made by the Category II insured and their employer.

If you are registered to reside in Japan, aged between 20 and 60, and you are not a Category II or Category III insured person, you are a Category I insured person. Foreign nationals with visas for medical stays or for long stays for sightseeing are excluded. Category I insured persons must enroll in the national pension and pay contributions themselves.

3 Public Pension Programs (Tax-Based)

Public pension programs (mandatory and contribution-based) and private pension programs (voluntary and contribution-based) are insurance programs in which the insured (including employer and employee) contribute premiums in advance and the insurer (government or insurance company) provides benefits using insurance technology. Since these systems use insurance technology, payment of premiums is a prerequisite for benefits.

In addition to the public pension programs (mandatory and contribution-based), there are two other types of public income security systems in the public pension programs (tax-based), which are the public assistance systems: public assistance and social assistance. Public assistance or social assistance is a system administered by a public institution in which poverty is a prerequisite for benefits without regard to the actual payment of contribution. When a citizen applies for benefits under the social security system to the government, the government conducts a financial check to determine whether the applicant meets the requirements. The means-test is based on the applicant's income, assets, or both and usually requires that the applicant's

income or assets fall below a certain level to be eligible for benefits. Public assistance, which requires the means-test, is a welfare system that realizes the right to life.

The amount of public assistance (welfare payments) varies depending on the area of residence and family structure, ranging from 150,000 yen to 180,000 yen per month for a two-person household to nearly 300,000 yen per month for a family of four with children (the full amount of basic old-age pension benefits in FY2021 is 780,900 yen per year, or 65,075 yen per month). This amount of public assistance (welfare cost) is larger than the amount of the basic old-age pension benefit described below. The total livelihood assistance and housing assistance will be the minimum cost of living, and for those who have income from wages or pensions, the minimum cost of living minus income will be the cost of public assistance. Therefore, when a pensioner becomes needy, those who have not paid contributions for the compulsory public pension will not receive the old-age pension and will receive the full amount of public assistance (welfare cost), while those who have paid the public pension contributions will have the amount of the old-age pension deducted from the public assistance (welfare cost). It has been noted that this lowers the incentive to pay premiums for the compulsory public pension. In addition, the amount of income earned is deducted from public assistance (welfare payments), which discourages people from working.

Measures for low-income people who require an income survey (restriction) in a relaxed form of the means-test include the social allowance system, the welfare fund loan system, and the public housing system. Social allowances are noncontributory cash benefits that are intermediate in nature between social insurance and public assistance (welfare system). In Japan, social allowances include child allowances, child support allowances, special child support allowances, special disability allowances, 31and welfare allowances for disabled children. In addition, the public housing system is designed to provide housing for low-income people and includes housing for single-mother households, the elderly, and the physically and mentally disabled, as well as low-rent housing. In addition, the Welfare Loan System is a system to lend funds necessary for daily life to low-income households, the disabled, the elderly, and unemployed households at low or no interest.

Social insurance systems, such as public pensions, public medical insurance, public long-term care insurance, unemployment insurance, and workers' compensation insurance, also function as measures against poverty. In comparison with these social insurance systems, public assistance can be described as "a system in which the state imposes a means-test on those in poverty to determine the fact of poverty and finances it with public funds for the purpose of guaranteeing a minimum standard of living (national minimum)." While social insurance, such as public pension and public medical insurance, is financed by contributions, public assistance is financed by taxes, without using the insurance mechanism.

Table 2 Amount in the average monthly pension of the public pension (yen) (2018)

Classification	National pension	Employee pension
Old age pension (in case of enrollment for 25 years or more)	55,809	145,865
Survivor pension	83,208	83,704
Disability pension	72,109	102,855

Source Pension Fund Association of Japan

4 Public Pension Programs (Contribution-Based)

4.1 Pension Benefits

4.1.1 Overview of Public Pension Benefits

The public pension system in Japan is social insurance that fulfills the poverty prevention function by providing benefits for three types of insurance accidents: old age, disability, and death.

All people aged between 20 and 60, such as students, self-employed people, employees and their spouses, are eligible for the national pension, and benefits are paid from the common basic pension in the case of old age, disability and death. In addition, a public pension for employees is a "double benefit" for employees because they have employee pension benefits added to the national pension benefits.

The amounts (in Japanese yen) in the average monthly pension of the public pension (2018) are as follows (Table 2).

4.1.2 Old-Age Pension Benefits

Old-Age Basic Pension Benefit

To receive old-age basic pension benefits, it is necessary to meet the "qualification period" in the national pension. This eligibility enrollment period is 10 years (120 months). In the past, to receive old-age pension benefits, you needed to have paid contributions for at least 25 years in principle. However, from 1 August 2017, you will be able to receive old-age pension benefits if your qualifying period is 10 years or more.

The old-age basic pension benefit can be received from the age of 65 for those with a pension contribution payment period (including pension contribution exemption period, etc.) of 10 years or more in principle. For the start of receiving the old age basic pension benefit, it is possible to start receiving it early by the age of 60 or to receive the deferred payment after the age of 66.

The national pension (basic pension) enrollment is for 40 years from 20 years old to 60 years old, and for those who paid the pension contribution for all periods, the annual pension benefit of 780,900 yen (full amount) (based on 2021) will be paid. The amount of the old-age basic pension benefit is the amount obtained by multiplying this full amount by the ratio of the contribution payment period to 40 years. This old-age basic pension benefit does not have the income redistribution function like the employees' pension because it is determined by the ratio of the contribution payment period to the full amount.

The formula for the old-age basic pension is as follows.

$$
\begin{aligned}
&\text{Amount of old age basic pension benefit}\\
&\quad = \text{Full amount}\\
&\quad \times \frac{\text{number of months paid for contribution}}{40\,\text{years} \times 12\,\text{months}}\\
&\quad + \frac{(\text{number of months exempted from contribution} \times \text{reflection rate})}{40\,\text{years} \times 12\,\text{months}}
\end{aligned}
$$

The Category II insured person or dependent spouse of the Category II insured person does not pay the national pension contribution directly, but the total period of the Category II insured person and Category III insured person becomes the "Basic Pension Contribution Payment Period".

The Category I insured person should pay the monthly contribution by himself or herself. However, it may be difficult to pay the pension contribution due to low income. In such cases, a certain procedure will approve exemption from the contribution. The pension contribution exemption period is a system that is only granted to a Category I insured person, and the period of this exemption is also included as a period for determining eligibility for a pension.

There are two types of contribution exemption: full exemption and half exemption. In the case of full exemption, only one-third is reflected in the annual amount, and in the case of half exemption, only two-thirds are reflected in the annual amount. However, if the pension contributions are paid later, the full amount will be reflected, but the later payment is limited to 10 years or less.

A "Category I insured person" who does not enroll in the employees' pension can utilize the "national pension fund" as the "second floor part" to replace the employees' pension.

Old-Age Employee Pension Benefit

The eligibility for old-age employee pension benefit is as follows. First, it should meet the requirements for the old-age basic pension. Second, the employee's pension must be contributed for at least one month.

The amount of the national pension contribution is the same for all insured regardless of the amount of income. However, regarding the contribution to the employees'

pension, the higher the income is, the higher the pension contribution. In addition, the amount of the old-age employee pension benefit is a “reward-proportional” that varies depending on the income of the working age.

The age at which the national pension benefit began to be received was 65 years old since the system was established in 1985. However, the age at which the employees' pension benefit began to be received was 55 years old at the beginning of the employees' pension (employees' pension insurance law of 1942). As a result of the 1985 revision of the law, the age at which the old-age employee pension benefit will start to be raised in principle from 60 years old to 65 years old.

The age at which employees start receiving the old-age employee pension benefit has been raised in stages. The year in which the old-age employee pension benefit starts to be fully transferred to 65 years is 2025 for men and 2030 for women.

Advanced Payment and Deferred Payment

As a general rule, the old age pension benefits will start from the age of 65 for both the “old-age basic pension” and the “old-age employee pension.” However, some people want to receive old-age pension benefits early because they retire at the age of 60 and lose their income. Others said that they were 65 years of age but still earning income because they are working. In accordance with such a situation, it is possible to move up or down the time to start receiving the old-age pension benefits.

Just as with the old-age basic pension benefit, the old-age employee pension benefit can be advanced or deferred. However, when the old-age employee pension is advanced or deferred, the old-age basic pension benefit must also be simultaneously advanced or deferred. It is not possible to claim a move up or move down in either alone. The deferred payment can be delayed for 10 years from 66 up to 75 (70 years of age until 2019) in both the old-age basic pension benefit and the old-age employee pension benefit.

In the case of “deferred payment,” the annual amount increases by 0.7% per month. If deferred until the age of 70, the pension amount increases by five years $\times$ 12 months $\times$ 0.7% = 42%, and if deferred until the age of 75, the pension amount increases by 10 years $\times$ 12 months $\times$ 0.7% = 84%.

On the other hand, you can receive the old-age pension from the age of 65, but if you want, you can receive it even if you are between the ages of 60 and 65. In the case of “advanced payment,” the annual amount will decrease by 0.4% per month. When moving up to the age of 60, the pension amount will decrease by five years $\times$ 12 months $\times$ 0.4% = 24%. The amount received at this time will be 76% of the amount received from the age of 65 (Fig. 4).

The amount of old-age pension benefits in the case of deferral is the original amount plus the interest at the expected interest rate during the deferral period. In addition, the amount of old-age pension benefits in the case of advance is the original amount minus the interest at the expected interest rate during the deferral period.

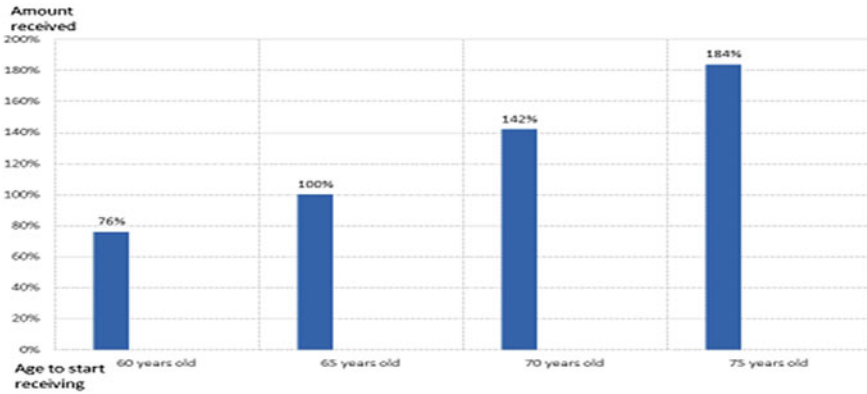

Fig. 4 Advanced payment and deferred payment
Source: Created by the author

According to the Ministry of Health, Labor and Welfare, the amount is designed to be "pension finance neutral," and there is no positive or negative effect on pension finance by advanced payment and deferred payment.

4.1.3 Disability Pension Benefits

There are two types of disability pension benefits: "disability basic pension benefit" and "disability employee pension benefit." If you are judged to be in a disability state, you can claim the "disability basic pension benefits" when you are the insured under the national pension and "disability basic pension benefit" and "disability employee pension benefit" when you are the insured under the employees' pension. Only persons aged between 20 and 65 who are insured under the public pension can claim disability pension benefits.

To receive disability pension benefits, persons aged between 20 and 65 must meet the contribution period requirements on the day before the first medical examination. The first medical examination day is the date you first see a doctor or dentist regarding the illness or injury that caused your disability. In other words, if there is a first medical examination before 65 years of age and if there is a disability, the disability pension benefits will be paid if the basic pension contribution period requirements are met.

The requirements for the contribution payment period are that the contributions have been paid or exempted for at least two-thirds of the period of participation in the public pension system up to two months before the month of the first medical examination and that there has been no nonpayment of contributions for one year up to two months before the month of the first medical examination.

4.1.4 Survivor Pension Benefits

The survivor pension benefits are benefits that can be received by the surviving family whose livelihood has been maintained by a person who was insured by the national pension or employees' pension and has died. There are two types of survivor pensions, the "survivor's basic pension" and the "survivor's employee pension," which are determined according to conditions such as the payment status of the deceased person's contribution, the age of the person receiving the survivor's pension, and the priority.

For benefits to his wife and children when the insured husband dies, the amount of the survivor's pension benefit is calculated as 25 years of contribution if the husband has been enrolled for less than 25 years. The term "child" refers to a person under the age of 18 or under the age of 20 in a disability state.

4.2 Finance of Public Pensions

4.2.1 The Financial Structure of Public Pensions

In Japan, the employees' pension started in 1944 by the fully funded method, but in 1954 the method was changed to the partially funded method by the new employees' pension insurance law. The current public pension financing system is, in effect, operated on a pay-as-you-go method.

The financial structure of public pensions in Japan is as follows (Fig. 5).

One of the characteristics of Japan's public pensions is the system of "universal pension coverage." It has a so-called "two-story" structure that includes the basic pension that is common to all people aged between 20 and 60 and the employees' pension. Specifically, a self-employed person is only enrolled in the basic pension and pays a fixed amount of monthly contribution themselves.

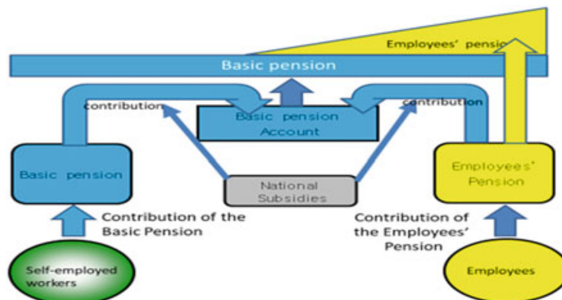

Fig. 5 Finance of public pensions
Source: Ministry of Health, Labor and Welfare of Japan

In the employees' pension system, the public pension contribution is shared by the company and the employee in equal proportions, and the public pension contribution shared by the employee is deducted from salary. The dependent spouse of the employees' pension insured does not have to pay the basic pension contribution individually because the employees' pension contribution includes the spouse's basic pension contribution.

The basic pension contribution paid by the self-employed person, the employees' pension insured, and the dependent spouse of the employees' pension insured are paid to the basic pension account. In addition, an amount equivalent to half of the basic pension benefit is being subsidized by the national treasury.

The public pension system is operated on a pay-as-you-go financial system, in which the contributions paid by the working-age population are used to pay half of the basic pension benefits for the elderly, like remittances. In addition to these contributions, government subsidies are used to pay for half of the basic pension benefits, and there is a small reserve fund.

In this pay-as-you-go method, half of the financial resources for benefits to the elderly depend on the pension contribution collected from the working generation. However, in an environment of a declining birthrates and an aging population, to balance income and expenditure in pension finances it is necessary to increase the burden of pension contributions on the working generation or decrease the pension benefits of the pensionable generation. The practical way to do this is to increase the contribution burden and reduce pension benefits, but if this continues the younger generation will have a lower ratio of pension benefits to contribution burden.

When switching from this pay-as-you-go method to the fully funded financial system, the working generation at the time of switching will have to separately bear the contributions of the receiving benefit generation at that time in addition to their own future pension. This is a "double burden," which is required for the working generation. According to the Ministry of Health, Labor and Welfare, this double burden amounts to 350 to 380 trillion yen.

The employees' pension contribution rate increased by 0.354% each year to 18.3% in September 2017. Prior to 1993, the employees' pension contribution rate for women was set lower than men, but over a long period of time, the employees' pension contribution rate gradually increased, and from 1994 the employees' pension contribution for both men and women became the same.

4.2.2 Macroeconomic Indexation

As the birth rate declined and the rate of aging rapidly increased, the contributions were raised, and pension benefits were lowered with each fiscal recalculation. To solve this problem drastically, a reform was implemented in 2004. The details are as follows.

First, the level of future contributions for the Employees' Pension Plan will be fixed, and the level of benefits will be automatically adjusted within the range of the pension fund's income. The contribution rate for the employees' pension (50–50 split

between labor and management) will be increased by 0.354% every year starting in October 2004 and fixed at 18.30% of standard remuneration (salary) as the upper limit from FY2017. National Pension Contributions (monthly) will be increased by 280 yen every year from April 2005 and fixed at a maximum of 16,900 yen from fiscal 2017 onward.

Second, the national treasury's share of the basic pension benefit increased to one-half, with the increase beginning in fiscal 2004 and was completed by fiscal 2009.

Third, pension finances will be reviewed at least every five years to achieve a fiscal balance over a period of approximately 100 years. At the end of this 100-year period of fiscal balance, a reserve fund equivalent to approximately one year's worth of benefit costs will be held, and the reserve fund will be used to provide benefits to future generations.

Fourth, the "macroeconomic slide" system was introduced. This system adjusts pension benefits to reflect the increase in the burden of contributions of the working-age population due to the decline in the population of the working-age population and the increase in average life expectancy. However, the adjustment will be made at the lower limit of the nominal amount (the previous year's amount), and the nominal amount will be maintained.

There are three types of pension slide methods: "macroeconomic slide," "price slide," and "wage slide." The macroeconomic slide has been adopted since April 2005, and the amount of pension benefits is taken into consideration on account of the decrease in the number of the insured, the extension of life expectancy, and the social economic situation. In this macroeconomic slide, in addition to the conventional wage slide and price slide, the pension revision rate (slide adjustment rate) is calculated to match the changes in wages and the labor force in society as a whole. The annual pension benefit amount is adjusted according to the slide adjustment rate.

In this macroeconomic slide, the pension benefit amount increases as wages and prices rise, but it does not increase as wages and prices rise in consideration of the decrease in the working population and the increase in life expectancy. In this way, the goal is to maintain the balance of public pension finances over the long term by adjusting the growth of pension amounts so that benefits are provided within the range of income in pension finances.[1]

During the adjustment period based on the macroeconomic slide, the pension benefit amount will be revised by subtracting the "slide adjustment rate" from the rate of increase in the pension amount due to wages and prices. The "slide adjustment rate" is calculated at a fixed rate (0.3%), taking into account the decrease in the working generation and the increase in life expectancy.

[1] The financial verification of pension finances is conducted once every five years. In the financial verification, the annual amount of increase is adjusted so that the fund for one year of pension benefit expenses can be maintained approximately 100 years later.

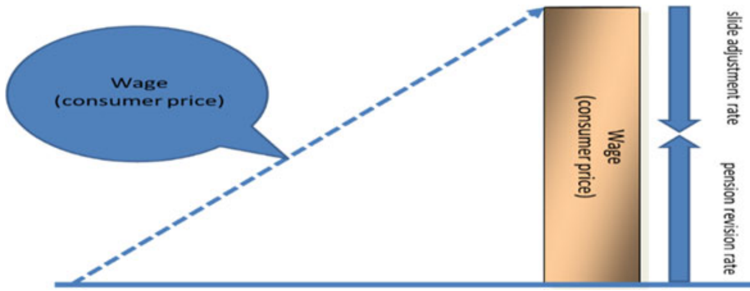

Fig. 6 Macroeconomic indexation
Source: Ministry of Health, Labor and Welfare of Japan

The new arbitrage pension revision rate and the existing arbitrage pension revision rate (after receiving benefits at age 65) are as follows (Fig. 6).

New arbitrage pension revision rate = Wage increase rate − Slide adjustment rate

Revision rate of existing arbitrage pension (after receiving benefits at age 65) = price increase rate − slide adjustment rate

Slide adjustment rate = Actual reduction rate of the total number of the insured in the public pension (three years average) + Constant rate (0.3%) set in consideration of the rate of life expectancy increase

The effects of the macroeconomic slide are as follows.

a. Population change
It is expected that the working population will decrease, and the upper limit of the pension contribution burden is set. If the number of the insured in the future decreases and the contribution income of the entire pension system decreases, the future benefit level will be automatically reduced accordingly. Public pensions are life-long pensions. When life expectancy is extended (aging), if macroeconomic slides are not applied, the amount of total pension benefits will increase.
b. Adjustment of pension benefit level
From the perspective of generational equity, adjustments of pension benefit levels through a macroeconomic slide are made not only for those who will receive pension benefits but also for those who have been already receiving pension benefits. However, if per capita wages and prices fall, pensions will be revised through normal wage slides and price slides, and benefits will not be adjusted through macroeconomic slides.

The macroeconomic slide will adjust the level of pension benefits for those who are already receiving pensions only when wages and prices per person rise. If the pension revision rate after the macroeconomic slide adjustment is negative, the pension is adjusted so that it does not fall below the pension benefit in the previous year (nominal pension lower limit type).

4.3 Social Security Agreement and Public Pension System

4.3.1 Social Security Agreement

As various kinds of international exchanges become more frequent, the number of people detached to work abroad or people living abroad after retirement is increasing every year. When working abroad, you must be enrolled in the social security system of the country you are working in, and occasionally you are obliged to pay contributions to both countries.

On the other hand, to be eligible for the pension benefits under the system of each country, you may need to contribute to the pension for a certain length of period. Accordingly, you may not be eligible for pension benefits even if you contribute to the public pension because you did not meet the contribution period requirements.

Social security agreements are concluded for the following purposes. The first is to avoid the "double burden of contributions" by avoiding double enrollment between the two countries (elimination of double enrollment). Second, to bridge the pension benefit gap under the public pension system of the partner country, the enrollment period of both Japan and other countries can be totaled to qualify for public pension benefits.

4.3.2 Elimination of Double Enrollment

When a person who works as an employee in Japan is dispatched from Japan by an employer to the partner country, it is sometimes necessary to doubly enroll in the Japanese social insurance (pension) system in addition to the social insurance system of the partner country. This made it possible to avoid double enrollment by a bilateral agreement.

As shown in Fig. 7, if you are dispatched from Japan to the partner country, you must enroll in the social security system of the host country during the dispatch period and be able to enroll in the social security system of Japan after returning to Japan. However, for short-term overseas dispatch within five years, Japan's social security system can continue to be enrolled in due to the exemption from the social security system of the host country during the dispatch period. In contrast, in the case of dispatch from the partner country to Japan, the above explanation is reversed.

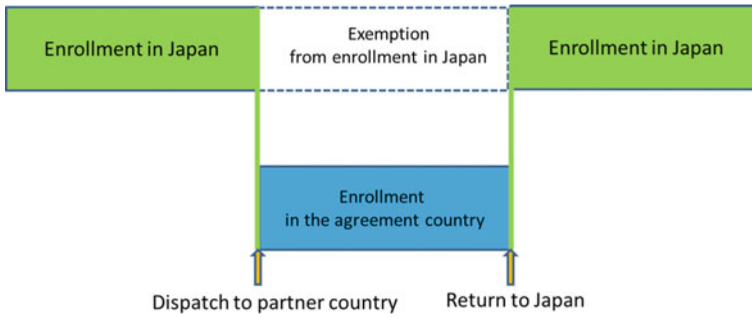

Fig. 7 Elimination of double enrollment (sent to the agreement country)
Source: Ministry of Health, Labor and Welfare of Japan

4.3.3 Totalization of Enrollment Periods

As of October 2019, the status of the conclusion of social security agreements is as follows. Japan has signed agreements with 23 countries, of which 20 have already entered into force. The elimination of double enrollment and the totalization of enrollment periods are possible only between Japan and these countries. Agreements with the United Kingdom, Republic of Korea, Italy and China include "elimination of double enrollment" only (Table 3).

The total pension enrollment period does not mean that the pension enrollment periods of both countries are combined to receive a pension benefit from one country. However, when determining the contribution payment period requirements for obtaining pension entitlement in each country, the pension enrollment period of the partner country is included. Therefore, when receiving pension benefits, the pension benefits of the respective countries will be paid in accordance with the period of contribution in the pension plans of each country.

However, before the agreement came into effect, when a person residing in Japan claimed the pension benefit of the partner country, it was necessary to directly apply for payment of the pension benefit of the partner country to the pension counter of the partner country. By the agreement, it became possible for Japan Pension Service to submit applications for pension benefits of the partner country.

Table 3 Status of the conclusion of social security agreements (as of October 2019)

Classification	Nation
Implemented	Germany, UK, Republic of Korea, US, Belgium, France, Canada, Australia, Netherlands, Czech Republic, Spain, Ireland, Brazil, Switzerland, Hungary, India, Luxembourg, Philippines, Slovakia, China
Signed (Under preparation for implementation)	Italy, Sweden, Finland

Source Ministry of Health, Labor and Welfare of Japan

When applying for payment of the pension benefit of the partner country in Japan, the pension application form of the partner country and necessary attached documents should be submitted to the Japan Pension Service. These documents will be sent to the implementing agency of the partner country via the Japan Social Insurance Business Center. It is not necessary for the applicant to attach documents proving the Japanese pension enrollment record, and the pension organization will confirm the applicant's Japanese pension enrollment record and send it to the implementing agency of the partner country.

4.3.4 Japan-US Social Security Agreement (Pension)

For example, the Japanese public pension enrollment period (six years) does not meet the Japanese old age basic pension enrollment requirement (10 years). However, if the US public pension enrollment period is four years, the total period of enrollment of both countries is 10 years. As a result, you are eligible to receive Japanese public pension benefits.

On the other hand, the US public pension enrollment period (four years) does not meet the US public pension enrollment requirement (10 years), but if the Japanese public pension enrollment period of six years is added, it is 10 years. Therefore, you can qualify for the old age pension benefit of the US public pension.

The agreement allows claims for US pensions to be made at the Japan Pension Service. If you are claiming US public pension benefit at the Japan Pension Service, it is necessary to fill in your US social security number, name, and year of birth on the "Application Form for US Pension" provided at the counter and submit the necessary information such as the date and address.

The application method in the US is performed on the basis of domestic laws and regulations. If you live in Japan, you can choose from the following three methods to receive a US pension. The first is the transfer of Japanese yen to your bank account in Japan. The second is the transfer of US dollars to your US bank account. The third is delivery of a check in US dollars to your address in Japan.

5 Private Pension Programs

Private pension programs in Japan are voluntary, on a contribution basis, and include both corporate and individual pensions.

5.1 Corporate Pensions

Corporate pensions in Japan are retirement benefits that have evolved from lump-sum retirement payments, and their systems have also diversified.

5.1.1 Reorganization of Corporate Pensions

The corporate pension was reorganized to implement the “defined contribution pension (DC)” based on the defined contribution pension law of October 2001 and the “defined benefit pension (DB)” based on the defined benefit corporate pension law of April 2002. The DC, which is also called the Japanese version 401 k in the US, is a system that is contributed to by the company, and the investment is conducted by employees who are subscribers. DC is a corporate pension whose contribution calculation method is fixed, but the benefit (retirement allowance) calculation method is not fixed.

In the DC, subscribers will receive the performance of their own investment as a pension benefit, and the company will end its liability with contributions. For the DB, strict funding standards and disclosure of asset status have been established, and companies are now required to deal with insufficient funding. The DB is defined as the method of calculating the benefit, and the amount of contribution is not fixed.

The types of corporate pensions are as follows (Fig. 8).

The employees’ pension fund is a corporation established by company and industry groups with the approval of the Minister of Health, Labor and Welfare. This replaces the old-age employee pension benefit part of the employees’ pension in the public pension, adds the corporate pension uniquely, and the employees’ pension fund manages pension assets to provide pension benefits. The benefits of employees’ pension fund are classified by a sort of DB.

The DC is divided into two categories—“corporate type” and “individual type”—depending on the operation type. Of these, only the “corporate type” that a company pays contributions for is classified as a corporate pension as retirement benefits. In DC, contributions are clearly classified for each individual, and the benefit amount is determined based on the total amount of contributions and investment income from individual investment instructions.

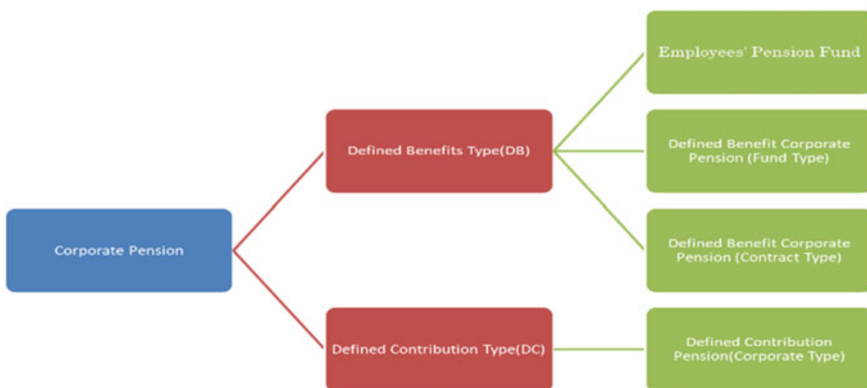

Fig. 8 Reorganization of corporate pensions
Source: Created by the author

Changes in the number of corporate pension subscribers are as follows (Fig. 9).

As seen in the figure, the DB and DC have replaced employees' pension funds and Qualified Pension Plans. The Qualified Pension Plan, which allowed contributions to be deducted from a company's taxable income on the condition that the company (employer) accumulate funds externally to finance retirement benefits, was abolished on 31 March 2012. Although DB has more subscribers than DC, the rate of increase in subscribers is higher for DC. A considerable number of both DB and DC choose to receive lump sum payments. In DC, this tendency is remarkable, with approximately 90% for both corporate and individual types. This is because in Japan, the retirement lump sum payment system was first introduced and became common, the recipients also needed a lump sum payment to repay the remaining debt amount, such as a mortgage upon retirement, and DC is often the case that individual balances are small (Table 4).

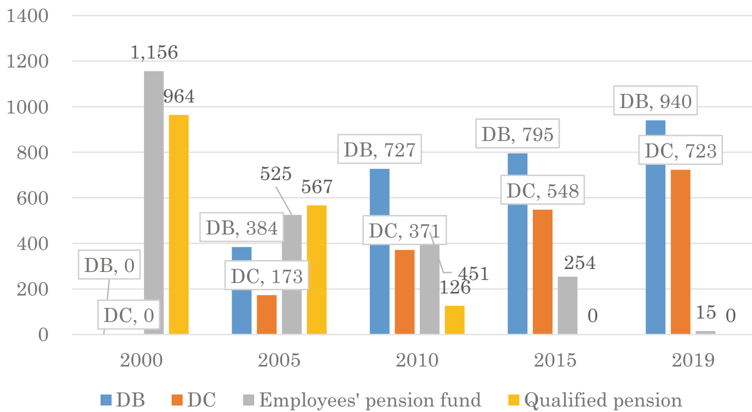

Fig. 9 Changes in the number of corporate pension subscribers (Unit: 10,000 People)
Source: Ministry of Health, Labor and Welfare of Japan

Table 4 Benefit selection for old age benefits based on the number of new beneficiaries (2019)

Classification	DB (%)	DC	
		Corporate type (%)	Individual type (%)
Pension	24	5	10
Combined pension and lump sum payment	8	1	1
Lump sum payment	68	94	89

Source Ministry of Health, Labor and Welfare of Japan

It is pointed out that most corporate pension benefits are paid as lump sum payments and are not used as living expenses after retirement.

5.1.2 Defined Benefit Corporate Pension

Structure of DB

(1) Types of DB

In the DB-type pension, the contribution amount is calculated in advance by a mathematical calculation for the preparation of the fund for the predetermined amount of benefit. The source of the pension benefits is the responsibility of the employer of the DB system, and the participants do not bear the risk of asset management. This DB system was established by the DB Law in 2002, which sets the standards for the protection of entitlements.

This DB is exempt from the tax of the company (employer) at the time of contribution, and the special corporate tax is basically taxed on the pension reserve fund at the time of investment. However, the special corporate tax (1.173%) levied on the pension reserve has been frozen. Pension benefit recipients are eligible for retirement income and public pension deductions. Therefore, DB is exempt at most stages of contribution, investment and receipt.

There is a "contract type" and a "fund type" in DB. The contract type in the DB is a system in which a life insurance company, a trust company, etc., concludes a pension contract with a company based on the pension rules agreed upon by labor and management and a life insurance company, a trust company, etc., manages the company's pension assets and provides pension benefits.

Every year, it is necessary to calculate whether the reserve fund exceeds the liability reserve amount (continuation standard) and the minimum reserve standard amount (discontinued standard). If it is insufficient, it is necessary to review the amount of contribution according to the law.

On the other hand, the fund type in the DB establishes a fund (corporate pension fund) with a legal nature different from that of the parent company based on the agreement of labor and management to establish a fund, and this fund manages the company's pension assets to provide pension benefits. The fund type in the DB has a requirement of more than 3,000 subscribers.

In principle, all contributions to a DB are made by the company (employer), but if the pension agreement stipulates, employees can also make contributions within a range not exceeding one-half, subject to the consent of the employees who are subscribers. In principle, all employees should enroll, except when certain qualifications such as research positions with different working conditions are stipulated in the regulations, but unfair discrimination against nonsubscribers is prohibited.

In retirement pensions in Japan, many companies provided pension benefits limited to those who had been with the company for 20 years or more, but DB benefits limited to those who had been with the company for 20 years or more

Table 5 Number of DB, number of establishments and subscribers in Japan (March 2019)

Classification	Number of DB	Number of establishments	Number of subscribers
Fund type	677	29,971	4,142,142
Contract type	122	395	294,044
Total	799	30,366	4,436,186

Source Pension Fund Association of Japan

were prohibited. Benefits in DB can be for life or for a fixed period of five years or more (lump sum payment is possible). Subscribers over a three-year service period or more are required to pay a lump sum withdrawal payment. In addition, it is prohibited to make excessive or unreasonable differences due to retirement reasons or age. Reasonable reasons are necessary when making a difference between job types.

Employers bear the contributions for DB, and it is possible for the contributions of the subscribers to be made on the premise of the consent of the subscribers in the pension agreement. The subscriber who is paying the contribution may, at any time, offer to not pay the contribution and not bear the contribution.

The number of defined benefit pension plans, the number of business establishments, and the number of subscribers in Japan are as follows (Table 5).

As seen above, most DB is fund type.

(2) Change of benefit (reduction)

In principle, the DB cannot reduce the benefit level. However, if it is unavoidable, the benefit level in DB can be lowered provided that the changed benefit design to the subscribers meets the requirements of the establishment authorization standard as follows. ① When the labor agreement, retirement allowance rules, etc., are changed in the parent company, and the benefit design of the fund is changed based on the changes; ② When the management status of the parent company has deteriorated significantly, such as the situation that debt overruns are expected to continue; ③ More than five years have passed since the establishment or the latest change in the benefit level, and if the benefit design is not changed, the premium will rise significantly and it will be difficult to bear the premium; ④ At the time of benefit design change in the case of fund integration; ⑤ When shifting to DC (corporate type); ⑥ Switching to risk-sharing corporate pension; and ⑦ Reduction is allowed when ending risk-sharing corporate pension.

The following conditions must be met when changing (reducing) this benefit. ① Sufficient explanation in advance to all subscribers; ② If there is a labor union organized by more than one-third of the subscribers employed at the establishment, the consent of the labor union; ③ The consent of two-thirds of all subscribers. (If there is a labor union organized by two-thirds or more of the subscribers, it can be replaced with the consent of the labor union.)

On the other hand, to reduce the pension amount of the beneficiary, the following conditions must be met. ① Sufficient explanations and confirmation of intentions regarding changes in benefit design have been given to all beneficiaries; ② Individual consent of two-thirds or more of all beneficiaries has been obtained for changes in benefit design; and ③ Among the beneficiaries, those who wish to receive a lump sum will be paid the amount as a lump sum before the reduction.

Risk-Sharing Corporate Pension

(1) Overview of risk-sharing corporate pension
The risk-sharing corporate pension is a system called the "third corporate pension," which was created by the legal revision in January 2017 and is a system in which the management risk of corporate pensions is shared by labor and management. This is a DB-type corporate pension with a new concept based on the introduction of risk-bearing contributions.

The employer fixes the contribution by preliminarily contributing the amount of financial deterioration risk (in whole or in part) in preparation for future financial deterioration as a risk countermeasure contribution. In addition, pension benefits are automatically adjusted according to the funding status. The amount of risk contributions here is to be decided through discussions between labor and management, and it is stipulated that the representatives of the subscribers should always participate in the operation.

If the total present value of contributions income and reserves is less than the present value of pension benefits, the pension benefit will be reduced. In addition, if the total present value of contribution income and reserves exceeds the total present value of pension benefits and the amount equivalent to the risk of financial deterioration, the pension benefits will be increased. By this structure, future risks and returns of the pension system will be shared between the employer and the subscribers.

Risk-sharing corporate pensions are considered for companies to have been released from the obligation to make additional contributions by contributing risk-bearing contributions, and the liability for corporate retirement benefits (corporate pensions and lump-sum payments) is off-balanced from the balance sheet. In addition, in the DC, the employer has an obligation to give investment education to employees, but in the risk-sharing corporate pension the company manages the pension system, so there is no need for investment education for employees.

(2) Risk response contribution
The risk response contribution was newly introduced in 2017. Until then, in financial management, if a fund shortage occurred, a special contribution was paid out after the fact. In this case during the recession period, the fund is likely to be insufficient due to the deterioration of the management environment, but at the same time the companies that are implementing DB are also likely to be

seeing poor investment performance, and it is difficult to pay the contribution to the DB. Here, the risk response contribution can be paid after measuring the risk (financial deterioration risk equivalent amount) that occurs in the future in advance. The risk response contribution is set based on the amount of loss (equivalent to financial deterioration risk) that is expected to occur once every 20 years.

There are "standard calculation methods" and "special calculation methods" in the calculation method of the amount of financial deterioration risk. The standard calculation method is a method of calculating based on the amount of the asset balance of each pension asset category multiplied by a risk factor. This method can be used in DB where the ratio of the amount of the other assets is less than 20%. "Other assets" are real estate, private equity, etc.

On the other hand, the special calculation method is not fixed like the standard calculation method, but it will be calculated by a method that suits the actual conditions of the DB with the approval of the Minister of Health, Labor and Welfare.

Cash-Balance Plan

The cash balance (CB) plan was defined as one type of DB since it was approved in the additional portion of the employees' pension fund and the benefit design of the DB from April 2002. This is a benefit design that combines the features of both the DB and DC. There is no difference in the management of pension assets from other DBs, and the company bears the risk of managing the benefit obligation.

Cash means "lump sum payment" and balance means "account balance." With the DB in the US, benefits are usually paid as a lifetime annuity, which begins at age 65, but the CB allows a lump sum payment upon retirement. This meaning is included in the word "cash," and "balance" includes the nuance that subscribers can confirm their benefit amount as a lump sum payment.

In Japan's CB, a hypothetical personal account is set up in a book, and the equity of each employee is accumulated in it. This hypothetical personal account is only for calculating the employee's equity; no contributions are transferred, and its balance shows the amount received when the employee retires on that day. The individual balance in this hypothetical personal account (virtual personal account balance) means the amount of benefit at the time of calculation, and it is not the balance of the assets that the pension account holds.

The contribution paid by the company is calculated by actuarial calculation as in the DB, and it is added to the balance of the hypothetical personal account whether the contribution is made or not. Yields (constant rate, government bond yield, or a combination of them) are guaranteed for the hypothetical balance accumulated in the hypothetical personal account.

As with the DB, the company manages all pension assets in a CB. The company bears the asset management risk, and in the case of a fund shortage, the company makes additional contributions as in the conventional DB. The pension benefit

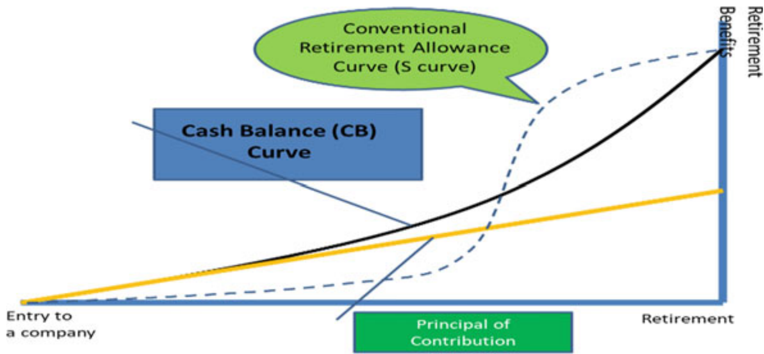

Fig. 10 DB benefit curve and CB benefit curve
Source: Various materials

amount does not depend on the actual yield, and it is calculated using the total principal and interest of the assumed contributions recorded in the employee's hypothetical personal account at the time of retirement.

The equity grant amount (pay credit) is also called a contribution credit, pay credit, grant points, and the like. The amount of equity granted is the amount given to the balance of the hypothetical personal account for each fixed period, and the equity granted for each individual is accumulated. If the amount of equity is fixed, it will be a seniority-based benefit design according to the period of enrollment, and if it is proportional to salary or points, it will be a performance-based benefit design that accumulates the contribution to the company while in office each year (Fig. 10).

Issues with DB

(1) Scope of supervision
The DB law requires that the pension provisions define the requirements for receiving benefits, the method of calculating the benefit amount, the benefit period, etc., necessary to pay the old age benefits and the lump-sum withdrawal payment. Furthermore, the company must be approved by the Minister of Health, Labor and Welfare for its pension rules. When an employer tries to change the pension provisions, the employer must obtain approval from the Minister of Health, Labor and Welfare (Article 6 of the DB law).
However, the purpose of a company receiving approval to establish or modify a DB is to be able to treat its contributions as tax-exempt. But nontaxable organizations such as universities and nonprofit organizations are not subject to corporate tax exemptions, so there is little incentive to obtain approval for the establishment or modification of their pension system. As a result, unapproved DBs may be left in a blind spot of supervisory agencies and pension rights may not be protected.
(2) Absence of payment guarantee system

For the DB, a trust bank or a life insurance company will be the trustee. The form of contract is between the trust bank and the employer in the case of a trust contract, or between the life insurance company and the employer in the case of an insurance contract. In the case of the fund type, the company contributes to the fund, and the fund concludes a trust contract or insurance contract with a trust bank or a life insurance company. When a trust bank goes bankrupt, among the trust products, money trusts, loan trusts etc. that have a contract to cover the principal are subject to the deposit insurance system. However, trust funds without principal compensation contracts are not covered by deposit insurance.[2]

Furthermore, many companies go bankrupt due to fraud, and it is also important to ensure that the pension fund has sufficient assets to provide pension benefits at that time. For life insurance contracts, there is a payment guarantee system by the life insurance policyholder protection mechanism. The insurance business law stipulates that 90% of policy reserves at the time of a life insurance company's failure will be paid by the life insurance policyholder protection corporation of Japan. However, performance-linked insurance products such as the DB are not guaranteed by the guarantee of the Life Insurance Policyholders Protection Corporation of Japan. In other words, if a trust bank, a life insurance company, or a company that implements a pension system goes bankrupt, the preservation of the DB's pension assets cannot be guaranteed. In addition, if a company that implements the DB goes out of business and the amount of funds is insufficient, there is no guarantee of pension benefit as in developed countries.[3]

(3) Subscriber contributions

The employer bears contributions for the DB, but it is possible for the subscribers' contributions to be made on the premise of the consent of the subscribers when prescribed in the pension agreement (Article 55, Paragraph 2 of the Act, Article 35 of the Ordinance).

On the other hand, actuarial calculations do not calculate individual contributions commensurate with the subscriber's individual risks, as the employer assumes that all contributions are borne. For convenience, actuarial science simply calculates a contribution commensurate with the total benefits of all subscribers and, on average, calculates a fixed percentage of their salaries. It does not have a mechanism to maintain fairness among subscribers. It is not a fair

[2] Deposit insurance is a system that aims to contribute to the maintenance of credit order by protecting depositors, etc., and ensuring the settlement of funds when financial institutions are unable to refund deposits. The amount of deposits protected by deposit insurance when a financial institution goes bankrupt is the amount of deposits covered by the deposit insurance (deposits that meet the three requirements of interest-free, demand payment, and the ability to provide settlement services). For all other deposits, the principal amount per depositor is up to 10 million yen and the interest, etc., for each financial institution in Japan.

[3] In the US defined benefit corporate pension, there is a Pension Benefit Guaranty Corporation (PBGC) established under the Employees Retirement Income Security Act of 1974 (ERISA). This guarantees the amount of pension that should be paid in the event of a company's bankruptcy. In the UK, the Pensions Act 2004 introduced a payment guarantee system for defined benefit corporate pensions by the Pension Protection Fund (PPFP) in April 2005.

contribution from the standpoint of each subscriber because it simply averages the total amount of benefits required to the current salary of the subscriber.

Therefore, this actuarial method of corporate pension is effective only when the burden of the employer is calculated on the assumption that the employer bears all the contributions for all subscribers. In addition, it does not set a contribution according to individual risk, nor does it have a mechanism for maintaining fairness among subscribers. However, in the DB, the contribution of subscribers is permitted within the range of half of the contribution. On the other hand, the DB law allows reductions in past contributions, subject to certain restrictions.

(4) Pension actuary

The pension actuary must confirm the documents that employers submit to the Minister of Health, Labor and Welfare regarding financial calculations, etc. A Certified Pension Actuary must have been engaged in the actuarial services of the fund as an active member of the Japanese Society of Certified Pension Actuaries for at least five years, during which time he/she must have been in charge of pension actuarial services as a responsible person for at least two years.

Under Japanese DB law, there are "funding obligations," "fiduciary duty," and "information disclosure" of the mechanism for the protection of entitlement. Among these, it is expected that the prefunding under the funded obligation will be maintained by the pension actuaries.

However, most actuaries of pensions do not have independence, most of them belong to a trustee, and the trustees are entrusted with corporate pension businesses by the employers and earn a fee as income.

(5) Forfeiture and reduction of pension benefits

The basis for corporate pensions in Japan is stipulated in the retirement allowance regulations, and in many cases, some or all retirement allowances are transferred to corporate pensions. However, unlike retirement allowances, pensions and lump-sum payments from corporate pensions are not considered to be wages paid by employers under the labor standards act, and they are protected by the respective laws. In other words, if the retirement allowance is pensioned and the DB is approved, the DB law is applied instead of the labor standards act.

On the other hand, the DB law stipulates that the employer decides on entitlement on the basis of a request from a person who has the right (Article 30 of the act). In other words, the DB law does not give the right to receive the pension during the period of employment, as does the retirement allowance. It is thought that the pension entitlement will be finalized by a decision of the employer after retirement of the employee. Furthermore, in the case of a DB, part or all the pension benefit will be confiscated if it is no longer employed at the business establishment due to a serious reason attributable to the subscriber's theft, embezzlement, etc.

In addition, the DB law permits reductions, including past enrollment periods, for both beneficiaries and the subscriber in the event of a deterioration in business

conditions or a significant increase in contributions. Furthermore, although the DB system allows contributions to the subscribers, even those contributions are subject to reduction, including past enrollment periods.

5.1.3 Defined Contribution Pension

Overview of DC

The defined contribution pension (DC) is a pension system in which the amount of pension benefit is ex-post determined by the contributions and investment income. Subscribers in the DC manage their pension assets at their own risk and receive benefits in old age based on the performance of their investment.

DCs are broadly divided into two types: "corporate type" and "individual type." In the corporate type, the company is the implementer of the DC and makes contributions to the employee's DC. The individual type is nicknamed "iDeCo" and is implemented by the national pension fund federation. In this "iDeCo" each subscriber under the age of 65 pays contributions.

The corporate type is basically classified as a corporate pension funded by retirement allowances. However, the individual type (iDeCo) is classified as an individual pension and does not belong to the retirement allowance corporate pension.

DC (Corporate Type)

A company that implements a DC (corporate type) is required to enroll all employees under the age of 70. However, if there is no unfair discrimination against a specific person, "certain qualifications" can be established, and a person who does not meet the qualifications may not enroll. The DC (corporate type) and DB can be deployed together if these requirements are met.

When implementing the DC (corporate type), the employer must prepare the agreement for the DC (corporate type) under the agreement of labor and management and obtain the approval of the Minister of Health, Labor and Welfare. In addition, the employer needs to conclude an asset management contract with the trust company, the life insurance company, or the like.

The operation and management work can be outsourced to an operation and management organization, and the company itself can also perform the operation and management work. The contributions of the DC (corporate type) are contributed to "asset management institutions" such as trust banks, insurance companies, Shinkin Bank, and cooperatives, by the employer's company.

An asset management institution is an institution that separates the contributions made by employer or individuals (matching contribution) and manages and preserves them as pension assets. This asset management organization protects the pension assets even if the company goes bankrupt.

Table 6 Limits of contributions in DC (corporate type)

If you do not have a corporate pension	If you have a corporate pension
660,000 yen (annual sum)	330,000 yen (annual sum)
55,000 yen (per month)	27,500 yen (per month)

Source Ministry of Health, Labor and Welfare of Japan

Furthermore, the asset management institution is an institution that sells and buys investment products based on operation instructions compiled by the operation management institution, pays pension benefits and lump sums to recipients, and so on. The operation instructions from the subscribers (employees) are compiled by the operation management organization and transmitted to the “asset management organization,” such as banks, trusts, credit unions, securities companies, and life insurance companies. Based on the instructions, the asset management institution trades the assets with the financial institution that provides the investment products.

In addition, the asset management organization pays benefits, and the operation management organization manages personal records, arbitrates pension benefits, presents investment products, and provides information on investment products.

In the DC (company type), if an employee has been employed for less than three years, the employer may be able to request a return of some or all the contributions made. Therefore, in the DC (corporate type), even if there is no employee’s burden for three years or more of service in the company, the full entitlement is given, and the pension assets are transferred when leaving or changing jobs.

In principle, the employer will pay the contribution for the DC (corporate type) as retirement benefits. However, from January 2012, if the pension agreement stipulates that, in addition to contributions made by the employer, it is possible for subscribers to pay additional contributions, it is called a matching contribution. This matching contribution is a system that allows contributions to be made from the salaries of subscribers within a certain limit (Table 6).

The DC (corporate type) has different limits depending on the existence of a corporate pension, such as employees’ pension fund and the DB. In addition to the DC (corporate type), if there is a corporate pension such as employees’ pension fund or a DB, the monthly limit is 27,500 yen, which is the total of the employer’s contributions and matching contributions.

5.1.4 Pension Total System

The pension total system is also called portability, and it means that the pension assets accumulated in the original company can be carried under certain conditions when changing jobs or leaving a job. About corporate pensions, a system is in place that allows you to transfer the reserve fund to the corporate pension of the new job and total the years of service at the former company.

With this total system, it will be possible to obtain pension qualifications even if you change jobs, adding up your pension funds and enrollment period. Those who had a short tenure had no choice but to receive corporate pension benefits as a lump sum when they changed jobs or retired. However, due to a revision of the law from October 2005, this lump sum was transferred to a new corporate pension, which is now linked to pension benefits.

The corporate pension federation was established in February 1967 as a federation of employees' pension funds under the employees' pension insurance law, and it was reorganized into the corporate pension federation in October 2005 due to legal changes.

The organization undertakes pension assets such as for those who have withdrawn from the employees' pension fund and DBs due to retirement (half-way leavers) and will conduct a pension summation business that centrally provides future pension benefits. It also plays the role of a portability function that transfers the retirement plan's pension assets to the corporate pension system or individual DC (iDeCo) at the job transfer destination (Fig. 11).

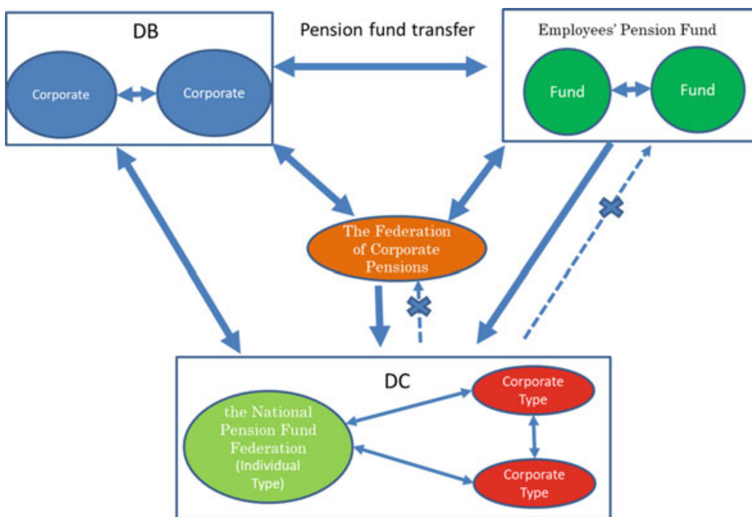

Fig. 11 Total system by the corporate federation pension
Source: Corporate Pension Federation of Japan

5.2 *Personal Pension*

A private pension system, the individual pension, is available as a means of preparing for old age in addition to the public and corporate pensions. There are individual pensions sold by life insurance companies and "iDeCo" implemented by the national pension fund federation.

5.2.1 Personal Pension Insurance Participation Status

Personal pension insurance can be classified into two types: "fixed annuity insurance," which allows you to determine the amount of future annuity payment when you make an annuity contract, and "variable annuity insurance," in which the amount of pensions received and cancellation refunds change depending on the investment performance.

The basic mechanism of individual annuity insurance is as follows. A policyholder pays a pension contribution to an insurance company and receives a pension benefit as a pension or lump sum after a certain contribution (operation) period has expired. In addition, in general annuity insurance sold by life insurance companies, if the policyholder dies during the contribution (operation) period, a death benefit will be paid to the designated beneficiary.

The Japan Institute of Life Insurance investigated the household subscription rate of personal pensions in the "Life Security Survey" (FY2019). Individual annuity insurance in this survey is a general term for individual annuity insurance and variable individual annuity insurance of private insurance companies, individual annuity insurance of Japan post insurance, mutual annuity insurance of agricultural cooperatives, and mutual insurance of all employees. However, public pensions, corporate pensions and the DC (individual) (iDeCo) are not included in this survey.

This is expressed as follows.

$$\text{Household subscription rate of personal pension insurance} = \frac{\text{Number of households withpersonal pension insurance}}{\text{Number of all respondent households}} \times 100$$

This personal pension subscription rate was 21.9% in total in 2019. The average subscription amount was 1,025,000 yen per year.

The personal pension premium (contribution) is exempted from tax at the time of contribution within a certain limit.

5.2.2 Variable Annuity

In Japan, variable annuities were first sold by life insurance companies in 1999, but since October 2002 banks have been selling them as agents of life insurance

companies. A variable annuity is pension insurance in which the insurance fund is managed in a special account that is separate from the general account of a life insurance company, and death benefits and pension funds fluctuate depending on the performance of the investment.[4]

Variable annuities generally have minimum guarantees for insurance and pension funds. In recent variable annuities, the contribution payment method is often lump-sum payment and is sold under the name "investment-type annuity." Fixed annuities are difficult in dealing with inflation, while variable annuities can deal with inflation.

A variable annuity is personal pension insurance in which the insurance contribution is invested in stocks and bonds, the amount of the annuity and surrender value increases and decreases depending on the investment performance, and the investment risk is taken by the individual.

Some variable annuities have a fixed pension amount after the start of receiving the pension, and others have a pension amount that increases or decreases depending on the investment performance even after the receipt of the pension. For the period for receiving the pension, there is much whole life insurance with a guarantee period and a defined pension, but there is also a fixed term pension with a guarantee period. If the insured dies before the start of receiving the pension, most of the death benefits are guaranteed, but some are not guaranteed. There are also no minimum guarantees for cancellation refunds in many cases.

If the pension fund exceeds the paid-in contribution, the pension amount will increase, reflecting the increase in the pension fund. On the other hand, when the pension fund is less than the paid-in insurance contribution, the pension amount is reduced by reflecting the decrease in the pension fund.

Payment methods for variable annuities include lump-sum payment, monthly payment, annual payment, and half-year payment. The insurance contribution paid will be managed in a special account of the life insurance company, and the pension will be paid according to the performance of the investment.

The special account is an account in which paid contributions and their performance of the investment are accounted for separately from other assets of the life insurance company. An account that manages assets related to fixed-rate insurance whose insurance money is constant regardless of the performance of paid premiums is called a general account. In variable annuities, investment trusts are used for this special account, and there are those that have a dedicated fund for the operation of variable annuities and those that use investment funds that are generally sold.

There are two types of methods of receiving variable annuities: a defined annuity received for a fixed period of five years, 10 years, 15 years, etc., and a lifetime pension with a guarantee period. A lifetime pension with a guarantee period is paid until the death of the insured, but during the guarantee period that is set to be 10 years or 15 years after the start of the pension, the pension is paid regardless of whether the insured is alive or dead.

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[4] Hongmu Lee, Satoshi Nakaide, "Financial Consumer Protection in Japan", An International Comparison of Financial Consumer Protection, Springer, 23 June 2018.

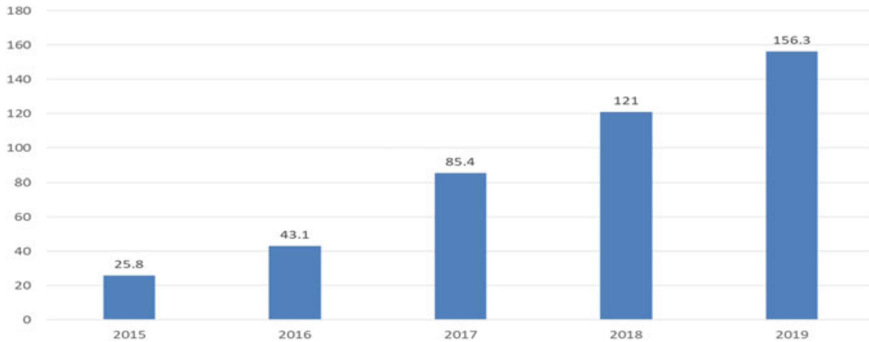

Fig. 12 Changes in the number of iDeCo subscribers (10,000 People)
Source: National pension fund federation

With a guaranteed lifetime pension, if the insured dies during the guarantee period, the survivor will continue to receive the pension until the end of the guarantee period, or the survivor will receive a pension for the remaining guarantee period in a lump sum.

5.2.3 DC (Individual Type)

An iDeCo[5] is not a corporate pension as a retirement benefit, but it is one of the private pensions stipulated in the DC law, along with the DC (corporate type) as (DC (individual type)). This system is a personal pension system introduced to supplement the corporate pension. This iDeCo was introduced with reference to the IRA (Individual Retirement Account) introduced in the United States.

The DC (individual type) was originally created as a system for Category I insured and Category II insured without a corporate pension. However, in January 2017, the coverage was expanded to include corporate pension subscribers, civil servants, and national pension Category III insured, providing a system that covers all the national pension insured regardless of the Category of insured.

The changes in the number of iDeCo subscribers are as follows (Fig. 12).

The national pension fund federation is the implementing body for the DC (individual type), has established the "personal pension agreement" and has been approved by the Minister of Health, Labor and Welfare. The national pension fund federation plays such a role as a property conservation function. Many management organizations have been appointed by the national pension fund federation, so they are selected when applying for enrollment.

[5] The nickname for DC (individual type), iDeCo, was selected from a total of 4,351 applications by a nickname selection committee held from 1-21 August 2016. iDeCo consists of a part of the words of the individual type DC written in English, and it represents DC (individual type) plan. The meaning of "I" is included in "i" and it captures the characteristics of pensions that are managed by oneself.

For the iDeCo, the application for subscription is voluntary, and the subscriber can receive the pension benefit based on the total amount of contributions and the investment income. There are tax incentives for contributions, investment, and receiving pension benefits. This DC (individual type (iDeCo)) has a maximum amount of contribution depending on the type of subscriber, but all contributions and the investment income are tax exempt.

The iDeCo is open to persons under the age of 65 who meet the following conditions. ① Category I insured persons, such as self-employed persons and their families; ② Category II insured persons, such as company employees or public employees; and ③ A spouse who is dependent on a Category II insured person.

In addition, due to amendments of the DC law that came into effect on 1 May 2018, a small and medium-sized employer contribution payment system was created. This is a system in which a small and medium-sized employer adds an employer contribution to an employee's contribution. The target is employees who are employed by employers who meet certain requirements and who are in the iDeCo. For this employer contribution, it is necessary that the employee to contribute becomes a subscriber of the iDeCo and contributes the subscriber's contribution. Employer contributions cannot be made to employees who are not subscribers of the iDeCo.

The main requirements for employers who can implement the small and medium-sized employer's contribution payment system are as follows. ① Number of employees is 100 or less; and ② Neither corporate type DC, DB, nor employees' pension funds is implemented.

6 Reverse Mortgage

6.1 The Beginning of Japan's Reverse Mortgage

Reverse mortgages are mortgages that have been set up in the UK and the US since the 1970s to allow older homeowners to obtain loans from their property. However, in this case, the term refers to something that is not returned by the borrower for a certain period of time. Loans under this method have come to be called reverse mortgages, reverse annuity mortgages, etc.

In other words, in ordinary loans, a mortgage is set up on the real estate, and the borrower who first receives the loan as a lump sum later pays it off in a long-term split. However, in a reverse mortgage, the borrowing senior citizen receives money in the form of term money from the lender with the real estate as the collateral, and this is called reverse. This reverse mortgage is a loan mechanism that allows the borrower to continue to live in the home he or she owns and pay the full amount when the borrower dies. Such loans are also referred to as "reverse mortgage loans."

Reverse mortgages are basically not repaid during the period, the loan balance will increase, and the full amount will be repaid when the contract expires, such as when the borrower dies. Reverse mortgages are called "reverse" because this is

the opposite of normal mortgages, and the actual value of the loan balance and the user's assets is "reverse." This reverse mortgage plays a role like a pension because a person who formed an asset through a mortgage, etc., can steadily break down the value and secure an income.

On the other hand, in Japan, with reference to the systems of the UK and the US, the Musashino City Welfare Corporation was established in 1980 to provide paid home welfare services, and in 1981 the Musashino City Welfare Fund Ordinance came into effect, and the welfare fund loan business was implemented. This was the first reverse mortgage in Japan.

The system of Musashino City, which was the beginning of reverse mortgages in Japan, was triggered by the introduction of paid welfare services. It was before the introduction of long-term care insurance (2000) as social insurance. Musashino City pioneered a meal service for the elderly in 1973, but with this opportunity, a care center was established in 1975 with the co-subsidization of four neighboring cities, and day care, bathing services, rehabilitation stations, and a short stay were provided.

6.2 Risks in Reverse Mortgages

In general, reverse mortgages are considered to have three major risks to lenders: the risk of falling real estate prices, the risk of rising interest rates, and the risk of longevity for users. These risks lead to collateral breaks and difficulty in fund recovery.

First, the risk of falling real estate prices is a risk common to collateral loans, but there is a possibility that real estate prices, especially land prices, may fluctuate and be difficult to recover. To deal with this risk, in addition to setting the level of "collateral coverage" that has been traditionally used in real estate mortgage lending, it is necessary to reassess the collateral for a certain period and risk hedging with guarantees and insurance.

Second, the possibility that the balance of borrowing will be higher than expected due to rising interest rates. This occurs in the case of the floating interest rate method. To deal with this risk, measures such as requesting interest repayment at regular intervals and offsetting the interest on deposits, which is called deposit-linked, are being devised. The fundamental solution is to set caps and floors, which are the upper and lower limits of interest rate fluctuations to some extent, but it is also necessary to use insurance for this purpose.

Third, the life of the user may be longer than expected at the time of the contract, and the amount of borrowing may be larger than expected. If the user lives longer than the contractual final age, the lender can terminate the loan, but the termination of the loan when the user is old may cause the handling institution to be socially criticized. The first possible way to avoid this risk is to use guarantees and insurance.

6.3 Real Estate Secured Living Fund

As mentioned above, Musashino City in Tokyo started as a welfare fund loan business in 1981. After that, some local governments in Tokyo, Osaka and Hyogo prefectures launched a similar system. However, the usage record has not increased so much, and since 2002 the Ministry of Health, Labor and Welfare has started a real estate secured living fund loan system through the Prefectural Council of Social Welfare.

In addition, since 2007, the Ministry of Health, Labor and Welfare has started a real estate secured living fund loan system for households in need of protection with the aim of developing conditions for receiving welfare. Against this backdrop, Musashino City closed its business in March 2013. Following Musashino City, approximately 20 local governments, such as Nakano Ward (direct financing method) and Setagaya Ward (indirect financing method), have already finished their business.

The "real estate secured living fund" is a fixed-amount loan mainly to support the independence of low-income households that own residential real estate. The maximum loan amount is approximately 70% of the valuation of residential real estate (land), the loan amount is 300,000 yen or less per month, and loans are made every three months. It is also called a "reverse mortgage" because it provides a monthly loan to the elderly with real estate as collateral and repays the loan when the elderly die or the loan period ends.

Applications for the loan are accepted by the prefecture social welfare council. Although the council is a private organization, it is an organization organized by administrative division based on social welfare law, and most of its operating funds come from the budgetary measures of administrative agencies. Therefore, it is operated as a "public/private joint" and "half-public/half-private."

The loan target is elderly households that meet all of the following conditions. ① The applicant for the loan must own it alone or share it with his/her spouse and live in the real estate; ② Real estate does not have usage rights such as loan rights or mortgages; ③ There is no cohabitant other than the spouse or his/her parents. Household members must be 65 years old or older; ④ The borrowing household is a low-income household with a municipal tax exemption household or a per capita taxable household; and ⑤ Households to which gangsters stipulated in Article 2, Item 6 of the Act on Prevention of Unjust Acts by Gangsters (Act No. 77 of 1991) belong cannot apply for the loan.

6.4 Reverse Mortgages by Financial Institutions

Private financial institutions started managing reverse mortgages in November 1999 with Shokusan Bank, Ltd. (currently Kirayaka Bank). In 2005, Chuo Mitsui Trust Bank (currently Sumitomo Mitsui Trust Bank) and Tokyo Star Bank started handling them, and now Gunma Bank, Seibu Shinkin Bank, etc., have also entered the market.

House makers are also working on reverse mortgages. Asahi Kasei Homes in 2003, Toyota Home in 2004, and Sekisui House in 2006 began offering reverse mortgages to home buyers. However, the use of reverse mortgages by homemakers seems to be almost nonexistent, and the reverse mortgage by Asahi Kasei Homes is currently discontinued.

Later, after the establishment of housing loan insurance by the Japan Housing Finance Agency (2009), city banks, credit unions, etc., entered the market for reverse mortgages, and reverse mortgages are now handled by the social welfare councils and financial institutions of each prefecture. However, it can be said that their popularity is not as high as in other countries. It is pointed out that there is no government guarantee or insurance against the risk of collateral breakage such as HECM in the United States.

7 Summary of Issues

7.1 Some Measures for Subscribers

7.1.1 The Pension Periodic Notification Scheme

The public pension system has a pension periodic letter system that informs people of the expected amounts of pension benefits they will receive after retirement. This is intended to encourage Japanese citizens to prepare income security for their own retirement.

The content of the Pension Periodic Notification varies depending on the age of the person, and there are five different patterns. The main form is a postcard, but in the birth months of the 35th, 45th, and 59th birthdays, which are designated as "milestone ages," a sealed letter is sent instead of a postcard. In the sealed letter, you can check your pension status in more detail than in the postcard. It is sent only to those who have continued to work after the pensionable age, i.e., those who have continued to participate in the National Pension Plan and the Employees' Pension Plan (Table 7).

7.1.2 Consumer Issues in Individual Annuities

Due to the deterioration of the asset management environment in recent years, investment-type individual annuities have emerged. Variable annuities are individual annuities in which premiums are invested in stocks and bonds, and the annuity and surrender value increase or decrease depending on the investment performance, with the individual bearing the investment risk. There are two types of variable annuities: those in which the annuity amount remains constant after the start of annuity payments and those in which the annuity amount increases or decreases depending

Table 7 Types and contents of pension periodic notification

Age	Form	Information on previous years	Information on pension amount
① Under 50 years old	Postcard	Monthly pension payments for the past year Cumulative total of insurance premium payments Cumulative total of period of pension participation	Pension amount based on past participation
② Over 50 years old			Types of old-age pensions and estimated amounts
③ Pension recipients			–
④ 35 and 45 years old	Sealed letter	Monthly pension payments for the entire period Cumulative total of insurance premium payments Cumulative total of period of pension participation	Pension amount based on past participation
⑤ 59 years old			Types of old-age pensions and estimated amounts

Source Japan Pension Service

on the investment performance even after the start of payments. Most variable annuities are whole life insurance with a guaranteed period and fixed annuities, but fixed term annuities with a guaranteed period are also available.

Most policies have a guaranteed minimum death benefit in the event of the insured's death before the start of annuity payments, but there are also policies with no guaranteed minimum benefit. In most cases, there is no minimum guarantee for the surrender value, but there are some with a minimum guarantee.

On the other hand, in Japan, there was a problem with variable insurance, which is like variable annuities in that it provides a lump-sum payment, but the amount of the payment is variable. Between 1989 and 1991, bankers and life insurance company salespeople sold variable insurance to the elderly in massive quantities along with bank loans, describing it as a "no-penny inheritance prevention product" and a "way to protect your house from inheritance taxes." The method of selling this variable insurance was to use the subscriber's home as collateral to obtain a loan of tens or hundreds of millions of yen from the bank and then have the subscriber use the funds to purchase variable insurance with one-time premium payments.

From 1989 to 1991, "variable insurance with integrated financing" was also marketed. This variable insurance with integrated financing was a combination of a variable insurance contract and a financing contract. The variable insurance contract was a lump-sum payment of premiums, the loan contract was a lump-sum repayment of the principal, and the monthly interest on the loan was financed sequentially. In other words, the policyholder would receive a loan from the bank equivalent to the full amount of the insurance premiums, pay the life insurance company the full amount of the premiums for the variable life insurance in a lump sum payment, the monthly interest on the loan would be increased sequentially by the bank, and the principal and interest would be repaid in a lump sum using the insurance proceeds or

surrender value at the time of inheritance. At the time of inheritance, the principal and interest were to be repaid in a lump sum using the insurance proceeds or surrender value.

Thus, policyholders were speculatively investing their assets in variable life insurance with funds loaned by the banks, but with little or no explanation of the risks involved, and elderly people who trusted the banks were buying variable life insurance. As a result, when the bubble economy burst, purchasers of variable insurance suffered huge losses, and there were a few cases where the balance of the loan remained after selling the house that had been used as collateral for the loan. In the 10 years since 1992, there have been more than 400 court decisions concerning this variable life insurance.

In Japan, problems also occurred with annuity policyholders when life insurance companies went bankrupt. Around the year 2000, seven life insurance companies went bankrupt, and when Nissan Life Insurance, which went bankrupt in April 1997, recalculated insurance benefits and annuity amounts, some life annuities were reduced by more than 40%. In the case of whole life annuities, some were reduced by 40% or more. This resulted in a demonstration of the influence of the assumed interest rate. Although the policy reserve was 100% (fully) compensated by support from the Policyholders Protection Fund and the purchase price of the goodwill of the bailout insurance company, the annuity amount was recalculated by uniformly reducing the assumed interest rate for existing policies to 2.75%.

In addition, in the bankruptcy process of Daihyaku Mutual Life Insurance Company, which went bankrupt in May 2000, policy reserves were reduced by 10%, and the average assumed interest rate was lowered uniformly from 4.46% to 1.00%, resulting in a reduction of up to 83% in the annuity amount for individual annuities. The problem of the insurance company's failure poses a similar problem for corporate pensions.

7.2 Current Issues

The insured in public pensions are divided into self-employed persons, employees and their spouses. Among them, employees have an employee's pension in addition to the national pension as a compulsory enrollment. However, for self-employed people, there is only a national pension for compulsory pensions, which is insufficient as a preparation for retirement.

In particular, nonregular employees (part-time workers), who are classified as self-employed, are increasing to approximately 40% of the total. Therefore, expanding the enrollment of employees' pensions to this nonregular employment is a critical issue.

On the other hand, as mentioned above, the macroeconomic slide was introduced to prevent the financial failure of public pensions in the pay-as-you-go system due to the decline in the birthrate and the increase in life expectancy. This has increased

expectations for private pensions, as it has substantially reduced public pension benefits.

One of the private pensions, the corporate pension, is the DB. Under this system, the employer is responsible for paying the benefits, and the employer bears risks such as asset management. To reduce the burden on the employer side, a cash balance system and a DC (corporate type) in which the subscribers are responsible for its investment were introduced. In recent years, a risk-sharing corporate pension system has been introduced in which employers and employees share their risks. It is true that this increases uncertainty about the future entitlement of the subscriber.

In addition, this DB pension does not have a guaranteed system in case of the insolvency of the pension fund, and it is possible to reduce or confiscate pension benefits under certain conditions. The problem is the strengthening of the entitlement in the DB and the removal of the employer's moral hazard that accompanies it.

In such an environment, the DC (individual type) was created to help each citizen's self-help efforts, and subscriptions to it are increasing rapidly.

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National Pension Law
Pension fund Association of Japan

The Italian Pension System

Gianni Nicolini

Abstract Italy is one of the countries where an increasing life expectancy and a low fertility rate is putting under pressure the sustainability of the national pension system. The growth of the age dependency ratio is a process that started years ago and it has required several reforms of the pension system in the last 30 years. The origin of the Italian pension system dates back to the beginning of the twentieth century and it has evolved over time, extending its coverage and increasing its generosity. As in many other countries, the need to reform the system to guarantee its financial sustainability in the long term started to be evident from the end of the 1980s and the first big reform was introduced in 1995. From this point forward the original pure defined benefit system entered a transition phase where new contributors belong to a pure defined contribution system. The additional reforms gradually included even other categories in what is now essentially a pure contribution system for all the participants. This chapter describes the evolution of the Italian pension system, the main contents of the pension system reforms, the current status, and the possible future evolution of the system.

1 Introduction

Pension systems represent one of the main components of the welfare state in a modern society. The need to guarantee a good standard of living to individuals and their families even after the end of their working life and the will to avoid old-age poverty are the main goals of any pension system. The fact that pension systems share the same goals does not mean they do not differ in terms of structure, functioning, and performance. In some cases, a public pension can be a universal right for all citizens regardless of the presence or the amount of contributions paid by the individual to the system. In other systems, this right is not guaranteed, or the amount of these

G. Nicolini (✉)
Full Professor of Finance, Department of Management and Law (DML), University of Rome "Tor Vergata", Rome, Italy
e-mail: gianni.nicolini@uniroma2.it

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pensions can be so low that they do not cover minimum living expenses. In some countries, people rely more on the public pension system; in others, the need to save for retirement by private solutions is clearer.

This chapter analyzes the case of Italy, whose pension system has been reformed several times in the last 30 years with radical changes in its functioning and performance. The aging of the population and a decreasing fertility rate are the main challenges from the demographic point of view. A huge public debt, a lack of economic growth, and a high unemployment rate—especially in the under 30 s—are critical issues from the economic perspective.

The first part of the chapter analyzes the Italian pension system. The study starts from the analysis of macroeconomic trends (GDP, public debt, unemployment, etc.) and demographic trends (population distribution, births, deaths, life expectancy, etc.) to provide the big picture of the country. An analysis of the current Italian pension system and the evolution of the system with several reforms that aimed to guarantee its long-term sustainability will follow. Tax policies and regulatory issues will complete the first part.

The second part addresses some consumer-related issues. The starting point is a comparison of the Italian pension system with other countries. Key variables such as the contribution rate, the valorization of the contribution balance, and retirement age are used to shed light on the effectiveness of the pension system from a consumer side, both from a current and future perspective. The next step is the analysis of the efforts of the Italian pension agency Istituto Nazionale Previdenza Sociale (INPS) to raise awareness of the functioning of the pension system by a communication strategy referred to as the Busta Arancione (Orange Envelope). The last part concerns the regulation and functioning of reverse mortgages in Italy, including an analysis of the perception and the willingness to use this option by Italian homeowners and a description of the credit products offered by the Italian banking sector.

2 Long-Term Economic and Demographic Trends in Italy

From an economic point of view, a pension system represents a set of rules and options to transfer purchase power between individuals and/or across time. Typical aims of a pension system are to secure approximately the same standard of living during the retirement phase as before and to protect individuals against old-age poverty (Leifeld, 2016). From a financial perspective, a pension system can be seen as a wealth management issue of individuals or a community. Regardless of the chance that participation in the system (or to just a part of it) can be mandatory or not, in a pension system, a participant saves part of his/her actual resources, paying contributions to one or more investment vehicles, with the expectation of receiving back payments (pension) from a certain point in time (retirement age) forward for the rest of his/her life. Hence, from a technical point of view, the decision to save for retirement involves the same issues as any investment decision. People will be more prone to invest if (1) the rate of return on their investment is high in real terms

(even after accounting for inflation), (2) the chance to achieve that return is high (so the risks of the investment—like interest rate risk and currency risk—are low), and (3) the issuer of the investment product is reliable (low risk of default). This analysis regards the willingness to participate in the system from a pure investment point of view, and it is based on a risk-adjusted return analysis.

A rational individual whose income is mainly or totally from a job and whose income will no longer be perceived from a certain point in time ahead (the retirement age) should be aware of the need to save to finance his/her consumption during retirement. To estimate how much savings will be enough to finance the cost of living of an individual for the rest of his/her life, there is a need to estimate how long an individual will live. The uncertainty about the moment of death of an individual and the consequent uncertainty about the amount of money to save are reasons behind the application of the mutualization of risk applied by retirement investment options such as pension funds and life insurance policies. Managers of pension funds and insurance companies collect a group of individuals and manage their investment portfolios (and their risks) as one. Once individuals are treated as a group, statistical analysis can be applied to estimate the average life expectancy of that group participants and to guarantee that who will live longer will receive a pension thanks to the money saved from those who will die before the (average) expected date.

This short excursus about the basics of a pension system identifies the key variables to monitor to assess the functioning and sustainability of the system and the people's willingness to participate in the system. Once a pension system involves all the citizens of a country and is based on a mutual approach, the performance of the system (e.g., its generosity) depends on the life expectancy of the population. Any additional year in the life expectancy of the population requires a fine tuning of the system. Such adjustments can be (1) an increase in the contribution payments to increase the amount of money needed to cover the additional year of life, (2) a reduction of the pensions to guarantee that the available resources will be enough to cover an additional year of payments, or (3) a postposition of the retirement age to make the available resources fit with the increased number of annuities. Of course any combination of these options can be an additional option too.

Meanwhile, the need to assess the amount of resources required "to feed the system" and to guarantee its stability in the long run requires estimating (1) the working age of the population (e.g., when on average people begin to work and start to pay contributions, and when they will quit work and stop paying contributions), (2) the chance that annual contributions will float by year to year with the floating of the unemployment rate (e.g., people who lose their job will not pay their contributions), (3) the amount of contributions to be paid by the participants/workers, and (4) the expected total return from the invested capital (e.g., the total amount of the contributions and the interest from their investment). It follows that macroeconomic trends provide useful information to assess the current and future functioning of a pension system. Gross domestic product (GDP) can be used as a measure of economic development. Economic growth is related to a low unemployment rate, with a positive effect on the incoming cash flows for the pension system (contributions paid by the workers). When the pension system—or a part of it—is guaranteed

by the government, the public debt-to-GDP ratio can be used as a measure of the reliability of the system both in the short and in the long run. The larger the GDP is, the larger the available resources for the government, coming from taxation, and the smaller the chance that the government will not be able to guarantee the functioning of the pension system. Additional variables such as currency exchange rates can be relevant for a pension system due to the indirect effect, for instance, on GDP (which includes imports and exports) and the return on the investment of contributions when contributions are invested in foreign markets.

Beyond sustainability in the long run of a pension system, there are also short-term issues. In several countries, the functioning of the pension system is not based on the investment of the contributions paid by the current workers to guarantee their future pension, but the incoming cash flows from the current contribution payments are used to cover the outgoing cash flows related to the payment of pensions to the present retirees. In that manner, the system is based on an intergenerational link with young generations (workers) paying for the older one (retired) under the assumption that the future generations of workers will provide the resources to pay the pension of the future retirees (the current workers). In that manner, the system is exposed to a liquidity risk related to the chance that the amount of contributions paid by the workers in a certain time could not be enough to pay all the current pensions. In this kind of system, the ratio between current workers and current retired becomes crucial to guarantee the functioning and stability of the system itself.

2.1 Demographic Trends in Italy

To understand the status of the Italian pension system and the reasons behind the many adjustments made by the reforms introduced in the last two decades by the government, a clear understanding of the demographic characteristics of the Italian population is needed.

At the end of 2019, the Italian population was equal to 60,433,360 individuals (ISTAT, 2020a). Almost one in four persons was over 65 years old.[1] This means that the so-called "age dependency ratio"—equal to the ratio between the number of individuals over 65 years old and those of working age—was equal to 56.69%. Hence, for each worker, there is more than one in retirement. Keeping in mind that the ratio accounts for those of working age, but that not all them are workers due to unemployment, the dependency rate probably underestimates the structural imbalance of the system. The information about the percentage of individuals over 65 has to be matched with the life expectancy of that group. Data from the Italian National Institute of Statistics estimate a life expectancy for people who turned 65 years old in 2019 of 20.89 years (ISTAT, 2020a). In the meantime, the average

[1] According to World Bank data, 23% of the population was in the 65 + years old age range (World Bank, 2020).

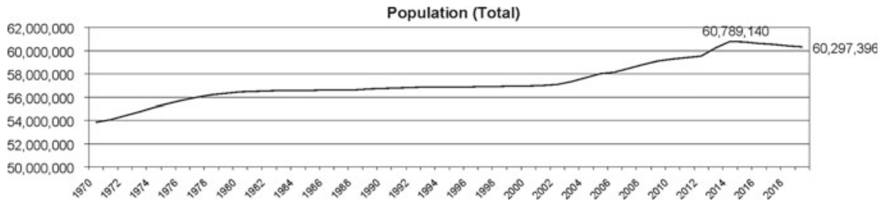

Fig. 1 Italian population (historic trend). *Source* Italian Institute of Statistics "ISTAT" 2020

age of the Italian population in 2018 was 46.3 years (Eustostat, 2019),[2] the highest in Europe. The fertility rate in 2018, as the average number of children for each women of fertility age (15–49 years old), was equal to 1.29 (ISTAT, 2020a).[3] Therefore, the big picture of the country, from the demographic point of view, is about a country on average (1) older than other European countries, (2) that struggles to renovate its population with newborns, (3) where almost a quarter of the residents are in retirement age, and (4) with a pretty high life expectancy, especially if compared with previous generations. The fact that people tend to live longer than before—due to things such as a better quality of life and the chance to diagnose and cure several diseases once fatal—is positive for individuals but requires the attention of governments and policy makers due to the possible long-term effect on the pension systems. Any year added to the life expectancy of the population puts pressure on the ability of the pension system to guarantee its obligation to retirees with the need to rebalance the ratio between available resources and the generosity of the system. As will be described in detail further in this chapter, the Italian pension system strongly relies on its "first pillar." This means that the role of the public pension system based on mandatory participation for all workers still represents the main source of retirement savings for the majority of people. The fact that this part of the pension system uses most of the resources collected by the periodic contributions from workers to pay the pensions of current retirees makes the increasing life expectancy of the population and its high dependency rate a potential source of worry.

To better understand the current scenario and to determine its possible evolution, there is a need to go beyond the snapshot of the present status and look at the trend of the demographic variables. The evolution of the Italian population, as reported in Fig. 1, shows how it was pretty stable for approximately 20 years (the 1980s and 1990s), being roughly 58 million. Then, it grew from 2000 to 2014, with a peak of approximately 60.7 million—and from that point forward declined and arrived at 60.2 million at the end of 2019.

A comparison with the evolution of the population aged 65 and above (Fig. 2) highlights how the relevance of that group systematically increased from the 1970s to the present. Less than six million Italians were above 65 years old in 1970, while they were more than double (13.8 million) in 2019.

[2] https://www.infodata.ilsole24ore.com/2019/11/10/vecchio-continente-invecchia-leta-media-aumentata-43-anni/.

[3] http://dati.istat.it/Index.aspx?DataSetCode=DCIS_FECONDITA1.

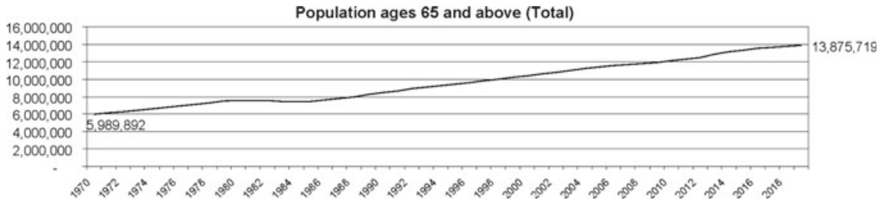

Fig. 2 Italian Population 65 years old or older (Historic Trend). *Source* Italian Institute of Statistics "ISTAT" 2020

That increasing trend is even more evident in Fig. 3, reporting the percentage of the total population over 65. They represented 11.1% of the population in 1970, reaching 23% in 2019.

Regarding the decrease in the total population from 2014, it is interesting to compare data on deaths, births, and the migration balance (Fig. 4).

It is clear how in the last year the balance between deaths and births is systematically negative. If immigration balanced that gap in the years before 2014, from that point forward, the incoming flows of people from abroad were not enough to balance the gap between births and deaths.

Additional interesting trends to complete this analysis of the demographics of Italy are those on the age dependency ratio (Fig. 5) and life expectancy at 65 (Fig. 6).

The lower life expectancy in the population and the positive trend in the total population smoothed the trend of the age dependency ratio in the first part of the time series. From the 1990s, the continuing positive trend of life expectancy, the low

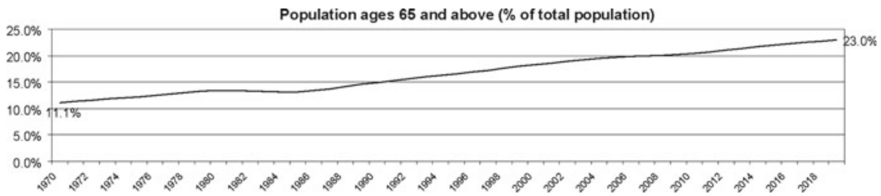

Fig. 3 Italian population 65 years old or above as a percentage of the total population (historic trend). *Source* Italian Institute of Statistics "ISTAT" 2020

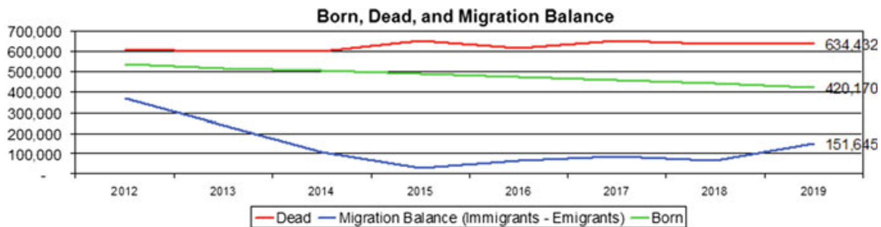

Fig. 4 Births, deaths, and migration balance of the Italian population (historic trend). *Source* Italian Institute of Statistics "ISTAT" 2020

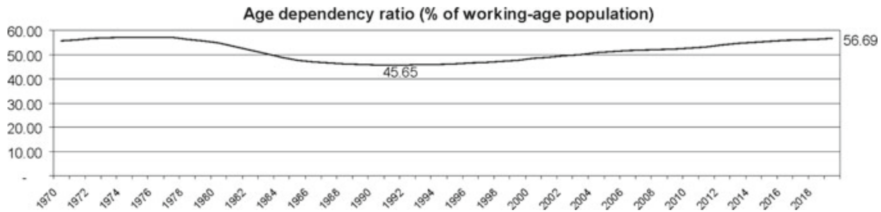

Fig. 5 Age dependency ratio of the Italian population (historic trend). *Source* Italian Institute of Statistics "ISTAT" 2020

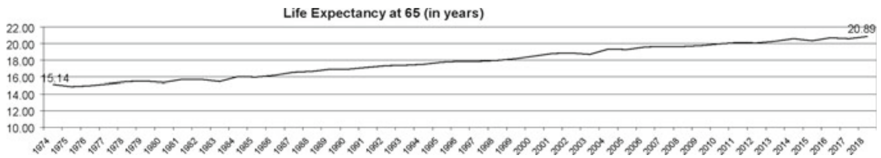

Fig. 6 Life expectancy at 65 of the Italian population (historic trend). *Source* Italian Institute of Statistics "ISTAT" 2020

fertility rate, and the aging of the population pushed the age dependency ratio up to 56.69% in 2019.

It is easy to guess the possible implications for the future of a pension system of such a scenario, but an analysis of the age distribution of the Italian population can help to make it even clearer. As seen in Fig. 7, a simple projection of the current distribution in the future—by shifting the distribution to the right—suggests an increasing age dependency ratio with an increasing number of people reaching the age of 65 that is not balanced by an increase in the number of new contributors.

The situation seems to be even more severe 10 years from now, where the number of potential new workers who could join the job market decreases, while the number of people turning 65 reaches its peak. In this kind of scenario, it is clear how the need for new adjustments to the current system cannot be avoided to preserve the system. As already mentioned in this chapter, the only options that do not involve an external intervention (e.g., a government intervention financed by taxation or public debt, a massive increase in contributions due to immigration flows, etc.) are the extension of the working age above the current retirement age, a decrease in the amount of money paid to retirees, or an increase in the contributions paid by the workers. If the possibility of self-adjusting the retirement age according to the change in life expectancy was already included in the functioning rules of the Italian pension system, recent amendments have tried to avoid a shift of the retirement age. The possible consequences of an increase of the contributions required by the system to the current workers in terms of reduced spending power and effects on GDP advise against this option. In such a scenario, a progressive reduction of the monetary value of the pensions paid to retirees remains the only option, even if it could be so severe in jeopardizing the functioning of the system that it could no longer achieve its goals:

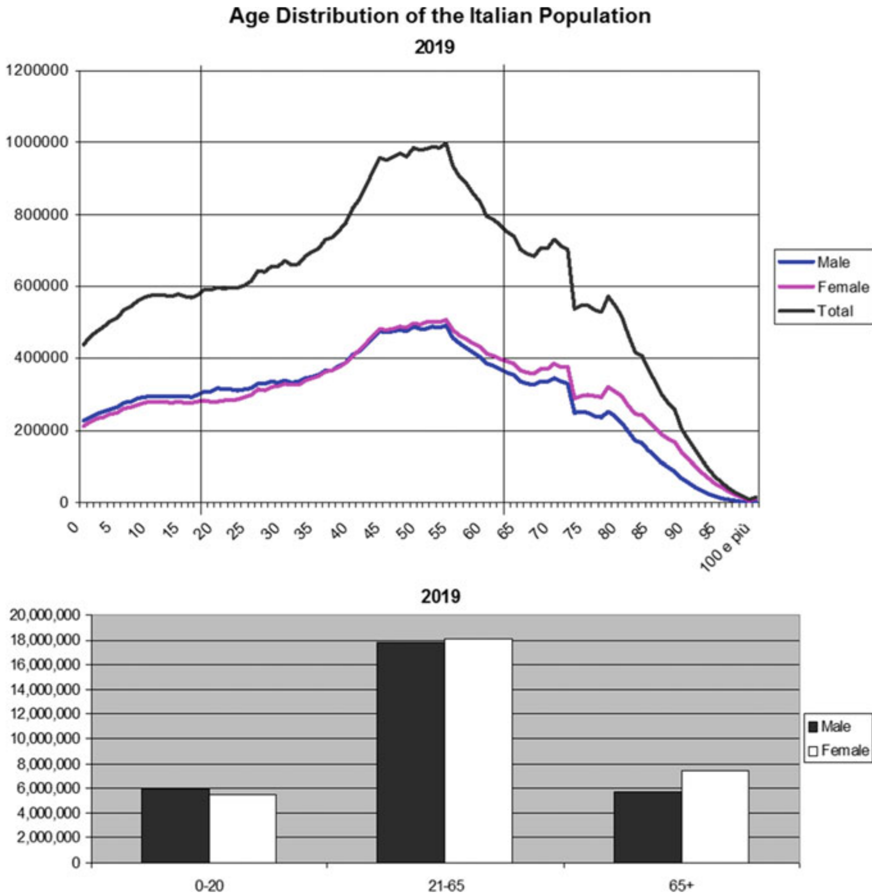

Fig. 7 Age distribution of the Italian population in 2019. *Source* Italian Institute of Statistics "ISTAT" 2020

to guarantee the living standards of individuals during retirement age and to avoid old-age poverty.

2.2 Economic Trends in Italy

A common standard to measure the performance of the economy at a macro level is GDP and its growth rate. Figure 8 shows the time series of Italian GDP in the last 50 years.

This long-term trend shows how the Italian economy experienced a growing trend up to the end of the 1980s, which turned into a flat trend during the 1990s, to grow again in the few years before the large financial crisis. The post-crisis years show a

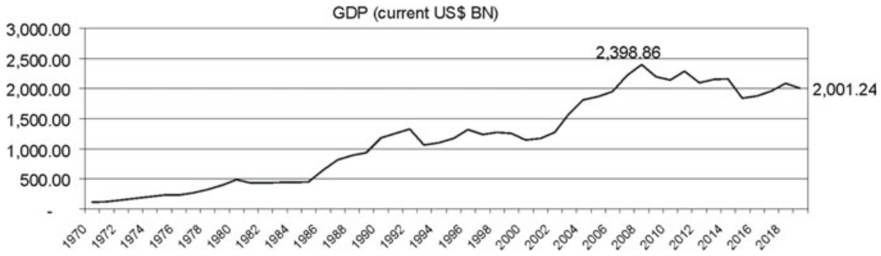

Fig. 8 Italian GDP: historic trend (1970–2019) in US$ (Billion). *Source* World Bank, 2020 (https://data.worldbank.org/country/IT)

slight negative trend of GDP that has not yet recovered from the crisis. Data on GDP per person (Fig. 9) can help to determine the economic status of the country from an individual point of view.

The demographic trend and the slight reduction of the population in the last years only smoothed the effect on GDP, which shows an average GDP per person in 2019 equal to $33,189.57. That amount is almost 20% below the peak of 2008 ($40,778.34).

However, the difficulties of Italian economic growth do not seem to refer only to the large financial crisis and the subsequent economic recession. Looking at the annual growth of GDP (Fig. 10), there is evidence that after 2000 (+3.79%), the growth rate never experienced growth above 2.00%, even before the crisis.

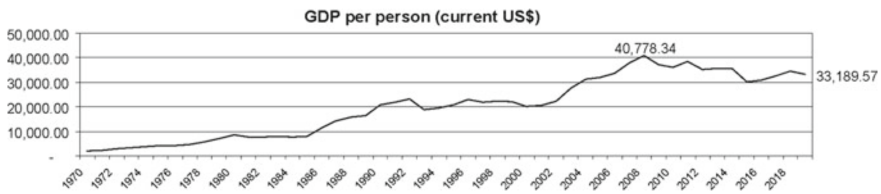

Fig. 9 Italian GDP per person: historic trend (1970–2019) in US$. *Source* World Bank (2020) https://data.worldbank.org/country/IT

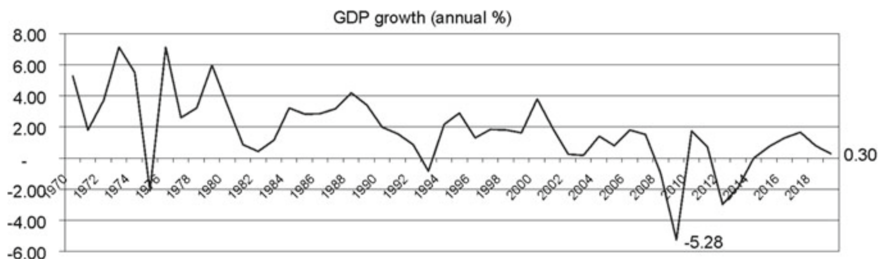

Fig. 10 Italian GDP annual growth rate. *Source* World Bank (2020) https://data.worldbank.org/country/IT

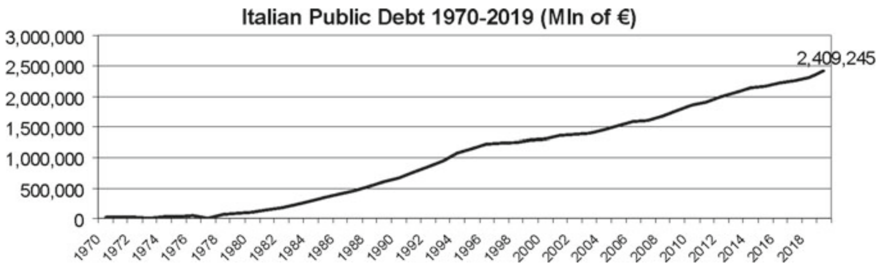

Fig. 11 Italian public debt (historic trend 1970–2019) in dollar amount (Million Euro). *Source* Bank of Italy (2020)

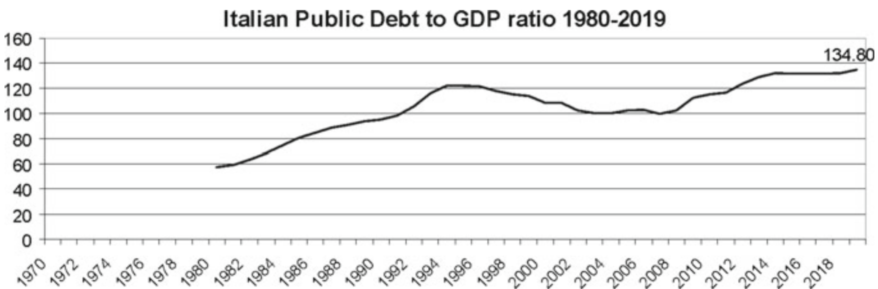

Fig. 12 Italian public debt-to-GDP ratio (historic trend 1980–2019). *Source* Bank of Italy (2020)

Data from 2018 (+0.80%) and 2019 (+0.30%) were both below 1.00%. The effect of the COVID-19 pandemic on GDP for 2020 will probably again push down GDP. Due to the direct link between GDP and money from taxation, the smaller GDP is, the smaller the resources in a government budget, which includes expenditures for welfare (e.g., healthcare, education, pensions, etc.).

Another relevant variable to understand the macro trends of a country is public debt, both in dollar amounts (Fig. 11) and related to GDP (Fig. 12).

Figure 12 shows how the Italian public debt at the end of 2019 was equal to 2,409 billion euro. That value is the last from a constant increasing public debt. From the end of the 1970s, the public debt starts to rise along an increasing path until the middle of the 1990s, where the slope of the trend decreases, even if it remains positive. The speed of the public debt growth increased again from the last financial crisis. However, a public debt should not be analyzed in absolute terms but should be related to GDP. The Italian public debt is quite high even when referring to the national GDP. However, the dynamics of the trend show how there was a period—from the mid-1990s to the beginning of the financial crisis in 2008—when the public debt-to-GDP ratio declined and approached 100% of GDP. The large government interventions in the economy and the shrinkage of GDP that followed the great recession pushed up the ratio to its historical record of 134.80. Government interventions during 2020, which were required to cope with the COVID-19 pandemic, increased

public debt. In the meantime, the large drop in GDP due to a countrywide lockdown and the economic slowdown that followed represents an additional explanation for the expected increase in the public debt-to-GDP ratio.

The burden of this public debt on the government budget, its influence on economic policies, and other political decisions can be seen looking at the provisional data on 2020 (Fig. 13).

The service of the debt—reported as "Interest"—represents 11.6% of the total expenditure. That value—which is already high—exposes the country budget to an interest rate risk. Any increase in the interest rates on public debt can increase

Italian Government Provisional Budget 2020		
REVENUE	Million euro	% of (A) Total
Taxes	511,101	87.5%
Other tax-related revenue	70,572	12.1%
Other revenue	2,316	0.4%
(A) TOTAL	583,989	100.0%
EXPENDITURE	Million euro	% of (B) Total
Current expenditure (without interest)	530,665	80.1%
Interest	76,732	11.6%
Investments	55,186	8.3%
(B) TOTAL	662,584	100.0%
	Million euro	% of (B) Total
(C) Debt reimbursement	234,840	
(D=B-A) Deficit to be funded	78,595	11.9%
Market fundraising (C+D)	313,435	
Source: Italian Ministry of Economic and Finance (MEF 2020) http://www.rgs.mef.gov.it/VERSIONE-I/attivita_istituzionali/formazione_e_gestione_del_bilancio/bilancio_di_previsione/bilancio_semplificato/		

Fig. 13 Italian Government 2020 Provisional Budget

the service of the debt (interest) for a nonmarginal amount and put pressure in the government budget. The "zero-rate" monetary policy of the European Central Bank in the last decade definitely relieves that pressure, which remains a potential issue for the future. Current expenditures account for more than 80% (80.1%) and shrink the resources available for public investments to 8.3% of the total expenditure. Within the current expenditures, welfare expenditures represent one of the main items, and pensions paid by the public system are a large part of the cost of the welfare state. Table 1 shows the dynamics of the cost of pensions for European countries in recent years.

After Greece, Italy is the European country that spends more on pensions accounting for the GDP differences between countries. The aging of the Italian population and the downward trend of GDP can help explain these numbers and the several interventions of policy makers on retirement regulation.

The unemployment rate provides interesting information about the recent history of the country. As shown in Fig. 14, the positive effect of the downward trend of the unemployment rate experienced from 1998 to 2008 was eliminated by the recession that followed the large financial crisis. After the 2015 peak of 12.68%, the unemployment rate decreased again and fell below 10% (9.95%) in 2019. However, these data cannot represent the entire Italian labor market scenario. That average rate does not represent all the young generations, where the unemployment rate (age between 18 and 29 years) was 22.2%[4] in 2019, and it can be misleading when different areas of the country are addressed. The average rate of unemployment in the northeast of the country in 2019 was 5.5%. The data for Northwest Italy (6.5%) and Central Italy (8.7%) were below the national average, while the average unemployment rate in the South was 17.6%.

Data about inflation (Table 2) are coherent with the data about economic growth and unemployment. The very low inflation experienced for more than a decade helped consumers and savers to preserve their purchase power. This positive effect from an individual point of view was not as positive as that from a government point of view. A low rate of inflation denied the chance to reduce the real-term value of the public debt, the burden of which on the government budget has been managed without the monetary policy since the beginning of the euro era.

Finally, the balance of payment—as the difference between the total exports and the total imports of goods and services—completes the analysis of the macro trends of the Italian economy. As seen in Fig. 15, the Italian economy shows a clear attitude toward participating in international markets exporting more than its imports. Keeping in mind that the lack of natural energy resources in the country requires importing most of them, the balance of payment represents a strong point for the country.

[4] Source: ISTAT (2020a, 2020b). http://dati.istat.it/Index.aspx?DataSetCode=DCCV_TAXDISOCCU1.

Table 1 Pension Expenditures as a Percentage of the National GDP in Europe

Pensions expenditures as GDP %										
GEO/TIME	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Greece	12.3	13.1	14.3	14.8	16.4	17.7	16.7	17.2	17.7	17.5
Italy	13.9	14.3	15.4	15.4	15.4	16.0	16.5	16.4	16.4	16.0
France	13.1	13.3	14.3	14.4	14.5	14.8	15.1	15.1	15.1	15.1
Portugal	12.2	12.7	13.6	13.7	14.4	14.5	15.7	15.6	14.9	14.6
Austria	13.2	13.4	14.3	14.5	14.2	14.4	14.7	14.8	14.6	14.3
Euro area—12 countries (2001–2006)	12.0	12.2	13.2	13.2	13.2	13.5	13.7	13.7	13.6	13.5
Euro area—19 countries (from 2015)	11.9	12.1	13.1	13.1	13.1	13.4	13.6	13.6	13.4	13.4
Euro area—18 countries (2014)	11.9	12.1	13.1	13.1	13.1	13.4	13.6	13.6	13.5	13.4
Finland	10.3	10.3	12.0	12.1	11.9	12.4	12.9	13.3	13.2	13.4
Netherlands	11.4	11.2	12.1	12.2	12.5	12.9	13.1	13.2	13.0	13.0
European Union—15 countries (1995–2004)	11.5	11.8	12.8	12.8	12.8	13.1	13.2	13.2	13.0	12.9
European Union—28 countries (2013–2020)	N.A	11.6	12.6	12.6	12.6	12.8	13.0	12.9	12.8	12.6
Denmark	11.7	11.7	13.0	12.6	12.8	12.7	13.7	14.0	13.5	12.6
Spain	9.0	9.3	10.2	10.6	11.1	11.9	12.6	12.8	12.7	12.6
Belgium	10.4	11.1	11.9	11.8	12.0	11.9	12.3	12.3	12.5	12.3
Germany	12.1	12.1	12.9	12.5	12.0	12.0	11.9	11.8	11.8	11.9
Switzerland	11.0	10.8	11.4	11.3	11.4	11.5	11.6	11.6	11.8	11.9
Poland	11.5	11.5	12.2	11.8	11.3	11.5	11.9	11.8	11.6	11.4
Sweden	10.8	11.3	12.2	11.4	11.2	11.6	12.0	11.6	11.3	11.3
Bosnia and Herzegovina	N.A	N.A	N.A	N.A	N.A	N.A	11.5	N.A	11.5	11.2
Serbia	N.A	11.5	12.7	12.2	11.8	12.5	12.1	12.3	11.4	11.0

(continued)

Table 1 (continued)

Pensions expenditures as GDP %										
GEO/TIME	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Norway	7.5	7.5	8.6	8.3	8.3	8.5	8.8	9.3	10.3	10.9
Slovenia	9.6	9.5	10.6	11.0	11.2	11.3	11.5	11.2	10.9	10.6
United Kingdom	9.7	10.1	11.1	11.2	11.2	11.5	11.3	11.2	11.3	10.6
Croatia	N.A	9.3	10.3	10.5	10.4	10.6	10.8	10.9	10.7	10.4
Cyprus	6.0	6.1	6.6	7.1	7.5	8.2	9.3	10.1	10.1	9.8
Luxembourg	8.3	8.6	9.6	9.2	9.2	9.6	9.6	9.3	9.3	9.1
Iceland	6.6	6.8	7.6	7.2	8.0	8.2	8.3	8.7	8.5	8.9
Hungary	10.2	10.7	10.8	10.7	10.8	9.3	9.4	8.9	8.6	8.5
Slovakia	7.1	7.0	8.3	8.2	8.0	8.2	8.4	8.7	8.5	8.5
Czech Republic	7.6	7.8	8.7	8.8	9.2	9.3	9.3	9.0	8.6	8.4
Bulgaria	6.5	6.7	8.2	8.7	8.2	8.1	8.6	8.8	8.5	8.3
North Macedonia	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	8.0	8.0
Estonia	5.7	6.9	8.8	8.6	7.7	7.5	7.5	7.5	8.0	7.9
Romania	6.3	7.3	8.9	9.4	9.1	8.7	8.3	8.2	8.1	7.9
Turkey	6.6	6.4	7.5	7.4	7.1	7.3	7.2	7.2	7.1	7.7
Latvia	4.9	5.7	8.3	10.1	8.6	8.2	8.2	7.9	7.7	7.6
Malta	8.6	8.7	9.2	9.4	9.1	9.2	8.8	8.2	7.5	7.4
Lithuania	6.5	7.3	9.5	8.5	7.6	7.6	7.2	7.0	6.9	6.8
Ireland	5.6	6.4	7.6	7.7	7.5	7.7	7.7	7.1	5.5	5.7

Source Eurostat (2020a)
Unit: Percentage of gross domestic product (GDP)
Last update: 27 July 2020

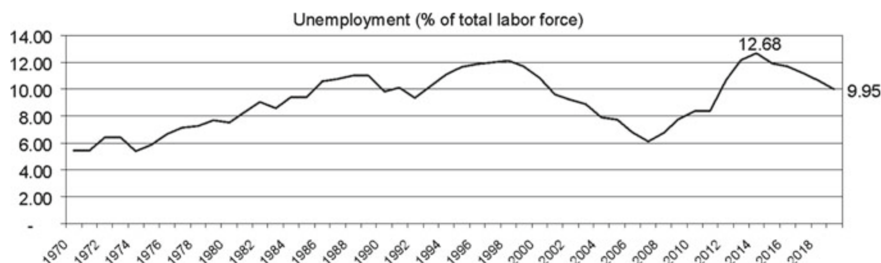

Fig. 14 Unemployment rate in Italy (historic trend 1970–2019) as Percentage of the labor force. *Source* ISTAT (2020a, 2020b). http://dati.istat.it/Index.aspx?DataSetCode=DCCV_TAXDISOCCU1

3 The Evolution of the Italian Pension System

3.1 Origin and Evolution of the Italian Pension System (1861–1990)

The first Italian pension system is dated 1895. At that time, Italy was a young kingdom. The official declaration of the Kingdom of Italy was only in 1861, even if the real unification of the country happened in 1970, after the annexation of the Papal State. What happened in 1895 was an official extension to all the Italian territories of a previous legislation on civil and military employee pensions adopted in Piedmont.[5] That system regards only workers of the public sector, while private employees had the chance to join a pension system only three years later, in 1898 with the establishment of the Cassa Nazionale di Previdenza per la Invalidità e per la Vecchiaia degli Operai (National Welfare Fund for Disability and Oldness of Workers). That system was essentially a nonmandatory insurance company financed by (1) the workers' contributions, (2) government financial support, and (3) employers' contributions. However, the employers' contributions were also voluntary.

It was in 1919 that the first mandatory system was introduced for heavy industry and agricultural workers. A specific public agency called Cassa Nazionale per le Assicurazioni Sociali (CNAS, National Fund for Social Insurance) was created to manage the system. That entity changed its name twice: during the Fascist regime in 1933 it became Istituto Nazionale Fascista per la Previdenza Sociale INFPS, National Fascist Institute for Social Welfare), and then in 1943 after the end of the Fascist regime it became Istituto Nazionale per la Previdenza Sociale (INPS, National Institute for Social Welfare). That entity and that name INPS is still the main public entity of the Italian pension system. In 1927, the pension system was extended to cover all workers with collective labor agreements.

[5] Piedmont is an Italian region located in the Northwest of the country that hosted the capital of the "Kingdom of Sardinia". This kingdom originally included Piedmont, Sardinia, and Liguria, and then expanded up to the inclusion of all the other regions that actually belong to Italy.

Table 2 Inflation rate (HICP) in Europe (annual average rate of change in percentage)

HICP—Inflation rate (annual average rate of change in percentage)												
Geo\time	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
EU(changing composition)	3.7	1	2.1	3.1	2.6	1.5	0.6	0.1	0.2	1.7	1.9	1.5
EU (27 countries—from 2020)	3.7	0.8	1.8	2.9	2.6	1.3	0.4	0.1	0.2	1.6	1.8	1.4
EU (28 countries)	3.7	1	2.1	3.1	2.6	1.5	0.6	0.1	0.2	1.7	1.9	1.5
Euro area (changing composition)	3.3	0.3	1.6	2.7	2.5	1.4	0.4	0.2	0.2	1.5	1.8	1.2
Euro area—19 countries (from 2015)	3.3	0.3	1.6	2.7	2.5	1.3	0.4	0.2	0.2	1.5	1.8	1.2
Euro area—18 countries (2014)	3.3	0.3	1.6	2.7	2.5	1.4	0.4	0.2	0.2	1.5	1.8	1.2
Belgium	4.5	0	2.3	3.4	2.6	1.2	0.5	0.6	1.8	2.2	2.3	1.2
Bulgaria	12	2.5	3	3.4	2.4	0.4	−1.6	−1.1	−1.3	1.2	2.6	2.5
Czech Republic	6.3	0.6	1.2	2.2	3.5	1.4	0.4	0.3	0.6	2.4	2	2.6
Denmark	3.6	1	2.2	2.7	2.4	0.5	0.4	0.2	0	1.1	0.7	0.7
Germany	2.8	0.2	1.1	2.5	2.2	1.6	0.8	0.7	0.4	1.7	1.9	1.4
Estonia	10.6	0.2	2.7	5.1	4.2	3.2	0.5	0.1	0.8	3.7	3.4	2.3
Ireland	3.1	−1.7	−1.6	1.2	1.9	0.5	0.3	0	−0.2	0.3	0.7	0.9
Greece	4.2	1.3	4.7	3.1	1	−0.9	−1.4	−1.1	0	1.1	0.8	0.5
Spain	4.1	−0.2	2	3	2.4	1.5	−0.2	−0.6	−0.3	2	1.7	0.8
France	3.2	0.1	1.7	2.3	2.2	1	0.6	0.1	0.3	1.2	2.1	1.3
Croatia	5.8	2.2	1.1	2.2	3.4	2.3	0.2	−0.3	−0.6	1.3	1.6	0.8
Italy	3.5	0.8	1.6	2.9	3.3	1.2	0.2	0.1	−0.1	1.3	1.2	0.6
Cyprus	4.4	0.2	2.6	3.5	3.1	0.4	−0.3	−1.5	−1.2	0.7	0.8	0.5
Latvia	15.3	3.3	−1.2	4.2	2.3	0	0.7	0.2	0.1	2.9	2.6	2.7

(continued)

Table 2 (continued)

HICP—Inflation rate (annual average rate of change in percentage)												
Geo\time	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Lithuania	11.1	4.2	1.2	4.1	3.2	1.2	0.2	−0.7	0.7	3.7	2.5	2.2
Luxembourg	4.1	0	2.8	3.7	2.9	1.7	0.7	0.1	0	2.1	2	1.6
Hungary	6	4	4.7	3.9	5.7	1.7	0	0.1	0.4	2.4	2.9	3.4
Malta	4.7	1.8	2	2.5	3.2	1	0.8	1.2	0.9	1.3	1.7	1.5
Netherlands	2.2	1	0.9	2.5	2.8	2.6	0.3	0.2	0.1	1.3	1.6	2.7
Austria	3.2	0.4	1.7	3.6	2.6	2.1	1.5	0.8	1	2.2	2.1	1.5
Poland	4.2	4	2.6	3.9	3.7	0.8	0.1	−0.7	−0.2	1.6	1.2	2.1
Portugal	2.7	−0.9	1.4	3.6	2.8	0.4	−0.2	0.5	0.6	1.6	1.2	0.3
Romania	7.9	5.6	6.1	5.8	3.4	3.2	1.4	−0.4	−1.1	1.1	4.1	3.9
Slovenia	5.5	0.8	2.1	2.1	2.8	1.9	0.4	−0.8	−0.2	1.6	1.9	1.7
Slovakia	3.9	0.9	0.7	4.1	3.7	1.5	−0.1	−0.3	−0.5	1.4	2.5	2.8
Finland	3.9	1.6	1.7	3.3	3.2	2.2	1.2	−0.2	0.4	0.8	1.2	1.1
Sweden	3.3	1.9	1.9	1.4	0.9	0.4	0.2	0.7	1.1	1.9	2	1.7
United Kingdom	3.6	2.2	3.3	4.5	2.8	2.6	1.5	0	0.7	2.7	2.5	1.8
Iceland	12.8	16.3	7.5	4.2	6	4.1	1	0.3	0.8	−1.7	0.7	2
Liechtenstein	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A
Norway	3.4	2.3	2.3	1.3	0.4	2	1.9	2	3.9	1.9	3	2.3
Switzerland	2.4	−0.7	0.6	0.1	−0.7	0.1	0	−0.8	−0.5	0.6	0.9	0.4
Montenegro	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A

(continued)

Table 2 (continued)

HICP—Inflation rate (annual average rate of change in percentage)												
Geo\time	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
North Macedonia	7.6	−0.1	1.1	3.2	1.8	2.7	0	0.1	0.2	2.1	2.3	0.7
Albania	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A
Serbia	11.9	8.2	6.2	11.2	7.4	7.7	2.3	1.5	1.3	3.3	2	1.9
Turkey	10.4	6.3	8.6	6.5	9	7.5	8.9	7.7	7.7	11.1	16.3	15.2
United States	4.4	−0.8	2.6	3.9	2.2	1.3	1.3	−0.8	0.5	1.7	2.2	1.3

Source of Data Eurostat (2020b)
Last update: 19 August 2020

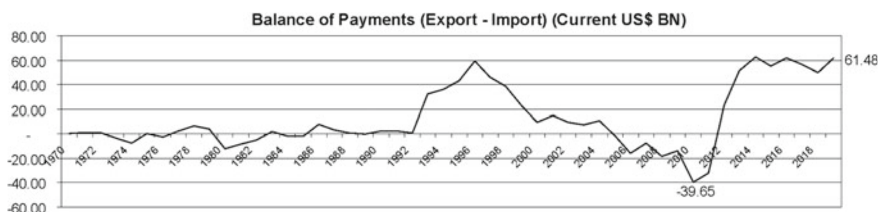

Fig. 15 Italian Balance of Payments (Export–Import) 1970–2019. *Source* World Bank (2020)

At the beginning (1919), the old-age pension (Pensione di Anzianità) was granted at 65 years for both men and women. The contributions paid by the workers were invested in Italian government bonds and real estate properties. At retirement age, each worker received back the total amount of his/her contributions plus the return on it. Hence, the system was working as a "defined contribution" system. In 1939, the retirement age became 60 years for men and 55 years for women, and a survivor's pension was introduced for the survivors of workers.

The system changed in 1945, when a new regulation introduced a parallel system based on a "defined benefit" system, and the Italian pension system became a "double system." The new system introduced the "mutualistic approach," where part of the contributions are not paid back to the workers who paid them to finance a more generous pension to other (poor) workers. The original defined-contribution system relied on stamps to be bought and attached to a worker booklet. The defined-benefit system was funded by a percentage of the workers' wage.

In 1952, the "minimum pension" was introduced, with the government covering the gap between the pension due according to the contributions and the minimum pension level. In the same year, a 13th monthly payment is introduced. From that point forward, every retiree receives 13 monthly payments a year, thanks to a double pension payment in December. Meanwhile, pensions start to be adjusted to inflation using additional contributions requests paid by employers (50%), workers (25%), and the government (25%).

The pension system again expanded its coverage and included in a mandatory pension system the self-employees in agriculture (1957), craftsmen (1959), and merchants and traders (1966).

In 1965, a retirement pension (pensione di anzianità) was introduced. Hence, a worker can decide to retire when a minimum number of contributions is achieved, regardless of the age of the worker. Workers in the private sector can go into retirement with 35 years of contributions. Public employees working in local authorities require 25 years of contributions, while government workers can do so with only 20 years of contributions.[6]

In 1969, the Italian pension system increased its generosity with the introduction of the "social pension" granted to every Italian citizen whose income was below

[6] In 1973 an amendment allowed women working in public entities to apply for retirement after 14 years, six months and one day if married with children. That option was referred to as the "baby pension" but was not available anymore from 1982 with the "Amato reform" of the pension system.

a certain threshold, regardless of the presence or the amount of contributions. The entire system becomes a defined-benefit system because even other pensions (i.e., retirement pensions, old age pensions) are not related to the contributions paid during the working life but are accounted for as a percentage of the worker's income in the last three years before retirement. The system is no longer based on the investment of contributions, but it relies on an intergenerational link, with current workers contributions used to pay the current retirees, under the assumption that future pensions to be paid to the current workers (future retirees) will be covered by contributions paid by the next generation of workers.

The peak of the generosity of the Italian pension system was probably reached in 1975. In that year, it was established that pensions should be indexed to the salaries paid to heavy industry workers (to account for the severe inflation of those years). In the meantime, the pensions were assessed as 80% of the best three consecutive years income average to be referred to the last 10 years before retirement.

Additional fine-tunings to the Italian pension system arrived during the 1980s. The chance to anticipate the retirement age for those close to retirement who had lost their job due to an industrial crisis was introduced in 1981. Two years later (1983), there was an intervention to limit possible abuses/bugs of the system. Agricultural workers are required to work for a minimum number of days during the year to be considered contributors and to earn a year of contributions. The number of paid sick days in a year can no longer exceed the number of days worked by the worker in the previous year. In 1989, the INPS started to manage welfare services beyond the pure pension system, dealing with unemployment and other job-related subsidies.

3.2 *Two Decades of Reforms (1990–2010)*

The 1990s and first decade since 2000 are the years of substantial reforms of the Italian pension system. Most of the interventions in welfare regulation aimed to limit the total cost of the system and to try to increase the financial resources coming from contributions. Changes in the demographic structure of the population and the consequent and increasing disproportion between incoming and outgoing cash flows started to be evident at that time.

In 1990, there was a reform of the self-employed pension system. The annual contribution rose to 12% of the workers' total income, and a cap to 80% of the average income in recent years was introduced in the assessment of pensions. However, the first large reform of the pension system arrived in 1992 with the "Amato reform" (named after Italian Prime Minister Giuliano Amato). The reform denied the chance to apply for retirement until the end of 1993. The retirement age gradually increased from 1994, increasing by one year every two years. Hence, the retirement age for men was adjusted from 60 years to 61 in 1996, changed to 62 in 1998, and became 63 in 2000, 64 in 2002, and 65 in 2004. The retirement age for women followed the same increasing path (one additional year every two years), passing from 55 years (pre-reform retirement age) to 60 years in 2004. The minimum years of contributions

started to be 35 years for all the categories. If that requirement does not differ from the one for private workers, it represents a large jump forward for workers in the public sector. Until 1992, a public employee could retire with 25 years of contributions (employees of local authorities) or 20 years (government workers). Additional limits to the chance to receive both pensions and job income are introduced. The revaluation of the pension no longer refers to heavy industry workers' salaries, but it refers only to the average prices of goods and services. In the meantime, such revaluation occurs only once a year, instead of twice a year. The assessment of the average income used to assess the pension amounts of retirees changes. That reference point became the average income in the last 10 years for public employees who are already in the system and the average of the last 15 years for self-employed in the same active status. For new workers, the average income level used to assess the pension refers to the entire working life of the worker. The consequence for the new worker is a dramatic reduction in the expectation of the pension amount. In case a pension is below the "minimum pension" level, the chance of receiving an additional amount to reach that level is subordinated to a household income check that also considers the spouse's income.

With the Amato reform, the generosity of the Italian pension system starts to decrease, becoming more thrifty with the new generations of workers compared with the previous ones. Such policies—based on the increase in retirement age, cuts in the amount of pensions (done by adjusting the assessment methodologies), and the increase of contributions—will be constantly adopted in future times by almost each successive government.

In 1993, the Italian pension system stopped being a "single pillar" system and relied on mandatory participation in the public pension system. In that year, two additional "pillars" were introduced: the pension funds and the individual retirement accounts.[7] Two kinds of pension funds are allowed. The so-called "closed" pension funds are those where only workers who belong to a specific category are admitted to participate. A closed pension fund can be promoted only by trade unions or other worker associations. An "open" pension fund is one promoted by financial institutions such as banks, asset management companies, and insurance companies. These open pension funds are allowed when there are no closed funds available for a specific worker group or category. The individual retirement account (IRA) refers to life insurance policies—issued by insurance companies—that replicate the functioning of a pension fund in terms of investment strategies and annuities.

In 1995, a new massive reform arrived with the "Dini reform" (named after Italian Prime Minister Lamberto Dini). The reform adopts for "new workers"[8] a pure defined contribution scheme, with the effect of providing a pension to future retirees that will be approximately 50% of the last income at retirement age, compared with 70–80% of the previous system. It is not only the average income of the last years of contribution to be used to assess the amount of the pension, but it is the pure sum of the contributions ever paid during the working life and the revaluation of those

[7] Decreto legislativo n.124 (21 April 1993).

[8] "New workers" are considered those who never paid contributions before 1 January 1996.

contributions that matters. The Dini reform maintains the defined benefit scheme (with the pension assessed as a percentage of the last years of income) for workers who, on 31 December 1995, already paid contributions for at least 18 years. Those who are not new workers but paid contributions for less than 18 years belong to a blended system where the pension will be assessed partly using a defined contribution scheme and partly by a defined benefit scheme. The contribution already paid to the pension system at the end of December 1995 remains in the defined benefit scheme, while the contribution from that point forward will be accounted for in a defined contribution scheme.

The Dini reform still allows retirement before the official retirement age (65 years for men, 60 years for women) if at least 35 years of contributions have been paid, but applicants have to be now at least 57 years old. The chance to go into early retirement is guaranteed to those who paid contributions for at least 40 years, regardless of their age. These new rules were not applied instantaneously, but the transition to the new regulation was planned to be complete in 2006 (35 years of contribution and 57 years old) and 2008 (40 years of contribution). New rules are introduced for survivor's pensions that in practice are no longer guaranteed because their amount will account for the survivors' economic status and his/her income. Moreover, the reform planned to cancel old-age pensions (pensione di vecchiaia) to rely on retirement pension (pensione di anzianità) within 2008.

In 1997, additional changes to the system were necessary to fit with the parameters required to join the European Monetary Union (EMU) with other founder countries and to adopt the euro as the national currency. Those interventions were made by the government of Prime Minister Romano Prodi and (1) increased the parameters to apply for retirement for self-employed, (2) aligned the parameters to go into early retirement between workers of the public and private sector, and (3) blocked the inflation adjustment for pensions equal to or greater than five times the minimum pension level.[9]

In 2001, the Berlusconi government increased the minimum pension monthly amount to the round number of "one million" in the local currency, the lira (equal to 516.46 euro). In 2013, the prohibition to receive a pension in case of other labor income (as employee or self-employed) was removed.

Approximately 10 years after the Dini reform, it was the time of the "Maroni reform"[10] (2004). The new reform increased the requirements to apply for retirement. Those with 35 years of contributions could retire before the official date (65 years) if they were at least 60 (not 57 as it was before) in 2004, and they had to be at least 61 if they applied in 2010 and at least 62 in 2014. Forty years of contributions remained enough for early retirement without any minimum age. In the meantime, old-age pensions were no longer granted, simply being 65 (for men) and 60 (for women), but a minimum of five years of contributions to the pension system were needed. With the will to limit the number of workers who apply for retirement, some economic

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[9] The adjustment for inflation for pensions between five to eight times the minimum pension amount was adjusted only for 30% of the inflation in 1999, 2000, and 2001.

[10] Roberto Maroni was Minister of Labor in the government of Prime Minister Silvio Berlusconi.

incentives were provided. For instance, those who were eligible for retirement but chose to remain at work could quit paying contributions, and they would receive them in their salary. The Maroni reform tried to energize the second and third pillars of the system by feeding pension funds with the severance indemnity called Trattamento di Fine Rapporto (TFR) and increasing tax exceptions on pension contributions. In 2004, a cut on more generous pensions to finance the payment of other pensions (equal to 3% and applied to pensions with amounts larger than 25 times the minimum level) was adopted for the first time. This contributo di solidarietà (solidarity contribution) has been used again in subsequent years for the same purpose.

4 The Current Scenario

The current functioning of the Italian pension system is shaped by the "Fornero reform"[11] introduced in 2012. The state of the art before the reform was a pension system based on three pillars—public pensions, pension funds, and individual retirement accounts—where the second and third pillars still represented a small part of the retirement savings of Italian workers. The economic crisis that followed the financial crisis, which started in 2008, had several negative effects on the sustainability of the Italian public pension system. The increase in the unemployment rate negatively affected the dollar amount of contributions paid by the workers. The decrease in GDP and the subsequent decrease in the government's incoming cash flows from taxes reduced the available resources to support the welfare system. In the meantime, the shape of the age distribution of the Italian population showed how the number of individuals approaching retirement age (65 years) increased from 2009 to 2010 due to the arrival to retirement age of the first "baby boomers" (Fig. 16).

Since 1995, the first pillar of the system progressively turned from a pure defined benefit system to a defined contribution system. That transition included a pure defined contribution system for the new workers and a blended system for previous generations of workers, whose pensions were in part still assessed as a percentage of their average income in the last years of work. However, the Italian pension system is referred to as a "Notional Defined Contribution" scheme (OECD, 2019a, 2019b).[12] In the previously defined benefit system, payments of current pensions are guaranteed by the payment of current contributions. It follows that contributions are not invested in a long-term horizon but are used to cover the short-term payments. When in 1995 the system started to switch into a defined contribution scheme the contributions that should have been invested to guarantee the future pensions of current workers must have been used to pay the current retirees. It follows that pensions of current contributors (current workers) will be assessed according to their contributions, even if there is no collateral in the current system (i.e., no investment

[11] The reform was promoted by Elsa Fornero, Minister of Labor in the government of Prime Minister Mario Monti.

[12] 2-OECD (2019a, 2019b) Pensions at a Glance.

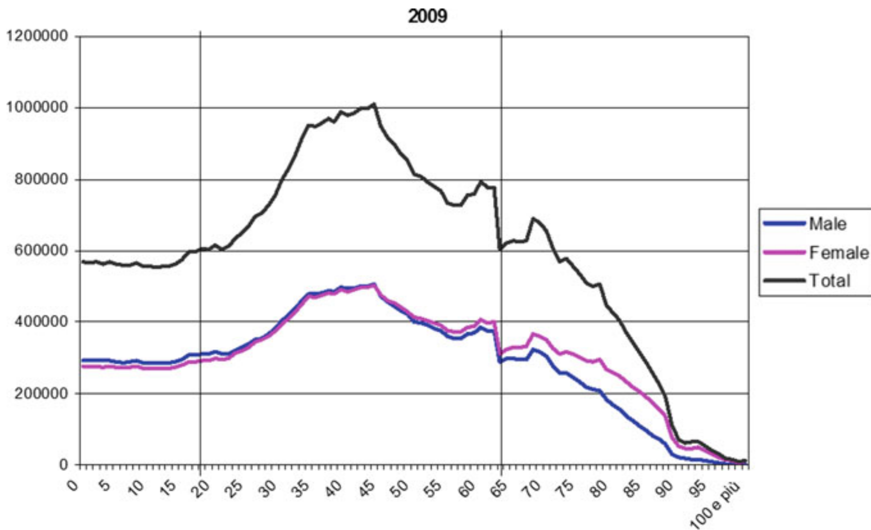

Fig. 16 Age distribution of the Italian population in 2009. *Source* Italian Institute of Statistics "ISTAT" 2020

in government bonds or real estate properties). The consequence of this nominal defined contribution scheme is that the sustainability of the system still relies on the age dependency ratio, equal to the ratio between the number of individuals over 65 years old and those of working age. That ratio in 2020 was equal to 56.69%.

The Fornero reform changed the Italian pension system widely and deeply. A first intervention completed the switch to a defined contribution scheme. Until 2011, the system was a pure defined contribution scheme for workers with a first contribution paid before 1 January 1996. Those with less than 18 years of contribution on 1 January 1996, will remain in a defined benefit scheme for the part of their contributions paid until that date, while the rest of their pension will follow the rule of a defined contribution scheme. Those with more than 18 years of contribution on 1 January 1996, remained in a pure defined benefit scheme. From 2012 (1 January), even for the latter category, the remaining contribution will be treated in a defined contribution scheme. Hence, the system no longer applies a pure defined benefit scheme for any category of worker or any cohort.

A second intervention of the Fornero reform concerned retirement age. From the pre-reform rules—where individuals could apply for retirement before 65 if they were at least 57 years old and had at least 35 years of contributions—from 1 January 2012, the age-and-contribution minimum threshold to enter retirement was adjusted according to the paths listed in the following tables (Tables 3a, 3b, 3c).

Hence, there is a clear intention to align all the categories to the same requirements, regardless of their gender or their job category (employee or self-employed). A real novelty of the Fornero reform, if compared with previous reforms, is the self-adjustment mechanism of retirement age according to the life expectancy of the

Table 3a Retirement age for female employees with first contribution paid before 31 December 1995

Workers with first contribution paid before 31 December 1995
Gender: Female
Category: Employee
Contributions: At least 20 years of contributions
Retirement age:
From 1 January 2012 to 31 December 2012: 62 years
From 1 January 2013 to 31 December 2013: 62 years and 3 months*
From 1 January 2014 to 31 December 2015: 62 years and 9 months*
From 1 January 2016 to 31 December 2017: 65 years and 3 months**
From 1 January 2018 to 31 December 2020: 66 years and 3 months**

*Already adjusted for changes in life-expectancy ratio in the Italian population
**To be adjusted for changes in life-expectancy ratio of the Italian population

Table 3b Retirement Age for Female Self-employed with First Contribution Paid Before 31 December 1995

Workers with first contribution paid before 31 December 1995
Gender: Female
Category: Self-employed
Contributions: At least 20 years of contributions
Retirement age:
From 1 January 2012 to 31 December 2012: 62 years and 6 months
From 1 January 2013 to 31 December 2013: 63 years and 9 months*
From 1 January 2014 to 31 December 2015: 64 years and 9 months*
From 1 January 2016 to 31 December 2017: 65 years and 3 months**
From 1 January 2018 to 31 December 2020: 66 years and 3 months**

*Already adjusted for changes in life-expectancy ratio in the Italian population
**To be adjusted for changes in life-expectancy ratio of the Italian population

Italian population, as accounted for by the Italian National Institute of Statistics (ISTAT). In that manner, the need for additional interventions is avoided, but a risk of extending the retirement age above 70 years old pretty soon is very likely, looking at the shape of the age distribution line of the Italian population.

Workers with a first contribution later than 1 January 1996 are allowed to apply for retirement applying with the same requisite of the pre-1996 workers only if their pension (assessed according to a pure defined contribution scheme) is at least 1.5 times larger than the "social check" (assegno sociale), which is a subsidy granted to all 65 + years old individuals (regardless of their nationality) who are in a poverty

Table 3c Retirement Age for Males (Employee or Self-employed) with First Contribution Paid Before 31 December 1995

Workers with first contribution paid before 31 December 1995
Gender: Male
Category: All (Employee or Self-employed)
Contributions: At least 20 years of contributions
Retirement age:
From 1 January 2012 to 31 December 2012: 66 years
From 1 January 2013 to 31 December 2015: 66 years and 3 months*
From 1 January 2016 to 31 December 2020: 66 years and 3 months*

*Already adjusted for changes in life-expectancy ratio in the Italian population
**To be adjusted for changes in life-expectancy ratio of the Italian population

Table 4 Retirement age after the Fornero reform

Year	Time frame	Men	Women
2012	From 1 January 2012 to 31 December 2012	42 years and 1 month	41 years and 1 month
2013	From 1 January 2013 to 31 December 2013	42 years and 5 months*	41 years and 5 months*
2014	From 1 January 2014 to 31 December 2015	42 years and 6 months*	41 years and 6 months*
2015			
2016	From 1 January 2016	42 years and 6 months**	41 years and 6 months**

*Already adjusted for changes in life-expectancy ratio in the Italian population
**To be adjusted for changes in life-expectancy ratio of the Italian population

status.[13] Because the social check in 2012 was equal to 429 euro a month, the minimum threshold the pension amount was 643.50 euro a month.

Another intervention of the Fornero reform was about the early retirement options. One more time, the rules differ if the worker has a first contribution before the end of 1995 or not. In the case of a worker with contributions before 31 December 1995, the chance to retire before the official dates depends on the age of contributions, which differs between men and women, as seen in Table 4.

However, a haircut of the pension is included if the applicant is below the 62-year-old age threshold. The haircut is equal to 1% of the part of the pension related to the defined benefit scheme for each year of gap from the threshold (Table 5).

[13] In 2012 the poverty status for receiving a social check was if annual income was below 5,749.90 euro.

Table 5 Haircut for early retirement in the Fornero reform

Age of the retiree (years)	Haircut (%)	Pension (as % of the full amount) (%)
62	0	100
61	1	99
60	2	98
59	4	96
58	6	94
57	8	92

Workers with a first contribution after 31 December 1995, can go into early retirement if they meet all the following conditions: (A) to be at least 63 years old[14]; (B) to have at least 20 years of contributions[15]; (C) to have a starting monthly amount of pension at least equal to 2.8 times the social check amount. In 2012, the social check was equal to 429 euro; hence, the minimum amount of the pension was 1,201.20 euro a month. Keeping in mind that workers with first contributions after 31 December 1995 were in a pure defined contribution scheme, for those individuals there were no haircuts in case of early retirement as for the "pre-1996 workers."

The Fornero reform was applied to almost all the workers of the Italian pension system, with some exceptions that include workers in the following categories: employees of airline companies, workers of the fishery industry, workers of the main train line company,[16] workers of the national postal service,[17] and clergy.[18]

To complete the analysis of the current scenario of the Italian pension system, we had to pay attention to the contributions requested to the participants. In 2020, the contributions for employees were equal to 33% of their income. The contributions for the self-employed are equal to 20%. Other categories have different percentages that are adjusted year to year. However, there is a cap to the annual amount of contributions to be paid by a single worker. This amount is equal to a percentage of the "maximum annual income" for contributions; that in 2020 is equal to 103,055 euro. The percentage of this value that fixes the cap on the annual contributions is 33% for employees (maximum of 33,974 euro of contributions), 24% for craftsmen (maximum of 25,290 euro of contributions), and 24.09% for merchants and traders (maximum of 25,383 euro of contributions). The high age dependency ratio and the increasing aging of the Italian population require adjusting the parameters of the pension system to balance it. The consequence is that the contributions required to current workers tend to be higher than those of other countries, as reported in Fig. 17.

[14] The 63-years threshold was valid in 2012. From 1 January 2013 to 31 December 2015 the threshold increased by three months to account for changes in the life-expectancy of the Italian population.

[15] In case of "virtual contributions" those amounts do not count.

[16] Ferrovie dello Stato Italiane S.p.A.

[17] Poste Italiane S.p.A.

[18] Including the Catholic church and ministers of other religions.

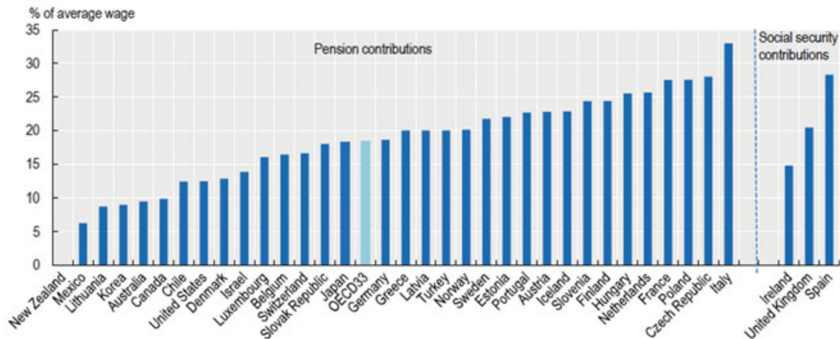

Fig. 17 Pension contribution rates in different countries. *Source* OECD (2019a, 2019b) Pensions at a Glance (pp. 35)

4.1 How to Compute the Public Pension in the Italian Pension System (1st Pillar)

Workers with First Contribution after 31 December 1995 ("Post-1995" Workers)

Workers with first contributions after 1995 belong to a pure defined contribution system. It follows that their pension will be assessed according to (1) the contributions paid to the system during their working life, (2) the revaluation of these contributions, and (3) the application of a certain percentage (coefficiente di trasformazione) to the total amount.

Annual contributions paid by a worker are a percentage of their annual income. Such percentage changes according to the worker's category—employee (33% of the annual income), self-employed (20%), other workers (the percentage change year to year). The total contribution at the end of the first year will be revaluated according to the compound interest rate provided by ISTAT for that year. This interest rate is called Tasso di capitalizzazione (compound interest rate), and it is equal to the average Italian GDP growth rate in the five previous years. At the end of the second year, the total of contributions will be equal to the revaluated amount of the first year plus the contributions paid in the second year. This total amount will be revaluated according to the new Tasso di capitalizzazione for the current year. That process will continue year-by-year according to a compound interest regime. If a defined contribution scheme involves the investment of contributions in investment vehicles (e.g., bonds, stocks, real estate, etc.), the "notional" defined contribution scheme applied in the Italian system links the return of the "virtual" investment to

the average GDP growth rate in the last five years. In that manner, in the case of a lack of growth, a lack of return on contributions will follow. Moreover, in the case of a deep recession with a negative growth rate of GDP, the total value of the contributions will decrease. This revaluation is the only one provided by the system, so no additional fine-tuning (e.g., to account for inflation) is done.

Table 6 lists the revaluation annual rates from the introduction of the defined contribution scheme in the Italian pension system (1995) to 2019.

Table 6 Revaluation annual rates of the Italian public pension system (1995–2019)

Year	Rate (A) (%)	Inflation (CPI-TOTAL) (B) (%)	Delta (A–B)(%)
1995	6.573	5.235	1.337
1996	6.205	4.007	2.198
1997	5.587	2.043	3.544
1998	5.360	1.955	3.405
1999	5.650	1.663	3.987
2000	5.178	2.538	2.640
2001	4.778	2.785	1.993
2002	4.370	2.465	1.904
2003	4.161	2.673	1.489
2004	3.927	2.207	1.720
2005	4.051	1.985	2.065
2006	3.539	2.091	1.448
2007	3.394	1.830	1.564
2008	3.463	3.348	0.115
2009	3.320	0.775	2.545
2010	1.794	1.526	0.268
2011	1.617	2.781	−1.164
2012	1.134	3.041	−1.907
2013	1.016	1.220	−0.204
2014	−0.193	0.241	−0.434
2015	0.506	0.039	0.467
2016	0.468	−0.094	0.562
2017	0.521	1.227	−0.706
2018	1.348	1.137	0.210
2019	1.825	0.611	1.214

Source ISTAT (2020b). Tasso annuo di capitalizzazione per la rivalutazione dei montanti contributivi relativamente al 2019
OECD (2020). CPI-Total (https://data.oecd.org/price/inflation-cpi.htm)

Table 7 Transformation Rate (Coefficienti di trasformazione) of the Italian Public Pension System from 2010 to 2020

Age	Coefficients (2010, 2011, 2012) (%)	Coefficients (2013 2014, 2015) (%)	Coefficients (2016, 2017, 2018) (%)	Coefficients (2019, 2020) (%)
57	4.419	4.304	4.246	4.200
58	4.538	4.416	4.354	4.304
59	4.664	4.535	4.468	4.414
60	4.798	4.661	4.589	4.532
61	4.940	4.796	4.719	4.657
62	5.093	4.940	4.586	4.790
63	5.257	5.094	5.002	4.932
64	5.432	5.259	5.159	5.083
65	5.620	5.435	5.326	5.245
66	5.620	5.624	5.506	5.419
67	5.620	5.826	5.700	5.604
68	5.620	6.046	5.910	5.804
69	5.620	6.283	6.135	6.021
70	5.620	6.541	6.378	6.257
71	5.620	6.541	6.378	6.513

Source https://www.inps.it/nuovoportaleinps/default.aspx?sPathID=%3b0%3b45138%3b45545%3b45590%3b45593%3b&lastMenu=45,593&iMenu=1&iNodo=45,593&p4=2

Once the worker is eligible to retire, the last total amount of the contributions (revaluated) will be multiplied by a fixed coefficient (coefficiente di trasformazione) provided by the INPS. This coefficient changes according to the age of the worker and rewards, with higher percentages of workers who decide to remain at work longer. Table 7 shows the list of coefficients applied from 2010 to 2020.

The comparison of the coefficients applied in 2010 with those applied in 2013 shows how the generosity of the system decreased by the application of lower coefficients that will generate lower pensions. With the current requirements, a worker who started his/her contributions in 1996 cannot apply yet for retirement due to the lack of years of contributions.

Workers with First Contribution Before 31 December 1995 ("Pre-1996" Workers)

Workers who started their contribution before the "Dini reform" (before 31 December 1995) are in a mixed/blended system where part of their pension will be computed according to a defined-benefit scheme and another part with a defined-contribution scheme. A total defined-benefit scheme is no longer applied. Within the "pre-1996" workers, there is a difference between those with at least 18 years of contribution at the end of 1995 and the others. The former will benefit from a defined-benefit scheme

for part of their contribution up to 31 December 2011. From that point forward, their contributions will fall into the defined-contributions scheme described above for the “post-1995” workers.

The **rules for the “pre-1996” with 18 + years of contributions** divide the contributions ever paid up to the end of 2011 into two time frames. The number of years of contribution up to 31 December 1992, is multiplied by 2%. That number will be applied to the average income received in the last five years before retirement (employees) or the last 10 years before retirement (self-employed). The number of years of contribution from 1993 (1 January) to 2011 (31 December) is multiplied by 2%. That number will be applied to the average income received in the last 10 years before retirement (employees) or the last 15 years (self-employed). In both cases, salaries and other incomes have been previously updated according to the parameters provided by ISTAT.

The contributions paid from 2012 (1 January) will follow the rules of the defined contribution scheme described for the post-1995 new workers. Therefore, this third component is not assessed as a percentage of the last annual incomes (2% for each year of contribution) but relies on the contributions paid during that time frame (from 2011 to retirement). Those contributions will be revaluated according to the annual rate provided by ISTAT, and the total amount will be multiplied by the coefficient related to the retirement age.

An example will help to determine the computation. We will consider the case of a male employee with at least 18 years of contribution at the end of 1995 who decided to retire in 2020 at 67.

Example - The case of a “Pre-1996” employee retired in 2020

To assess the pension the following data are needed:

- Years of contribution: 43
- Gender: male
- Age of applicant: 67
- Annual contributions from 2012 to 2019 (equal to 33% of the annual income):

Year	Income	Contributions	Rate (%)	Total amount
2012	€ 41,000	€ 13,530	1.134	€ 13,683.48
2013	€ 41,000	€ 13,530	1.016	€ 27,490.09
2014	€ 41,000	€ 13,530	−0.193	€ 40,941.04
2015	€ 43,000	€ 14,190	0.506	€ 55,409.90
2016	€ 43,000	€ 14,190	0.468	€ 69,925.90
2017	€ 43,000	€ 14,190	0.521	€ 84,553.73
2018	€ 46,000	€ 15,180	1.348	€ 101,077.94
2019	€ 46,000	€ 15,180	1.825%	€ 118,380.11

– Average income in the last five years before retirement: 44,852 €*1
– Average income in the last 10 years before retirement: 44,361 €*1

*1Already adjusted with ISTAT parameters

From the input data we know that the years of contributions of the worker in the different time frames are organized as follow:

Part A “Until 1992”: 16
Part B “1993–2011”: 19
Part C “2012 to retirement”: 8

Part A “Until 1992”

We have 2% for each of the 16 years of contribution (16 × 2% = 32%). That number is applied to the average income in the last 5 years (44,852 €). Hence, part “A” is 14,353 € (44,852 € × 32%)

Part B “1993–2011”

We have 2% for each of the 19 years of contribution (19 × 2% = 38%). That number is applied to the average income in the last 10 years (44,361 €). Hence, part “B” is 16,857 € (44,361 € × 38%)

Part C “2012 to retirement”

We have to assess the total amount of contribution under the compound interest regime, using the rates provided by ISTAT. Each annual contribution amount is compounded according to the corresponding rate for that year, and the new contributions are added. That amount will be compounded in the next year and the new contributions will be added, and so on up to the last year. Hence, the structure of the calculation is…

(…(((13,350 * (1 + 0.0134) + 13,350) * (1 + 0.016) + 13,350) * (1 + − 0.193)) + 13,350) * (1 + 0.506) + …

The total amount—as reported in the table above—is equal to 118,380.11 €. We know that the coefficient for a male employee that applied to retirement in 2020 at age of 67 is 5.604%. Hence, the part “C” is 6,477.51 € (118,380.11 € × 5.604%).

The total annual pension will be equal to the sum of part A (14,353 €), part B (16,857 €), and part C (6,477.51 €), and equal to 37,687.25 €. It will be paid on a monthly base 13 times a year. Hence, each monthly payment will be 2,899 €. That amount will be taxed according to the individual tax rate brackets. It can be noted how that amount is close to the 80% of the last income before retirement

The **rules for the “pre-1996” with less than 18 years of contributions** ask us to divide the working life of the worker into two parts. The first—from the beginning of the working life to the end of 1995—will follow the defined-benefit scheme described for the “pre-1996” with at least 18 years of contribution. Of course, the lower number

of years in the "pre-1996" regime will be the percentage of the final income that will be accounted for in the computation of the pension. For instance, the employee considered in our previous case had 19 years of contribution on 31 December 1995,[19] and received 2% for each of the 16 years of contribution from his first year of contribution to the end of 1992. A worker who, at the end of 1995, had only 10 years of contribution will receive only 14% (seven years times 2%) of his last years average income versus the 32% of the previous case. Moreover, the "pre-1996" with less than 18 years of contribution will not benefit from any "2% each year" for the 19 years between 1993 and 2011 because the "pre-1996" workers with less than 18 years of contributions will fall into the defined contribution scheme since 1996. In that manner, he is losing an additional 38% of his income before retirement from the calculation of the pension.[20] The fact that those years lost from the defined-benefit scheme will be added to the defined-contribution scheme, which started working since 1996 but not since 2011 (as pre-1996 with 18 + years), will not balance the loss of the 38% of the last income. In fact, contributions for employees are 33% of the annual income. Those amounts will benefit from the revaluation rates indexed to Italian GDP growth, but the percentage of that total amount is multiplied by coefficients that are between 4 and 6%. The evidence that (1) the GDP growth rates in the last 10 years were less than the revaluation rate granted by the defined-benefit system, (2) the contributions are accounted for on annual income, and annual incomes tend to be lower in the early stage of career than the last year's income, and (3) the evidence that to receive the equivalent of the 2% of the last years' average income the percentage on a contribution equal to the 33% of the income should be 6%,[21] and coefficients with such values are granted only to people who will enter retirement at 69 + years old, highlight how big is the difference between the old generation of workers and the new generations. Following the same logic, the difference between the "pre-1996" workers (with or without 18 years of contributions) and the "post-1995" workers whose pensions will be totally computed with the defined-contribution scheme will be even clearer.

4.2 The "Quota 100" Reform

If the "Fornero reform" represents the current functioning of the first pillar of the Italian pension system, in 2019 the Italian government introduced a three-year experimental amendment referred to as "Quota 100"[22] ("Level 100"). According to this amendment to the current regulation, workers are allowed to enter retirement if the

[19] We assume that the worker did not have any period of unemployment, so each year passed represents an additional year of contribution.

[20] 18% is the 2% a year multiplied by the nine years of the 1996–2011 period.

[21] Without the need of exact calculations, and following a rule of thumb approach, we can say that the amount equal to the 2% of the full income (100) should be triple (three times 2%, equal to 6%) if the percentage is applied to a third of the income (the contributions equal to 33% represent around a third of the total income).

[22] Law Decreto legge 28 gennaio 2019 n. 26.

sum of (A) their years of contributions and (B) their retirement age is at least equal to 100. However, the age of the applicant must be at least 62 years, and their contributions should have been paid for at least 38 years. The threshold of the 38-year-long period includes the period without a real contribution[23] due to, for instance, sickness or unemployment, but a minimum of 35 years of real contributions are needed.

The effect of the Quota 100 reform is to anticipate the retirement age compared to the standard rules. However, it is not considered an early retirement (pensione anticipata), so there are no haircuts to the amount of the pension. Of course, this does not mean that the amount of the pension is the same because the anticipated retirement age will reduce the amount of contributions paid to the system, and that amount is used to assess the pension at retirement age. If the effect of this lack of contributions due to early retirement can be negligible for workers in the mixed scheme—where part of the pension is still assessed according to a defined-benefit scheme—the effects for the "post-1995" workers, which fall into a pure defined-contribution scheme, can be much more severe. According to news that cites the Balance Sheet Office of the Italian Parliament (Ufficio parlamentare di bilancio),[24] the amount of the pension for applicants with the Quota 100 rule can be reduced from −5.6% to −34.7% of the amount due at the regular retirement age. However, those estimations simply compare the amount of the monthly checks received by the retirees in the two cases and do not account for the fact that with early retirement, this check will be received for a longer period of time compared with the regular retirement age. Accounting for that, the loss should be approximately −0.22% for those who anticipated a retirement age of approximately one year and—8.65% for those who anticipated retirement by six years.

This temporary regulation was introduced to work in 2019, 2020, and 2021. At the time of this study, it is not clear if the Quota 100 will be renewed and extended beyond the end of 2021, if it will be renewed with some adjustment, or if it will not be renewed at all.

4.3 The Second and Third Pillars

The structure of the Italian pension system involves three pillars, as it is in several developed countries. The first pillar is the one described in the previous paragraph, made by the public pension system, which represented the entire system up to 1993. In this year, a new regulation[25] introduced the second pillar, represented by pension funds, and the third pillar, related to individual retirement accounts. Pension funds

[23] In the past, to cope with the long-germ effect of unemployment on the retirement age, the government granted some unemployed categories with "virtual contributions." Those amounts were not paid into the system but were accounted as years of contribution.

[24] https://quifinanza.it/pensioni/video/pensione-quota-100-quanto-si-perde/412223/ (last access 4 September 2020).

[25] Decreto legislativo n.124 (21 April 1993).

are collective retirement-saving tools where a group of workers make contributions to a single collective investment portfolio. This portfolio—the fund—represents a different legal entity from its asset manager that will manage it by allocating the available funds in different assets, according to the principle of diversification applied in other investment vehicles (e.g., mutual funds). Two types of pension funds exist in the Italian pension system: open pension funds (fondi pensione aperti) and closed pension funds (fondi pensione chiusi or fondi pensione negoziali).

The Closed Pension Funds (*Fondi pensione chiusi*)

A closed pension fund (Fondo pensione chiuso or Fondo pensione negoziale) is a pension fund where a certain type of worker (e.g., public workers, workers in private companies, self-employed, etc.) can join a fund that was promoted by trade unions or other workers' associations that have at least a regional influence/relevance. Those funds are usually the result of a negotiation between employees and employers. Access to a certain fund can be allowed to workers of a single company, workers from a group of companies, or workers that belong to a certain working category, according to the rules of the initial agreement and the pension fund rule book. For the employees, the rule book of the pension fund has to fix the minimum contribution and the part of it to be paid by the employer and the employees. Participation in a closed pension fund is voluntary. Any worker can choose to be enrolled in the pension fund or not. In some cases, the rulebook of the pension fund allows the enrollment of relatives of the worker, but only if those family members are part of the same worker household group from a fiscal point of view.

The Open Pension Funds (*Fondi pensione aperti*)

An open pension fund, like any pension fund, is a collective retirement saving vehicle where a group of individuals contribute with their savings to receive a pension at retirement age. Those contributions will be managed as a single investment portfolio. What makes an open pension fund different from a closed pension fund is the chance to join the fund without restrictions. There is no need to belong to a certain category of workers to be enrolled in the fund, and it is not even required to be a worker. The decision to participate in an open pension fund is voluntary.[26] When participation in a fund is negotiated by a collective agreement (e.g., trade union and a company negotiating the participation of a group of workers), the agreement includes the payment of part of the contributions by the employer. In most cases, the severance indemnity, so-called TFR (Trattamento di Fine Rapporto), will also contribute to the fund.[27] The assets of a pension fund represent a different legal entity from the assets of the fund participants and from the assets of the asset manager. Regulation allows the management of the assets of an open pension fund only to banks, insurance companies, asset management companies, and financial securities intermediaries.

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[26] For new workers there is the chance of an automatic enrollment if the worker does not communicate his/her decision to opt out within six months from being hired.

[27] The contribution to pension funds is not allowed for public employees.

Several restrictions to the asset allocation policy exist. A pension fund[28] cannot borrow, cannot lend, and cannot guarantee third parties obligations. Any investment in a single stock is forbidden for a nominal value larger than 5% of a listed company equity or 10% of a unlisted company equity. Any amount of stocks—even below the 5% and 10% threshold—that is large enough to play a dominant role in the management of the company is forbidden too. Pension funds cannot invest more than 20% of their assets in any stock issued by companies whose workers pay contributions to the pension fund. This limit is increased to 30% if the pension fund is closed to a certain category of workers. There is an explicit recommendation to invest mainly in securities traded in regulated markets,[29] and investments in unregulated markets should be maintained under prudential levels.

The Individual Retirement Accounts (*Piani Individuali Pensionistici or PIP*)

The third pillar of the Italian pension system is represented by the Individual Retirement Accounts (*Piani Individuali Pensionistici or PIP*). In that case, a life-insurance policy is the financial instrument used to save for retirement. The premium paid by the individual to an insurance company will give him/her the right to receive a sum at retirement age that can be turned into a monthly payment for the rest of the insured life. Even in this case, the contributions paid by the individuals (the premium of the insurance policy) represent "separate assets" that do not belong to the asset of the insurance company. The chance to buy an individual retirement account is individual, voluntary and open. This means that this option is not restricted to specific categories or workers, and there is not even the need to be a worker to subscribe to it.

Some Data About the Relevance of Different Pillars

Although the three-pillar structure of the Italian pension system was introduced almost 30 years ago (1993), the Italian pension system is still dominated by the first pillar. Enrollment in the public pension system is automatic and mandatory, while the second and third pillars are not. This is probably one of the possible explanations behind the gap between the coverage provided by the first pillar and the others. A second possible explanation is the lack of knowledge among current workers about the functioning of the Italian pension system and the assumption that the past generosity of the system, granted to previous generations of workers, represents a good proxy of the performance that current workers will receive when in retirement. The transition from the defined benefit scheme to the defined contribution scheme was so smooth that it showed its effects on the amount of pensions only in recent years, with the consequence of not alarming current workers. The Busta Arancione project aimed at educating individuals about realistic expectations of their pensions at retirement age, according to the new functioning of the system, was announced in 2016 with no news about its implementation. The project is based on a written communication sent by mail where a summary of past contributions and a forecast (simulation) of the future pension are provided to workers according to the data in

[28] D.lgs. n. 252/2005.

[29] D.lgs. n. 252/2005, art. 13, c-bis.

the system. In February 2020, the project was renewed with the aim of sending those communications first to workers in the private sector (employees and self-employed) and then to extend it to all contributors. In the meantime, there is the project to provide access to the same simulation tool using the INPS website. A first trial version of the software is available, but it is limited to the cases of craftsmen and traders. More details on the Busta Arancione are provided in the second part of this chapter.

A few numbers about the coverage of the three pillars will help to elucidate the state of the art of the Italian pension system. According to ISTAT, the Italian population at the end of 2018 was equal to 60.4 million. The total number of workers was 23.2 million, equal to 38.4% of the total population. Approximately 17.9 million of these workers were employees, while 5.3 million were self-employed. Among the employees, the majority have a full-time permanent job (12.2 million), while the others are full-time temporary workers (2.1 million), part-time permanent workers (2.6 million), and part-time temporary workers (0.9 million). Those who are not working comprise different groups. There are 8.1 million people who are too young to work (less than 15 years old). Those who are too old to work (retired or 65 + years old) total 12.8 million. The rest of the population is distributed between 10.1 million "people with no job" and 2.7 million "unemployed." According to official statistics, the latter group consists of people who are seeking a job but cannot find one, and the first group is made up of individuals who simultaneously (1) do not currently work, (2) are not seeking a job, and (3) are not available for a job. Their unwillingness to apply for a job can be related to family reasons such as a decision to stay at home and take care of children (2.7 million), to educational reasons such as the desire to complete their education or study for a professional certification (4.3 million), or to the loss of confidence or enthusiasm about the chances of finding a job (1.4 million).

Therefore, the number of active workers at the end of 2018 was 23.2 million. This number can be a good proxy for the number of individuals enrolled in the first pillar due to the mandatory participation in the public pension system. Official data at the beginning of 2020[30] state that the total number of pension fund participants (regardless of the type of fund) was 5.3 million.[31] The total number of IRAs (PIP) was 3.8 million.[32] The chance that a large overlap between those who participate in a pension fund and those who contribute to an IRA exists helps to determine how the relevance of the last two pillars of the Italian pension system, which represent the private pension system of the country, is not comparable with the coverage of the public pension system.

An analysis of the performance of the retirement investment products of the second and third pillars in the Italian market (pension funds and IRAs) can help to explain their lack of use (Tables 8 and 9).

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[30] MEFOP (2020). Bollettino statistico 76. (Available at https://www.mefop.it/cms/doc/23789/bollettinostatistico-76.pdf).

[31] 5,393,965.

[32] 3,791,320.

Table 8 2015–2019 performance of pension funds and IRAs in the Italian market

	Average annual rate of return % 2015–2019			
	Guaranteed capital	Mixed Bond	Stocks	Balanced funds (Stocks and Bond)
	Garantito	Obbligazionario misto	Azionario	Bilanciato
	Closed Pension Funds (Fondi pensione chiusi or Fondi pensione negoziali)			
Average	0.70%	2.59%	4.86%	3.50%
Min	0.29%	1.55%	3.47%	2.11%
Max	1.19%	3.35%	6.77%	4.79%
	Open Pension Funds (Fondi pensione aperti)			
Average	0.71%	1.27%	4.12%	2.80%
Min	−0.86%	−0.39%	1.77%	0.74%
Max	3.11%	2.12%	5.94%	4.26%
	IRA—Individual Retirement Accounts (Piani Pensionistici Individuali PIP)			
Average	1.66%	0.34%	4.55%	2.16%
Min	−0.62%	−0.97%	2.11%	−0.76%
Max	3.26%	1.80%	7.84%	4.53%

Source Author's analysis of COVIP data (https://www.covip.it/?cat=199#)

The extraordinarily long bullish stock market that followed the large financial crisis is evident in the performances of both the pension funds and the IRAs. Investment products focused on stocks outperformed the other available investment strategies both in a five-year (2015–2019) and in a 10-year (2010–2019) horizon. In the case of a pure stock investment strategy, closed funds performed better than open funds and IRAs. The performance of closed pension funds was better even in the case of a mixed bond investment strategy, while the IRAs outperformed pension funds (open and closed) when the low-risk investment strategy of the guaranteed capital option was applied.

Of course, past performances do not guarantee the same results for the future, and the long bull trend in the stock markets, as well as the (almost) zero-interest rates monetary policy of the European Central Bank and other central banks, cannot be assumed by definition for the next decade(s). However, the performances in recent years seem to confirm the hypothesis that in the long term, stock markets perform better than bond or monetary markets. We should conclude that the lack of use of the pension funds and IRAs in the Italian market for an informed investor should not be due to a lack of performance. Alternative hypotheses could be (1) the lack of awareness about the need to save for retirement even by the second and the third pillars, (2) the lack of savings to invest for retirement, or (3) the use of other saving

Table 9 2010–2019 performance of pension funds and IRAs in the Italian market

	Average annual rate of return % 2010–2019			
	Guaranteed capital	Mixed Bond	Stocks	Balanced funds (Stocks and Bond)
	Garantito	Obbligazionario misto	Azionario	Bilanciato
	Closed Pension Funds (Fondi pensione chiusi or Fondi pensione negoziali)			
Average	1.51%	3.85%	6.04%	4.73%
Min	0.88%	2.66%	4.90%	3.57%
Max	3.56%	4.51%	7.02%	5.97%
	Open Pension Funds (Fondi pensione aperti)			
Average	1.63%	2.74%	5.30%	4.23%
Min	−0.09%	1.87%	1.84%	1.23%
Max	3.41%	4.10%	8.15%	6.70%
	IRA - Individual Retirement Accounts (Piani Pensionistici Individuali PIP)			
Average	2.14%	1.45%	4.92%	2.82%
Min	0.00%	−0.62%	0.00%	0.00%
Max	3.88%	3.20%	9.78%	5.54%

Source Author's analysis of COVIP data (https://www.covip.it/?cat=199#)

options, even if not specific for retirement purposes (e.g., saving accounts, real estate, etc.).

4.4 Reverse Mortgage

The several reforms of the Italian pension system introduced by the time were integrated with additional initiatives that do not refer strictly to the pension system but were introduced with the aim of smoothing the effects of the reforms or providing additional solutions to the welfare state system. One of these initiatives was the introduction in 2016 of the reverse mortgage in the Italian law book. The aim of the legislators was to help individuals access the credit market (using property rights on real estate properties) to cash in part of their wealth and increase their monthly income. This regulatory innovation can be read as a chance to balance the decreasing generosity of the public pension system with the chance to "dissave" part of the savings invested in real estate properties.

According to the regulation on reverse mortgages,[33] there are two requisites to apply for reverse mortgages. The applicant (1) has to be at least 60 years old, and (2) has to be the owner of a real estate property classified as a residential home. In a case where the applicant is married or cohabitant with a partner for more than five years, living in the home used for the mortgage, both partners have to sign the mortgage agreement, even if only one of them is the owner, but only if even this partner/cohabitant is over 60 years old. The fact that the real estate property right is restricted to residential homes denies access to reverse mortgages if the real estate assets belong to other categories (e.g., commercial properties, agricultural lands, etc.). An additional requirement for a reverse mortgage is the issue of an insurance policy to cover the potential risk of fire or explosion (as usually requested by residential mortgages). Of course, those requirements are necessary to apply for reverse mortgages but do not represent a right to be granted by a bank or other financial companies that will assess the request according to their screening criteria.

The structure of reverse mortgages in Italian legislation does not differ from the practices of other countries. The borrower receives an amount of money, usually by installment paid on a monthly basis, until the end of the contract, which is usually linked to the death of the borrower.[34] During this period, the borrower does not pay anything to reimburse the loan. Doing so, the borrower is able to cash in part of the wealth related to the value of the house without the need to lose the property and without the need to leave the house. At the end of the contract (e.g., the death of the borrower), the heirs of the deceased have two options. They can reimburse the loan or let the bank sell the property. In the first case, they will have to pay the sum of each monthly payment received by the borrower, plus the interest from each date of payment and the end of the contract. In the second case, the heirs renounce redeeming the house and let the lender sell the property on the market. In this case, if the value of the house exceeds the reimbursement of the loan, the residual value will be paid to the heirs. In contrast, if the value of the property does not cover the total amount due to the lender, the heirs cannot be forced to pay the residual debt. It follows that the credit risk related to the chance that the value of the property is smaller than the amount of the debt plus interest remains on the lender side.

The limit by law to the value of the property used in a reverse mortgage is 350,000 euro. The estimated total amount of the loan (even if paid on a monthly base) cannot exceed 50% of the house. The amount of the money granted by a bank of course depends on the age of the borrower: younger is the applicant, smaller is the amount of money received. The exact amount of the loan depends on the negotiation between the lender and the borrower, and the lender will take into account the life expectancy of the borrower, as well as the risk that the real value of the property can change during the duration of the mortgage due to unexpected events (e.g., fire or destructions) or

[33] Law 2 April 2015, n. 44.

[34] The death of the borrower is not the only cause of termination of the contract. The destruction of the house by fire or explosion are additional causes of termination, as well as the sale of the property by the owner to a third party. Another cause of early termination is intentional action by the owner-borrower in order to reduce the value of the property (e.g., intentional damage to the house, arson, etc.).

Table 10 Tax rate brackets applied in Italy to annual personal income

Annual Income				Tax rate
		Up to	15,000	23 (%)
Beyond	15,000	Up to	28,000	27
Beyond	28,000	Up to	55,000	38
Beyond	55,000	Up to	75,000	41
Beyond	75,000			43

inflation. If the exact amount of the loan depends on several factors and the judgment of the counterparts, individuals in the 60- to 70-year-old age range can expect to receive from 10 to 15% of the property value. Those in the 71–80 range can reach 20%, while those in the 81–90 years range can reach 40%. The maximum of 50% can be reached only by individuals who are 90 years old or older.

The potential market for reverse mortgages in Italy is large. At the end of 2019, the number of individuals living in Italy with more than 60 years was approximately 17.6 million, equal to 29.2% of the population,[35] and approximately 75% of the Italian households are the owners of their houses.[36] The lack of official statistics about reverse mortgages does not allow us to estimate the size of that market. However, the fact that just a bunch of banks offer reverse mortgages in the Italian market suggests a low interest in this option. An analysis of reverse mortgages in Italy from the consumers' point of view is reported in the second part of this chapter.

5 Tax Policies and Regulatory Issues

Taxation of the payments received from the Italian pension system differs from pillar to pillar. Hence, an analysis that differentiates these cases is needed.

The First Pillar—The Public Pension System

Pensions paid by the Italian public pension system (e.g., INPS) represent a source of income that contributes to the total annual income of individuals and is taxed. In Italy, the taxation on personal income is based on different tax brackets: the higher the income range is, the higher the tax rate. A summary of the tax bracket system is reported in Table 10.

Taxes are withheld by the INPS, which will pay them to the national tax agency; hence, the retirees receive the net amount. If an individual receives more than one pension (from different pension institutes), these pensions will be summed, and taxation will be performed on the total amount.

[35] ISTAT (2020a, 2020b).

[36] ISTAT (2019) http://dati.istat.it/Index.aspx?DataSetCode=DCCV_TITGODABIT.

During the year Italian tax payers pay taxes on the last year's income (e.g., in 2020 taxes assessed on the 2019 annual income are due) and an advance payment on the current year's expected income is due too[37] (e.g., in 2020 taxes on the estimated 2020 annual income are due). The consequence is that a new taxpayer who submits a tax declaration for the first time will have to pay a double amount of taxes in the first year. From the second year forward, the burden of the taxes is related to the balance between taxes anticipated in the year before (assessed on the expected annual income) and taxes due for this year (accounting for the real annual income), plus the advance payment for the next year. Hence, every year, there is the need to reconcile the payments due to the anticipated payments and the amount truly due to real income.

Taxation is not applied to "social pensions".[38]

The Second and Third Pillars—The Private Pension System

To support the growth of the private sector in the Italian pension market, several tax benefits were granted after the introduction of pension funds and IRAs. Any dollar of contribution in pension funds and/or IRAs is deductible from the annual total income reported in the tax declaration. For instance, a 50,000 euro income becomes 45,000 euro if during the year a total amount of 5,000 euro was paid for contributions to retirement products of the second or third pillar. This tax shield allows us to increase the amount of money invested compared to other investment options that are not officially related to retirement purposes (e.g., bonds, stocks, mutual funds, saving accounts, etc.). However, there is a cap for deductible contributions equal to 5,164.57 euro a year. Any additional dollar of contribution will not be deducted from the annual income, so it will be taxed according to the abovementioned tax-brackets system.

An additional tax-benefit is granted to pension funds, and IRAs are a preferred taxation on the return on the investment. The standard tax rate for investment returns, equal to 26% of the returns, is reduced to 20%. Doing so, there is an additional incentive to prefer these products to invest savings for retirement.

Another tax-benefit exists on the payments received after retirement. In this case, the pensions received are not accounted for in the total annual income and are not taxed according to the tax-brackets system but are taxed at a lower rate. The standard rate is 15%, but those who contributed to the pension fund for more than 15 years benefit from a 0.30% discount accounted for each additional year of contribution, up to a limit of a 6% discount (granted in cases of 15 + 20 years of contributions). It follows that the taxation on pensions paid by second- and third-pillar products can range from 15% to a minimum of 9%. Those taxes are withheld from the monthly payments by the financial institution that manages the retirement product (e.g., the pension fund manager or the insurance company).

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[37] In 2020 the anticipation is equal to 100% of the expected income on 2020. That amount has to be paid in two tranches: one in the spring, one in the autumn.

[38] Social Pensions (Pensioni sociali) were introduced in 1969 and are granted to every Italian citizen which income is below a certain threshold, regardless of the presence or the amount of contributions.

In a few cases, it is possible to receive an advance payment from a pension fund or an IRA. This is possible for medical expenses related to serious sickness of the worker, his/her partner, and sons/daughters. In this case, the amount received is taxed at a 15% rate minus 0.30% for each additional year of contribution from the 15th year. Hence, in this case, there are no differences with the tax benefit granted at retirement age. An advance payment is even possible for the purchase (or renovation) of the (first) house of the worker or his/her sons and daughters. The request is possible only after eight years of contribution, and the tax rate is 23%. The third (and last) case of advance payment is a free option to cash in on the investment. This withdrawal cannot exceed 30% of the wealth accumulated in the pension fund (or IRA), and the tax rate is 23%.

If it is possible to withdraw money from the pension fund and IRAs, it is even possible to restore these amounts by extra contributions. In this case, those extra contributions will be granted a tax credit equal to the taxes already paid on these amounts.

Beyond the advance payments in cases of sickness, home purchase, and liquidity needs, it is possible to withdraw up to the full amount in a few cases such as permanent sickness or unemployment status for more than 48 months. In those cases, the withdrawal (up to 100% in the case of permanent sickness, up to 50% in the case of unemployment) will follow the rule of 15% minus 0.30% for each additional year of contribution after the 15th year. In case of the death of the worker before the retirement age, the heirs can withdraw the full amount with the standard rules (15% rate minus 0.30%). Moreover, the money from the pension fund and IRAs are not subject to inheritance tax. Last, a withdrawal is possible for those who are unemployed and are between five and 10 years from retirement age. In this case, the payment can only be done by monthly payments scheduled up to retirement age.

An additional benefit of pension funds and IRAs is the shield from creditors. Any contribution or premium paid to pension funds or IRAs cannot be distrained by creditors. The same shield is granted for payments received after retirement: those amounts too cannot be distrained.

6 Saving for Retirement in Italy and Abroad: A Comparison

A clear understanding of the functioning of the Italian pension system from a consumer perspective requires understanding both the current scenario and the evolution of the Italian pension system.

As reported in the first part of this chapter, the Italian pension system is based on three pillars: the public pension, private pension funds, and individual retirement accounts. The many reforms of the pension system in the last 25 years were necessary to guarantee the balance between contributions (the incoming cash flows)

and pensions (representing the outgoing cash flows) from a strict financial perspective. The shift from a system completely based on a public pension to a multi-pillar system, which includes contributions to private retirement investment vehicles, had to account for (1) the need to guarantee the payments of current (and future) pensions to retirees, which are assessed according to a defined benefit system, and (2) the aging population and its low fertility rate, the combined effects of which represent a source of concern for the balance of the system due to the increase in outgoing cash flows and the decrease in contributions. Before the 1995 reform and the following adjustments, the Italian pension system was a fully defined benefit system based on an intergenerational social agreement with the younger generations of working age paying contributions used to pay the pensions of older generations (the retirees) with no accumulation of assets and no investments.

For a company whose expenditures (pensions paid to retirees) tend to exceed the revenues (workers' contributions), the options to rebalance the deficit are (1) to fill the gap with additional resources provided by third parties, (2) to reduce the expenditures, (3) to increase the revenues, or (4) a mix of the previous ones. In the case of a public pension system, the additional resources can come from the government that allocates resources for this purpose in the public budget. In this case, the systematic deficit of the pension system remains an unsolved issue that the government postpones by covering the annual loss generated by the system with resources from the public budget.

Regarding cost reduction, the chance to cut the payment of current retirees is not always feasible from both legal and social points of view. If the current expenditures are not adjustable, it follows that the alternative is to cut the future expenditures by reducing the dollar value of the future pensions and/or postponing the retirement age.

The chance to fill the gap between expenditures and revenues by increasing revenues refers to the chance to increase the number of contributors (i.e., expanding the coverage of the system to workers' categories that were not included before) or to the chance to increase the contributions of the current participants.

An analysis of a few key indicators of the Italian economy and society (Table 11) helps to understand which of the aforementioned alternatives are available and what Italian workers can expect for the future.

The percentage of public pension spending on GDP shows how the relevance of public pension spending in Italy (16.2%) is more than double that of the OECD average (8.0%). These data can be explained by the life expectancy of the population over 65 (20.9%), which is above the OECD average (19.7%), and the ratio between this group and the working-age population in Italy is 39.5% versus 31.2% of the OECD average. If the evidence is that Italian retirees represent a larger part of the population and live longer than other OECD countries' residents, an additional explanation of the huge public pension spending in Italy is the dollar amount of the pensions. In fact, if the post-1995 reform "new workers"—those who started to contribute to the public pension system after 1995—belong to a complete defined contribution system, the majority of the current retirees receive a pension that is mainly driven by a defined benefit regime, which is much more generous than a

Table 11 Key indicators of the Italian economy and society

Key indicators			
		Italy	OECD
Average worker earnings (AW)	EUR	31 292	35 230
	USD	36 937	41 584
Public pension spending	% of GDP	16.2	8.0
Life expectancy	at birth	83.2	80.7
	at age 65	20.9	19.7
Population over age 65	% of working- age population	39.5	31.2

defined contribution system. The public debt-to-GDP ratio in Italy in 2019—a pre-COVID-19 pandemic scenario—was 134.80%. The massive decrease in GDP in 2020 and the concurrent increase in public debt pushed up the ratio to 154.5%.[39] The burden of the public debt seems to exclude future public interventions to refund deficits in the public pension system (such as those made by the Italian government in the past). The will to make the public pension system a self-standing one restricts the list of policy tools to take the system on balance to practices devoted to (1) reducing expenditures and (2) increasing contributions.

Before addressing the possible future interventions in the public system and the possible consequences for Italian residents, it is useful to compare the structure of the Italian pension system with those of other countries.

According to the OECD (2019a, 2019b), the organization of the pension systems in the OECD countries can be defined by four types: the defined benefit scheme (DB), the point-based scheme, the defined contribution scheme (DC), and the notional account or "Nominal Defined Contribution" scheme (NDC). In the DB scheme, retirement income depends on the number of years of contributions and individual earnings. Typically, the pension is granted from a certain age, and the pension can be assessed as a percentage of the earnings of the last years (e.g., average of the last five or 10 years) or as a percentage of the earnings of the entire working life. In a point-based system, workers earn pension points based on their earnings each year. At retirement, the sum of pension points is multiplied by a pension-point value to convert them into a regular pension payment. The DC scheme involves the accumulation and investment of contributions. This money and investment returns are usually converted into a pension-income stream at retirement. Finally, in an NDC scheme, the system records contributions in an individual account and applies a rate of return to the balances. The accounts are "notional" in that the balances exist only on the books of the managing institution. At retirement, the accumulated notional capital is converted into a stream of pension payments using a formula based on life expectancy. This scheme is referred to as the "notional" defined contribution because it is designed to mimic DC schemes without a real investment of contribution.

[39] OECD (2021), General government debt (indicator). https://doi.org/10.1787/a0528 cc2-en (Accessed on 23 April 2021).

As reported in Table 12, DB schemes are applied by the public sector in 18 OECD countries. Private (occupational) schemes are mandatory or quasi-mandatory in three OECD countries (Iceland, the Netherlands, and Switzerland). Point schemes exist in four OECD countries: France (occupational plans operated by the public sector), Estonia, Germany, and Slovakia. DC plans are compulsory in 10 OECD countries. In Denmark and Sweden, there are quasi-mandatory occupational DC schemes in addition to smaller compulsory plans. The NDC schemes are applied only in five countries: Italy, Latvia, Norway, Poland, and Sweden.

The differences between the Italian scenario and the international landscape become clearer when reading the data reported in Table 13.

As a (nominal) defined contribution scheme, the pension of Italian workers will refer entirely to their "virtual" individual accounts, where the sum of the contributions and the annual re-evaluation of the account balances will be accounted for. Compared with the previous generation of workers who have benefitted from a defined benefit system, current workers will see (ceteris paribus) a severe decrease in the amount of their pensions. The old DC scheme guaranteed a pension assessed as a percentage (that can reach 80%) of the earnings' average over the last five years. Doing so, this average is assessed on the end-of-career salary, which is usually above the working life average salary, because the entry level salary is lower than future salaries. Because an NDC scheme relies on the entire working life of a worker and the contributions depend on salaries/earnings, it follows that the average pension of a worker in an NDC scheme—as the case of current Italian workers—will be lower than that of his/her parents. This reduction in the public pension should be balanced by the second (pension funds) and third (individual retirement accounts) pillars of the system. However, looking at Table 13, the comparison between the total contribution rate of Italian workers (33% of the gross income) with other defined contribution systems is shocking. The Italian contribution rate is the highest, and the second one requested in Poland (19%) and the third one in Norway (18.1%) are almost half of the Italian case. Such a large pressure on Italian workers from the public system decreases the chance of making additional contributions to the private scheme because it is unaffordable, especially for low-income workers. These circumstances should discourage the practice of increasing the contribution rate to balance the ratio between incoming and outgoing cash flows of the pension system, which is necessary to guarantee the payments of pensions to the current beneficiaries.

An additional source of concern for Italian workers is the unique practice of the Italian public pension system to re-evaluate the balances of the individual (virtual) pension accounts according to the average GDP growth rate. As reported in the first part of this chapter, the economic trend of the country in the last 20 years has never shown annual growth rates above 2%, with the economic recession that followed the 2008 financial crisis involving negative growth rates in different years. Even if the re-evaluation of the pension accounts is not based on year-to-year changes, the re-evaluation rate of the accounts was negative. This means that the supposed increase in the account balances for the "virtual" investment of the (virtually) deposited money turned into a decrease in the balance. Of course, this negative effect for Italian workers

Table 12 Structure of retirement-income provision

	First tier				Second tier			First tier				Second tier	
	Residence-based		Contribution-based					Residence-based		Contribution-based			
	Basic	**Targeted**	**Basic**	**Minimum**	**Public**	**Private**		**Basic**	**Targeted**	**Basic**	**Minimum**	**Public**	**Private**
Panel A. Latest legislation applying to future retirees entering the labour market in 2018 at age 22													
Australia		✓				FDC	Netherlands	✓					DB [q]
Austria				✓	DB		New Zealand	✓					
Belgium				✓	DB		Norway		✓			NDC	FDC
Canada	✓	✓			DB		Poland				✓	NDC	
Chile		✓				FDC	Portugal				✓	DB	
Czech Republic			✓	✓	DB		Slovak Republic				✓	Points	
Denmark	✓	✓			FDC	FDC [q]	Slovenia				✓	DB	
Estonia			✓		Points	FDC	Spain				✓	DB	
Finland		✓			DB		Sweden		✓			NDC + FDC	FDC [q]
France				✓	DB + Points		Switzerland				✓	DB	DB
Germany		✓			Points		Turkey				✓	DB	
Greece	✓				DB		United Kingdom			✓			
Hungary				✓	DB		United States					DB	
Iceland	✓	✓				DB [q]							
Ireland			✓				Remaining G20 countries						
Israel	✓		✓			FDC	Argentina			✓	✓	DB	
Italy					NDC		Brazil				✓	DB	

(continued)

Table 12 (continued)

	First tier				Second tier			First tier				Second tier	
	Residence-based		Contribution-based					Residence-based		Contribution-based			
	Basic	**Targeted**	**Basic**	**Minimum**	**Public**	**Private**		**Basic**	**Targeted**	**Basic**	**Minimum**	**Public**	**Private**
Japan			✓		DB		China				✓	NDC + FDC	
Korea			✓		DB		India				✓	DB + FDC	
Latvia				✓	NDC + FDC		Indonesia				✓	DB + FDC	
Lithuania			✓		Points		Russian Federation			✓		Points	FDC
Luxembourg			✓	✓	DB		Saudi Arabia				✓	DB	
Mexico				✓		FDC	South Africa		✓				
*Panel B. Current legislation applying to new retirees in 2018 where different from Panel A**													
Chile		ü		ü	DB	FDC	Mexico				ü	DB	
Estonia			✓		DB/Points	FDC	Norway	✓	✓			DB	FDC
Italy				✓	DB + NDC		Poland				✓	DB/NDC	
Latvia				✓	DB/NDC + FDC		Sweden	✓	✓			DB/NDC + FDC	FDC [q]
Lithuania			✓		DB/Points		United Kingdom			✓		DB	

Source Authors' analysis from OECD (2019a, 2019b)

Note *Information for non-OECD countries unavailable. A tick for the column "Targeted" is only shown if a full-career worker at 30% of the average wage is eligible. [q] = Quasi-mandatory scheme based on collective agreements with a very high coverage rate, see Chapter 9. DB = Defined benefit, FDC = Funded defined contribution, NDC = Notional defined contribution. The contribution-based basic pension in Israel is a 2% top-up (total maximum 50%) on the residence-based basic pension for each contribution year beyond 10 years. In Iceland and Switzerland, the government sets contribution rates, minimum rates of return and the annuity rate at which the accumulation is converted into a pension for mandatory occupational plans. These schemes are therefore implicitly defined benefit. In Mexico, the government pays a transfer to the individual private FDC account of a contributing employee every month. In Canada, the basic pension (OAS) is income-tested but only through the tax system ("claw back")

Source See "Country Profiles" available at http://oe.cd/pag

Table 13 Future parameters and rules of mandatory earning-related pensions, latest legislation (at the normal retirement age of a full-career worker who entered the labor market at age 22 in 2018)

	Type of scheme	DB schemes	DB, points or NDC schemes			FDC or NDC schemes	Ceiling for pensionable earnings (% of average earnings)	Effective accrual rate of a male full-career average earner (% of earnings)
		Nominal accrual rate (% of individual pensionable earnings)	Earnings measure	Valorisation rate	Indexation rate	Total contribution rate (%)		
Australia	FDC					10.2	252	0.69
Austria	DB	1.78	L	W	d		152	1.78
Belgium	DB	1.33	L	P	p		103	1.04
Canada	DB	0.83	L	W	p [c]		104	0.73
Chile	FDC					10	268	0.73
Czech Republic	DB	0.85 [w]	L	W	50%w + 50%p		375	0.85
Denmark	FDC (occ.)					12	None	0.97
Estonia	Points/FDC		L	W	80%wb + 20%p	6	None	0.21/0.56
Finland	DB	1.50	L	80%w + 20%p	20%w + 80%p		None	1.23
France	DB/points	1.16	B25/L	p/w	p/p		101/796	1.01/0.35
Germany	Points		L	W	w - x		154	0.86
Greece	DB	0.92 [y]	L	W	50%w + 50%g		342	0.92
Hungary	DB	1.3 [y]	L	W	p		None	1.30
Iceland	DB	1.40	L	W	p		None	1.40
Ireland	None							

(continued)

Table 13 (continued)

	Type of scheme	DB schemes	DB, points or NDC schemes			FDC or NDC schemes	Ceiling for pensionable earnings (% of average earnings)	Effective accrual rate of a male full-career average earner (% of earnings)
		Nominal accrual rate (% of individual pensionable earnings)	Earnings measure	Valorisation rate	Indexation rate	Total contribution rate (%)		
Israel	FDC					12.5	78	0.71
Italy	NDC		L	G	p	33	324	1.61
Japan	DB	0.55	L	W	p or w [a]		230	0.50
Korea	DB	0.50	L	W	p		117	0.50
Latvia	NDC/FDC		L	Wb	p + 75%wb	14/6	463/none	0.54/0.49
Lithuania	Points		L	W	p + 67%w		458	0.24
Luxembourg	DB	1.65 [y]	L	W	p, w [c]		202	1.65
Mexico	FDC					6.5	362	0.52
Netherlands	DB (occ.)	1.15	L	p [c]	p [c]		None	0.85
New Zealand	None							
Norway	NDC/FDC		L	W	w - 0.75%	18.1/2	114/193	0.88/0.13
Poland	NDC		L	wb, g	p, w [c]	19.5	264	0.68
Portugal	DB	2.22 [w]	B40	Min(25%w + 75%p,p + 0.5%)	p, g		None	1.62
Slovak Republic	Points		L	W	50%w + 50%p		656	1.18
Slovenia	DB	0.97 [f/m, y]	B24	w, d	w		203	0.97
Spain	DB	2.7 [y]	F25	P	0.25%, p + 0.5%		170	1.68

(continued)

Table 13 (continued)

	Type of scheme	DB schemes	DB, points or NDC schemes			FDC or NDC schemes	Ceiling for pensionable earnings (% of average earnings)	Effective accrual rate of a male full-career average earner (% of earnings)
		Nominal accrual rate (% of individual pensionable earnings)	Earnings measure	Valorisation rate	Indexation rate	Total contribution rate (%)		
Sweden	NDC/FDC/FDC (occ.)		L	W	w - 1.6% [c]	14.9/2.3/4.5 [w]	111/111/none	0.8/0.17/0.31
Switzerland	DB/DB (occ.)	0.64 [w]/0.68 [a]	L/L	f/r	50%w + 50%p/0%		70/70	0.5/0.53
Turkey	DB	2.00	L	p + 30%g	p		389	1.69
United Kingdom	None							
United States	DB	1.24 [w]	B35	w, p	p		234	0.85

Note Empty cells indicate that the parameter is not relevant. [a] = varies with age, [c] = valorisation/indexation conditional on financial sustainability, [f/m] = varies by gender, [w] = varies with earnings, [y] = varies with years of service, B = number of best years, F = number of final years, L = lifetime average, d = discretionary valorisation/indexation, f = fixed-rate, g = growth of gross domestic product; p = price inflation, w = growth of average earnings, wb = wage bill growth. Denmark: typical contribution rate for quasi-mandatory occupational plans. ATP pension only enters the last column. Germany: x depends on changes in both sustainability and contribution factors. Italy: indexation is to price inflation for low pensions and 75% of price inflation for high pensions. Japan: indexation is to earnings growth until age 67 and to price inflation after age 68. Luxembourg: indexation is to price inflation plus a share of real earnings growth, depending on the financial situation of the pension scheme. Poland: indexation is to price inflation + at least 20% of real average-earnings growth in the previous year. Portugal: indexation is higher relative to prices for low pensions and vice versa. Indexation rises with higher GDP growth. Switzerland: in the public scheme, ceiling applies to average earnings measure at retirement rather than annual earnings in the contribution years. United States: valorisation with earnings growth to age 60, no adjustment from 60 to 62, valorisation with price inflation from 62 to 67. Accrual rates applied to average earnings measure at retirement rather than annual earnings in the years of contribution. In some countries accrual stops after a certain number of contribution years or when a certain total accrual rate is reached. This is the case in Belgium (45 years), Canada (40 years), Portugal (40 years), Spain (100%), Turkey (90%) and the United States (35 years). In other countries a maximum pension or a late retirement age may stop accrual too

Source See "Country Profiles" available at http://oe.cd/pag

Source OECD (2019a, 2019b)

is added to the negative effect of inflation. This latter effect was mitigated only by the low inflation scenario experienced by the euro area.

Tables 14 and 15 show the retirement ages (normal and early retirement ages) in OECD countries in 2016 and 2018, respectively.

The comparison of the two years allows us to see how the retirement ages—both the normal and the early ones—increased. We have already discussed how the large public debt and the high public debt-to-GDP ratio in Italy make the chances that a deficit in the public pension system will be covered by the government, providing external funds into the system, unlikely. In the meantime, the high contribution rate required to current workers suggests avoiding additional increases to avoid an overload on current workers and the creation of negative incentives for foreign investors, with the risk of stimulating the development of a black market. Looking at the big picture, it seems that the only available option to keep the pension system on balance from a financial perspective is the adjustment of the retirement age. The last large reform of the Italian pension system in 2011, the so-called Fornero Reform introduced a self-adjusting retirement age mechanism linked to life expectancy in 65 of the Italian population. The effect of this rebalancing rule is visible in the increasing retirement ages in Italy, as reported in Tables 4 and 5.

If we refer to men, the normal retirement age in Italy in 2017 was 66.7. In the same year, only three countries had a higher threshold: Iceland (67), Israel (67), and Norway (67). The average for OECD countries was 64.5.

Italy is one of the countries with a separate normal minimum retirement age for men and women. In Italy, the normal retirement age for women in 2017 was 65.6, and it represents the highest value in the OECD group, which included Switzerland (64), the UK (63), Hungary (63), the Czech Republic (62.3), Israel (62), Slovakia (62), Poland (61), Austria (60), Chile (60), Slovenia (59.3), and Turkey (58). The trend in national pension systems is to phase out the gender gap (except Israel, Switzerland, and Turkey) with the consequence that the retirement age for women will increase, including the case of Italian women.

The data for 2018 (Table 15) confirm that Italian women are the ones who retire at the oldest age, but compared with 2016, this retirement age increased from 65.7 to 66.6. In the meantime, the retirement age for men in Italy reached 67, making the Italian case reach Iceland, Israel, and Norway at the top of the male retirement age ranking.

The long-term trend of retirement age in the OECD countries pension systems is reported in Table 16. The long-term expectation for those who entered the job market in 2016 at the age of 20 is to go on retirement at 71.2. The only country to plan a higher retirement age is Denmark (74), while only another country fixed a target above 70 (The Netherlands, at 71).

The abovementioned self-adjusting mechanism of the Italian pension system has seen in 2019 (OECD, 2019a, 2019b) the estimation of the expected retirement age for a 22-year-old Italian new worker be equal to 71.3: that is + 0.1 years compared with the estimation of two years early (Fig. 18).

Table 14 Normal and early retirement ages in OECD countries in 2016 (For an individual retiring in 2016 after an uninterrupted career from age 20)

		Scheme	Early age	Normal			Scheme	Early age	Normal
Australia		T	n.a	65	Japan		Basic/DB	60	65
		DC	55	.	Korea		DB	57	61
Austria	Men	DB (ER)	64.9	65	Latvia		NDC/DC	60.75	62.75
	Women	DB (ER)	59.9	60			T	n.a	67.75
Belgium		DB (ER)	62	65	Luxembourg		DB	60	60
		Min	n.a	65	Mexico		T	n.a	65
Canada		Basic/T	n.a	65			DC	Any age/60	65
		DB (ER)	60	65	Netherlands		Basic	n.a	65.5
Chile		Basic/T	n.a	65			DB (Occ)		65
	Men	DC	Any age	65	New Zealand		Basic	n.a	65
	Women	DC	Any age	60			DC	flexible	.
Czech Republic	Men	DB	60	63	Norway		Min	67	67
	Women	DB	60	62.3			NDC/DB	62	67
Denmark		Basic/T	n.a	65	Poland	Men	NDC/Min	n.a	66
		DC (ATP)	n.a	65		Women	NDC/Min	n.a	61
		DC (Occ)	60	.	Portugal		DB	65	66.2
Estonia		Points	60	63			Min	n.a	66.2
		DC	62	.	Slovak Republic	Men	DB	Subsistance level	62
Finland		Min	63	65		Women	DB	Subsistance level	62–58.25[1]
		DB	63	65	Slovenia	Men	DB	n.a	60
France		DB	61.6	61.6		Women	DB	n.a	59.3

(continued)

Table 14 (continued)

		Scheme	Early age	Normal			Scheme	Early age	Normal
		Points	56.7	61.6	Spain		DB	61	65
Germany		Points	65	65	Sweden		Basic	n.a	65
Greece		DB	62	62			NDC/DC	61	.
Hungary	Men	DB	n.a	63	Switzerland	Men	DB	63	65
	Women	DB	Any with 40 years	63		Women	DB	62	64
Iceland		Basic/T	n.a	67	Turkey	Men	DB	n.a	60
		DB (Occ)	65	67		Women	DB	n.a	58
Ireland		Basic/T	n.a	66	United Kingdom	Men	Basic (SP)	n.a	65
		DC (Occ)	50	.		Women	Basic (SP)	n.a	63
Israel	Men	Basic/T	n.a	67			T (PC)	n.a	63
	Women	Basic/T	n.a	62			DC	55	.
Italy	Men	NDC	62.8	66.6	United States		DB	62	66
	Women	NDC	61.8	65.6			T		65

Note The normal retirement age is calculated assuming labour market entry at age 20. DB = defined benefit; DC = defined contribution; n.a. = early retirement or deferral of pension is not available; Occ = occupational; T = targeted. Where pension ages for men and women differ they are shown as Men/Women... = benefits automatically adjusted for early and late retirement in DC schemes

1. Slovak Republic: For women with children the pension age is reduced dependent on the number of children

Source See "Country Profiles" available at http://oe.cd/pag, OECD (2017)

Table 15 Normal and early retirement ages in OECD countries in 2018 (For an individual retiring in 2018 after an uninterrupted career from age 22)

		Scheme	Early	Normal			Scheme	Early	Normal
Australia		T	n.a	65	Japan	Men	Basic, DB	60	65
		FDC	55	.		Women	Basic, DB	60	64
Austria	Men	DB, Min	62	65	Korea		Basic, DB	57	61
	Women	DB, Min	n.a	60	Latvia		NDC, Min, FDC	60.8	62.8
Belgium		DB	63	65	Lithuania	Men	Points	58.6	63.6
		Min	n.a	65		Women	Points	56.9	61.9
Canada		Basic, T	n.a	65	Luxembourg		Basic, DB, Min	62	62
		DB	60	65	Mexico		T, Min	n.a	65
Chile		Min, T	n.a	65			FDC	60 or SL	.
	Men	FDC	any age & SL	65	Netherlands		Basic	n.a	65.8
	Women	FDC	any age & SL	60			DB (Occ)	Sector-specific	.
Czech Republic	Men	Basic, DB, Min	60	63.2	New Zealand		Basic	n.a	65
	Women	Basic, DB, Min	60	62.7	Norway		Basic, T	n.a	67
Denmark		Basic, T	n.a	65			DB	62	67
		FDC (ATP)	65	.	Poland	Men	NDC, Min	n.a	65
		FDC (Occ)	60	.		Women	NDC, Min	n.a	60.8
Estonia		Basic, points	60.3	63.3	Portugal		DB	62	65.2
		FDC	62	.			Min	n.a	65.2
Finland		DB	63	65	Slovak Republic	Men	DB, Min	60.2 & SL	62.2
		T	63.3	65		Women	DB, Min	60.2 & SL	62.2
France		DB, Min	62	63.3	Slovenia	Men	DB, Min	60	62

(continued)

Table 15 (continued)

		Scheme	Early	Normal			Scheme	Early	Normal
		Points	55	63.3		Women	DB, Min	60	61.7
Germany		Points	63	65.5	Spain		DB, Min	63	65
		T	n.a	65.5	Sweden		Basic, T	n.a	65
Greece		Basic, DB	62	62			NDC, FDC	61	.
Hungary	Men	DB, Min	n.a	63.5			FDC (Occ)	55	65
	Women	DB, Min	n.a	62	Switzerland	Men	DB, Min	63	65
Iceland		Basic, T	n.a	67		Women	DB, Min	62	64
		DB (Occ)	65	67		Men	DB (Occ)	58	65
Ireland		Basic, T	n.a	66		Women	DB (Occ)	58	64
Israel	Men	Basic, T	n.a	67	Turkey	Men	DB, Min	n.a	51
	Women	Basic, T	n.a	62		Women	DB, Min	n.a	48
	Men	FDC	67	.	United Kingdom	Men	Basic, DB	n.a	65
	Women	FDC	62	.		Women	Basic, DB	n.a	62.7
Italy	Men	NDC + DB	63.6	67			T	n.a	62.7
	Women	NDC + DB	63.6	66.6	United States		DB	62	66

Note n.a. = early retirement or deferral of pension is not available; Occ = occupational, Min = minimum pension, SL = subsistence level reached, T = targeted,.. = no normal retirement age indicated as benefits automatically adjusted to the age of retirement in an actuarially neutral way. Normal and early retirement ages for a scheme describe the ages at which the receipt of a pension, respectively, with and without penalties is first possible, assuming labour market entry at age 22 and an uninterrupted career. Slovak Republic: For women with children the normal retirement age is reduced dependent on the number of children, with a minimum of 59.75. Finland: Early partial retirement on 25% or 50% of accrued pension rights is possible from age 61

Source OECD (2019a, 2019b)

Table 16 Normal and early retirement ages in OECD countries in the long term (For an individual retiring in 2016 after an uninterrupted career from age 20)

		Scheme	Early age	Reduction	Normal	Increase			Scheme	Early age	Reduction	Normal	Increase
Australia		T	n.a		**67**		Korea		DB	60	6.0%	**65**	7.2%
		DC	60				Latvia		NDC/DC	63		**65**	
Austria		DB (ER)	62	5.1%	**65**	4.2%			T	n.a		65	
Belgium		DB (ER)	63		**65**		Luxembourg		DB	60		**60**	n.a
		Min	n.a		65		Mexico		T	n.a		**65**	
Canada		Basic/T	n.a		**65**	7.2% (Basic/T)			DC	Any age/60	-	65	-
		DB (ER)	60	7.2%	65	8.2%	Netherlands		Basic	n.a		**71**	n.a
Chile		Basic/T	n.a		**65**				DB (Occ)			65	
	Men	DC	Any age		65		New Zealand		Basic	n.a		**65**	
	Women	DC	Any age		60				DC	Flexible			
Czech Republic		DB	60	3.6–6%	**65**	6.0%	Norway		Min	67		**67**	
Denmark		Basic/T	n.a		**74**	6.9%			NDC/DB	62			
		DC (ATP)	n.a		74				DC (Occ)	62			
		DC (Occ)	69		74		Poland	Men	NDC/Min	n.a		**65**	
Estonia		Points	62	4.8%	**65**	10.8%		Women	NDC/Min	n.a		**60**	
		DC	62				Portugal		DB	60		**68**	
Finland		Min	65	4.8%	**68**	4.8%			Min	n.a		68	
		DB	65		68	4.8%	Slovak Republic		DB	66	6.5%	**68**	6.0%
France		DB	62	5.0%	63	5.0%			DC	62		68	

(continued)

Table 16 (continued)

		Scheme	Early age	Reduction	Normal	Increase			Scheme	Early age	Reduction	Normal	Increase
		Points	57	4.0–7.0%	**64**		Slovenia		DB	n.a		**60**	4–12%
Germany		Points	63	3.6%	**65**	6.0%	Spain		DB	n.a		**65**	2%-4%
Greece		DB	62		**62**		Sweden		GARP	n.a		**65**	
Hungary	Men	DB	n.a		**65**	6.0%			NDC/DC	61			
	Women	DB	Any with 40 years		**65**	6.0%			DC (Occ)	55		65	
Iceland		Basic/T	n.a		**67**	6.0%	Switzerland	Men	DB	63	6.8%	**65**	5.2–6.3%
		DB (Occ)	65	7.0%	67	8.0%		Women	DB	62	6.35–7.1%	**64**	4.5–5%
Ireland		Basic/T	n.a		**68**	n.a	Turkey	Men	DB	n.a		**61**	
Israel	Men	Basic/T	n.a		**67**	5.0%		Women	DB	n.a		**59**	
	Women	Basic/T	n.a		**64**	5.0%	United Kingdom		Basic	n.a		**68**	5.8%
		DC			67		United States		DB	62	5.0/6.7%	**67**	8.0%
Italy		NDC	67.4		**71.2**				T	n.a		65	
Japan		Basic/DB	60	6.0%	**65**	8.4%							

Note DB = defined benefit; DC = defined contribution; n.a. = early retirement or deferral of pension is not available; Occ = occupational; T = targeted. Where pension ages for men and women differ they are shown separately. Benefits automatically adjusted for early and late retirement in DC schemes. Data rounded to one decimal place. The reference retirement age used in the modelling has been bolded

Source See "Country Profiles" available at http://oe.cd/pag, OECD (2017)

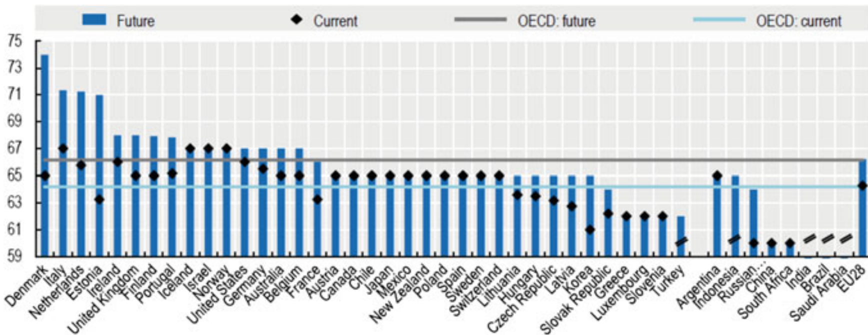

Fig. 18 Current and Future Normal Retirement Ages for a Man with a Full Career from Age 22 (Current and future refer to retiring 2018 and entering the labor market in 2018, respectively). *Source* OECD (2019a, 2019b)

Hence, looking at the big picture from a personal finance perspective, the current scenario for Italian workers is not positive compared with other countries. The transition from a DB system to a DC system that started in the mid-1990s was essentially a "virtual change". The burden of the generous pension system of the previous decades did not allow a real switch into a DC system based on the saving and investment of workers' contributions. In the meantime, the demographics of the country suggest that in the future, the number of workers will decrease (due to the low fertility rate), and the number of workers approaching retirement age will grow, adding pressure to the financial stability of the system. The high contribution rates (33% of the gross income) make an increase in contributions not feasible, and the chance of cutting the pensions for the current retirees is—in practice—not allowed by the law. It follows that the only option to rebalance the public pension system is to postpone retirement. The mid-term target of 71 is in line with this scenario.

Regarding the current and future generations of workers, it is quite clear that the public pension cannot be the only source of income after retirement. Contributions are re-evaluated according to the Italian GDP growth rate, which in recent years was very low (sometimes negative), avoiding any compound effect. In the meantime, changes in the job market increased the number of temporary works compared to permanent positions. This trend will see those who will have some unemployment periods in their working life suffer from a retirement point of view due to the lack of contributions and the negative effects on the dollar amount of their pension (regardless of retirement age). If the public pension system is no longer a reliable source of income for future retirees, the fact that contributions to the public system are mandatory and large in their amount can be an issue for the development of the private sector (e.g., pension funds and individual retirement accounts).

7 The Awareness of the Retirement Pension Needs and the Busta Arancione

Retirement is (like many others) a once-in-a-life event. In those cases, individuals have no chance to learn-by-doing and to take advantage of previous experiences, making better decisions the next time. This makes the need to prepare and plan for retirement very important financial decisions. Retirement planning and retirement saving are easier if individuals start to deal with these needs early in their lives. However, planning for retirement is a long-term goal and may not be a priority for an individual who is dealing with other purposes, such as homeownership, payback mortgages and other debts, to make careers and/or to develop a business. Hence, there is the need for policy makers to stimulate awareness about the need to save for retirement and the benefit of starting to do it early, to prevent individuals developing awareness and starting to work on their retirement plans when it is too late to make a difference. If this is true in any country, it can be even more crucial in countries such as Italy, where the transition from a pure DB system to a DC system is almost complete for the workers' point of view (one of the contributors to the system) but still see many retirees benefit from the previous (and more generous) DB system. The risk is that people refer to the case of the previous generation (e.g., their parents) to shape their financial behavior about retirement. In cases where the public pension is enough to maintain the quality of life after retirement, contributing to the public system can be the best thing to do to have a good and safe retirement. However, the shift to a DB system and the functioning of a "notional" defined contribution system do not represent this scenario for Italy. Hence, the need to stimulate awareness about the structure and the functioning of the current pension system is a serious issue in Italy, and the government supported different initiatives to help people become aware of the current scenario. Within these initiatives, one of the most interesting is the Busta Arancione (Orange Envelope).

The Busta Arancione is an awareness communication campaign promoted by the INPS. The project is based on a letter sent by the postal service to any worker who contributes to the system. The letter recaps the current status of the worker in terms of the amount of contributions, and the remaining years of contribution to be eligible for a public pension, and it includes a forecast of the possible amount of the pension. The origin of the idea to send a letter to stimulate attention to retirement planning is not Italian. The first country to plan and experiment with such a policy was Sweden.

Since 1999, the Swedish Pension Agency has sent a letter to all citizens once a year, adjusting the information according to whether the recipient is aged below or above 28, whether they are residents abroad, or whether it is the first time they have received such information. The aim of the program is to make young recipients aware of the functioning of the pension system and to support workers, raising their understanding of the size of a pension for those continuing to work as they currently do. In the meantime, the orange letter wants to stress the factors that can most influence retirement outcomes. The campaign is based on the delivery of a huge number of letters in a short period of time, when attention about retirement

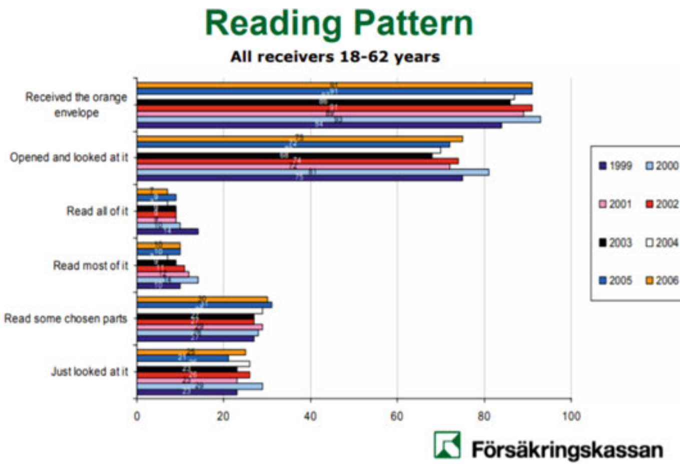

Fig. 19 Reading pattern of the orange envelope in Sweden. *Source* Paullson (2008) p. 5

planning is stimulated by the media. The idea to send letters in an orange envelope is based on the assumption that such nonconventional color for an envelope can draw the attention of the recipient and not be perceived just as another standard communication. The Swedish pension authority surveyed the effectiveness of the orange envelope campaign (see Fig. 19), finding that more than 50% of the recipients on average read at least some chosen parts (Paulsson, 2008). If this result can seem to be not exciting, what is more encouraging is that the orange envelope became the most trusted source of information for the Swedish population, as reported in Fig. 20.

The expertise of Sweden with the orange envelope suggests that there are some issues with the information provided and the chance that the recipients will read it (Paullson, 2008). The list of the potential problems includes the complexity of the pension products, the fact that the pension is perceived as a long-term issue, the lack of financial literacy of the recipients, and the difficulty in obtaining the whole picture. Hence, by the time the contents and the structure of the orange envelope evolved, trying to decrease the amount of text of the letter, to prefer the use of graphics and to include plain-text explanations. Of course, in recent years, the orange envelope strategy has included the use of the Internet, which can make the experience more interactive and stimulating thanks to the use of simulations and the availability of additional information. However, the orange letters are still sent to raise attention to pension needs and the need to take care of retirement goals.

Following the Swedish experience, the abovementioned Italian pension agency INPS announced in 2016 the aim of introducing the orange envelope in Italy too. The plain translation of Busta Arancione evokes the direct link with the Swedish experience and the same aims. The information of the letter included the saving balance of the recipients (the sum of the contributions and their re-evaluation) and the forecast of the pension under the assumption that the worker will continue to work and contribute as done in the current time. After the kick-off of the project, the Busta

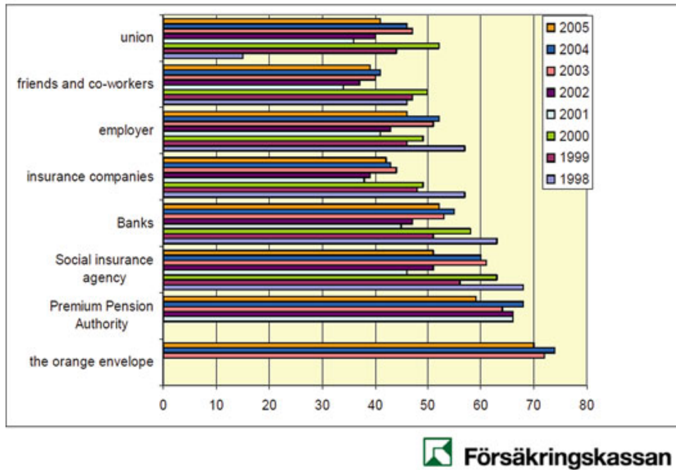

Fig. 20 Trust of information from different actors. *Source* Paullson (2008) p. 6

Arancione campaign started with a small number of letters sent to some workers' categories. After that, the project remained on standby until 2020, with the decision to prefer a digital version of the letter and the provision of a detailed set of information by a dedicated website. Recently, the website of the INPS included a section called La mia pensione futura (My Future Pension) with a pension simulator based on the personal data of the workers and his/her contribution data. The development of the simulator is still in progress and, at the current time, it works only for some categories of workers—those whose contributions are paid to a single pension agency—while in the future it should be able to reconcile contributions from different sources, expanding the number of potential users. Some media[40] highlighted how the result of the simulations risk being optimistic and overestimating the amount of the pensions. For instance, the assumption that the GDP growth of the country (used to re-evaluate the contributions from year to year) will be 1.5% a year is not supported by the evidence from the recent past, when GDP has rarely grown more than 1.0% and it was sometimes negative. In the meantime, the simulator is based on the assumption that the worker will never experience a lack of contributions (due, for instance, to unemployment) even if the job market is shifting from permanent jobs to temporary work or freelance positions, increasing the chances of missing some contributions. Moreover, the hypothesis that the current income will grow at 1% on an annual basis is not confirmed by historical data from the recent past. A last source of potential error is the chance that the current parameters used to assess retirement age (e.g., life expectancy ratio at 65) could change.

[40] See https://www.consulenteassicurativo.org/busta-arancione-inps/.

Of course, a simulation cannot predict the exact amount of the future pension in a DC system due to the volatility of some parameters, and it should be used to develop the big picture about future pensions. The chance to set a different combination of parameters (e.g., GDP growth, inflation, vacancy of contributions, etc.) could help to reconcile the result of the simulator to different scenarios.

8 The Reverse Mortgage in Italy: The Case of the Prestito *Vitalizio Ipotecario* (PVI)

In several countries, the regulation about retirement planning includes the so called "reverse mortgage." Individuals with some characteristics (e.g., a minimum age) with a residential property (e.g., house, apartment, etc.) can apply for a credit line that will give them a fixed amount of money on a regular frequency (e.g., on a monthly basis) until their death. This credit line is guaranteed by real-estate property (usually a residential home). The heirs will have the chance to pay back the loan to the bank and keep the property or to let the bank to sell it to take back the total of the capital invested paying the periodical installments, plus the interest on this capital.

The reverse mortgage was originally introduced in Italian legislation in 2005 and then substantially reformed in 2016 to give the chance to individuals with a low income but with ownership of a residential home to cash in on part of their wealth without the need to sell their house and having the chance to continue to live in it. This option can be interesting for individuals whose wealth is illiquid—because concentrated in real estate properties or in a single property used as a home—and whose income is low because it gives the chance to receive an additional amount of money to support the family budget.

The reverse mortgage is not the only available option to cash in on a real estate property without losing the use of the property. A similar result can be achieved by selling the "bare property," keeping the so-called "usufruct." Selling the bare property, the original owners transfer the property right of the house to a counterpart, but in the meantime, keeping the "usufruct," there is the right for the original owner to still use the asset until his/her death. If the chance to cash in on a real estate property and still use it is achieved in the bare property as in the reverse mortgage, some differences exist. The sale of the bare property does not give the option to take back the property to the heirs, and the usufruct limits the use of the house that, for instance, cannot be renovated or modified without the permission of the new (bare) owner. In the meantime, in a reverse mortgage, the property remains with the original owners (the borrower) that accumulate a debt receiving monthly payments (the "instalments"). The difference from other credit lines guaranteed by real estate collateral is that in case the total debt at the death of the borrower exceeds the value of the property, the heirs have the option to not pay the debt and the bank has no rights to claim the difference between the value of the house and the total amount due by the borrower.

Therefore, there are many reasons why a reverse mortgage could represent an interesting option to add money to the family budget on a regular basis, especially for retirees whose pension is not enough to guarantee a good quality of life. In the case of Italy, the reverse mortgage can be particularly interesting for at least two reasons. The first is that the shift from a DB system to a (notional) DC system will see on average the amounts of the public pensions decrease with respect to the current pensions paid to retirees, with the risk of making it not enough to preserve the quality of life experienced before retirement. The second reason concerns the fact that approximately 70% of the Italian population are homeowners (Fornero et al., 2015), so the number of potential applicants of a reverse mortgage is pretty high, and the chance that financial institutions will provide such options is reasonable. The potential benefits of reverse mortgages to reduce old age poverty—and, generally speaking, to support individuals in their wealth management in retirement—have been studied by Moscarola et al. (2015). The authors show how reverse mortgages could play an important role in protecting older households against consumption shortfalls without displacing them from their home and report how this is especially true for countries such as Spain, Belgium, Italy, and France.

However, the presence of favorable conditions for the development of a reverse mortgage market does not imply that such development will come true. In fact, Fornero et al. (2015) analyzed the Italian reverse mortgage market and tried to assess the will of potential borrowers to use this option. Using a sample of 1,686 individuals, the authors find that on a scale from one to five (where one means "no interest" in a reverse mortgage and five "great interest"), 1.1% claimed to be "very interested," 6.2% "quite interested," 12.9% "somewhat interested," 20.4% "barely interested," and 59.4% "not interested." To not have future debts was reported as important for over 85% of the respondents, and these data are confirmed by the 70.5% of respondents who declared to be "averse to debt." When asked how they would finance a hypothetical expenditure of 20,000 euro, more than 60% replied they would draw from their savings, 20% would sell their financial assets, and approximately 16% would take out a bank loan. The answers to specific questions about the willingness to sell their home as a means to increase future income are clear evidence of the uncomfortable feeling with this option: 53.1% answered "certainly not," and 27.0% answered "probably not." The results from a regression model confirmed that debt aversion, as well as risk aversion, decrease the likelihood of considering reverse mortgages. In the meantime, the interest in reverse mortgages increases when housing equity decreases, and it is slightly higher for those who live in the North of the country compared to those living in Central or Southern Italy. Hence, the study of Fornero et al. (2015) describes a low propensity of Italian financial consumers to use reverse mortgages, and this result is confirmed by the limited number of credit products based on reverse mortgages offered in the Italian credit market. In 2021, only six banks offered reverse mortgages: Unicredit, Deutsche Bank, Banca Intesa-San Paolo, BNL, MPS, and Barclays.

Unicredit proposes a reverse mortgage (according to the Italian regulation referred to as Prestito Vitalizio Ipotecario or PVI) called Valore Casa (House Value). This credit product targets people between 65 and 85 years old. The money is paid

as a lump sum (not by installments), and the minimum threshold for the mortgage is 30,000 euro. The amount of this lump sum can vary from 15 to 50% of the house value, depending on the age of the applicant. The heirs have12 months after the death of the borrower to pay back the loan or to leave the property. The reimbursement of the loan must occur in a single payment. The loan can be a fixed-rate or a floating-rate loan. According to the condition offered in April 2021, the fix rate for these reverse mortgages was 4.50%.[41]

Deutsche Bank offers a reverse mortgage called Patrimonio Casa (House Asset). Even in this case, the payment is a lump sum, and the heirs have 12 months to pay back the loan after the death of the borrower. The lump sum can range from 14 to 52% of the value of the house, depending on the age, gender, and marital status of the applicant. The APR of the loan in April 2021 was 8.9%.[42]

Banca Intesa-San Paolo has a reverse mortgage called Per Te (For You). This product is similar to the previous ones, even if there is the chance to switch from an option that involves the payment of the interest on the loan during the life of the borrower to the option with principal and interest paid at the death of the borrower. The chance to switch is always available, and it is free. The interest rate for a fixed-rate reverse mortgage in April 2021 was 4.0%,[43] while the APR depends on the choice to pay interest since the beginning or to postpone the payments at the death of the borrower.

MPS—Banca Monte dei Paschi di Siena—proposes PrestiSenior (SeniorLoan) to customers at least 60 years old who are homeowners. The borrower can receive a lump sum or annual installments. There is the chance to pay the interest on the loan during the filing of the mortgage or to postpone the payment until the death of the borrower. It is a fixed-rate loan, and the APR in April 2021 ranged from 6.36% to 6.42%. There is a cap to the amount of the principal of the loan equal to 250,000 euro, and there is a relative cap equal to 50% of the value of the house.

In the last two cases—**BNL** and **Barclays**—there are no details on the websites of the banks, where the only available information is the chance to apply for a reverse mortgage.

From the joint analysis of the academic research and the conditions of the Italian credit market, it seems that there are some macroeconomic favorable conditions for the development of a reverse mortgage market in Italy, but the reluctance of Italians about debts and the negative feeling towards the idea of involving their houses to shape their family budget in retirement limit the growth of this credit product. The limited number of reverse mortgage products offered by banks in Italy confirms this view.

[41] Source: https://www.prestitovitalizioipotecario.eu/ (Last accessed April 2021).

[42] Source: https://www.prestitovitalizioipotecario.eu/ (Last accessed April 2021).

[43] Source: https://www.prestitovitalizioipotecario.eu/ (Last accessed April 2021).

9 Conclusions

The management of pension systems and their sustainability is one of the challenges of modern welfare systems around the world. The aging population and the low fertility rates represent two potential sources of concern for the financial stability of a pension system. If these thoughts refer to any pension system, their relevance for the Italian pension system is even bigger than other countries. The demographic trends in Italy show how in the next 10 years, a peak in the number of new retirees is expected due to the age distribution of the current population. This transition from the status of "contributors" to the status of "beneficiary" of the pension system (as retirees) needs to be managed in advance to avoid the negative consequences of a decreasing amount of money that goes in to the system and the growing amount of money that goes out from the system. In fact, in a notional defined contribution system, such as the Italian one, the payment of current pensions is guaranteed by the current contribution of workers. Hence, an increase in the number of retirees needs to be balanced by an increase in the number of workers to preserve the functioning of the pension system. Unfortunately, the low fertility rate of the Italian population has seen the number of births decrease over time, with a long-term effect on the job market that will not have the chance to replace new retirees with new workers from younger generations.

The evolution of the Italian pension system has shown how the quite generously defined benefit system that was in charge until the mid-1990s contributed to increasing the expenditures for pension payments, which still weigh on the current budget of the pension system. The consequences from a consumer point of view are many. There is the need to cope with the large expenditures for pension payments required to increase the contribution rate of current workers in Italy, which is now the highest of the OECD countries, equal to 33% of the gross income. These high contributions reduce the disposal income and the spending and saving power of consumers. In the meantime, the increasing retirement age and the shift to a defined contribution system penalize the current workers, whose pensions will be, for instance, negatively affected by periods of unemployment with no contributions paid. The revaluation of the balance of contributions according to the Italian GDP growth rate is another critical issue. The long recession that followed the 2008 financial crisis has seen close-to-zero growth in several periods with the consequence of diminishing the compounding effect on retirement savings.

Therefore, if future public pensions will no longer be a reliable source of income for Italian workers to preserve their pre-retirement standard of living, the need to save for retirement using the options offered by the second and third pillars of the system (e.g., pension funds and individual retirement accounts) is evident. However, the chance to do it has to account for the high (and mandatory) contribution rate to the public system, which reduces the disposable income of individuals and the awareness of the functioning of the pension system. To raise that awareness, a communication campaign, based on the (positive) experience of the Swedish pension agency and

called the "orange envelope", started in 2016 and is still ongoing. To receive communication every year, the Busta Arancione about the state of the contribution savings and a forecast of the future pension should help to raise attention to the need to save and avoid a lack of attention (and a lack of action) that could lead to a post-retirement poverty status for those who do not save and for whom the public pension would be poor. In the meantime, the willingness to help people in retirement to preserve their standard of living has led policy makers to introduce reverse mortgages into Italian regulations. Thanks to this credit product, homeowners could benefit from an additional source of income every month using their house as collateral for a debt that could be paid back by their heirs after their death or that could be covered with the sale of the house. The number of potential users of reverse mortgages in Italy is large due to the high homeownership rate in the country. However, the empirical evidence shows that Italian homeowners are reluctant to go in debt and to consider the property rights of their house as part of a strategy to manage their postretirement income.

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The Polish Pension System

Joanna Ratajczak-Leszczyńska and Piotr Manikowski

Abstract Since the early twentieth century, Poland has had a Bismarckian pension system characterized by pension contributions, pension funds and equivalent pension provisions. After World War II, this system was modified by the introduction of many redistributive mechanisms. After the political and economic transformation in 1989, the need for pension reform arose, and 10 years later systemic pension reform was conducted. The most important changes included the new pension DC formula, the introduction of funding in the public pension system (open pension funds) and the implementation of occupational pension schemes. However, wide coverage (inclusion of most working careers) and a minimum pension remained unchanged and contributed to the mitigation of old-age poverty. The reform was aimed at financial sustainability, especially at the cost of the pension level. In the following years, the system has been modified by the reduction of funding in the public pension tier and the development of voluntary or quasi-voluntary pension savings. However, the pension system in Poland, where the population is aging rapidly, has to face some important challenges, such as a decrease in replacement rates from the public pension system, expansion of future poverty among older (female) beneficiaries and insufficient additional nonpublic pension savings.

J. Ratajczak-Leszczyńska · P. Manikowski (✉)
Poznan University of Economics and Business, Poznań, Poland
e-mail: piotr.manikowski@ue.poznan.pl

J. Ratajczak-Leszczyńska
e-mail: joanna.ratajczak-leszczynska@ue.poznan.pl

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1 Demographics and Pension

1.1 Situation of the Aging Population

The demographic situation of Poland has changed over the last several dozen years. Since the 1960s, the share of the population aged 65 and more as well as the old-age dependency ratio has increased approximately three times, and in 2020 it amounted to 18.2% and 27.5%, respectively (Fig. 1). However, according to the demographic projections, the aging process is predicted to accelerate dramatically in the coming decades: in 2060, the older generations (65+) will constitute approximately one-third of the whole population, and Poland will have two persons of working age for every person aged 65 and over.

The aging process has resulted both from increasing life expectancy and consistently low levels of fertility over recent decades. In 1950, the average life expectancy in Poland was 56.1 for men and 61.7 for women. Seventy years later (2019), it increased to 74.1 years of age for men and 81.8 for women (Statistics Poland, 2019) and is estimated at 82.1 for men and 87.5 for women in 2050 (Statistics Poland, 2014).

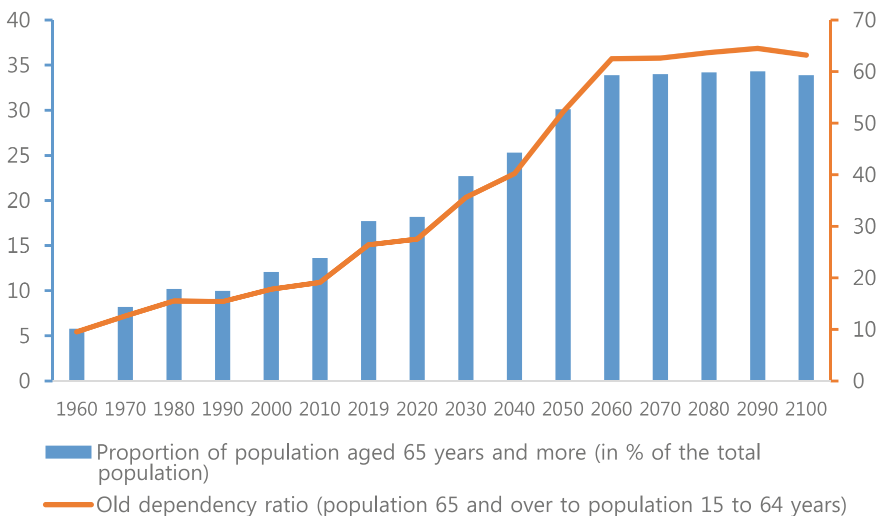

Fig. 1 Aging trends and future estimates in Poland. *Source* Eurostat database, accessed 28 August 2020

1.2 Cost of Living and Pensions for the Elderly

The public pension makes up the most important source of income for older people in Poland. This is especially the case for the one-person and two-person households of old-age pensioners (Table 1). The remaining 10% of the income was from hired work and other income, especially donations from private persons (Statistics Poland, 2020c, p. 77). This can be an indication that occupational and individual pensions do not contribute to the income of older people in Poland and that voluntary redistribution (probably within the family) toward the elderly generation takes place. The absence of income from nonpublic pension systems is due to the lack of such systems until the 1990s and their slow development after 1990.

The other issue is that the so-called "old pension system," i.e., the public system before the systemic pension reform in 1999 delivered a relatively high individual pension. The average replacement rate amounted to approximately 55–60% (see also point 3.5.1 of this chapter). Older people, who belong to the nonproductive generation and receive a public pension from the old pension system, still make up a significant part of the pension beneficiaries. It also resulted in the relatively low poverty rates of older people in Poland in comparison to the poverty rate for the whole society regardless of the poverty threshold (Table 2).

Furthermore, the inequality of income distribution (measured by the Gini coefficient) among older people has been much lower than for the whole society (Table 3). Consequently, the income of older people, which is currently mostly delivered by the (old) public pension system, flattens the income differences from the working period.

Table 1 Ratio of public pension to total available income in old-age pensioners' Households* in 2018

Number of persons in the households					
One-person (%)	Two-persons (%)	Three persons (%)	Four persons (%)	Five persons (%)	Six persons (%)
90	89	68	59	54	45

* These are households whose main source of maintenance is an old-age pension
Source Authors' own based on Statistics Poland (2020b, pp. 109–114)

Table 2 (Income) poverty rates of older people in 2016–2019

	2016	2017	2018	2019	2016	2017	2018	2019	2016	2017	2018	2019	2016	2017	2018	2019
	Poverty rate according to the existence minimum				Relative poverty rate*				Poverty rate according to the poverty threshold for the social assistance				Social exclusion rate of old-age pensioners' households			
Total	4.9	4.3	5.4	4.2	13.9	13.4	14.2	13	12.7	10.7	10.9	9	39.9	38.7	41.2	39.4
65 or more	3.4	3.6	4.1	3.8	10.3	11	11.5	11.8	7	6.4	6.6	6.5	34.8	36.6	37.7	36.2

* Poverty line accounts for 50% of the average household's expenditure
Source Statistics Poland (2020a), Aneks do opracowania sygnalnego "Zasięg ubóstwa ekonomicznego w Polsce w 2019 r.", pp. 5, 9

Table 3 Gini coefficient* for old-age pensioners' households in 2003, 2011 and 2018

	2003	2010	2018
Total	0.343	0.342	0.299
Old-age pensioners	0.252	0.249	0.222

[*] Coefficient is calculated based on available income per capita in a household. Value zero is attributed to households with minus incomes

Source Statistics Poland (2020c): Household budget survey in 2019, Warsaw, p. 337

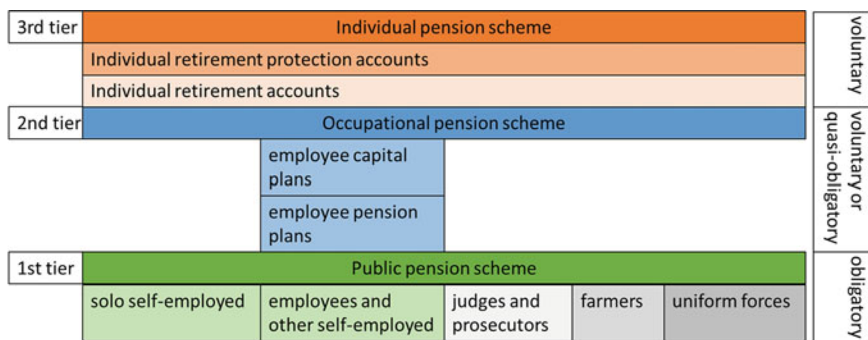

Fig. 2 Overview of the pension system in Poland. *Source* Authors' own

2 Framework of the Pension System in Poland

The Polish pension system consists of three tiers[1]: the first is the public pension, the second includes voluntary employee pension plans and quasi-obligatory employee capital plans, and the third tier comprises voluntary individual pensions (Fig. 2).

The public pension scheme covers four different subsystems for: (1) employees and self-employed, (2) judges and prosecutors, (3) farmers, and (4) uniform forces. The first one is organized as pension insurance and managed by the Social Insurance Institution (*Zakład Ubezpieczeń Społecznych*, ZUS). It is meant for the most nonagricultural society: all employees (apart from prosecutors) and self-employed as well as different groups of earners are covered by this system. It is financed by the pension insurance contribution and state subsidy. The amount of an individual pension depends on the individual pension capital and the average life expectancy at the moment of retirement. The pension system for judges and prosecutors covers those two occupational groups only. It is financed directly from the budget (Ministry

[1] We use the term "tier" instead of "pillar." The logical explanation is that one tier lies on another and the whole constitutes the pension income. In the case of pillars they bear the pension "construction" simultaneously and if one or two are missing the whole pension "construction" breaks down. Furthermore, the word "pillar" is used to explain the public pension for the self-employed and employees.

of Justice), and the individual pension amount depends on the period of service and salaries for judges or prosecutors. Farmers are included in the separate pension system run by the separate Agricultural Social Insurance Fund (*Kasa Rolniczego Ubezpieczenia Społecznego*, KRUS), which is financed both by social insurance contributions and state subsidies. The pension provision is related to the years of service. The pension provision for uniform forces is financed directly from the budget (Ministry of National Defense, Ministry of Interior and Administration), and its level depends on the years of service and salaries in the appropriate uniform occupational group.

Occupational pension schemes consist of two parts: voluntary employee pension plans (*Pracownicze Programy Emerytalne*, PPE) set in 1999 and quasi-obligatory employee capital plans (*Pracownicze Plany Kapitałowe*, PPK) introduced in 2019. A PPE can be offered in one of four forms: (a) employee pension fund run by labor pension societies, (b) investment fund managed by the investment fund companies, (c) group life insurance with an insurance capital fund, and (d) foreign management. PPEs are addressed to employees and their entrepreneurs operated as persons. A quasi-obligatory PPK can be managed by one of the following three financial institutions: (a) investment funds managed by the investment fund companies, (b) pension funds managed by general pension societies or labor pension societies, and (c) life insurance institutions. The PPK pension "product" is strictly determined by appropriate regulations and dedicated to employees. Furthermore, the quasi-obligatory PPK will have been implemented—from July 2019 until the end of 2021—gradually and according to the number of employees in a company (beginning with the largest) and business sector (beginning with the private one).

Individual pension schemes include individual retirement accounts (*Indywidualne Konta Emerytalne*, IKE) introduced in 2004 and individual retirement protection accounts (*Indywidualne Konta Zabezpieczenia Emerytalnego*, IKZE), which have been offered since 2012. Both IKE and IKZE are offered by the following five financial institutions: (1) life insurance companies, (2) investment fund companies, (3) brokerage houses, (4) banks, and (5) pension societies. Everybody is entitled to buy one IKE or IKZE, and the main difference between the two is the tax regime, contribution ceiling, and the minimum age required for obtaining pension capital.

As mentioned in point 1.2, the most important source of income in old age is the old-age pension from the first tier. In 2019, almost seven million older people received this kind of benefit (Table 4): 83% of them from the social insurance pension system, the following 13% from the farmers' system, and 4% from the uniform pension system. The income from the second and third tiers did not play any role and amounted to less than 1% of the total income of older people in 2016 (OECD, 2019, p. 185). One of the explanations is that occupational and individual pension products have been offered since the late 1990s only, and there have been only a few pension payments thus far. Furthermore, voluntary pension savings are not popular in Polish society for many reasons (see Rutecka-Góra (2019) and Point 4 of this chapter).

Table 4 Number of insured people and beneficiaries of old-age pension in different tiers of the pension system in Poland in 2019 (in 1,000 Persons)

	Number of insured people	Number of beneficiaries of old-age pension
First tier	**17 314.8**	**6980.3**
Social insurance pension system	16 115.5	5798
Judges and prosecutors	n.d	3.8*
Uniform forces	n.d	294.6
Farmers	1199.3	883.9
Second tier	**942**	**n.d**
Employee pension plans	613	
Employee capital plans	329	
Third tier	**1606**	**n.d**
Individual retirement accounts	951	
Individual retirement protection account	655	

* Data for 2015
n.d.—no data
Source Authors' own based on The Social Insurance Institution (2016, p. 159 and 2020, p. 7), The Agricultural Social Insurance (2020, p. 28), The Polish Financial Supervision Authority (2020d), Statistics Poland (2020c, p. 18; s. 37, 41, 45)

3 Public Pension Program

3.1 Overview of the System

As the pension insurance system is the most important from both the coverage point of view and its role in total income in old age, we will concentrate on it in the following sections concerning the public pension system.

Until 1918, Poland was split into three partitions: the Prussian, the Russian, and the Austrian, so there were three different regulations concerning old-age security. In 1889, in the Prussian partition, old-age social insurance was implemented (for blue-collar workers only and in 1912 for white-collar workers). In the Russian partition, some groups of blue-collar workers were covered by old-age security from 1912, and in the Austrian partition, in 1906 old-age security for white-collar workers was introduced. On Poland's regaining political independence in 1918, regulations common for the whole state were passed gradually. In 1920, a law concerning sickness insurance was passed; in 1923, social security for civil servants and military forces was established; and in 1924, unemployment insurance was introduced. In 1934 (using an Ordinance of the President of the Republic of Poland of 24 October 1934 on the amendment of the Act of 28 March 1933 on social insurance), the ZUS was established. It was responsible for sickness, disability, old age, survivors, and

work accident social insurance, while military forces and civil servants were covered by separate systems. After World War II, the ZUS was rebuilt. However, due to the nationalization of the economy and monopolization of the insurance market, occupational and individual pension plans were removed. The pension system relied on a public scheme characterized by wide coverage (resulting from the full employment paradigm), a highly redistributive DB formula financed solely by employers (on the total amount of paid remuneration and unified contribution for different social risks) and operating on a pay-as-you-go (PAYG) basis—it was a mix of Bismarckian and Beveridgian features (Żukowski, 1994). Starting from the mid-1970s, many different special regulations for various groups were introduced within the social insurance system, and the information asymmetry became considerable. Initially, the privileges were aimed at compensating for severe working conditions. Then, in the 1980s, they were more of a political tool to mitigate frustration resulting from day-to-day economic problems. After the political and economic collapse of the communistic system, disability and old-age pensions were used to reduce rising unemployment; as a result, the costs of pension benefits increased dramatically. It was one of the reasons for the pension reform (see Chłoń et al., 1999; Chłoń-Domińczak, 2002; Chłoń-Domińczak & Góra, 2006). There were at least three options proposed for the pension reform, although the time span/period of each of them was approximated. The first option, whose proponent was the Minister of Labor and Social Policy at the time, was aimed at stabilizing the income position of pensioners. The second option, which was delivered by the Minister of Finance, pointed out the reduction of pension costs, especially state subsidies. Both Ministers were in conflict, and it was difficult to find a common proposal for future pension reform. To solve this problem, the Government Plenipotentiary for Social Insurance Reform was constituted, who, as deputy prime minister, was beyond the mentioned conflict. His team supported the third option for the reform, which was targeted at the secondary goals of the pension system, especially financial sustainability based on the financial market. The Office of the Government Plenipotentiary for Social Insurance Reform prepared the official proposal "Security Through Diversity: Reform of the Pension System in Poland, 1997," which was inspired by the recommendations made by the World Bank in *Averting the Old Age Crisis* (1994). Poland belongs to the Central and Eastern European countries, which (following Hungary) introduced on 1 January 1999 the paradigmatic (systemic)[2] pension reform, which was funded by an obligatory system. The main principles and goals declared were (Hausner, 2002): sustainability of the pension system, security for all generations, protection of acquired rights, individual prudence, security through multisegment structure, transparency of the pension system and pension formula, freedom of choice, development of the financial market and GDP growth and support for voluntary pension savings.

[2] The paradigmatic pension reform, unlike the parametric one, means "a deep change in the fundamentals of pension provision typically caused by the introduction of a mandatory funded pension pillar, along with a seriously reformed PAYG pillar and the expansion of opportunities for voluntary retirement savings" (Holzmann et al., 2003, pp. 8–9).

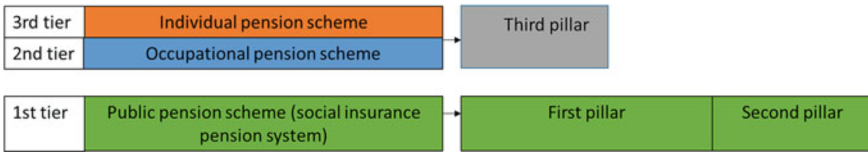

Fig. 3 Design of the pension reform 1999. *Source* Authors' own

The Polish pension system was split into obligatory and voluntary parts. The obligatory part covered the first tier and consisted of two components called pillars. The voluntary part included both occupational and individual pension systems and was called the third pillar of the pension system (Fig. 3).

3.2 Structure

The Pension Reform was introduced to ensure security through diversity. This diversity was reflected in the differentiation of both obligatory pillars (Table 5). The first one was the old-pension fund distinguished from the social security fund (FUS), which has been run by the ZUS since 1933. The administration of the first pillar is a public and monopolistic one and is supervised by the Ministry of Labor, Family and Social Policy. In the second pillar, new private financial subjects—Open Pension Funds (OPFs) managed by private pension fund companies—were introduced. They operate under private law, and competition between them is assumed. The second pillar is funded, so it is supervised by the Polish Financial Supervision Authority (KNF). The whole pension contribution (made up of 19.52% of the contribution base) is paid half by an employer, and an employee was initially split between both pillars as approximately two-thirds into the first and one-third into the second pillar. The most important change was the implementation of the defined contribution pension formula instead of the former defined benefit pension formula.

Table 5 Design of the public pension scheme (social insurance pension system) in 1999

1. Pillar	2. Pillar
Obligatory	
19.52%	
12.22%	7.3%
Individual pension account	Individual pension account
DC pension formula	
Old-age pension fund managed by a state organisational unit the polish social insurance institution (ZUS)	Open pension funds (OFE) privately managed by pension fund companies (PTE)

Source Authors' own

The new pension system started on 1 January 1999. The pension law was passed in two steps. The acts that introduced the most attractive part of the new pension system, that is, "private pension, a luxury good, for everybody" as it was called in the pension public campaign, were passed in 1997. The act that put the new pension formula into practice, namely, the DC instead of the DB one, and the new regulation for the first pension pillar was passed in autumn 1998. Because of that, the OFEs started on 1 April 1999. It was assumed that the first pension provisions from the second pillar would be paid in 10 years, i.e., 2009.

Some questions were left unanswered. There was no agreement on how to pay out pension from the second pillar, especially who should do it (there were new private companies assumed) and what kind of pension products should be offered. The political actors also decided to postpone the abolition of early pensions until 2002 entirely and gave quite a vague promise to reform special pension systems for some occupational groups. It was a result of sustaining separate pension schemes for farmers instead of including this group in the common social insurance pension system.

The pension system has been modified since 1999. The first step was to limit early pensions. It was quite risky because of the political costs, so consecutive governments postponed this decision many times. Eventually, in 2008, the law on bridging pensions, e.g., pensions for employees working in severe conditions, was passed. The new law resulted in the restriction of occupations allowing the taking of early pensions and made employees cover the costs of those pensions. Other changes concerned two topics: OFE and minimum retirement age.

Poland was one of the few EU members whose financial crisis of 2007 did not hit too much. However, although there was real GDP growth, significantly higher than the EU average, the government deficit debt increased by 5.4% points in the years 2007–2010 and the government debt by approximately 9% points in the same period. The crisis contributed to the initiation of the discussion concerning transition costs from the old into the new pension system, the deficit in the first pillar financed by PAYG and the financial implications of a relatively high contribution rate into the second pillar (which obviously reduced the income from contributions into the PAYG part of the pension system). As other post-communist countries introduced changes concerning obligatory pension funds, such as suspension of contributions to the pension fund (Estonia), reduction of the contribution rate to pension funds (Bulgaria, Latvia, Lithuania), or even shutdown of obligatory pension funds in practice (Hungary), Poland followed them and introduced a reduction of the contribution rate into the second pillar. As a result, a so-called subaccount in the first pillar was introduced, and the additional contribution rate of 5% ran from now on into this account, and the contribution rate to an OFE was reduced adequately down to 2.3%. It was assumed that the contribution rate to an OFE would be increased up to 3.5% since 2017 and that the contribution rate to the subaccount would be adequately diminished. Such a step allowed incomes to be raised from pension contributions in the first PAYG financed pillar. The differences between the individual account and individual subaccount are as follows: (1) the subaccount should imitate the funded pillar, so the valorization of contributions was set as nominal GDP growth from the

last five years; (2) hypothetical pension capital on the subaccount can be split in case of the liquidation of the matrimonial property and (3) hypothetical pension capital can be inherited in the case of the insured person's death. Therefore, from 2011, the insured person had three obligatory pension accounts: an individual account and an individual subaccount in the first pillar, and an individual account in the second pillar.

However, in August 2014, OFEs became voluntary. Every insured person could decide about splitting or not splitting their pension contributions between the first PAYG financed pillar and the second funded pillar. Such a decision could be made during the so-called "transfer windows." The first one took four months from April until July 2014, and the second took place in 2016. Every person who wanted to remain in OFE had to declare it, which meant there was an "opt-in" option that had to be used. Because many people were confused and the "transfer window" ended during the summer holiday, many of them did not take any action, which resulted in the "passive" decision to run their pension contribution from August 2014 to the first PAYG pillar only. It should be emphasized that the public campaign was very much one-sided and negative toward OFE. In 1999, pension funds were introduced as the best solution ever, while in 2014 they were presented as the weakest and most mistaken part of the obligatory pension system.

The reform of 2014 included more steps. One of them was the introduction of the so-called "security" slide. The pension capital in the second pillar has to be transferred during the last 10 years before reaching the minimum retirement age into the subaccount in the first pillar. The transfer starts earlier for women than for men because the minimum retirement age for women is five years lower. The argument for the "security" slide was the investment risk, which will be assumed to be too high for those shortly before retirement. It was decided that pension capital would be safer than notional pension capital in the first pillar, especially because the valorization in the subaccount could not be negative. The other step undertaken on 3 February 2014 was the redeeming of T-bills and state bonds. As of 1999, the investment strategies of the OFEs were restricted: T-bills and state bonds were the only investment instruments that were not limited. As in 2003, the ZUS debt toward OFEs was repaid by the state with state bonds and the state instruments were quite interest-bearing and low-risk in comparison to the other investment instruments, and the share of T-bills and state bonds in the OFE portfolio was relatively high, even up to 70% in some periods. It was treated by the government as rolling-up debt and used in 2013 as an argument to withhold T-bills and state bonds from the OFE portfolio first and forbid investments in those securities. The withholding of T-bills and state bonds was conducted by redeeming T-bills and state bonds by the state in an amount of 51.5% of assets, i.e., approximately 153 billion Polish zloty (PLN) at the beginning of February 2014. The percentage of 51.5% was the average share of those securities in the investment portfolio of all OFEs. The redeeming meant that the pension capital reflected by 51.5% was taken as a notional pension capital in the subaccounts in the first pillar, and the T-bills and state bonds were written off. Redeeming of T-bills and state bonds was accompanied by a change in investment regulations for OFEs. As before 2014, no share limit for T-bills and state bonds was

set, since 3 February OFEs have not been allowed to invest in those securities at all. They were obliged to put at least 75% of assets into the companies listed on the regular market in 2014 instead. This obligatory share decreased and amounted to 55% in 2015, 35% in 2016, and 15% at the end of 2017. The argument for such a step was to maintain the positive influence of OFE investments on the capital market, especially the Warsaw Stock Exchange (WSE). At the end of 2016, OFEs made up approximately 10% of the capitalization of the WSE and 20% of the capitalization of domestic companies listed on the WSE. Due to the prohibition of investments in T-bills and state bonds, OFEs became quite risky pension funds. At the same time, the mechanism of the minimum return rate was removed, and the contribution fee was reduced.

As a result of the conducted reforms, the social insurance pension system has been restricted step by step to the public PAYG-financed first pillar at the cost of the funded second pillar. However, the scope of the public pension system has not been changed—the total contribution rate has remained at the same level (Table 6).

The government plans to terminate the OFE. The pension capital kept in OFEs should be either transferred to the individual retirement account (IKE), which is a default option, or to the individual account in the first pillar on the future pensioner request. IKEs are part of the individual pension tier, but transferring the OFE-pension capital to an IKE will result in a reduction of the pension capital by 15% (the transfer fee). Transfer to the individual account in the public first pillar means no possibility of inheritance in the case of death.

The second stream of changes in the Polish pension system focused on the minimum retirement age, which is different for women (60) and men (65). It has to be stressed that since the middle of the 1990s, some attempts to equalize the retirement age of women and men have been taken. This issue also arose during

Table 6 Design of public pension scheme (social insurance pension system) in January 2021

1. Pillar		2. Pillar
Obligatory		Voluntary
19.52%		
12.22%	4.38% or	2.92% or
12.22%	7,3%	0%
Individual pension account	Individual pension sub-account	Individual pension account
DC pension formula		No pension payments; pension capital transferred to the pension sub-account in the 1. pillar (“security” slide)
Old-age pension fund managed by a state organizational unit the polish social insurance institution (ZUS)		Open pension funds (OFE) privately managed by pension fund companies (PTE)

Source Authors’ own

the preparation of the paradigmatic pension reform once again—a common retirement age at 62 was proposed (*Office of the Government Plenipotentiary for Social Security Reform*, 1997, p. 7), but both trade unions and women, especially those working in severe conditions, were against it. In 2003, in the "Green Book—Rationalization of Social Costs" (MGPiPS, 2003, s. 44) raising the female retirement age to 65 in the years 2010–2019, six months annually, was recommended and subsequently rejected. Moreover, in 2007, the Ombudsman put forward a motion to the Constitutional Tribunal in which he appealed against the difference in retirement age of men and women. The Ombudsman justified the motion by claiming that the new pension system was discriminating against women (K 63/07). In 2012, a new law on increasing and equalizing the minimum retirement age of women and men was passed. From 2013, the minimum retirement age had to be increased by one month every quarter up to 67 years in 2040 for women and 67 years in 2020 for men. The process started, but both the SLD (Democratic Left Alliance) and PiS (Law and Justice) were against it and declared to make a complaint to the Constitutional Tribunal and even cancel the process of raising the retirement age if they won the earlier election. It actually happened as Andrzej Duda, the president supported by PiS, won the election and fulfilled the promise—the reform was canceled in October 2017 and the return to the retirement ages of 60/65 took place.

3.3 Coverage

The coverage of the obligatory old-age pension is very wide and includes employees, except for public prosecutors, members of agricultural production cooperatives, contractors (persons employed under a mandatory contract or agency contract or another contract for the provision of services), persons running a nonagricultural business activity, members of the clergy, members of Parliament receiving remuneration, recipients of unemployment benefits, persons on child-care leave or receiving maternity allowance or benefits at the rate of the maternity allowance, and members of supervisory boards. There is also a possibility of voluntary participation in the social insurance pension system: this option was opened for the whole society in 2013 (before it was limited to a few groups). However, it is quite rarely used. As of 31 December 2020, there have been 15.8 million persons insured, and only approximately 0.03% are those subject to voluntary pension insurance.

In the pension reform of 1999, age was the criterion for distinguishing people covered by the new pension regulation (Table 7). The older people were excluded from the new pension system to avoid rapid changes before retirement. Everybody, below the age of 50 on the 1 January 1999 was obligatorily involved in the new pension system. However, those up to the age of 30 had to split their contribution between the first and second pillars, and those who were between 30 and 50 were not obliged to do so. They could target the whole pension contribution into the first pillar. The insured persons belonging to this group were given one year to make their

Table 7 Coverage of the new pension system of 1999

Coverage	1. Pillar	2. Pillar
Born after 31 December 1968	Obligatory	
Born after 31 December 1948 but before 1 January 1969	Obligatory	Voluntary
Born before 1 January 1948	Not covered	Not covered
Special schemes for (1) farmers, (2) selected civil servants, (3) judges and prosecutors, (4) special rules for miners		

Source Authors' own

decision. In the pension reform documents, it was assumed that approximately 50% of those aged 30–50 would choose both the first and second pillars. In fact, it was over 80%, which resulted in higher transition costs from the old to the new pension system.

3.4 OFEs

Open pension funds (OFEs) were set as a result of the 1999 pension reform. They are private pension funds run by pension societies (*Powszechne Towarzystwo Emerytalne*, PTE), which operate as joint-stock companies. One PTE is allowed to manage only one OFE. The money itself as well as financial transactions are held by one of the custodian banks (*Bank Depozytariusz*). Custodian banks are obliged to report any violation of the law or charter to the Polish Financial Supervision Authority (KNF) and may be responsible for more than one OFE at the same time. The division of the OFE and PTE is aimed at the security of OFE members' capital in the case of the bankruptcy of a PTE. An OFE itself is not allowed to collapse; it can only merge with or be taken over by another OFE. The insured person can choose one of the OFEs and has the right to change it at any time, so each OFE has to compete against the others for contributions. However, the insured person has no direct influence on the investment strategy of the chosen OFE or the level of its fees, which determine the level of his or her individual pension capital. For security reasons, an OFE investment strategy has been strictly regulated. Until 2014, there were no investment limits for treasury bills and bonds only, which resulted in a relatively high share of those instruments in OFE portfolios. The latter was called "rolling the public debt" by the Minister of Finance at the time, as in his opinion, treasury bills and bonds were mostly issued to cover the deficit in the first PAYG pension pillar. As a result, the redeeming of bonds held by the OFEs took place in 2014, and since then OFEs have not been allowed to invest in the treasury bills and bonds and have been obliged to put a given share of assets into listed stocks (Fig. 4).

Furthermore, to control the investment risk in the (until 2014) obligatory part of the social insurance pension system, the minimum return rate has been implemented. However, its calculation weighted the larger OFEs in favor of smaller ones and did

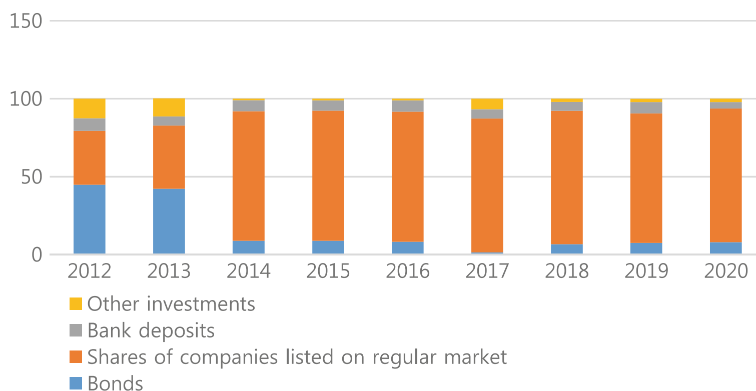

Fig. 4 Investment strategy of OFEs in 2012–2020. *Source* Authors' own based on data published by the Polish Financial Supervision Authority

not refer to possible performance in the financial market at that time, which was the reason for subsequent modifications. The high concentration on the OFE market has been a feature from the very beginning (Table 8), and OFEs have been important actors in the financial market (Fig. 5). Another issue was the level of fees collected by PTE (management fee, contribution fee, and transition fee): at the very beginning, the contribution fee was not limited.

Table 8 OFE market at the end of 2020

OFE	Market share according to the number of members (%)	Market share according to the amount of assets (%)
Nationale-Nederlanden OFE	18.8	26.1
Aviva OFE Aviva Santander	15.9	21.8
OFE PZU "Złota Jesień"	15.1	13.7
AEGON OFE	11.3	8.7
MetLife OFE	9.7	7.7
AXA OFE	7.1	6.4
Allianz Polska OFE	6.6	4.6
Generali OFE	6.2	4.9
PKO BP Bankowy OFE	5.8	4.4
OFE Pocztylion	3.6	1.8

* Dane liczbowe dotyczą członków OFE zgodnie z zapisami w Centralnym Rejestrze Członków OFE w ZUS

* Data concerns number of OFEs' members according to Central Register of OFEs' members in social insurance institution (ZUS).

Source Authors' own based on data published by the Polish Financial Supervision Authority

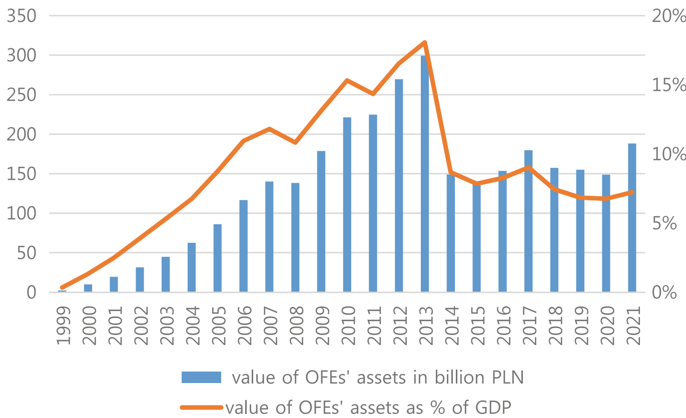

Fig. 5 Value of OFE assets in 1999–2021. *Source* Authors' own based on data published by the Polish Financial Supervision Authority

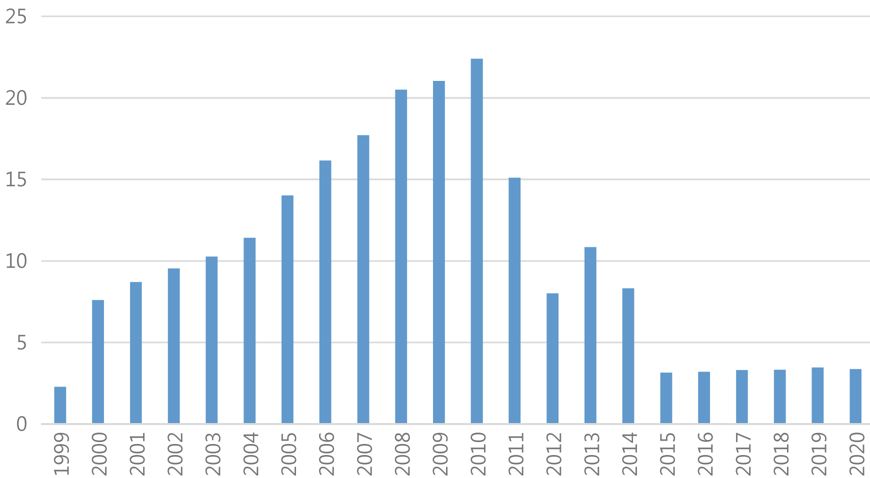

Fig. 6 Contributions and interests transferred to OFEs in years 1999–2020 (in Billion Zloty). *Source* Authors' own compilation based on data published by the Polish Financial Supervision Authority

It changed only some years later (especially in 2004, 2009 and 2014). It has to be stressed that the contribution to the second pillar (Fig. 6) is treated as part of the (pension) public contribution, although some regulations (a division of pension capital in case of divorce or separation and inheritance of pension capital at the accumulation stage) were aimed to mimic the private pension capital.

3.5 *Public Pension Benefits*

3.5.1 Old-Age Pension Benefits

Although the introduction of OFEs was announced as the main and most important part of the pension reform, there was another crucial issue that influenced the situation of a single future pensioner to a much greater extent, namely, the change in the pension formula. The new pension formula was a DC one (instead of DB), which means that the pension provision depends on the pension capital directly and is inversely proportional to the further life expectancy at the moment of retirement, which is unisex (and results in the redistribution toward women). For those who were covered by the pension system before the reform, so-called initial capital (hypothetical pension from the old pension system) was calculated. There was a debate concerning separate and unisex tables of life expectancy, but the latter ones were finally chosen because of the obligatory nature of both pillars.

$$P = \frac{K}{\mathrm{LE}}$$

where:

P pension provision (monthly)
K individual capital from the individual account in the first pillar and individual subaccount in the first pillar (plus initial capital for some insured), indexed annually
LE further life expectancy in months at the moment of retirement, unisex; according to tables published by the Central Statistical Office.

There is a minimum pension in the social insurance system: the government fills in the difference between the minimum pension level and the individual pension provision. However, the requirements for obtaining pension provision itself and minimum pension are different. As for becoming eligible for an individual pension, only the achievement of the minimum retirement, different for women (60) and men (65), is necessary; having the right to a minimum pension requires a vesting period (required insurance period) of 25 years for men and 20 for women. The vesting period consists of contributory periods and noncontributory periods, but the latter are counted up to one-third of contributory periods. Furthermore, persons voluntarily insured during a period of more than 10 years are not eligible for a minimum pension.

As mentioned above, there is a possibility for individual subaccounts in the first pillar and individual accounts in the second pillar of splitting the pension capital in the case of the liquidation of the matrimonial property and inheritance in the case of death of the insured person. In the case of separation or divorce, the pension capital acquired during the common property is split *pari passu* between wife and husband. In case of the death, the spouse obligatorily inherits 50% of the pension capital of the deceased, and the remaining 50% can be transferred to the persons named by the deceased (it can also be the spouse).

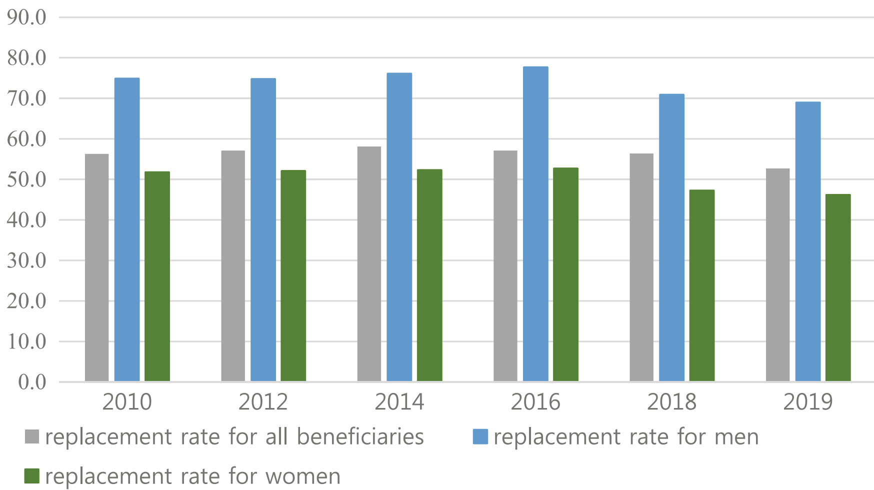

Fig. 7 Replacement rate of the insurance pension system in Poland. *Source* The Social Insurance Institution, statistical database

The replacement rate from the insurance pension system (calculated as the average pension provision in relation to the average monthly wage/salary reduced by obligatory social insurance contributions paid by the insured) has been reduced and is much lower for women than for men (Fig. 7).

A decline in the replacement rate is related to the increase in the number of pensions calculated according to the new DC pension formula, which have been paid since 2009. The strictly equivalent DC pension formula contributes to the relatively higher pension provision for men and lower pension provision for women. The latter have not only weaker working biographies but also a five-year lower minimum retirement age. As a result, the gender pension gap (calculated as the relation of difference between median men's and women's pension provisions in relation to the median men's pension provision) has increased up to 38% in the new pension system (in comparison to the 28% in the old pension system) in 2018 (Fig. 8). This can lead to the rising importance of survivor benefits for older female beneficiaries of pensions, as the derived pension rights of the deceased may occur much higher than the individual pension.

3.5.2 Disability Pension Benefits

The disability pension of persons who have reached the normal retirement age is replaced *ex officio* with the social insurance pension. The disability pension is calculated according to the old DB formula, which depends on (1) the so-called social amount (24% of the average wage in the economy deducted by the social insurance contributions), (2) the number of contributory and noncontributory periods and (3)

Fig. 8 Pension provision from the old and new pension systems by gender and the gender pension gap. *Source* The Social Insurance Institution, statistical database, authors' calculation

individual earnings during the foregoing working careers. The amount of disability pension provision is lower in the case of partial incapacity for work (75% of the calculated full disability benefit). For persons with long working biographies and relatively low earnings, the option to become unable to work and obtain the disability pension benefit, which will be automatically converted into an old-age pension, could be seen as an attractive opportunity.

3.5.3 Survivor Pension Benefits

Acquiring a survivor pension by the widow or widower requires meeting one of the following conditions: (1) at the time of death of the spouse was over 50 or was incapable of work; (2) brings up at least one of the children, grandchildren or siblings who are entitled to the survivors' pension after the deceased spouse and are under 16 or 18 years old (if they are in education)[3]; or (3) takes care of a child who is totally incapable of work and independent existence or who is totally incapable of work and entitled to the survivors' pension. The derived pension is paid out as one total provision for all eligible persons, e.g., the spouse, children, or grandchildren. If there is only one family member entitled to the survivor pension, the benefit amounts

[3] The condition (1) and (2) can be reached within five years after the death of his/her spouse or since he/she stopped raising legitimate children.

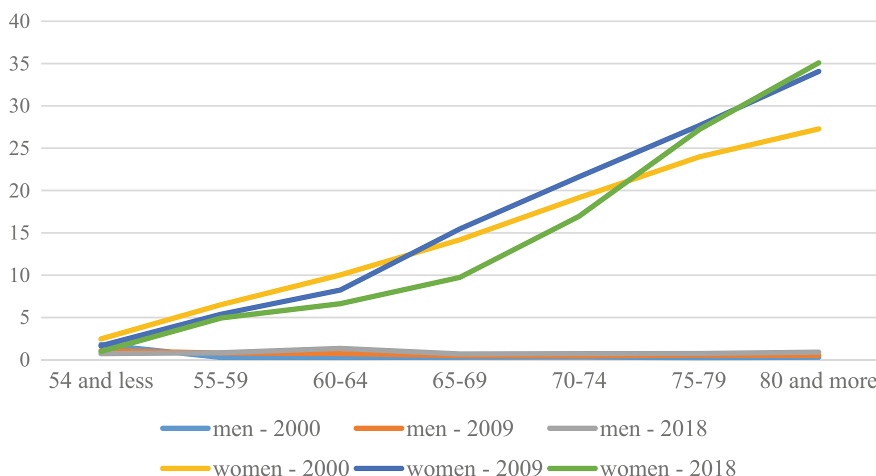

Fig. 9 Beneficiaries of survivor pension by gender and age (in % of the Group in a Given Age). *Source* The Social Insurance Institution, statistical database, authors' calculation

to 85% of the benefit that the deceased would be entitled to. It has to be stressed that a spouse who has obtained the survivor pension and has the right to receive the individual old-age pension has to choose one of the provisions. Because of the aforementioned gender pension gap, older women often choose the derived pension instead of individual old-age provisions—approximately 35% of women at the age of 80 and above and only 1% of men at the same age receive the survivor pension (Fig. 9).

3.6 Finance of Public Pensions

3.6.1 Overview

Old-age pensions are mostly financed by the pension contribution, which amounts to 19.52% of the contribution base. The contribution base covers all: remuneration, overtime payment, holiday pay and indirect compensation. It is paid half by the employee and the employer (apart from self-employed) up to the contribution ceiling, which amounts to 30-fold of the projected average monthly wage/salary in the national economy for a given calendar year. As mentioned above, the pension contribution is split: (1) between individual account and individual subaccount in the first pillar or—in the case the insured person has declared to join the second pillar—(2) between individual account and individual subaccount in the first pillar and individual account in the second pillar. The first pillar is a PAYG one, and the second pillar is funded.

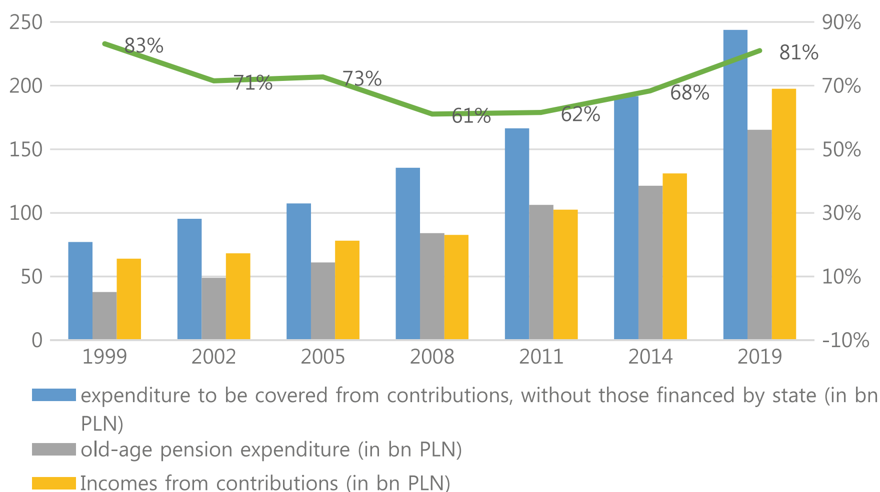

Fig. 10 Finances of social insurance fund (FUS) in the Years 1999–2019. *Source* The Social Insurance Institution, statistical database, authors' calculation

The pension contribution is part of the social contribution in Poland collected by the ZUS. The latter consists of the contributions for pension insurance, disability insurance, sickness insurance and work accident insurance. There are also separate funds: pension fund (which is the first pillar of the insurance pension system), disability fund, sickness fund and work accident fund, which are components of the Social Insurance Fund (FUS), whose financial resources are administered by the ZUS. Theoretically, every fund should be financially independent, but in practice the surplus in one fund is used to cover the deficit in another fund. The whole social contribution is collected by the ZUS; then, it is split between separate funds. If there is any deficit in the FUS, it has to be financed by state subsidies.

It must be emphasized that the changes in the social insurance pension system, which have been aimed at the limitation of the funded pillar, led to improvement of the financial situation of the FUS (Fig. 10) (see: Bielawska et al., 2015).

3.6.2 Indexation

Two issues are subject to adjustment: (1) the pension capital collected during working life and (2) the pension provision paid out during the retirement period.

Old-age pension contributions are indexed differently according to the pillar and type of pension account. The individual pension account in the PAYG first pillar is indexed by the rate depending on the increase in the total contribution basis. The individual pension subaccount in the PAYG first pillar (which is a result of cutting the contribution rate to the funded second pillar) is adjusted by the rate of GDP growth in the previous five years. The indexation in the first pillar cannot be negative

and takes place annually on 1 June. The pension contributions in the funded second pillar are invested in the capital market, and their value depends on the investment performance.

The pension provision is valorized by the index of an average annual price index of consumer goods and services for the preceding calendar year increased by at least 20% of the real growth of the average monthly remuneration in the preceding calendar year. However, in some years, flat-rate valorization took place, which favored the beneficiaries of the lowest pension provisions. The pension adjustment is carried out annually from 1 March.

3.7 Social Security Agreement and Pensions

Poland belongs to the European Union, which means that social security systems are coordinated[4] and social protection is provided for people moving and working in another country (such as EU27, Iceland, Liechtenstein, Norway, Switzerland, and to some extent the United Kingdom[5]). It is based on four fundamental principles: (1) unity of applicable legislation, (2) equal treatment and no discrimination, (3) aggregation of periods, and (4) exportability. The first means that one may be covered by the legislation of one country at a time and pay (pension) contributions in one country. This country, according to the given rules, is appointed by social security institutions. The second principle of the coordination of social security systems means that one has the same rights and obligations as the nationals of the country where he or she is insured. No direct and indirect discrimination is allowed. The third principle allows us to add all periods of insurance, work or residence to satisfy the requirements (e.g., minimum waiting period) under national law to be entitled to a certain benefit. The fourth rule allows retention of acquired rights in another member state or EFTA state or Switzerland.

Furthermore, Poland has 10 bilateral agreements on social security, covering 13 countries and related to the acquisition and calculation of invalidity and old-age pensions.

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[4] However, not harmonized, because member states are granted exclusive competencies in the area of social security systems, including first tier of the pension system.

[5] Social security coordination no longer applies to and in the UK as of 1 January 2021, unless the rights of persons are covered by the Withdrawal Agreement.

4 Private Pension Programs

4.1 Occupational Pensions

4.1.1 Development and Reorganization of Occupational Pensions

Occupational pensions[6] in Poland are treated as the 2nd tier of the pension system. The Polish occupational pensions consist of two separate programs:

- the Employee Pension Plans (*Pracownicze Programy Emerytalne,* PPEs), introduced in 1999, and
- the Employee Capital Plans (*Pracownicze Plany Kapitałowe,* PPKs) set up in 2018.

As a principle, the Polish second tier is voluntary. However, it appears to be a necessity. The assumptions of the pension reform of 1999 indicated that a retiring person would receive a benefit in the amount of approximately 50–60% of the last salary from the obligatory first tier. Current estimates mention even lower payouts. Hence, to maintain an adequately decent standard of living in retirement, it is necessary to take care of their retirement through the second and third tiers. That is why, already at the stage of reforming the pension system, voluntary pension programs were proposed, which were to provide an additional pension. The first solution in this regard was PPEs, which became available from the very beginning of the new pension system, i.e., from 1999. Unfortunately, only the largest employers took advantage of the possibility of creating PPEs. After a few years of their operation, approximately 1,000 such programs were created, covering approximately one million employees. At that time, legislators focused on creating more individualized solutions, independent of the will of employers (see next paragraph). However, these individual pension programs did not mean that a significant part of working Poles has an optional retirement pension. Therefore, in 2018, PPKs, which are quasi-obligatory (default option), were launched. PPKs were being introduced gradually, i.e., from July 2019 until the beginning of 2021 (according to the size and sector of the entity).

Both programs are funded. The pension program can be run by the employer (in the case of a PPE) or managed by private institutions such as banks, investment companies, insurance companies or brokerage houses.

The defined contribution (DC) pension formula is implemented in both corporate plans.

4.1.2 Employee Pension Plans

The PPE is a voluntary form of collective saving for an old-age pension, organized by the employer in cooperation with employees. The basic contribution is financed by

[6] We use the term “occupational pension” instead of “corporate pension.”.

the employer, and the employee may declare the payment of additional contribution, which is withheld from remuneration.

Contributions are calculated and paid by the employer to the selected financial institution that collects and manages these funds. The PPE itself is only an agreement (a set of agreements) defining the mutual obligations of the employer and employees in connection with the employer's running of the scheme. Legal regulations precisely define the principles of creating and operating programs. Detailed regulations on the conditions of participation in the program, contained in the Act on PPEs, are intended to protect the interests of program participants. Throughout the entire period of operation of the employee pension scheme, it is subject to the supervision of the Polish Financial Supervision Authority (KNF). In particular, the supervisory authority checks whether the conditions for participation in the program are in accordance with the law and guarantees the protection of the interests of fraudsters under the PPE. The proper implementation of the program by the employer is also supervised. In the event of obtaining information justifying the suspicion of irregularities in the functioning of the program, the KNF is entitled to demand from the employer or the managing entity any information, documents and explanations related thereto.

When creating a PPE, the employer transfers to and on behalf of employees two types of contributions: a basic (up to 7% of each employee's remuneration—up to this limit it is exempted from the ZUS contribution—coming from the employer's funds) and an additional sum (in the amount voluntarily declared by the given employee, derived from his/her net salary). A brief profile of the premiums is presented in Table 9.

Table 9 Basic versus additional contributions to PPEs

Basic contribution	Additional contribution
Financed by the employer	Financed by the participant from his remuneration
Up to 7% of the employee's remuneration	The participant may change the amount of the contribution or resign from paying it
The value of the contribution is not included in the remuneration constituting the basis for determining compulsory social security contributions	Deducted from the remuneration after its taxation
The amount of the contribution is specified in the company agreement	The participant declares him/herself and determines the amount of the contribution from his remuneration
The amount of the contribution is determined – as a percentage of the participant's remuneration or – in the same amount for all participants or – as a percentage of the remuneration, specifying the maximum amount	The sum of additional contributions paid by the participant up to one PPE during the year cannot exceed 450% of the forecasted average wage in the national economy (23,665.50 zloty in 2021)

Source Authors' own based on the Act of 20 April 2004 on employee pension programs

There are four forms of PPEs based on the criterion of the institution running the program:

- employee pension fund,
- an agreement with an investment fund,
- group life insurance agreement with a capital fund,
- foreign management.

The program may be run by the employer independently (company program) or jointly with other employers who have decided to implement it on the same terms (intercompany program). Therefore, a PPE is not a financial institution—funds under the program go to already existing financial institutions operating according to their own rules, such as an insurance company or investment fund, or are managed by a foreign manager. The exception is the PFE, which is an entity created specifically for the accumulation of funds from PPEs, usually created jointly for several programs. A PFE is managed by the Employee Pension Society established solely for this purpose—similar to the OFE and the PTE that manage them. In this case, we are dealing with a financial institution established specifically to handle PPEs.

The PPE created in the form of group life insurance includes, apart from the investment element, also a protection element. In accordance with the law, at least 85% of the basic contribution (but not more than 99%) is invested in insurance capital funds to secure the employee's pension. The remaining part of the basic contribution (1–15%) is intended to cover the costs of insurance coverage for all participants (employees) of the employer that established the employee pension plan.

The funds collected under the program are the property of the participant and may be disbursed after obtaining retirement rights, transferred to another PPE or an individual retirement account (IKE), or, in special cases, may be returned to the participant. The provisions of the law, although allowing in some cases payment before reaching retirement rights, are aimed at ensuring long-term savings so that the accumulated funds are used for retirement purposes. The payout may be, depending on the participant's or beneficiary's request, made once[7] or in installments. The basic rules for withdrawing funds can be found in Table 10.

At the end of 2019, there were 1,907 PPEs, including (The Polish Financial Supervision Authority, 2020a):

- 590 in the form of a contract with an insurance company (31%),
- 1,290 in the form of a contract with an investment fund (68%),
- 27 with the occupational/employee pension fund (1%).

At the end of 2019, 612,900 people participated in PPEs: 16% in insurance companies, 79% in investment funds and 5% in PFEs, which accounted for 3.7% of the total number of employees. In 2019, employers who ran PPEs paid 1,830.7 million zloty[8] of basic contributions (19% to insurance companies, 75% to investment funds and 6% to PFEs), while the voluntary contributions of PPE participants amounted to

[7] One-off payments generally do not meet the pension objective, however are available.

[8] As of 4 January 2021, 1 US$ = 3.7 zloty; 1 zloty = 0.27 US$.

Table 10 Payouts in PPEs

Savings accumulated in the program may be subject to	Premises
Payment to the participant or beneficiaries	• At the participant's request: upon reaching the age of 60 or upon presentation of the decision on granting the right to retirement pension and reaching the age of 55 • Automatically: after the participant turns 70 if the participant has not applied for the payment of funds earlier (unless the participant is still an employee of the employer running the program) • At the request of the entitled person—in the event of the participant's death
Transfer payment-transfer to another PPE or an individual retirement account (IKE)	• At the participant's request, the accumulated funds are transferred to another PPE in which the given person participates or to IKE • In the event of the participant's death, at the request of the authorized person, the collected funds may be transferred to this person's IKE
In a special case to be returned to the participant	In the event of liquidation of the employee program, if there are no grounds for the payment or transfer or if there are grounds for a transfer payment, but the PPE participant did not indicate the account number to which it can be made within the specified deadline

Source Authors' own based on the Act of 20 April 2004 on employee pension programs

65.1 million zloty (10% to insurance companies, 84% to investment funds and 6% to PFEs). In total, contributions transferred to PPEs (from 1999 to 2019) amounted to 16.8 billion zloty (27.5% to insurance companies, 56.8% to investment funds and 15.7% to PFEs). The average annual basic contribution per PPE participant in 2019 was 2,987 zloty, while the average annual additional contribution was 106 zloty. At the end of 2019, the value of assets accumulated in PPEs was 14.5 billion zloty (22% in insurance companies, 65% in investment funds and 13% in PFEs), and it has increased by 12% compared to the previous year (The Polish Financial Supervision Authority, 2020a).

4.1.3 Employee Capital Plans

The PPKs are regulated by the Act of 4 October 2018 on employee capital plans. It is a voluntary (default option) savings program for retirement. Voluntary for employees, but obligatory for employers—in principle, each company is obliged to introduce PPK by selecting a financial institution to run the program. From 1 January 2021, PPKs will automatically cover all employees between 18 and 54 years of age, for

Table 11 When companies have to create PPK

Employment volume	Implementation of PPK	Deadline to conclude a PPK management agreement	Deadline to conclude a PPK agreement
Companies employing at least 250 people (as of 31 December 2018)	From 1 July 2019	25 October 2019	12 November 2019
Companies employing at least 50 people (as of 30 June 2019)	From 1 January 2020	27 October 2020	10 November 2020
Employing at least 20 people (as of 31 December 2019)	From 1 July 2020	27 October 2020	10 November 2020
Other employing entities and units of the public finance sector	From 1 January 2021	26 March 2021	10 April 2021

Source Authors' own based on the Act of 4 October 2018 on employee capital plans

whom the employer pays pension contributions. The program will not cover self-employed persons, uniformed service employees and farmers. Employees between 55 and 69 years of age will be able to participate in PPKs based on a declaration of intent. Supervision over the PPK is exercised by the Polish Financial Supervision Authority, taking into account compliance with the law and the interests of PPK participants.

The introduction date of PPKs depended on the number of employees in the company. From 1 July 2019, this program started with the largest companies (with more than 250 employees), and then gradually smaller entities were entailed to create PPKs (see Table 11).

Similar to PPEs, the PPK itself is only an agreement (sets of agreements) defining the mutual obligations of the employer and employees in connection with the employer's running of the scheme. Contributions are calculated and paid by the employer (partly from its funds and partly from the employee's salary) to the selected financial institution that collects and manages these funds. Thus, again, a PPK is not a financial institution—funds under the program go to already existing financial institutions operating according to their own rules.

The PPKs constitute a compulsory package of employee benefits. The employer is obliged to select an institution running a PPK and to create a PPK for its employees.

There are two kinds of contributions: basic (compulsory) and additional (voluntary) and they are paid both by the employee and the employer (for details, see Table 12). In addition, a PPK participant may receive a special subsidy financed from the Labor Fund.

In the case of a PPK participant whose remuneration is less than 120% of the minimum wage/salary (even from various sources), a reduced contribution is also possible (based on his/her request)—from 0.5 to 2% of the gross remuneration.

Table 12 The amount of contributions transferred to the account of a PPK participant

	Contribution from the employee's gross remuneration, to be paid by	
	The employer (%)	The employee (%)
Basic compulsory contribution	1.5	2
Additional voluntary contribution	Up to 2.5	Up to 2

Source Authors' own based on the Act of 4 October 2018 on employee capital plans

Each PPK participant receives a welcome payment of 250 zloty. In addition, a PPK participant will receive an annual subsidy of 240 zloty if the amount of paid basic and additional contributions is equal to the amount of basic contributions due to six minimum wages/salaries. When a basic contribution of a PPK participant is reduced to 0.5%, he/she is entitled to an annual subsidy if the amount of basic and additional payments in a given year is equal to 25% of the basic payments due to six minimum wages/salaries.

These payments are not included in the remuneration, which is the basis for assessing the amount of pension contributions. However, they may be classified as deductible costs.

Financial institutions that may offer management of funds collected under the PPK are only:

- investment funds,
- general pension societies,
- employee pension societies,
- life insurance companies.

Each institution that undertakes to operate the PPK is required to establish a minimum of five defined-date funds. Each investment portfolio should be designed in a way ensuring that the investment risk decreases with the progressive age of a PPK member.

The funds accumulated on the accounts of PPK participants are invested in investment funds that differentiate the level of risk depending on the age of the participant, i.e., funds of a defined date. Each participating employee is automatically assigned to the fund depending on his/her date of birth. A PPK participant invests with one fund throughout collecting funds, and this fund, as the participant approaches the age of 60, is obliged to adjust the investment policy in such a way as to ensure the proper security of the funds entrusted.

Age-based funds consist of two parts:

- Share part—refers to assets invested in equity instruments, such as shares, subscription rights or units of collective investment institutions.
- Debt part—these are assets invested in debt instruments, i.e., bonds, treasury bills, mortgage bonds, certificates of deposit or other transferable securities.

The share of individual asset classes determines not only the security of the collected funds but also the potential for rates of return. Rules for investing funds in relation to the age of a PPK participant (Table 13).

The limit of the total costs of managing a PPK account by the financial institution may not exceed 0.6% of the assets accumulated on it: up to 0.5% of the fund's net assets value for the management and a performance bonus of a maximum of 0.1% of the value of collected assets. In practice, each financial institution proposes different fees for management depending on the age-based funds. As of 15 February 2021, the lowest fee is 0.16% (TFI Allianz Polska S.A.—fund 2025), and the highest value is 0.47% (Esaliens TFI S.A.—fund 2060). The average of different funds for a single institution varies between 0.29 and 0.43%, and the average for companies is 0.35% (Moje PPK, 2021).

Accumulated funds are owned by a PPK participant. Funds may be disbursed to a PPK participant:

- upon reaching the age of 60 years by the participant,
- before the participant has reached the age of 60 years.

A PPK participant who has reached 60 years of age will not incur additional costs if he/she makes a one-off withdrawal of 25% of the accumulated funds and withdraws the remaining 75% in at least 120 monthly installments. It is also possible to withdraw funds in the form of a matrimonial benefit—if both persons are over 60 years old and have PPK accounts in the same institution. PPK funds may also be transferred to a term bank deposit if there is a payment in installments for at least 120 months.

A PPK participant who is under 60 years old will be able to withdraw his/her funds:

- in the case of a serious illness (including malignant tumor, stroke, myocardial infarction, encephalitis, atrophic lateral sclerosis, Alzheimer's disease, Parkinson's disease) of the PPK participant, his/her spouse or child; this is a nonrefundable payment of up to 25% of the funds accumulated in the PPK account;
- for own contribution (in connection with taking out a mortgage loan) in case of building or rebuilding a home/house—for persons under 45 years of age; it is

Table 13 Rules for investing funds in relation to the age of a PPK participant

Employment volume	Equity part (%)	Debt part (%)
From the creation of the fund up to 20 years before the age of 60	60–80	20–40
20 years before the age of 60	40–70	30–60
10 years before the age of 60	25–50	50–75
5 years before the age of 60	10–30	70–90
Reaching the age of 60	Max. 15	Min. 85

Source Authors' own based on the Act of 4 October 2018 on employee capital plans

a withdrawal of up to 100% of the accumulated capital with the obligation to return it; however, the return may not start later than five years from the date of withdrawal and may not last longer than 15 years from the date of withdrawal.

Pension capital withdrawal before the age of 60 will result in the loss of 30% of contributions paid by the employer (they will be transferred to the ZUS) and all subsidies from the government. The PPK participant will also be obliged to pay income tax on capital gains (currently, the tax rate is 19%).

Before reaching the age of 60, the PPK member may at any time transfer funds to another PPK, to an IKE or to a PPE—his/her own or one belonging to an entitled person.

When a PPK member turns 60 and starts to withdraw funds, even if he/she continues to work, neither contributions nor subsidies from the government will be transferred to his/her account.

Due to the short history of PPKs, little statistical data are available on them. When introducing the PPK, the government counted on the participation of 75% of eligible employees in the program. We have already had three stages of implementing the PPKs. They have already been implemented in companies with up to 20 employees. The fourth stage remains—the smallest companies and public institutions. According to the data of the Polish Development Fund, as many as 77% of eligible persons have opted out of the PPK. Only 23% out of almost 7.4 million employees who have been entitled thus far have decided to stay in the program. The main reasons are the lack of trust in the state and receiving a lower salary. The smaller the company is, the smaller the percentage of people enrolled in the PPK (Szymczak, 2021):

- In companies employing over 250 people, it is 30.5%.
- From 50 to 249 employees—16.4%.
- In companies with 20–49 employees—9.7%.

As of 1 January 2021, there were 20 financial institutions offering PPKs, including:

- 1 insurance company (5%)
- 16 investment funds (80%)
- 3 general pension societies (15%).

At the end of 2020, the net value of assets accumulated in PPKs was 2.8 billion zloty (1% in insurance companies, 83% in investment funds and 16% in general pension societies) (The Polish Financial Supervision Authority, 2021c).

4.2 *Personal Pensions*

4.2.1 Personal Pension Cover Status

Personal pensions in Poland are treated as the third tier of the pension system. As we underlined earlier, this tier is also voluntary; however, it seems to be a necessity.

Even with public pensions and corporate pensions, there are many cases where the expected pension will probably not be sufficient for future retirees. In addition, we should mention that for many people, corporate pensions are not available, e.g., for the self-employed.

The Polish personal pensions consist of two separate programs:

- the Individual Retirement Accounts (*Indywidualne Konta Emerytalne,* IKEs), introduced in 2004, and
- the Individual Retirement Protection Accounts (*Indywidualne Konta Zabezpieczenia Emerytalnego,* IKZEs) set up in 2012.

After a few years of operation of the second tier, only in the form of the PPE, the need to create a form of individual pension security was noticed in Poland, as only a few percent of working Poles could be covered by PPEs. For this reason, the third tier (individual pension schemes) was introduced by establishing IKEs. Selected financial institutions were allowed to create such accounts and offer them to society. Several years later, simultaneous with some changes in the functioning of OFEs, the second form of personal pension was introduced, the IKZE. Both solutions are quite similar. The main difference is connected with tax issues and limits of contributions.

Both IKEs and IKZEs operate under the supervision of the Polish Financial Supervision Authority, taking into account compliance with the law and the interests of participants. The defined contribution (DC) pension formula is implemented in both individual plans.

Apart from IKEs and IKZEs, each individual can voluntarily arrange by himself/herself additional old-age insurance (e.g., unit-linked insurance) or any other way of securing savings for old age; however, it is not treated as a part of the formalized pension system.

4.2.2 Individual Retirement Accounts (IKEs)

An individual retirement account is a type of personal retirement plan, consisting of accumulating savings in five selected types of financial institutions (only and exclusively: investment funds, entities conducting brokerage activities, life insurance companies, banks and general pension societies[9]) and investing in them through this institution. The IKE can function as:

(1) A separate account in the register of investment fund participants.

Savers who decide to use this form of saving in an IKE have the option of saving in various investment funds (in the so-called family of investment funds) managed by the same investment fund company. In this case, the savers sign an IKE agreement with each fund. The sum of payments made during the year to these funds cannot exceed the annual limit of payments to IKE. Thanks to this solution, the saver is able to diversify the investment risk. Conversion of shares between funds managed by the

[9] From 1 January 2012.

same society is also exempt from capital gains tax. If such an operation is performed outside the IKE account, it is subject to taxation. Such a solution allows savers to change the investment policy of the funds they accumulate in line with changes in the financial market or their preferences, without prejudice to the capital accumulated thus far.

(2) A separate securities account and a cash account used for its servicing in the entity conducting brokerage activities.

If this form of saving is chosen in an IKE, savers can invest in securities admitted to public trading. Investments in derivative rights may only be aimed at reducing the investment risk. People who have accounts with entities conducting brokerage activities can accumulate savings in an IKE under existing agreements.

(3) A separate account in an insurance capital fund.

The payment to the IKE of the saver in the life insurance company is fully transferred to the insurance capital fund; therefore, the saver, together with the insurance company, has to define the insurance premium from which the costs of his/her insurance protection are covered. In addition, the IKE maintenance agreement specifies the rules on which the insurance company distinguishes from the paid premium the part intended for the IKE account in the insurance capital fund and what part of the premium is deducted for insurance purposes under the contract. If there is a desire to make a transfer payment to another financial institution of the funds accumulated in the fund(s) managed by the life insurance company, the parties to the life insurance contract under which the IKE was kept are able to continue the insurance cover on the terms specified therein. For people who currently have insurance contracts with a capital fund, the Act on IKEs and IKZEs provides an opportunity to accumulate savings in an IKE under existing contracts.

(4) A separate bank account at the bank.

An IKE can only be operated by domestic banks. The law guarantees the savers that if during the term of the bank account agreement, a transfer payment or return of funds accumulated in an IKE, interest is added to the previously accumulated capital in the IKE as if he/she was making a withdrawal. In this way, the situation in which the saver is deprived of interest for breaking the contract with the bank or the interest is underestimated, which could inhibit the saver from transferring funds to another financial institution if the saver was not satisfied with keeping the IKE in the bank, is avoided.

(5) Voluntary pension fund.

Since 2012, the choice of institutions maintaining IKEs has been extended to include a voluntary pension fund. It was created by a general pension society in accordance with the provisions of the Act of 28 August 1997, on the organization and operation of pension funds, and it operates on the same principles as the OFE in the first tier (second pillar) or the PFE (a form of PPE) in the second tier.

A person who is 16 years of age or older is entitled to make payments into an IKE. When depositing savings in IKEs, the consequences of such a step should be taken into account. First, the funds accumulated in IKEs cannot be freely disposed of. In general, if a person wishes to retain the right to exempt these resources from the capital gains tax, he/she must keep them in the pension system until retirement. Before this moment, the funds may only be transferred from the IKE account to another IKE account or the PPE. Of course, it is possible to terminate the IKE agreement, but then the due capital gains tax will be deducted from the funds paid out, i.e., 19% of the generated profits. Second, there is an annual limit of funds that can be paid in to an IKE, equal to 300% of the average wage in the national economy (in 2021, it is 15,777 zloty). Third, it is allowed to have only one active IKE at a time.

A person who decides to establish an IKE and after some time is not satisfied with the way the account is kept by a given financial institution can transfer the accumulated capital to another institution at any time.

The saver is also entitled to transfer the funds accumulated under the employee pension plan to an IKE in the event of resignation from further participation in the scheme and termination of work with the employer running the scheme or in the event of the scheme's liquidation. It is allowed for the saver to transfer a payment from an IKE to a PPE. This transfer of funds is also exempt from capital gains tax. On the other hand, financial institutions maintaining IKEs may charge the saver an additional fee for making a transfer payment if it takes place within 12 months from the date of signing the IKE agreement. Institutions are not required to charge this fee. If they decide to charge it, the amount of the fee is included in the IKE maintenance agreement.

In the event of a transfer payment to a life insurance company, the transferred funds are credited in full to the saver's account in the insurance capital fund. This means that the life insurance company cannot cover the costs of insurance protection or other costs related to the conduct of a life insurance contract with a capital fund from the funds transferred.

> At the time of deciding to transfer the accumulated capital to another financial institution, the saver – before making the transfer – should conclude an IKE agreement with the new institution and submit to the existing institution a confirmation of concluding a new agreement and submit a transfer order. In such a case, the institution that has thus far kept the IKE should send the collected funds within 14 days from the date of submission of the transfer order. The situation is similar in the case of transfers between an IKE and a PPE.

It is assumed that the individual retirement account is to be used to save for an additional retirement pension; therefore, tax relief is only available to persons who withdraw their savings only after the age of 60. Persons who are entitled to retire before the age of 60 can withdraw funds if they are 55 years old. In addition, to be eligible for exemption from the capital gains tax, it is required to make payments into an IKE in at least any five calendar years, or more than half of the value of payments to an IKE at least five years before the date of applying for payment by the unsuccessful.

The moment of withdrawal of funds accumulated in an IKE depends on the saver. The withdrawal is made at the saver's request and could be made as a single payment or in installments. There is no obligation to withdraw funds accumulated in an IKE within a specified period (e.g., after reaching the age of 70 or after retirement).

Before making a payment, the financial institution maintaining the IKE should notify the tax office that it is competent for the saver. If the saver is under the age of 60, he/she must also present to the financial institution the decision of the pension body to award the pension. After making the withdrawal, the saver cannot set up an IKE again because the tax exemption for accumulating savings in an IKE is only granted once!

When concluding an IKE agreement, the saver may indicate a person (or several people) to whom the funds will be paid after his/her death. Such an instruction can be changed at any time. On the other hand, if the saver does not designate such a person, the funds accumulated in an IKE go to the heirs, and in the case of an IKE maintained by life insurance companies, funds granted under the insurance contract are granted to the insured's immediate family in the order determined in the general terms and conditions of insurance.

The entitled person (designated person, heir, immediate family of the saver) may pay them out or transfer them to their IKE or the PPK. In both cases, these funds are exempt from both capital gains tax and inheritance and donation tax.

As of 31 December 2020, Individual Pension Accounts were maintained by 63 financial institutions, including (The Polish Financial Supervision Authority, 2021a):

- 15 life insurance companies (24%),
- 22 investment fund companies (35%),
- 7 entities conducting brokerage activities (11%),
- 14 banks (22%),
- 5 general pension societies (8%).

At the end of 2020, IKEs were held by 741,600 people—over 200,000 less than in the previous year (27.0% in life insurers, 53.0% in investment funds, 7.5% in entities conducting brokerage activities, 11.5% in banks and 1.0% in general pension societies), i.e., 4.5% of the working population. The total value of IKE accounts increased from 10.2 billion zloty in 2019 to 11.9 billion zloty in 2020 (24.6% in life insurers, 33.3% in investment funds, 20.4% in entities conducting brokerage activities, 20.7% in banks, and 1.0% in general pension societies). The average value of a single account was approximately 16,100 zloty (50% more than in 2019). In 2020, all savers paid 1,958.3 million zloty in contributions (15% more than in 2019), with 4,800 zloty as an average. The value of withdrawals was 369.5 million zloty (42% more than in 2019), with 18,900 as an average. Only 2.8% of withdrawals were in installments, and the rest was in single payments (The Polish Financial Supervision Authority, 2020b, 2020d, 2021a).

4.2.3 Individual Retirement Protection Accounts

As part of the third, voluntary pension tier, apart from the already known IKEs, IKZEs have been operating since 2012. IKZEs are in many respects similar to IKEs, but it is impossible to ignore the significant differences.

In the case of IKZEs, most of the provisions for IKEs apply. The basic difference mainly concerns tax preferences. Contributions to IKZE can be deducted from the tax base (but in the future pensioners will have to pay income tax—and it does not matter when funds are withdrawn, whether in retirement or before). In the case of an IKE, the issue of income tax does not arise.

Similar to IKEs, IKZEs can be operated by five types of financial institutions: banks, investment funds, brokerage houses, life insurance companies and voluntary pension funds. IKEs and IKZEs, by definition, operate in parallel. It is allowed to have only one IKE and only one IKZE in the financial institution of the saver's choice (it is possible to have an IKE and an IKZE in different institutions as well as to possess only one kind of those accounts or neither of them).

An IKZE may be opened by 16-year-old person who has income from an employment contract. In addition, payments to IKZEs may be deducted from the tax base by persons running a business.

Similar to an IKE, it is allowed to have only one active IKZE at a time. The annual limit of funds that can be sent to an IKZE equals 120% (180% in the case of self-employed) of the average wage in the national economy (in 2021 it is 6,310.80 zloty; 9,466.20 zloty for self-employed). Up to these limits, payments to an IKZE are exempt from personal income tax (they decrease the tax base) and capital gains tax. The funds accumulated in IKZEs cannot be totally freely disposed of. In general, if a person wishes to retain the right to the above tax preferences, he/she must keep them in an IKZE until the age of 65 years (both for women and men) and make payments for at least five calendar years. Before this moment, the funds may only be transferred to another IKZE account.

Of course, it is possible to terminate the IKZE agreement, but then the tax due to capital gains will be deducted from the funds paid out. In addition, the received amount will be added to other revenues and will be charged with personal income tax (according to a tax scale: 17, 19 or 32%).

When the saver reaches the age of 65 and on the condition that payments are made at least in five calendar years, he/she is entitled to receive back the funds accumulated in the IKZE. The withdrawal is made at the saver's request and could be made as a single payment or in installments (depending on the saver's request). In the second case, the funds are paid in installments for at least 10 years. If payments into an IKZE were made for less than 10 years, the payment in installments may be spread over a period equal to the period in which the payments were made. The saver who made a one-off payment or payment of the first installment may not start collecting savings in an IKZE again. Similarly, the saver cannot make payments into an IKZE if the first installment has been paid. The amount of the payments is subject to a flat-rate 10% income tax, thus much less than with a progressive scale.

In the IKZE agreement, the saver may indicate one or more people to whom the funds accumulated on IKZE will be paid in the event of his/her death. This instruction may be changed at any time. If the saver has indicated several persons entitled to receive funds after his/her death and has not marked their share in these funds or the sum of the market shares is not equal to 1, the shares of these persons are deemed to be equal. The indication of the person entitled to receive funds after the death of the saver becomes ineffective if that person died before the saver's death. In such a case, the share that was intended for the deceased falls in equal parts to the other indicated persons, unless the saver orders the share otherwise. In the absence of persons indicated by the saver, the funds accumulated in an IKZE fall into decline.

Funds from IKZEs are inheritable, and we do not pay taxes on inheritance and donations on them. The heirs of IKZE accounts will have to pay, similar to the saver, a flat-rate 10% income tax. The only possibility not to pay the tax is to transfer these funds to their own IKZE, i.e., keeping it in the third tier (however, an income tax will be paid at the moment of withdrawal of the funds from his/her IKZE).

Tax issues differentiate IKEs and IKZEs most visibly. In the case of an IKE, we are dealing with tax preferences on exit (no income tax on the withdrawal), and in the case of an IKZE on entry (deduction of funds paid in an IKZE from the tax base). Of course, both IKE and IKZE holders will not pay the capital gains tax—as long as the funds are kept in the third tier until they acquire pension rights.

As of 31 December 2020, Individual Pension Security Accounts were maintained by 46 financial institutions (The Polish Financial Supervision Authority, 2021b):

- 10 life insurance companies (22%)
- 20 investment fund companies (43%)
- 6 entities conducting brokerage activities (13%)
- 3 banks (7%)
- 7 general pension societies (15%).

At the end of 2020, IKZEs were held by 407,600 people—almost 250,000 less than in the previous year (23.7% in life insurers, 47.0% in investment funds, 7.7% in entities conducting brokerage activities, 6.9% in banks and 14.7% in general pension societies), i.e., 2.4% of the working population. The total value of IKZE accounts increased from 3.3 billion zloty in 2019 to 4.6 billion zloty in 2020 (20.9% in life insurers, 49.3% in investment funds, 8.5% in entities conducting brokerage activities, 6.7% in banks and 14.6% in general pension societies). The average value of a single account was approximately 11,200 zloty (124% more than in 2019). In 2020, all savers paid 1,176.5 million zloty in contributions (27% more than in 2019), with 4,200 zloty as an average. The value of withdrawals was just 28.9 million zloty (163% more than in 2019), 104,300 on average. Only seven out of 2017 withdrawals were in installments, and the rest was in single payments (The Polish Financial Supervision Authority, 2020c, 2020d, 2021b).

5 Home Equity Release

5.1 General Remarks

Many people, especially seniors, are looking for additional ways to help save the home budget. One of the ways to obtain additional funds that can be used for any purpose is a reverse mortgage, or in a broader sense, the so-called *equity release*. It is a financial service targeted at the elderly. It allows for the transformation of illiquid capital accumulated in real estate into liquid financial resources that can supplement retirement benefits with no need to move out of the real estate. The condition, however, is that you have the right to real estate, mainly real estate ownership. There are two equity release models in developed markets: the sales model (*home revision*) and the credit model (*reverse mortgage*).

What makes these two models different is, first of all, the moment of transferring the right to the real estate to the service provider and the method of securing the interests of the beneficiary's heirs. In the case of *home revision*, the service provider undertakes to pay benefits to a person in return for the transfer of the right to the property at the time of signing the contract for the provision of such a service, and the recipient has the right to live in the property for life. However, in the case of the *reverse mortgage*, the lender also undertakes to pay the borrower, with the transfer of the property right to the lender upon the borrower's death. In this model, repayment is made from the amount obtained from the sale of the real estate on which mortgage security was established.

Regardless of the equity release model, however, the basic role of this service is to improve the standard of living of the elderly after they leave their working lives. Equity release solutions are available in 13 out of 27 European Union countries, including Poland. It should be emphasized that this service, regardless of its form, is not treated by law as pension security. It is a relatively new financial service in Poland, as the first solution appeared in 2008 when the Fundusz Hipoteczny DOM S.A. was established on the Polish market, offering equity release as the *home revision*. In 2014, the issue of equity release in the credit model was regulated in the Act on the Reverse Mortgage Loan. However, thus far, no bank in Poland offers such a solution. Therefore, currently, the only form of equity release available to Poles is the sales model in which the beneficiaries receive a lifetime annuity/benefit.

*5.2 The Sales Model (*Home Revision*)*

In the sales model, the entity offering such an instrument (service provider) undertakes to pay benefits to a person (recipient) in exchange for the transfer of the right to the property at the time of signing the contract for the provision of such a service, and the recipient has the right to live in the property for life. For this reason, the costs of maintaining the property, as a rule, are borne by the entity offering this service. As

a consequence of the transfer of the ownership right, the heirs of the home revision recipient completely lose their rights to the real estate.

Due to the lack of separate legal regulations in Poland, the solutions used in the sales model are currently based on the provisions of the Civil Code, which allow for the party obligated to provide lifetime benefits to be not only a natural person but also a legal entity. This fact is used by institutions called mortgage funds, which offer lifetime benefits on commercial terms. What is worth emphasizing, despite the use of the name "mortgage fund," is that these entities are not subject to the act on investment funds and are not registered in the register of funds. Moreover, they are not subject to control by the Polish Financial Supervision Authority and are not required to disclose their financial results to the public (the exception is Fundusz Hipoteczny DOM S.A., whose shares are publicly traded).

In the current legal status of the Polish market, entrepreneurs offering lifetime benefits may use various solutions, using the provisions of the Civil Code on basically life annuity agreements (life estates) or annuity contracts.

In the first case, in return for the transfer of ownership of the real estate, the vendor determines the activities to be performed by the buyer. Usually, these activities are personal and concern the provision of comprehensive care to an elderly person. For this reason, the use of this structure is intended mainly to regulate family relations. Nevertheless, the life annuity agreements also found commercial applications. If a party to the contract is an institution offering a lifetime annuity, the term "lifelong maintenance" is most often understood as providing the beneficiary with periodic cash payments while maintaining the possibility of living in the premises. Based on these provisions, contracts with seniors are offered by, among others, Fundusz Hipoteczny DOM S.A. and Fundusz Hipoteczny Omnes Sp. z o.o. The last of them offers seniors under an annuity agreement the following benefits: cash benefits, benefits related to housing (e.g., payment of rent, electricity, utilities), medical and health benefits (e.g., provision of additional health insurance, private health care), benefits related to the needs of everyday life (broadly understood assistance of a personal assistant for several hours a week), and other benefits (e.g., providing a computer skills course, assistance in the event of a failure of electronic equipment, burial).

If the commercial lifetime annuity is to be paid based on the provisions on an annuity contract, then in return for the transfer of ownership of the property as remuneration, the beneficiary may count on periodic cash payments and the right to live in the property until death. Due to the necessity to transfer the ownership of the real estate to the entrepreneur, the concluded contract is treated as an annuity with remuneration, to which the provisions on sale also apply. Lifetime benefits are offered under an annuity contract by Fundusz Hipoteczny DOM S.A. and Fundusz Hipoteczny Familia S.A.

The lifetime annuity (home revision) is usually chosen by people whose retirement income does not meet their current needs and who want to obtain additional lifetime retirement income. The amounts obtained from the lifetime annuity are allocated to current needs and help people to live with dignity until death.

Currently, several specialized mortgage funds are operating on the Polish market that offer an equity release sales model. The largest market share, nearly 70%, is

held by Fundusz Hipoteczny DOM S.A., the most important competitor of which is Fundusz Hipoteczny Familia S.A. At the end of 2019, its portfolio included 232 properties with a market value (according to the property valuation as at the date of the conclusion of the contract) exceeding 55 million zloty (and their value is constantly increasing), of which two properties were released and intended for sale. Over the 12 years of operation (until the end of 2020), this fund paid over 15 million zloty as annuity benefits. The average age of the beneficiary (average number of years at the time of signing the contract) using the sales model in 2010–2017 was in the range of 74.9–79.4 years (Fundusz Hipoteczny DOM, 2020).

*5.3 The Credit Model (***Reverse Mortgage***)*

A reverse mortgage is offered only by banks and is a loan secured by a mortgage. It is aimed mainly at people whose retirement income is sufficient for a dignified life, and this loan allows them to increase their income only for a specific period. Usually, after a few years, the reverse mortgage ceases to be paid out. Currently, no bank in Poland offers a reverse mortgage loan, but the available legal solutions will be described in this section. This issue is regulated by the Act of 23 October 2014 on the reverse mortgage loan, which entered into force at the end of 2014.

> Article 4 of that law states that, by way of the reverse mortgage loan agreement, the bank undertakes to put at the borrower's disposal for an indefinite period a certain amount of money, the repayment of which will take place after his death. Based on the same agreement, the customer undertakes the obligation to establish security for the repayment of this sum together with the interest due and other costs.

The market value of the property plays a key role in a reverse mortgage. On this basis, the future borrower will be able to determine whether the reverse mortgage pays off. It should be emphasized that the market value will be the estimated amount that on the valuation date the borrower can obtain for the property in a sale transaction between the buyer and seller who have a firm intention to enter into a contract, act with discernment and act prudently and are not in a forced situation. This appraisal is made by a real estate appraiser, who takes into account, in particular, the purpose of the appraisal, the type, and location of the real estate, the purpose in the local plan, the condition of the real estate, and available data on prices, income and similar properties. The market value of the real estate determined by the appraiser does not yet determine the amount of the loan. It is only the basis for determining the amount of the reverse mortgage. The loan amount granted depends not only on the value of the property (present and expected future) and the cost of the loan but also on the gender and age of the owner and sometimes on their health. The most common range here is from 60% to only 30% of the property value.

The amount of the reverse mortgage is paid out once or in installments, for the period and in the amount specified in the reverse mortgage loan agreement, but no longer than until the borrower's death. A client wishing to use a reverse mortgage

must be the owner of a property on which he/she can establish a mortgage and enter it for the benefit of the bank in the land and mortgage register. When making the transfer of property rights in such a case, the borrower is guaranteed the right to use his/her apartment or house lifetime.

Banks may not conclude a reverse mortgage contract contingent on other contracts, except real estate insurance. During the term of the reverse mortgage contract, the borrower is required to (1) take out homeowner's insurance for this real estate, if required by the bank; (2) keep the property in a nondeteriorated condition, taking into account the normal use of things in accordance with its intended purpose, in particular carrying out ongoing repairs and renovations; and (3) make timely payments of taxes and mandatory fees related to the use of the property.

In the case of a reverse mortgage, there is no classic mortgage payment, but it is settled on one of two dates:

- upon the expiration of the notice period for the reverse mortgage loan,
- one year after the borrower's death.

If the reverse mortgage contract is provided for more than one customer, settlement of the loan occurs one year after the death of the last borrower. After the death of the beneficiary, his/her heirs may decide to repay the loan and retain the right to the property. If the heirs decide not to pay it off, the property is generally transferred to the lending institution that sells the property. If the difference between the value of the bank's claim and the funds obtained from the sale of real estate is positive, the heirs are entitled to it. If the difference is negative, the lender has no right to demand that the heirs pay the difference.

If the entire repayment of the reverse loan is made by the client's heirs, the security in the form of a mortgage on the residential property will expire. Otherwise, a claim for the transfer of ownership of real estate or the right to premises becomes due.

6 Summary of Current Issues

The Polish pension system underwent systemic pension reform in 1999. The main issue implemented was the change in the pension formula to the DC formula. From the technical point of view, the implementation of privately funded funds in the mandatory pension system and splitting the social insurance pension contribution between nonfinanced (PAYG) and financed (funded) parts of the pension system was an important modification. It has to be emphasized that the reform was based on a coherent concept and political consensus. However, it was aimed especially at the secondary goals of the pension system.

As the demographic problem was predicted to accelerate and the costs of the pension system had increased since the political and economic transformation in 1989, the introduction of the DC pension formula had to lead to the long-term financial sustainability of the social insurance pension system. From the microeconomic point of view, the change in the pension formula has contributed to the significant

decrease in the replacement rate for individuals, especially for women and persons with unstable working biographies. As the minimum retirement age is five years lower for women, the gender pension gap has become increasingly larger. On the other hand, wide coverage of the social insurance pension system, systematic valorization of pension benefits and provisioning with the minimum pension for long-term insurers contribute to poverty relief for a great part of the older population. Nevertheless, the problem of very low pension provisions for short-term insured people as well as a decrease in individual replacement rates for those with weak working biographies has not been addressed. Furthermore, the introduction of the DC pension formula will lead to the flattening of the distribution of social insurance pension provisions among beneficiaries and will result in a much higher number of minimum pension beneficiaries, especially among women. The latter will cause not only higher costs of minimum pensions for the state in the future but also "hidden" evolution toward a flat-rate pension system.

The case of the Polish pension system shows high sensitivity to political risk, particularly in the funded part of the pension system, which was assumed to be resistant to such a risk. The retreat from the privatization of the social insurance pension system has taken place (Manor & Ratajczak, 2020), and the termination of the funded part of the pension system was announced in 2021. All of this contributes to a significant decline in public trust in the pension (funded) system and financial market. In combination with poor public knowledge about finance and risk management, it has led to low participation in occupational and individual pension arrangements, especially in the newest corporate quasi-obligatory PPK system introduced in the years 2019–2021.

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The Swiss Pension System

Axel Kind

Abstract Located in the heart of Western Europe, Switzerland is a comparatively small, market-oriented, innovative, and successful open economy. Its pension system comprises three pillars: (i) a mandatory, unfunded, state-run, and highly redistributive public pillar with (near) universal coverage (AHV), (ii) a mandatory, funded, and privately run occupational pillar (BV), and (iii) a voluntary pillar based on personal savings that benefit from a preferential tax treatment. The three pillars are designed to provide satisfactory financial support for Swiss residents of retirement age (currently 65 years for men and 64 years for women). AHV pensions are mainly financed by income-dependent contributions from current AHV members and their employers, a part of revenues from VAT, and tax-financed transfers from the Federal State. With a minimum monthly (full) pension of 1,195 Swiss francs (ca. US$ 1,288), AHV replacement ratios exceed 100% for low-income consumers and decrease with income. Thus, AHV pensions target (but not always achieve) the financial coverage of basic needs. BV pensions are designed to allow old-age consumers to afford the living standards they had before retirement. In particular, taken together, AHV pensions and BV pensions offer replacement ratios above 60% for consumers with an annual income of up to approximately 100,000 Swiss francs. For additional needs, Swiss consumers must rely on tax-deductible private savings (and not tax-deductible free savings) in Pillar 3, for which an array of bank, insurance, and (recently) even FinTech solutions are available. The Swiss pension system allows for moderate flexibility in the first two pillars in terms of the timing of retirement (anticipation or postponement), the type of pension benefits (monthly annuities, lump-sum payments, or a combination of both for the BV pension) and rather high flexibility in the third pillar. Given the steady increases in life expectancy and the persisting low-interest-rate environment, the need for reforms in the first two pillars is largely acknowledged. Such reforms may include (a combination of) the following elements: (i) increases in the default for retirement age, (ii) additional sources of financing for AHV, (iii) higher contribution rates, (iv) an earlier mandatory contribution age, and (v) lower conversion ratios in BV. As several attempts to reform the system have not passed

A. Kind (✉)
University of Konstanz, Universitätsstrasse 10, D-78457 Konstanz, Germany
e-mail: axel.kind@uni-konstanz.de

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the scrutiny of popular voting in optional referenda, the exact shape of the reform will be the result of intense political negotiations that are still to come.

1 Economic and Demographic Background in Switzerland

1.1 Demographic Trends in Switzerland

As of 31 December 2019, 8.61 million people lived in Switzerland. Out of these, 2.18 million (25.28%) were foreigners. As shown in Fig. 1, in the time period 1971–2019, the Swiss population increased by 2.37 million people, which corresponds to an average annual growth rate of 0.67%. For the purposes of our study, it is interesting to analyze the development of the retirement population, i.e., those aged 65 or older. The population in retirement age increased in the period 1971–2019 from 0.72 to 1.61 million, which corresponds to an average annual growth rate of 1.67%, a moderate but definitely higher growth rate than the total population.

Figure 2 shows the structure of the population in Switzerland by age and gender. The mean and median ages of males were 40.9 years and 40.5 years, respectively. For the female population the mean and median ages were slightly higher, with values of 43.0 years and 42.5 years, respectively.

Three factors drive the age structure of permanent residents in Switzerland: (i) fertility rates, (ii) life expectancy, and (iii) migration. As shown in Fig. 3, the fertility rate of the Swiss population experienced a decrease from the mid-sixties to the mid-eighties from ca. 2.6 to ca. 1.5 children per woman. Since then, the aggregate fertility rate has been rather stable at approximately 1.5. In contrast, life expectancy

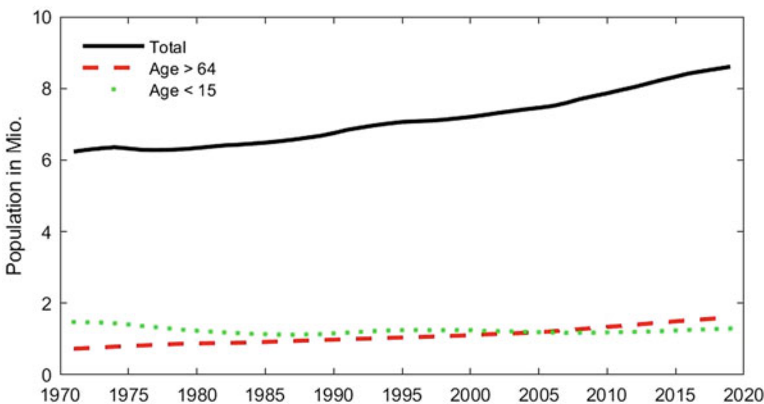

Fig. 1 Development of the Swiss population (Permanent residents). *Source* Own plots based on data from the Swiss Federal Statistical Office, https://www.bfs.admin.ch

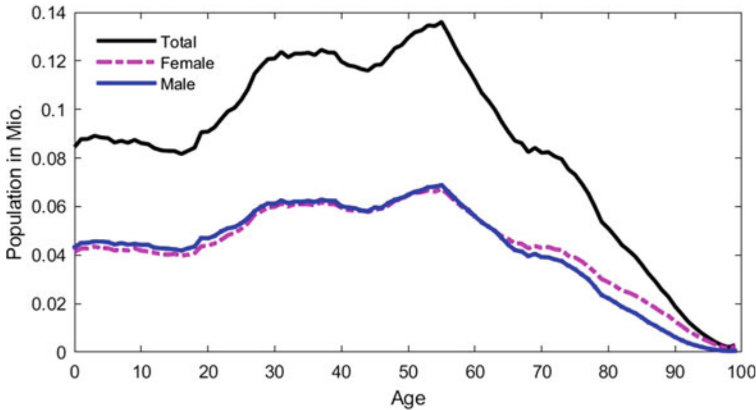

Fig. 2 Distribution of the Swiss population by age and gender. *Source* Own plots based on data from the Swiss Federal Statistical Office, https://www.bfs.admin.ch

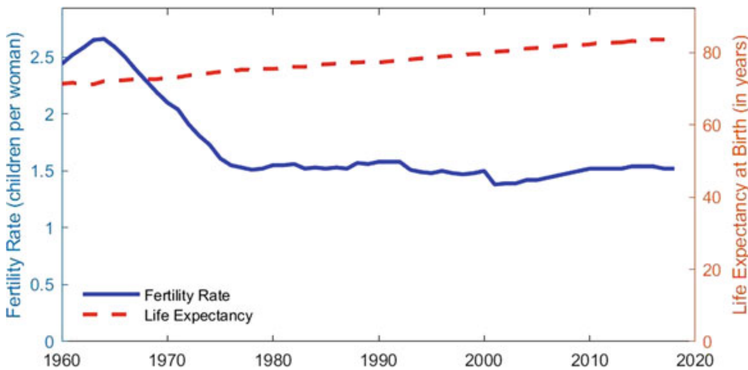

Fig. 3 Development of fertility rate and life expectancy in Switzerland. *Source* Own plots based on data from the World Bank, https://data.worldbank.org/indicator/

has steadily, and almost linearly, increased from 71.3 years in 1960 (74.1 for females and 68.7 for males) to 83.7 in 2018 (85.7 for females and 81.9 for males).

In the case of Switzerland, migration plays a major role in determining the development of the characteristics of the population of permanent residents. Figure 4 shows the historical development of net migration to Switzerland as a percentage of the total population of permanent residents. Since the beginning of the new millennium, the net migration has been positive for the young and working age population (more people moving to Switzerland than leaving it), with values exceeding 1% of the Swiss population in some years.

Even more important is the focus on the old-age dependency ratio, i.e., the ratio between the retirement-age population (65 and older) and the working-age population (aged between 15 and 64). It expresses the average number of people in retirement

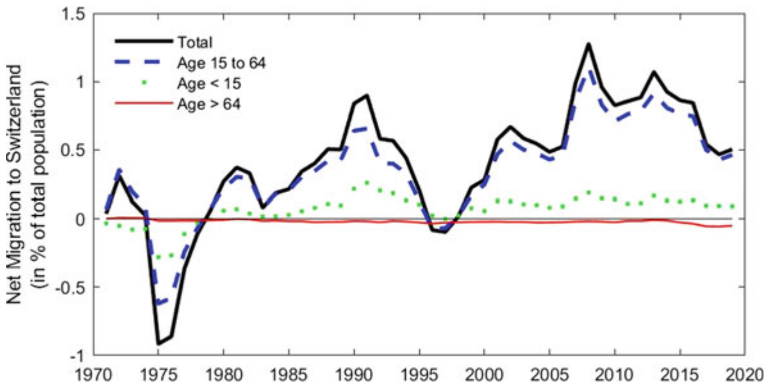

Fig. 4 Development of net migration to Switzerland by age groups. *Source* Own plots based on data from the Swiss Federal Statistical Office, https://www.bfs.admin.ch

age that may need to be supported by the generations of people of working age. As shown in Fig. 5, the old-aged dependency ratio has increased from 18.07% in 1971 to 28.15% in 2019, which is a direct consequence of the aging population in Switzerland. For completeness, the figure also displays the development of the total dependency ratio computed as all the population in nonworking age, i.e., (for simplicity) all individuals below 15 years and above 64, divided by the working-age population, i.e., all individuals between 15 and 64.

A longer-term view of the aging population is offered in Table 1. Column 3 reports the percentage of people aged 60 or older in selected municipalities (and in Switzerland as a whole) in selected years (column 2). The table shows that in Switzerland the trend toward an older population is by no means a recent one, but one that started centuries ago.

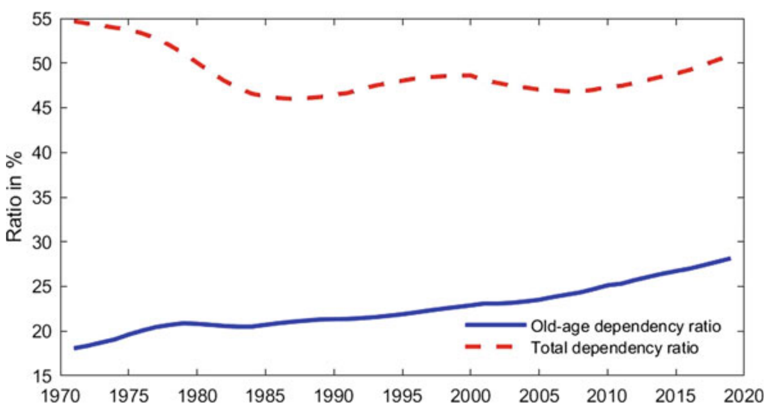

Fig. 5 Development of dependency ratios. *Source* Own plots based on data from the Swiss Federal Statistical Office, https://www.bfs.admin.ch

Table 1 Fraction of old-age population over time in Switzerland

Area	Year	Percentage of people aged 60 or older (%)
Geneva (town)	1561–1600	5
Mettmenstetten	1634	5
Albisrieden, Zumikon	1634	4
Zürich (town)	1637	6
Sulgen	1710	6
Sulgen	1722	8
Wiesendangen	1721	6
Ober- und Unterstammheim	1764	10
Bern (town)	1764	10
Geneva (town)	1798	11
	1816	11
Luzern (town)	1812	10
Switzerland	1860	8,5
	1900	9,2
	1941	12,9
	2000	20,0
	2019	24.7

Source Höpflinger (2015), https://hls-dhs-dss.ch/de/articles/002826/2015-03-25/, integrated by the author with recent data from the Swiss Federal Statistical Office, https://www.bfs.admin.ch

While the historic perspective on demographic development is interesting and important, it is even more important to understand what those trends imply for the future. In this respect, the Swiss Federal Statistical Office (FSO) has developed different realistic scenarios for the development of the population of permanent residents in Switzerland. Figure 6 depicts the development of all permanent residents in three baseline scenarios: (i) a reference scenario, (ii) a high growth scenario, and (iii) a low growth scenario. These demographic forecasts are generated using a so-called component method that makes plausible assumptions regarding the development of fertility, mortality, and migration flows. For instance, the reference scenario—which is viewed as the most plausible forecast—assumes for 2050 (i) a total fertility rate of 1.62 children per woman, (ii) life expectancy at birth of 87.2 years for males and 89.6 years for females, and (iii) an annual net immigration of 35,000 individuals. According to these scenarios, the population of permanent residents in Switzerland projected for 2050 could vary from 9.52 million (low scenario) to 11.39 million (high scenario), with the most plausible forecast being 10.44 million people (reference scenario).

These demographic scenarios can also be used to project the previously discussed dependency ratios into the future. Figure 7 plots both the old-age and the total dependency ratios associated with the reference scenario developed by the FSO.

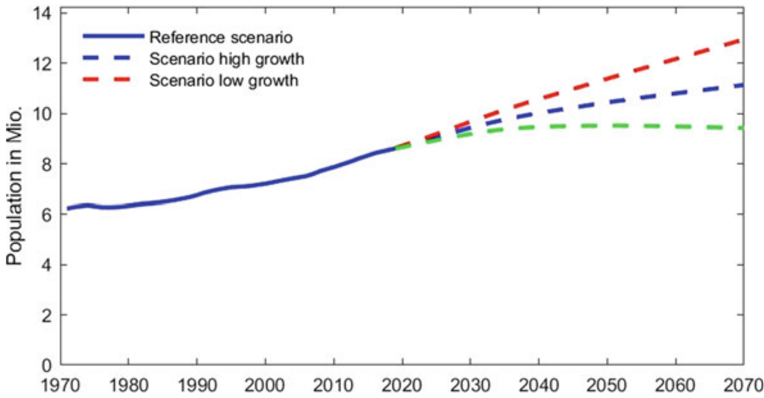

Fig. 6 Scenarios of population development in Switzerland. *Source* Own plots based on data from the Swiss Federal Statistical Office, https://www.bfs.admin.ch

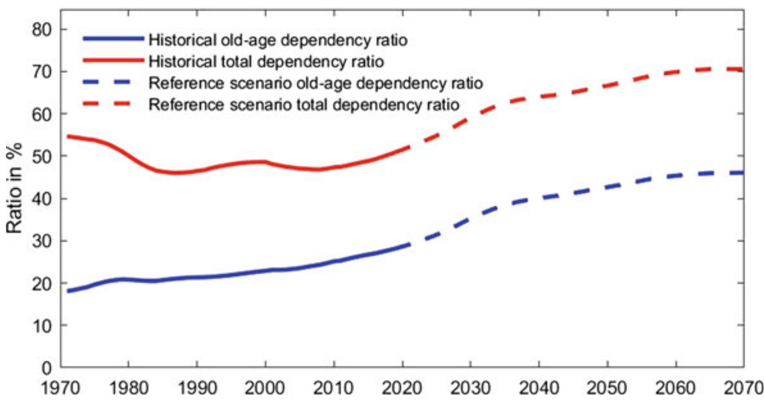

Fig. 7 Dependency ration—Reference scenario. *Source* Own plots based on data from the Swiss Federal Statistical Office, https://www.bfs.admin.ch

For instance, for the year 2050 an old-age dependency ratio of 42.65% and a total dependency ratio of 66.63% are expected.

1.2 Economic Situation in Switzerland

Switzerland is a comparatively small, market-oriented, and innovative open economy. As shown in Fig. 8, the GDP per capita (in 2010 US$) has experienced growth from US$ 49,600 in 1970 to US$ 79,500 in 2019, which reflects an average annual real growth rate of ca. 1%. Today's Swiss GDP per capita is among the largest in the world. In fact, out of the 264 countries covered by the World Development Indicators of the

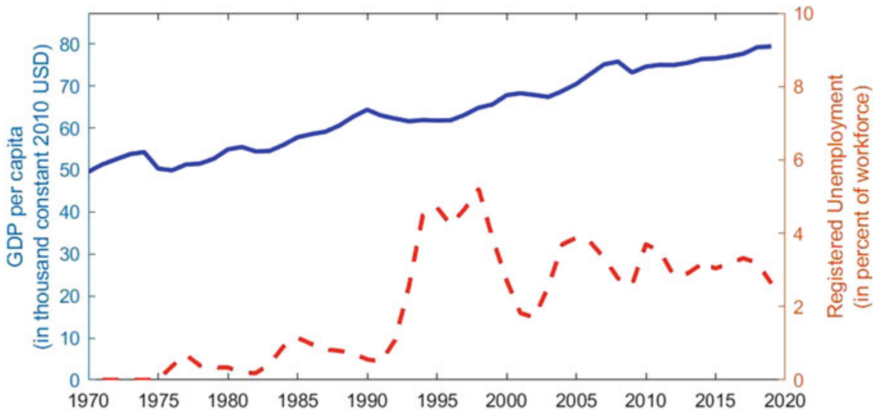

Fig. 8 Development of GDP per capita and unemployment in Switzerland. *Source* Own plots based on data from the World Bank, https://data.worldbank.org/indicator/

World Bank, Switzerland ranked fourth in terms of GDP per capita in 2019, following Luxembourg, Norway, and Ireland. The strong economic performance is traditionally reflected in rather low unemployment rates by international comparison. For instance, in the time period 1970–2018 the highest unemployment rate ever reached was 5.2% (in 1998), with an average value since the beginning of the new millennium of ca. 3.0%.

In the same time period (see Fig. 9), the national currency, the Swiss franc (CHF), has experienced a substantial appreciation over the US dollar, moving from below US$ 0.25 to one Swiss franc at the beginning of the 1970s to slightly above parity since 2011, which corresponds to an average annual appreciation of 3%.

The openness and competitiveness of the Swiss economy is also reflected in the overall importance of foreign trade. For instance, in 2019, Switzerland imported

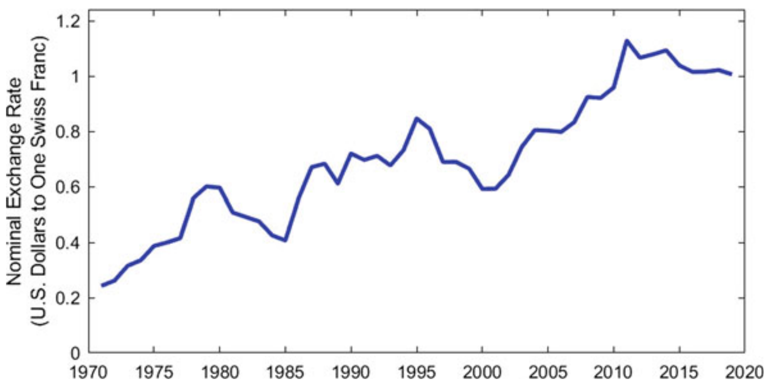

Fig. 9 Development of USD-CHF nominal exchange rate. *Source* Own plot based on data from the Federal Reserve Bank of St. Louis, https://fred.stlouisfed.org

Table 2 Swiss Foreign trade 2019

	Imports				Exports		
Country	In bil. CHF	Share (%)	In % of GDP (%)		In bil. CHF	(%)	In % of GDP (%)
Germany	57.2	20.7	7.9	Germany	47.7	15.3	6.6
Italy	22.2	8.1	3.1	US	44.2	14.2	6.1
France	18.9	6.9	2.6	UK	28.1	9.0	3.9
US	18.9	6.8	2.6	China	21.4	6.9	2.9
UK	16.4	5.9	2.3	France	19.2	6.2	2.6
China	15.1	5.5	2.1	India	17.9	5.8	2.5
UAE	14.9	5.4	2.1	Italy	16.1	5.1	2.2
Austria	8.5	3.1	1.2	Hong Kong	9.9	3.2	1.4

Source Annual report Swiss foreign trade 2019, https://www.ezv.admin.ch/ezv/en/home/topics/swiss-foreign-trade-statistics/publications/annual-reports.html

goods worth 276.06 billion francs and exported goods worth 311.98 billion francs, or 42.92% of Swiss GDP (!), generating a large and positive trade balance. Table 2 summarizes the most important trading partners with respect to both imports and exports. In terms of sectors, foreign trade is particularly large in the chemical and pharmaceutical industry, with imports of 52.7 billion francs and exports of 114.6 billion francs.

2 Overview of the Swiss Pension System

2.1 The Origin and Evolution of the Swiss Pension System

Switzerland is known for its three-pillar old-age pension system that enjoys an excellent international reputation. As one would expect, the current system is the result of a multitude of reforms over the years. As we will see, Swiss direct democracy has played a major role in this process.

It was not before the nineteenth century—when industrialization led to a substantial increase in life expectancy—that common people started to split life into three phases: (i) youth/training, (ii) adulthood/working, and (iii), old-age/retirement. Before, common people would only consider and experience the first two phases. The first group of people who started benefiting from state-regulated pensions were soldiers and civil servants (e.g., in the canton Basel-Stadt starting from 1888). Additionally, in the first decades of the twentieth century, some particularly progressive firms started offering pension funds to selected employees.

However, the first attempt to introduce a nationwide old-age pension system goes back to an initiative of federal councilor Edmund Schulthess in 1919. Despite several

lengthy revisions of the initial proposal, the so-called Lex Schulthess—which aimed at providing small pensions financed by wage deductions and taxes on tobacco and alcohol—failed in a popular vote (referendum) in 1931. The failure of the proposed public pension system, however, boosted the development of pension plans provided by employers.

Despite its initial rejection in a popular vote, the political discussion about social welfare in other states (e.g., following the Beveridge Report in Britain) and the widespread acknowledgment and fear that old age would lead to poverty renewed the interest of both the Swiss population and the political elite in the introduction of a federal pension system. In fact, in 1946 a pay-as-you-go public pension system called AHV—a German acronym for *Alters- und Hinterlassenen Versicherung*—was introduced by the General Assembly of the Swiss parliament and obtained large approval in a referendum held in 1947 (80% of votes in favor with a participation rate of 79%). Under the newly introduced system, pensions were mainly financed by mandatory wage-related contributions of all insured persons. In hindsight, the success of AHV and its acceptance in a wide range of the political spectrum can be ascribed to its limited benefits (at the beginning approximately 10% of the wage of an average worker), as it did not threaten the importance of private pension plans. In addition to a public pay-as-you-go pension system with moderate benefits, the private sector continued to provide pension plans funded by a capital cover system. In the subsequent postwar and high-growth years, both systems were further developed (AHV via eight reforms in the period 1951–1975) to offer larger benefits to retirees and improve their living conditions. By the year 1975, AHV pensions amounted to approximately 35% of the average wage.

The three-pillar principle that still shapes today's pension system was introduced by popular vote in 1972. According to this system, the first pillar consists of AHV—a mandatory state-run pay-as-you go system mainly financed by mandatory wage-dependent contributions of all people working in Switzerland. It aims at providing a small pension for the basic needs of insured people. The second pillar, consists of mandatory capitalized private pensions run by investment foundations tied to employers.[1] Finally, the third pillar consists of voluntary private savings/investments that benefit from tax advantages.

In the following years, the regulatory framework of the Swiss pension system has remained remarkably stable, although it generally expanded its coverage, among others by better addressing the needs of the female part of the population. Despite several economic downturns, demographic aging (as shown in the previous section), and the doubling of individuals entitled to pensions (from one to two million in 1980–2010), AHV expenditures increased only from 5.6 to 6.6% of GDP in the period 1980–2010.[2]

[1] Private pension plans—the second pillar of the Swiss pension system—became regulated in the federal Act on Occupational Old Age, Survivors' and Disability Provision (BGV) of 1982.

[2] Cf. www.historyofsocialsecurity.ch.

Pillar:	Pillar 1 – Public Pension	Pillar 2 – Occupational Pension		Pillar 3 – Private Pension	
Subcategories & Description:	Mandatory Savings Proportional to Income with Pronounced Re-Distributional Features	Pillar 2a: Mandatory Savings	Pillar 2b: Super-Mandatory Savings	Pillar 3a: Restricted Pension Plan: Private Savings with Tax Benefits	Pillar 3b: Unrestricted Pension Plan: Private Savings Without Tax Benefits
Focus:	Basic needs	Used living standards (together with AHV 50%-70% of last salary)		Additional needs	

Fig. 10 Swiss three-pillar pension system

Within this stable regulatory framework, the growth in coverage and magnitude of private pensions has been even more impressive. For instance, in the period 1978–2008, the proportion of the working population with a private pension plan grew from 50 to 85% and the number of retirees drawing a BV pension increased from 300,000 to 900,000. Consequently, since the mid-1970s, BV expenditures more than doubled, reaching 7.7% of GDP in 2005, thereby exceeding the level of disbursement of the public AHV.

While a first revision of BVG in 2003 was released and implemented without even requiring popular vote, subsequent attempts to further reform the system did not share the same success (see Sect. 6.7).

2.2 Today's Pension System in Switzerland

Like many other countries, Switzerland has a multipillar pension system. Specifically, it comprises three pillars: (i) a mandatory, unfunded, state-run, and highly redistributive public pillar with near universal coverage (AHV), (ii) a mandatory, funded, and privately-run occupational pillar (BV), and (iii) a voluntary pillar based on personal savings that (to a certain degree) benefits from a preferential tax treatment. In terms of tax treatment, all three pillars adhere to the EET (Exempt, Exempt, Taxed) regime: contributions are tax exempt, capital gains are tax exempt, but withdrawals are taxed. Figure 10 summarizes the three pillars of the Swiss pension system.

3 Pillar 1: Public Pension Programs (AHV)

3.1 Coverage

AHV (English: OASI—Old-Age and Survivors' Insurance) is the almost universal, mandatory, state-run public pension system in Switzerland. It was introduced by Swiss federal law in 1948 to guarantee funding of the primary needs (i.e., an income

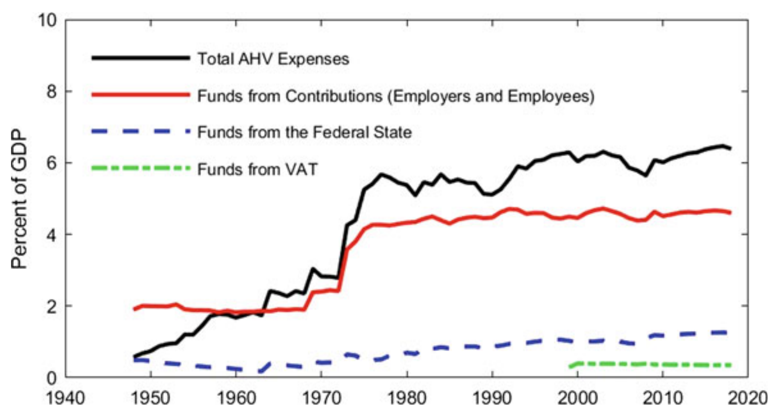

Fig. 11 Development of AHV pensions and sources of financing. *Source* Own plot based on data from the Swiss Federal Statistical Office, https://www.bfs.admin.ch

for basic subsistence) of elderly people.[3] As of today, AHV provides insurance to (i) all permanent residents in Switzerland (except people who are subject to mandatory pension insurance abroad), (ii) all employees working in Switzerland but residing abroad, and (iii) all Swiss citizens working abroad for a Swiss company. According to data provided by the Swiss Federal Statistical Office,[4] in 2019, 2,403,764 individuals (i.e., ca. 28% of the Swiss population) received old-age AHV pensions. Of these pensions, 46.6% were granted to men and 53.4% to women. Furthermore, 67.9% were paid out to individuals who resided in Switzerland and 32.1% (!) to individuals who resided outside of Switzerland.[5] The dark solid line in Fig. 11 shows the development of total AHV expenses—i.e., to the largest part old-age pensions—as a percentage of total Swiss GDP. While from the beginning of AHV in 1948 to the first part of the 1970s, total AHV expenses have grown considerably, since the mid-1970s until today AHV expenses have increased only very moderately, reaching a value slightly above 6% of Swiss GDP. To some extent, the limited growth in expenses as a percentage of GDP is remarkable, as just in the period 2001–2019 the number of AHV pensions as a percentage of the total population of Swill residents has increased from ca. 21.3 to 27.9% (not reported).

[3] See Article 111 of the Swiss Federal Constitution (https://www.fedlex.admin.ch/eli/cc/1999/404/de) and Bundesgesetz über die Alters- und Hinterlassenenversicherung, AHVG (https://www.admin.ch/opc/de/classified-compilation/19460217/index.html#fn1).

[4] Cf. https://www.bsv.admin.ch/bsv/de/home/sozialversicherungen/ueberblick/grsv/statistik.html for statistical information related to the Swiss social security system.

[5] Consult the following webpage for most recent data: https://www.bsv.admin.ch/bsv/de/home/sozialversicherungen/ahv/statistik.html.

3.2 Financing

AHV is a pay-as-you-go system (i.e., there is no substantial accumulation of capital) financed by several sources, the development of which is depicted in Fig. 11. The largest part of funding comes from mandatory, income-dependent contributions of AHV members in the form of a proportional payroll tax on labor income (as of today, ca. 75% of all inflows, red solid line). Mandatory contributions are due starting from the age of 17 for employed individuals and from the age of 20 for nonemployed individuals (e.g., students). Both employees and self-employed individuals are required to pay AHV contributions up to retirement age.[6] The second-largest cash inflows come from public contributions of the federal state (ca. 20% of all inflows, blue dashed line), i.e., general taxes. Additionally, there are revenues linked to the VAT (1% of Swiss VAT which amounts to ca. 5% of all inflows, green dashed-dotted line) and to taxes on alcohol, tobacco, and gambling (ca. 0.7% of all inflows, not displayed). Fluctuations between inflows (contributions) and outflows (pensions) are compensated for by the so-called AHV compensation fund (*AHV-Ausgleichsfonds*). It is expected to have funds to cover one year of AHV expenses. From an individual perspective, as of January 2021, contributions of the self-employed have reached a maximum of 9.95% of relevant income; those of the employed individuals amount to 4.35%[7] of relevant income to be paid by the employee and 4.35% to be paid by the employer, with a minimum annual contribution of 503 Swiss francs.[8]

3.3 Pension Benefits

3.3.1 Pension and Time of Retirement

AHV pensions may be requested starting from the age of 65 for males and 64 for females.[9] However, it is also possible to anticipate the beginning of old-age pension payments by one or two years or to postpone it by a minimum of one year to a maximum of five years (i.e., starting from 70 years for men and 69 years for women). The former reduces the pension benefits by 6.8% for each year[10] and the latter increases them from 5.2% to a maximum of 31.5%. Table 3 shows the pension

[6] In the case that retired individuals earn more than 16,800 francs annually, they are still required to pay AHV contributions. Thus, both in this case and in the case of anticipated retirement, the beginning of the withdrawal phase does not correspond with the end of mandatory contributions.

[7] The contributions of both the employee and the employer reach 5.3% if considering also the contributions for Invalidity Insurance and Supplementary Benefits for persons with special needs.

[8] See https://www.ahv-iv.ch/p/1.2020.d.

[9] General information on AHV pension benefits can be found here: https://www.ahv-iv.ch/de/Merkbl%C3%A4tter-Formulare/Merkbl%C3%A4tter/Leistungen-der-AHV.

[10] In the case of anticipated AHV retirement, no invalidity pensions and survivors' pensions will be granted.

Table 3 Upgrade of AHV old-pension in dependence of postponement period

	Months			
Years	0–2 (%)	3–5 (%)	6–8 (%)	9–11 (%)
1	5.2	6.6	8.0	9.4
2	10.8	12.3	13.9	15.5
3	17.1	18.8	20.5	22.2
4	24	25.8	27.7	29.6
5	31.5	–	–	–

Source https://www.123-pensionierung.ch/de/ahv/ahv-aufschieben/

upgrades (as a percentage of the otherwise valid pension) depending on the exact postponement in years and months. Given the constant upgrade-percentages within each two/three-month segment, from a consumer perspective it is highly advisable to set the beginning of pension withdrawals at the very beginning (!) of each segment. Given the substantial improvements of the old-age AHV pension that accompany pension postponement, the decision on the timing of retirement must be carefully considered. A gradual reduction of the employment percentage coupled with a partial pension withdrawal is also possible.

While the exact formula for computing the AHV pension is somehow involved,[11] AHV offers interested people a nonbinding estimate of their expected pension.[12] In general, the old-age AHV-pensions are regularly adjusted to inflation (and real-wage appreciation) and are a function of the number of contribution years, the average (relevant) annual income over those years (including an appreciation factor), and, when applicable, so-called education and support credits. Education credits and support credits represent a fictive additional income granted as compensation for raising children and supporting family members in need of assistance, respectively. In particular, for each year a person or a couple has raised one or more children under the age of 16 or supported family member in need of assistance, three times the value of the AHV annual minimum full pension are added to the individual AHV accounts (in the case of marriages the amount is split among the partners). An AHV-annuity obtained with a contribution record without gaps (i.e., after 44 years of contributions above the minimum level of currently 500 francs) is called full pension. Currently,[13] AHV full pensions (*Vollrente*) are bounded between 1,195 francs (minimum full pension) and 2,390 francs (maximum full pension) per month.[14] In fact, by law (Art. 34 (3), AHVG) the maximum full pension may not exceed twice the minimum full pension. The highest AHV pension is obtained with 44 years of contributions and an average

[11] See Art. 34 and Art. 38, AHVG for the relevant legal passages and Zainhofer (2008) for a more formal treatment of this issue.

[12] See https://www.ahv-iv.ch/en/Leaflets-forms/Online-pension-estimate-ESCAL.

[13] The figures include the changes made on 1 January 2021. The minimum mandatory annual contribution was raised from 496 to 500 francs. Similarly, the minimum (maximum) monthly full pensions were raised from 1,185 francs (2,370 francs) to 1,195 francs (2,390 francs).

[14] See http://www.ahv-iv.ch/p/1.2019.d.

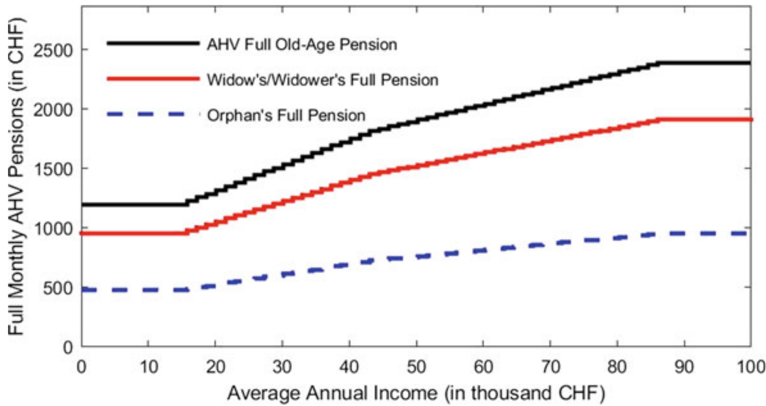

Fig. 12 Full AHV pensions and average annual income. *Source* Own plot based on data from the Swiss Federal Statistical Office, https://www.bfs.admin.ch

income of 86,040 francs or above. The solid black line in Fig. 12 shows the relationship between the average (relevant) annual income subject to AHV contributions and the (full) monthly AHV old-age pension. This relationship is known as *Rentenskala 44* or simply *Skala 44*. It is built of four segments. The two horizontal segments are the lower bound (minimum full pension) and the upper bound (maximum full pension). The upper bound is exactly equal to twice the lower bound. Furthermore, the first ascending segment starts at an average annual income equal to the annual minimum pension (AMP, currently 14,340 francs) and ends at three times AMP (currently 43,020 francs). This first ascending segment has a higher slope than the second ascending segment that starts at three times AMP and ends at six times AMP. The difference in the slopes reinforces the redistributional features of AHV: an additional dollar earned at low income levels translates into a higher AHV pension than a dollar earned at higher income levels.

For each year without contributions, the AHV-pension is reduced by a minimum of 2.3% (1/44). For this reason, Swiss consumers have an interest in making sure that they have a contribution record without gaps. Gaps no older than five years can be closed by paying missing contributions.[15] This is particularly important for people who spend longer periods abroad due to studies, work, or other reasons. Married couples may receive together AHV-pensions no larger than 150% of the maximum AHV-pension, i.e., currently, 3,585 francs.[16] Thus, at least in this respect, being married may be seen as a disadvantage in terms of AHV-old-age rents (see Sect. 6.3 for further details on the pension-related consequences of marriage and divorce).

Figure 13 shows the development of the actual mean monthly AHV pension for all recipients (solid blue line) and for retirees who reside in Switzerland (dashed blue

[15] See https://www.ch.ch/en/gaps-contribution.

[16] However, AHV pensions of couples may exceed 150% of the maximum individual AHV-pension as a consequence of a postponement of the pension withdrawal.

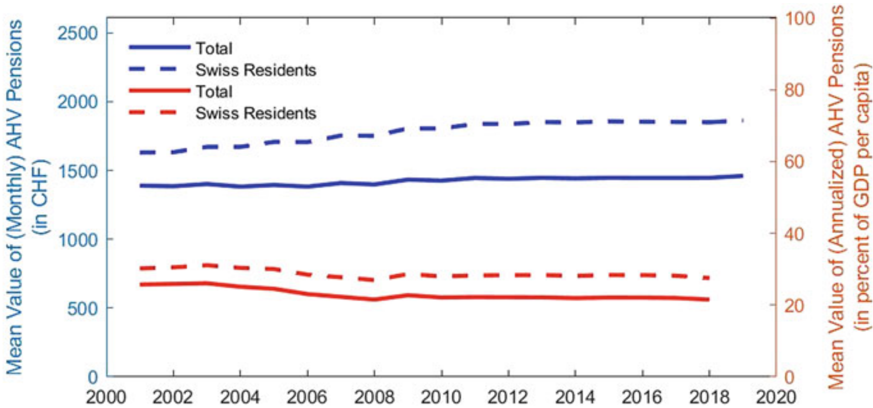

Fig. 13 Development of the value of AHV pensions. *Source* Own plot based on data from the Swiss Federal Statistical Office, https://www.bfs.admin.ch

line). In 2019, the average AHV-pension amounted to 1,461 francs (1,394 francs for men and 1,519 francs for women). When considering only pensions paid out to individuals who reside in Switzerland (and who typically benefit from longer periods of contributions but face the Swiss costs of living), the average AHV-pension in 2019 amounted to 1,864 francs (1,850 francs for men and 1,875 francs for women). Figure 13 also shows the development of the mean AHV pension as a percentage of the Swiss per capita GDP. While nominal pensions slightly increased in the period 2001–2018, their ratio with respect to Swiss per capita GDP slightly decreased from 25.7% in 2001 to 21.5% in 2018 (for Swiss residents from 30.2% in 2001 to 27.5% in 2018).

Given its financing and payoff structure, the first pillar of the Swiss pension system achieves politically wanted redistributional goals, in particular (i) from wealthy to less wealthy individuals, (ii) from men to women (especially due to the higher longevity of the latter), and (ii) from the young generation to the older generation of baby boomers.

3.3.2 Survivors' Pensions

In the case of the death of an insured person, the spouse and the children are entitled to receive a survivors' pension.[17] As shown in Fig. 12 (red line), as of today, widows' and widowers' full pensions range from 956 francs per month to 1,912 francs per

[17] Widows are entitled to receive a survivor's pension if they have one or more children or if they are older than 45 years and have been married to the deceased for more than five years. In contrast, widowers are entitled to receive a survivor's pension only if and as long as they have children that are younger than 18 years. Children receive an orphan's pension that stops as they become 18 years old or as they end their education. In any case, the survivor's pension stops as they reach the age of 25.

month, depending on the average AHV contributions of the deceased (i.e., the average income) and provided that the deceased had no AHV contribution gaps. Similarly, orphans' pensions (Fig. 12, blue dashed line) range from 478 to 956 francs per month. In the case of contribution gaps, the above pensions are reduced in percentage of the years without contributions to the total of theoretically possible contribution years (from age 20) up to the year of death.

3.3.3 Additional Benefits

Although beyond the scope of this book, it is worth noting that the first pillar of the Swiss social security system reaches beyond the provision of pensions and includes Disability Insurance (DI, *Invalidenversicherung*, IV) and Supplementary Benefits (EL, *Ergänzungsleistungen*). Supplementary Benefits aim at providing assistance when one's own income and the pension(s) received are not sufficient to cover minimum living costs. They take the form of annual benefits and payments for illness and disability costs.

4 Pillar 2: Occupational Pension (BV)

4.1 Coverage

BV (*Berufliche Vorsorge*; English: OP—Occupational Pension) is the mandatory, privately run pension system in Switzerland. It is legally defined in Art. 113 of the Federal Constitution and in the federal law on the occupational old-age, survivors and disability provision (BVG).[18] It was introduced by Swiss federal law in 1982 to allow people to continue to afford the living standards they are used to even upon retirement.[19] In particular, in the intention of the Swiss legislature, BV aims at providing (together with the first pillar, AHV) pension income of approximately 60% of the last salary. As of today, occupational pension schemes are mandatory for all employees aged 24 or older with an annual salary that exceeds 21,510 francs ("entry threshold"), i.e., three quarters of the maximum AHV-pension (BVG, Art. 2 (1)), and voluntary for all other employees or self-employed individuals. The entry threshold aims at preventing employees with low income from obtaining from AHV combined with BV a replacement rate—the ratio of individual net pension divided by net preretirement earnings—above one. In addition to providing old-age pensions, BV also insures employees of age 17 or older against death and work invalidity. Employees who do not have a mandatory BV coverage have, however, the option to be part of a BV pension plan on a voluntary basis. Every employer has to establish (or

[18] BVG stands for *Bundesgesetz über die berufliche Alters-, Hinterlassenen- und Invalidenvorsorge*.

[19] See *Bundesgesetz über die berufliche Alters-, Hinterlassenen- und Invalidenvorsorge*, BVG: https://www.admin.ch/opc/de/classified-compilation/19820152/index.html.

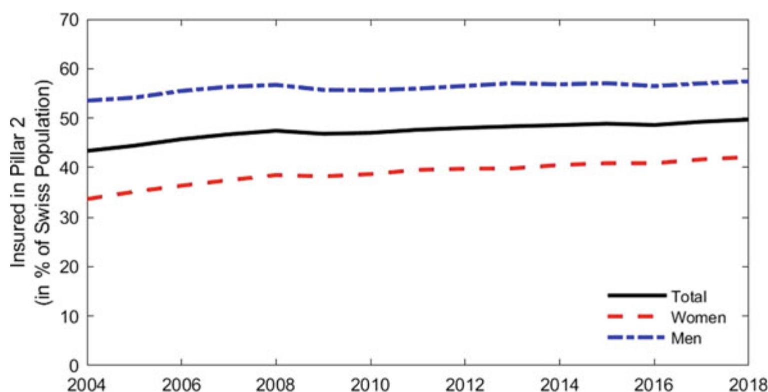

Fig. 14 Development of BV coverage. *Source* Own plot based on data from the Swiss Federal Statistical Office, https://www.bfs.admin.ch

be affiliated with) an occupational pension fund. According to data provided by the FSO, in 2018, 4,245,569 individuals (i.e., ca. 49.7% of the Swiss population) were paying contributions and were insured by an occupational pension scheme: 42.7% women and 57.3% men (see Fig. 14).

In the same year, 1,164,168 individuals (i.e., ca. 13.63% of the Swiss population) received BV-pensions. As of 2018, Switzerland had 1,562 pension funds, split into 1,490 private-law institutions and 72 public-law institutions. The large majority of pension funds (1,490 or 95.39%) currently offer defined contributions (DC) plans, 37 (2.37%) offer defined benefits (DB) plans, and 35 (2.35%) offer both DC and DB pension plans. However, as noted by Bütler and Ruesch (2007), when the second pillar became mandatory (in 1985), the majority of funds offered defined benefits plans. The transition from DB funds to DC funds was due to portability requirements demanded by law, i.e., the possibility introduced by the Vested Benefits Act of 1993 (*Freizügigkeitsgesetz*, FZG)[20] to transfer under fair conditions occupational pension savings from one fund to another when changing jobs (and pension funds). Table 4 provides an overview of the development of the number of pension funds in the period 2009–2018. It shows that Swiss pension funds have undergone a substantial consolidation process due to the progressive outsourcing of the second pillar by firms. If we consider that in 2002 there were more than 8,000 funds (see Bütler & Ruesch, 2007), the speed of the consolidation process has decreased in the last decade.

[20] *Bundesgesetz über die Freizügigkeit in der beruflichen Alters-, Hinterlassenen- und Invalidenvorsorge*, FZG: https://www.admin.ch/opc/de/classified-compilation/19930375/index.html.

Table 4 Number of pension funds in Switzerland

2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
2.351	2.265	2.191	2.073	1.957	1.866	1.782	1.713	1.643	1.562

Source Swiss Federal Statistical Office, https://www.bfs.admin.ch

4.2 Financing

BV is a capitalized system in which contributions of the employer and employee are managed and invested by a pension fund (*Pensionskasse*) to finance the employee's future pension payments. If a person changes his/her employer, the funds are transferred from the old to the new pension fund.

As of today, Swiss law requires employers to insure income between 21,510 francs (an entry threshold equal to three-quarters of the maximum annual AHV pension) and 86,040 francs (an upper threshold equal to three times the maximum annual AHV pension). Minimum contribution values are not computed on the entire individual income, but only a part of it, called *coordinated income* or *coordinated earnings*. Figure 15 shows the function currently used to transform the regular income, i.e., *relevant AHV earnings*, into coordinated earnings subject to BV contributions. The function is characterized by four different segments. As already mentioned, up to an annual salary of 21,510 francs (three-quarters of the maximum annual AHV pension) no BV contribution is due and individuals are not covered by BVG. With an annual salary between 21,510 and 28,680 francs (the maximum annual AHV pension), BV contributions on coordinated earnings of 3,585 francs are due. Between 28,680 and 86,040 francs (three times the maximum annual AHV pension), the coordinated earnings grow linearly with a slope of one. Thus, they are equal to the annual income minus the so-called "coordination deduction," which is equal to seven-eighths of the annual maximum AHV old-age pension. Finally, with an annual salary above 86,040 Swiss francs, the coordinated earnings cease to grow and remain constant at 60,945 francs (17/8 of the maximum annual AHV pension). Overall, the transformation of regular annual income into coordinated salary achieves two important goals. First, it excludes low-income individuals from the burden of paying BV contributions and avoids unnatural replacement rates above one. Second, it avoids the fact that high-income individuals are forced to invest huge amounts of money into the second pillar.

Pension funds may offer insurance beyond these minimum requirements set by law. Contributions related to the income between the entry level and the upper level are called "mandatory" (*obligatorisch*). Contributions related to income outside this band are called "supra-mandatory" or "overobligatory" (*überobligatorisch*) and are often referred to as "Pillar 2b".[21] As mentioned, Swiss law does not require insuring

[21] Sometimes, BV contributions and insurance for individuals with income below three-quarters of the maximum annual AHV pension are referred to as "premandatory.".

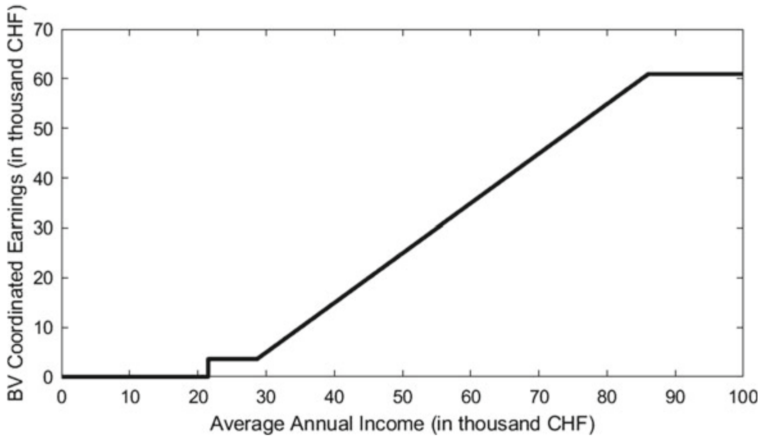

Fig. 15 Annual Earnings subject to mandatory BV regulation. *Source* Own plot based on data from the Swiss Federal Statistical Office, https://www.bfs.admin.ch

Table 5 Minimum contribution rates to Pillar 2a pension savings

Age range	25–34 (%)	35–44 (%)	45–54 (%)	55–64 (%)
Minimum contribution rates (in % of insured income)	7	10	15	18

Source Art. 16, BVG: https://www.fedlex.admin.ch/eli/cc/1983/797_797_797/de

income below a certain threshold because the mandatory public pension in the first pillar (AHV) already insures this income.

The exact amounts to be paid by the employer and the employee depend on their contribution rates—the percentage of the insured or coordinated salary payed as contribution—that are established in official rules set by the pension fund. However, according to current law, the contributions of the employer must be at least as large as the contributions of the employee and meet, taken together, the minimum contribution rates shown in Table 5. Contributions flow into the old-age credit balance but also insure against death and disability.

Figure 16 shows the development of aggregate Pillar 2 pension savings, which in 2018 amounted to 875.85 billion francs, or 127.02% of Swiss GDP.

4.3 Pension Benefits

The occupational pension pillar offers a variety of benefits to insurants. Most importantly, insured individuals obtain a pension as soon as they reach the regular retirement age: 64 years for men and 65 years for women. Swiss law allows insurants to withdraw upon retirement at least 25% of their mandatory occupational old-age

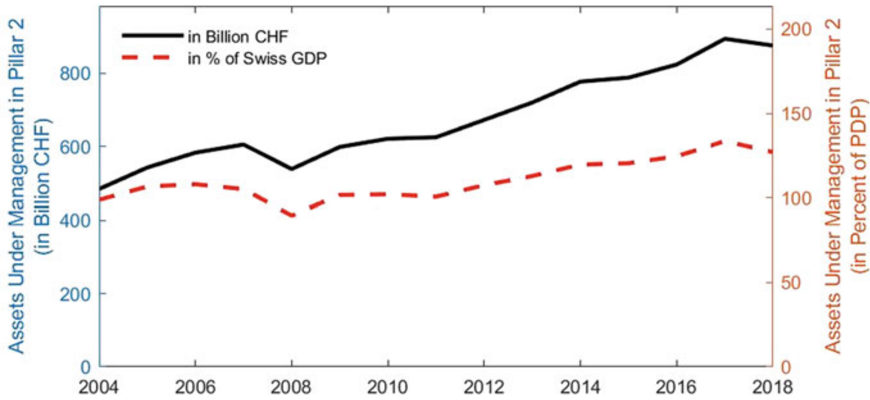

Fig. 16 Development of assets under management (AUM) in Swiss pension funds. *Source* Own plot based on data from the Swiss Federal Statistical Office, https://www.bfs.admin.ch

savings. However, pension funds may allow (and the majority of pension funds do allow) insurants to withdraw higher percentages of the savings, sometimes up to 100%. The withdrawal of pension savings has the advantage of allowing retirees to use their (capitalized) savings in a very flexible way (see Sect. 6.5 for a detailed discussion of the advantages and disadvantages of (partial) capital withdrawals vs. periodic pensions).

Second, if an insured individual becomes invalid by 40% or more, he/she is entitled to receive an invalidity pension. The amount depends on the invalidity degree. Third, in the case of the death of the insured individual, both the spouse and underage children are entitled to receive a widow's/widower's pension[22] and an orphan's pension, respectively. The former amounts to 60% of the invalidity pension and the latter amounts to 20% of the invalidity pension.

The annual BV old-age pension is computed by multiplying the old-age credit balance, i.e., the value of the occupational pension savings accumulated over the years until retirement, by a so-called *conversion ratio* or *conversion factor* (*Umwandlungssatz*). Pension funds can offer beneficiaries the option to choose between a traditional old-age pension (paid out monthly until death) and a lump-sum withdrawal. Even in the absence of such a provision, pension-fund regulation (in particular Art. 37 (4), BVG) establishes that upon retirement at least one-fourth of the personal BV savings can be withdrawn as a lump-sum payment. Additionally, pension fund regulations may offer flexibility with respect to anticipated or postponed retirements with related adjustments of the conversion ratios and lump-sum payments. In Switzerland,

[22] A widow's or widower's pension is granted to the spouse (or partner in a registered partnership) if the spouse has either to support one or more children or if he/she is age 45 or older and has been married for at least five years with the insured partner. In a case where these conditions are not met, the spouse receives a one-time payment equal to three years of old-age pension. Even divorced individuals are entitled to a pension if the marriage was longer than 10 years and the partner had to pay alimony.

the law regulates both the capital accumulation phase and the payout phase. Importantly, the Swiss Federal Council sets a *minimum rate of return* that pension funds have to grant on Pillar 2 savings. This minimum rate of return reflects the yields on securities such as stocks, government bonds, and real estate investments (Art. 15 (2), BVG). Table 6 shows the historical minimum interest rates set by the Federal Council.

To mitigate the problem of excessive risk taking, Swiss law also regulates the investment strategies carried out by pension funds by setting upper limits on asset classes, e.g., no more than 30% (25%) invested in Swiss (foreign) shares and no more than 10% (5%) invested in one single Swiss (foreign) company. Figure 17 shows the aggregate asset allocation of Swiss pension funds in 2018, which thus refers to total investments of approximately 876 billion francs. Interestingly, the largest asset classes Swiss pension funds hold in their portfolios are domestic real estate investments (20%)—which also include mortgages—followed by foreign equities and foreign bonds (each with a share of 18%). However, Swiss pension funds also invest in a variety of alternative assets, including hedge funds, commodities, and insurance-linked securities. Given the current low interest rate environment, pension funds are eager to explore a wide range of investment opportunities that may offer higher returns than more traditional fixed-income securities. In the period 2014–2018, the largest absolute increase in AuM per asset class was observed in domestic real-estate investments (+38.4 billion francs, including mortgages). In relative terms, the largest increase in AuM took place in the asset class “Infrastructure” (subsumed in Fig. 17 in the category “Alternative Investments”) with a growth of approximately 312%, from 0.3% of total assets in 2014 to 0.9% in 2018.

While the conversion ratio is set by the single pension funds, Swiss law currently requires a minimum conversion ratio of 6.80% for mandatory BV savings (BVG, Art. 14 (2)). This conversion ratio would imply that on average, given no returns on capital, a (conditional) life expectancy of no more than 14.71 years (=1/0.068) upon retirement is required for the system to be in equilibrium. Considering the current (unconditional) life expectancy of 83.7 years in 2018 (85.7 years for women and 81.9 for men) and the low interest-rate environment, the conversion ratio of 6.8% does not seem to be sustainable. In 2010, the attempt to reduce the conversion ratio from 6.8 to 6% was rejected by a majority of 72.7% in a public referendum. Adjustments of the pension annuity to inflation are not mandatory. However, the typically low inflation rates in Switzerland do not let this issue become very important.

Figure 18 shows that the average old-age pensions have remained quite stable in the period 2004–2018 with values of approximately 3,000 francs for men and 1,500 francs for women. However, this also means that both in real terms and as a percentage of per capita GDP, old-age pensions in Pillar 2 have fallen, mainly due to lower conversion rates and lower minimum rates of return on savings.

Table 6 Historical minimum rate of return

1985–2002 (%)	2003 (%)	2004 (%)	2005–2007 (%)	2008 (%)	2009–2011 (%)	2012–2013 (%)	2014–2015 (%)	2016 (%)	2017–2021 (%)
4.00	3.25	2.25	2.50	2.75	2.00	1.50	1.75	1.25	1.00

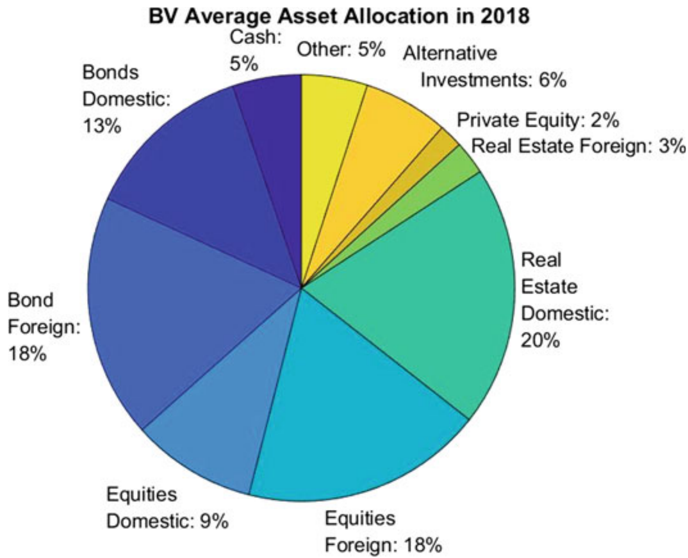

Fig. 17 BV average asset allocation in 2018. *Source* Own chart based on "Pensionskassenstatistik—Kennzahlen 2014–2018", www.statistik.ch

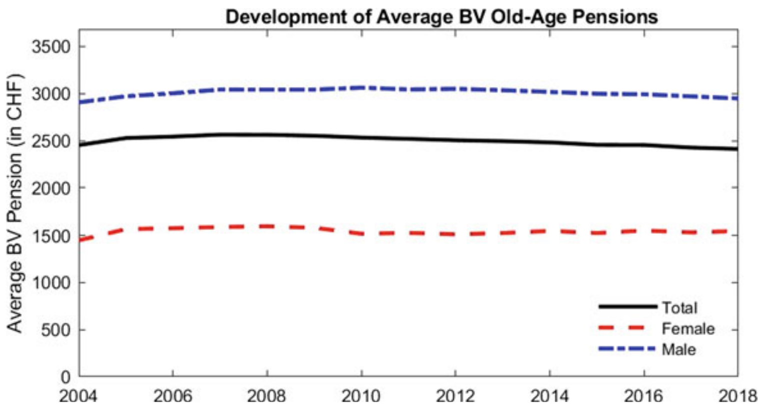

Fig. 18 Development of average BV old-age pensions. *Source* Own plot based on data from the Swiss Federal Statistical Office, https://www.bfs.admin.ch

5 Pillar 3: Private Pension

5.1 Coverage

Voluntary private pension savings (self-provision) in the third pillar of the Swiss pension system complement the first two pillars (AHV/IV and BV) with the aim of

allowing people to finance individual needs during retirement. The third pillar can be subdivided into Pillar 3a, which benefits from a particularly favorable tax treatment, and Pillar 3b, which has no favored tax treatment but allows individuals to save even beyond Pillar 3a. In particular, the favorable tax treatment consists of the possibility of deducting annual contributions from the taxable income. All individuals with income subject to AHV contributions are entitled to save part of their income in tax-favored investment vehicles in Pillar 3a. Conversely, people without labor income in Switzerland (e.g., househusbands and housewives but also commuters) are not entitled to benefit from the tax advantages of Pillar 3a. Due to the preferential tax treatment, Pillar 3a is particularly appealing and should be used by a large part of the population. It is particularly important for self-employed people who are not affiliated with a Pillar 2 institution. In reality, according to a study by Bank CiC AG (2019) based on a representative survey of 1,205 individuals, only 48% of people make use of Pillar 3a (only 34% among employees). Some 31% declare that lack of funds is responsible for not investing in Pillar 3a, while 22% have not given much thought to this possibility. Furthermore, even among those who invest in the third pillar, only 50% do so to the maximum extent allowed. Any other investment (including life insurance and real estate investments) can be considered part of Pillar 3b, which is thus extraordinarily heterogeneous.

5.2 Financing

The maximum contribution to Pillar 3a investment vehicles currently (as of 2021) amounts to the minimum between 20% of income earned in Switzerland and a fixed amount of 6,883 francs for employees and 34,416 francs for self-employed individuals. As shown in Fig. 19, the maximum amount investable in Pillar 3a has been slightly rising over the years.

As of today, Pillar 3a is the least important pillar in terms of savings amounts. In fact, only 10.5% of the total contributions to the three-pillar system flow to Pillar 3a. Pillar 3a funds may either be invested with banks (in bank accounts) or with insurance companies (in insurance policies) or with a combination of both. Figure 20 and Table 7 show that the majority of people prefer banks over insurance companies for their Pillar 3a pension savings. Furthermore, banks offer either classical deposits with fixed interest rates or investment funds that invest in risky securities (stocks and bonds). Interestingly, the majority of people (73.8% of Pillar 3a funds invested in banks in 2019) still prefer pension accounts with fixed interest rates to risker but also more profitable investment funds. In recent years, some FinTech solutions with online onboarding (even app-based) have been proposed as Pillar 3a products both by startups and established players.[23]

[23] See, e.g., VIAG (viac.ch), Sparbatze (sparbatze.ch), Frankly (Zürcher Kantonalbank, frankly.ch), the roboadvisor Selma, Descartes Vorsorge (descartes-vorsorge.ch), Volt 3a (Vontobel, volt.vontobel.com), or the service of VermögensZentrum (vermoegenszentrum.ch).

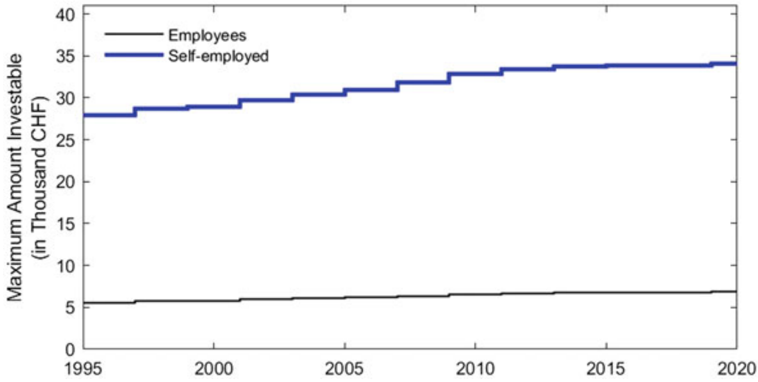

Fig. 19 Development of maximum amount investable per year in Pillar 3a. *Source* Own plot based on data from the Swiss Federal Statistical Office, https://www.bfs.admin.ch

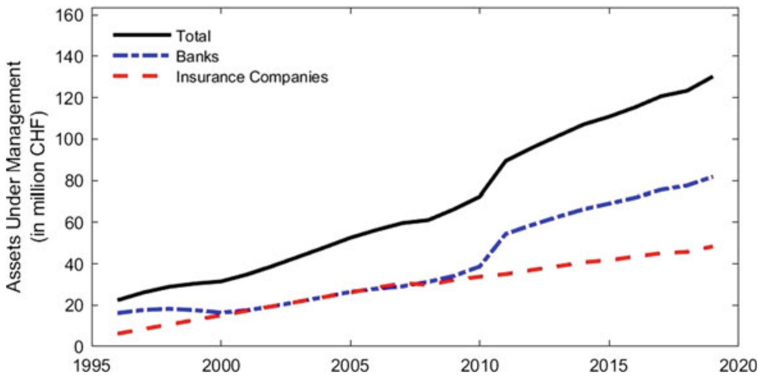

Fig. 20 Development of aggregate Pillar 3a AuM. *Source* Own plot based on data from the Swiss Federal Statistical Office, https://www.bfs.admin.ch

Table 7 Total assets invested in Pillar 3a funds (in billion Swiss francs)

	2014	2015	2016	2017	2018	2019
Banks	66.281	69.057	71.865	75.546	77.521	81.791
Pension deposits	13.230	14.040	15.037	17.429	18.510	21.688
Investment funds	53.051	55.017	56.829	58.117	59.011	60.104
Insurance companies	40.712	41.735	43.464	45.086	45.732	48.363
Total	106.993	110.792	115.329	120.632	123.253	130.155

Source Swiss Federal Statistical Office, https://www.bfs.admin.ch

5.3 Pension Benefits

Investments in voluntary Pillar 3a are attractive because they can be deducted 1:1 from taxable income both at the cantonal and federal levels. For example, given a marginal tax rate of 20%, the (typical) maximum Pillar 3a investment for employees of 6,883 francs will lead to a direct annual tax benefit of 1,376 francs per year (=0.2 * 6,826 francs). Regardless of whether Pillar 3a funds are invested in bank accounts, insurance policies, or a combination of both, the direct annual tax benefits are the same. The fact that the tax advantage of Pillar 3a investments increases with the marginal tax rate means that high-income individuals benefit more than low-income individuals from voluntary savings into Pillar 3a products.

However, on the negative side, withdrawals of Pillar 3a savings (for example at the retirement age of 65 for men) are taxed using a *capital withdrawal tax* that varies substantially depending on (i) place of residence (town and canton), (ii) marital status, and (iii) amount withdrawn. Nonetheless, as shown in Table 8, in most cases, the capital withdrawal tax ranges from 5 to 10% of the withdrawn amount and is thus generally much lower than the income tax.

An example may be useful for appreciating the beneficial effects of Pillar 3a savings. Let us consider an individual who starts investing at age 30 the maximum annual contribution of 6,883 francs for employees affiliated with a BV pension fund. Let us further assume that this person has a constant marginal tax rate of 20% and makes contributions until retirement (at age 65). Figure 21 shows for this person the development of different measures of savings related to Pillar 3a investments. The direct tax savings of Pillar 3a investments amount to 1,377 francs on an annual basis, or 48,181 francs, if multiplied by 35, i.e., the years of contributions until retirement (end of the thin, red, solid line). While this is already a substantial amount of money that justifies the choice of a Pillar 3a investment, by reinvesting those tax gains into a stock-market account (which in this example is conservatively assumed to yield an annual rate of return of 5% on average), tax gains at retirement will be worth 130,552 francs (end of thin, red, dashed line).

In addition to the direct tax-gain effect, Pillar 3a has the merit of nudging individuals into making wise saving decisions for their retirement. Even without considering the previously mentioned tax benefit, assuming Pillar 3a investments into a fixed interest account with an average annual rate of return of 2% would lead to savings of 350,994 francs at retirement (end of the solid, blue line). Even better, Pillar 3a investments into a stock-based investment fund with an average annual rate of return of 5% would lead to savings of 652,758 francs at retirement (end of the dashed, blue line). By considering the tax savings related to the lower income tax, final savings amount to 783,310 francs. Even after considering the final capital withdrawal tax (realistically assumed to be 7.5%), the final Pillar 3a retirement savings amount to 734,353 francs (the thick circle in Fig. 21), which is considerable.

The regulator distinguishes between ordinary (or standard) and early (or advance) withdrawals of Pillar 3a savings. The former refers to withdrawals of Pillar 3a savings in “close” temporal proximity to retirement. In practical terms, ordinary withdrawals

Table 8 Capital withdrawal taxes due in different Swiss cantons and municipalities (in francs)

		Withdrawal of					
		250,000 francs		500,000 francs		1 million francs	
Canton	Municipality	Married	Unmarried	Married	Unmarried	Married	Unmarried
AG	Aarau	15,801	18,125	38,499	41,707	85,150	88,560
AI	Appenzell	11,357	11,932	26,112	26,432	54,600	54,600
AR	Herisau	17,687	22,532	39,912	50,099	89,600	111,799
BE	Bern	15,395	16,694	38,404	42,243	92,499	97,552
BL	Liestal	12,062	12,282	33,412	33,732	95,600	95,600
BS	Basel	20,562	20,782	47,062	47,382	99,750	99,750
FR	Fribourg	22,352	23,112	55,852	56,712	122,540	123,080
GE	Genève	14,728	16,812	35,873	39,389	80,512	85,043
GL	Glarus	15,362	15,582	33,412	33,732	69,200	69,200
GR	Chur	10,862	11,082	24,412	29,432	60,600	60,600
JU	Delémont	17,722	21,674	39,660	48,461	83,222	101,204
LU	Luzern	17,385	18,425	40,560	41,700	86,598	87,418
NE	Neuchâtel	18,081	19,940	42,137	42,928	87,664	88,545
NW	Stans	17,451	18,085	38,417	38,737	79,210	79,210
OW	Sarnen	16,610	16,830	35,908	36,228	74,192	74,192
SG	St. Gallen	16,612	18,112	35,912	38,792	74,200	79,320
SH	Schaffhausen	12,309	13,685	29,617	29,937	61,610	61,610
SO	Solothurn	15,871	17,563	37,537	38,326	78,388	78,388
SZ	Schwyz	10,217	15,667	34,429	46,288	96,130	114,250
TG	Frauenfeld	16,862	19,692	36,412	41,952	75,200	85,640
TI	Bellinzona	13,312	13,532	29,312	36,604	81,191	142,223
UR	Altdorf	13,075	13,295	28,837	29,157	60,050	60,050
VD	Lausanne	23,103	26,827	57,196	63,490	130,207	136,179
VS	Sion	15,486	15,944	45,258	46,291	101,400	103,000
ZG	Zug	12,144	12,539	29,903	30,019	64,351	64,147
ZH	Zürich	14,762	17,260	41,410	56,338	130,003	160,882

Source www.taxware.ch

are allowed no earlier than five years before reaching the regular AHV retirement age (i.e., no earlier than 59 years for women and 60 years for men) and, if still working, no later than five years after retirement age. Earlier withdrawals are possible but only for a restricted set of purposes. For instance, Pillar 3a funds may be used

- for buying into the second pillar
- in case of disability
- if a person becomes self-employed
- if a person changes his/her self-employed activity

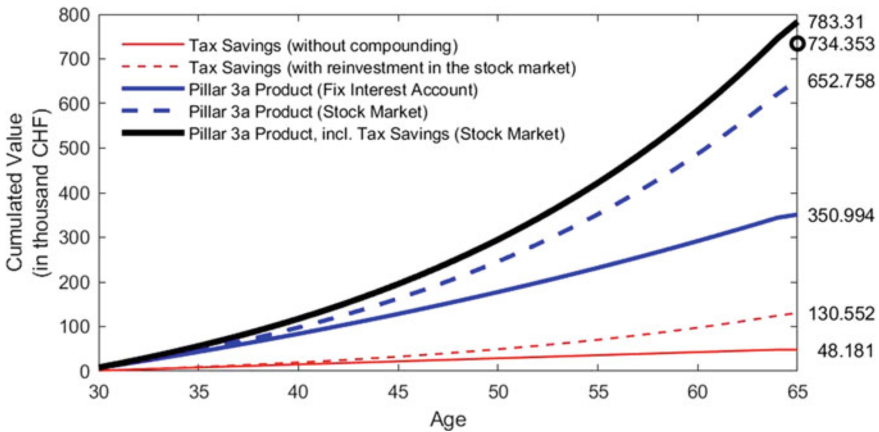

Fig. 21 Development of Pillar 3a savings. *Source* Own plot based on regulatory data and plausible assumptions. In particular, a consumer with a marginal income tax rate of 20% is assumed to invest an annual amount of 6,883 francs (currently the maximum investible amount for employees) for a period of 35 years (from age 30 to age 65) into Pillar 3a products. Fixed interest accounts are assumed to yield an average rate of return of 2% while stock-market products are assumed to yield a rate of return of 5%

- if a person leaves Switzerland
- for buying a house or paying back a mortgage.

In all these cases, the funds are taxed similar to Pillar 2.

6 Consumer-Related Issues

This section is dedicated to specific aspects of the Swiss pension system where consumers' decisions (be they passive or active) can have far-reaching consequences on their financial situation upon retirement.

6.1 The Interaction of the Three Pillars

As mentioned, the first two pillars of the Swiss pension system are designed to offer an overall replacement rate of approximately 60% (between 50 and 70%) of the last salary. To address this goal and avoid situations of pronounced under- and overinsurance, a sensible interplay between AHV and BV is necessary. This balance requires the coordination of the (i) participation rules, (ii) minimum contribution requirement, and (iii) benefits in the first two pillars of the Swiss pension system.

Figure 22, shows in a stylized but realistic fashion the relationship between the (last) annual salary and replacement rates delivered by AHV, BV, and (possibly) voluntary Pillar 3 savings for different income levels. Several general aspects are worth considering.

First, the replacement rates deriving from AHV decrease as income increases. In fact, for salaries below the minimum annual full AHV pension of 14,340 francs, the entire income will be replaced by pension proceeds deriving from AHV only. This is precisely the reason why low-income individuals are not required to participate in the second pillar, as this would generate a situation of overinsurance.

Second, the replacement rates deriving from BV are a nonmonotonic function of income: they increase up to the BV upper threshold of 86,040 francs and decrease thereafter. Importantly, it can be noted that up to this (substantial) BV-upper-threshold income a replacement rate of approximately 70% (in any case well above the targeted 60%) is reached, which complies with the explicit goals of the Swiss pension system and underlines the successful integration of the different pillars. In particular, for income levels between the maximum full AHV old-age pension (28,680 francs) and the BV upper threshold (86,040 francs), as income increases the lower AHV compensation rate is almost fully compensated by the higher BV compensation rate.

Third, above an income of 86,040 francs the replacement rates of both AHV and BV decrease. While it is arguable that securing a fixed percentage of the last salary is less important for higher-income individuals, high-income consumers who wish to obtain similar replacement rates as lower-income individuals should be aware that this is only possible by investing additional funds into the third voluntary pillar.

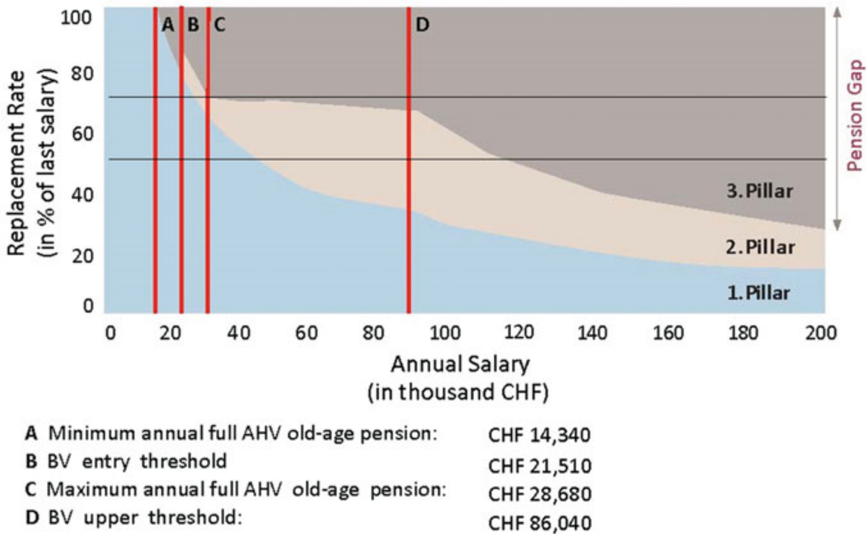

Fig. 22 Replacement rates of combined AHV and BV old-age pensions. *Source* Own plot based on AHVG and BVG as well as brochures provided by commercial banks and insurance companies

Finally, it is important to stress that all the considerations above are made under a number of assumptions. Specifically, that (i) individuals have a full history of contributions, (ii) pension funds adhere to the minimum standards and do not offer additional benefits to insured individuals (both in terms of contributions and rates of return), and (iii) the individuals' AVH earnings are constant over time. As several assumptions are unrealistic (especially the constant income over the life-cycle), it is worth asking the question of whether the theoretical replacement rates will materialize in practice. With this goal, Zainhofer (2008) runs a simulation exercise by modeling realistic earnings profiles for different categories of individuals who match basic stochastic properties of empirical income data. His analysis reveals some interesting findings. For instance, by measuring replacement rates using the *last* salary in the denominator, the replacement rates become very dispersed across individuals. In contrast, when measuring replacement rates using the *average* lifetime income in the denominator, the replacement rates are much more homogenous across individuals and in line with the predictions of Fig. 21. Thus, while it may be more sensible to measure replacement rates using the average income in the denominator of the formula (even as a political goal), even a deeper and more realistic analysis of individual outcomes reveals that the Swiss pension system provides a sensible integration of AHV and BV old-age pensions.

According to a study conducted by the Federal Statistical Office,[24] 13.6% of all Swiss residents aged 65 or older have an income below the poverty line. This percentage is higher among consumers (i) who are older than 75 years (16.9%), (ii) who do not have a postcompulsory education (19.1%), and (iii) whose main income source is the first pension pillar (23.9%). Fortunately, in the Swiss system, consumers whose income is not sufficient to cover basic needs are entitled to receive so-called supplementary benefits. In any case, the percentage of old-age people who receive supplementary benefits is an indicator of poverty. This percentage is higher for women than for men and increases with age.

6.2 Decisions Related to Voluntary Pillar 3 Savings

With respect to Pillar 3a savings/investments, consumers have substantial freedom and, therefore, must make a number of important decisions, such as (i) the amount invested each year, (ii) the choice between bank accounts and insurance policies, (iii) the specific institution(s) providing the investment solution, and (iv) the choice between low-risk interest-bearing investments and higher-risk investments in a mix of market securities.

[24] Poverty in old age, 2020 update, Federal Statistical Office: https://www.bfs.admin.ch/bfs/en/home.assetdetail.14819395.html.

6.2.1 How Much to Invest Every Year in Pillar 3a Funds?

The amount individuals may invest each year in Pillar 3a funds ranges from zero to a given maximum value: (i) 6,883 francs for people *with* a Pillar 2 affiliation and (ii) the minimum of 20% of the annual gross salary subject to AHV contributions and 34,416 francs for people *without* a Pillar 2 affiliation (e.g., some self-employed persons). Given that Pillar 3a savings reduce the taxable income on a 1:1 basis, consumers are well advised to invest the maximum amount every year, whenever possible. Pillar 3a investments have additional tax advantages. First, the interest, dividends and capital gains of Pillar 3a investments are not taxed (apart from the final capital withdrawal tax). Second, unlike other assets (e.g., real estate and financial securities), the accumulated capital is not subject to the Swiss property tax. Thus, investing the maximum amount in Pillar 3a products seems, whenever possible, reasonable investment advice.

6.2.2 Banks or Insurance Companies?

With respect to the choice between bank accounts and insurance policies, it is more difficult to provide one-size-fits-all advice. Nonetheless, as the two forms of investment have distinctive features, it is possible to provide sensible guidelines or simple rules of thumb for this decision. Depending on the specific needs and preferences of consumers, one choice can be preferable to the other.

Banks offer three types of Pillar 3a products—in increasing order of risk/expected returns: (i) pension accounts with a fixed interest rate that resemble bank deposits, (ii) structured pension solutions with capital protection, and (iii) security savings accounts that invest the funds into a mix of financial securities. Given the current low interest-rate environment, classical pension accounts do not seem to be very attractive despite their low risk.

Insurance companies offer an even wider range of financial products that can be broadly divided into two categories: (i) retirement insurance contracts with a fixed interest rate on the invested capital (*Vorsorgepolice* 3a) and (ii) fund-related retirement insurance contracts (*Fondsgebundene Vorsorgepolice Fonds*). The former combine risk protection against disability and death with guaranteed retirement capital. The latter combine risk protection against disability and death with investments in financial securities. In the case of invalidity, a predetermined monthly pension is granted. In the case of death, a prespecified sum is paid out.

Thus, while bank solutions have only the goal of providing funds upon retirement, solutions of insurance companies focus on both providing funds upon retirement and offering protection against adverse events, specifically death and invalidity. The additional insurance protection, however, is not free and means that parts of the contributions do not flow into increasing the future retirement pension, but rather serve as compensation for the insurance provided. Furthermore, insurance protection demands that consumers' contributions to the insurance pension plan be fixed at

the signing of the contract and that they be mandatory until retirement. These requirements reduce the flexibility of consumers in changing their contributions depending on their financial situation (as it is possible in the case of bank products). This also implies that a premature withdrawal of funds—which is allowed in special situations (e.g., for financing of owner-occupied housing, for the repayment of mortgages, when leaving Switzerland, etc.)—is much costlier for Pillar 3a investments in insurance policies than it is for bank products.

In summary, bank products are preferable with respect to their flexibility in terms of annual contributions and early withdrawal in special situations. Despite their lower flexibility and portability, products of insurance companies may be appealing to individuals who have strong insurance needs, e.g., single earners with a young family and mortgage-financed home ownership, and/or have (behavioral) issues with self-commitment and rigor in financial matters.

6.2.3 Which Specific Financial Institution?

When choosing specific institutions for Pillar 3a investments, one has to consider the specific features and conditions of their financial products. For instance, some institutions may offer accounts with a higher allocation to equities, which increases the risk but also the expected reward of the investment. Given the high degree of financial innovations in Pillar 3a products offered by banks and insurance companies, a screening of the market in search of the most attractive packages is advisable. For instance, in recent years innovative startups, such as VIAC, have launched smartphone-based apps with fully digital client onboarding as well as online handling of contributions and tax-relevant certificates.

6.2.4 How Many Pillar 3a Accounts to Open?

It is worth mentioning that the number of Pillar 3a institutions or products a person can invest in is not limited by the regulator. In fact, having several Pillar 3a accounts is advisable for the following three reasons. First, as the withdrawal of funds from Pillar 3a accounts can (sometimes) only be done in full and the withdrawals are subject to progressive taxation, having several Pillar 3a accounts offers the flexibility to close single accounts in a staggered fashion, thereby reducing the overall tax burden. Second, in the case of overall Pillar 3a investments that exceed the state deposit insurance threshold of 100,000 francs, spreading the Pillar 3a savings across several accounts of different institutions allows consumers to benefit from full insurance against bankruptcy, i.e., even beyond 100,000 francs. Third, as Pillar 3a solutions of banks and insurance companies differ and have each their own merits and drawbacks, a consumer may optimally decide to invest in both types of accounts and thereby benefit at the same time from the protection offered by insurance companies and the withdrawal flexibility of banks.

6.3 International Mobility

As described in Sect. 1, Switzerland is a small, prosperous, market-oriented economy with a flexible labor market and, therefore, also rather high immigration and emigration rates. For instance, from 2011 to 2019, every year an average of 294,161 people, or 3.54% of permanent residents, either immigrated into or emigrated out of Switzerland. Given this high rate of international mobility, it is important for individual consumers to understand how their pension benefits are affected by the decision to move in or out of Switzerland.

6.3.1 Pillar 1: AHV

Persons who leave Switzerland and have made contributions to the AHV system are entitled to obtain either (i) a (partial) old-age pension upon retirement (in accordance with their years of contributions and average income while in Switzerland) or (ii) immediate reimbursement of their contributions (a refund of up to 8.7% of the total gross income: 4.35% related to the personal contributions and 4.35% to the employer's contributions, but without interest). The former case (old-age pension upon retirement) applies to nationals of countries with Swiss nationals and individuals from EU/EFTA countries. The latter case (immediate withdrawal) applies to nationals of countries with which Switzerland has no social security agreement or that have a social security agreement that allows it (however, their claim on an old-age pension terminates).[25] Furthermore, consumers who move out of Switzerland to live permanently in EU/EFTA countries cease to be entitled to make voluntary contributions to AHV and thus will not be able to achieve the full AHV pension, which is something that should be considered in their financial planning. On the other hand, consumers who move to EU/EFTA countries still have the opportunity to pay voluntary AHV contributions, provided that they have paid compulsory contributions for at least five years without gaps and that they apply within 12 months after leaving Switzerland. This opportunity is very appealing and should be taken into serious consideration. In fact, from a purely financial perspective, investing ca. 500 francs per year for securing even the minimum AHV full pension of currently 1,185 francs per month (instead of receiving a partial AHV pension reduced by at least 2.3% for every year of missing contributions) seems to be a sweet deal.

Upon retirement, recipients of AHV pensions may freely choose their payment address, either in Switzerland or abroad, and will typically receive their old-age pension in the national currency of their country of residence. The flexibility of obtaining their old-age pension abroad offers the opportunity for Swiss nationals to retire in countries with a mild climate and low cost of living. Similarly, many foreigners who have been working for a lifetime in Switzerland often decide to spend their retirement in their respective countries of origin. However, it must be noted that

[25] The refund request has to be submitted to the Swiss Compensation Office within a year from departure.

supplementary benefits[26] beyond old-age pensions are lost if the recipients decide to leave Switzerland.

Persons who migrate to Switzerland start being part of the AHV system, but have the disadvantage of not having paid contributions in the past. This reduces their expected pensions, as it hinders them (regardless of their income) from aiming at the full AHV pension. This disadvantage combined with the high price level in Switzerland may pose an economic hurdle to potential immigrants who are already in their forties or older. However, as a general rule, Swiss and foreign pensions are granted independently and can be cumulated. Thus, an immigrant may have paid contributions to a foreign social system and obtained an old-age pension from it that would increase her overall income upon retirement.

6.3.2 Pillar 2: BV

If a Swiss citizen or a person from EU or EFTA countries leaves Switzerland, the funds that were thus far mandatory invested in an occupational pension fund are transferred to a so-called benefit account (*Freizügigkeitskonto*)[27] and may generally only be accessed in the form of a pension or lump-sum payment once retirement is reached.[28] Exceptions to this general rule exist (i) if an invalidity pension starts being paid out, (ii) for financing an owner-occupied residential property, or (iii) when starting a a self-employed business activity. Nonetheless, the "supermandatory" part of BV savings can be immediately withdrawn upon departure. In contrast, when leaving Switzerland, persons of non-EU and non-EFTA countries may withdraw all their Pillar 2 funds (mandatory and supermandatory). Any fund withdrawals are subject to a canton-specific withholding tax.

Conversely, if a person moves to Switzerland from abroad (and starts working for a Swiss employer), the contributions to previous foreign occupational pension funds are not considered. However, this person is entitled to buy into the Swiss pension fund (and compensate for the lack of contributions in the past years) in accordance with the fund's rules.

6.3.3 Pillar 3a

When leaving Switzerland, emigrants have the right to withdraw their Pillar 3a savings regardless of the specific country they are from or move to. However, also

[26] As explained in Sect. 3, supplementary benefits (*Ergänzungsleistungen*) aim at providing assistance when one's own income and pensions received are not sufficient to cover minimum living costs.

[27] Currently, banks allow consumers to choose between benefit accounts with a fixed interest rate and benefit accounts that invest in financial securities according to a certain asset allocation. Given the current low interest rate environment, the latter solution is most likely preferable in spite of its higher risk.

[28] Retirement may be anticipated by up to five years.

upon withdrawal of Pillar 3a funds a withholding tax is also due. As this tax depends on the canton where the Pillar 3a institution is incorporated, it can be optimal to transfer the funds to a Pillar 3a account of a financial institution incorporated in a low-tax canton before leaving Switzerland. Furthermore, withdrawing the funds before leaving Switzerland is suboptimal as the withholding tax applied on Pillar 3a disbursements after leaving Switzerland is typically lower than the one applicable to early Pillar 3a withdrawals.

Persons moving to Switzerland can start investing in Pillar 3a. However, they did not have the opportunity to do so before and there is no way to benefit retroactively from this opportunity.

6.4 Marriage and Divorce

In Switzerland, marriage and divorce can have important consequences in terms of pension benefits. In the case of AHV (Pillar 1), the pension of each individual is a function of his/her contributions (number of years with contribution and total amount of contributions). Nonetheless, upon marriage, the two incomes are summed up and half of this sum is attributed to each individual account. This procedure is called "splitting."[29] Thus, for the duration of the marriage there is a complete equalization of AHV contributions, which, in mere economic terms, favors the economically weaker partner and disfavors the economically stronger partner. In the case of divorce, individual pensions are calculated based on the split contributions accumulated during full marriage years.

Furthermore, as married couples may receive AHV-pensions no larger than 150% of the maximum AHV-pension, i.e., currently, 3,555 francs (the so-called marriage cap), the consequences of a marriage are nontrivial. On the one hand, the 150% cap per se represents a clear disadvantage for married couples (if compared, all else being equal, to nonmarried partnerships), at least for all those married couples that reach (based on their individual contributions) an average of 75% (half of 150%) of the full rent. On the other hand, despite the 150% marriage cap, unlike singles, married individuals benefit from a state life insurance. Immediately upon the death of an AHV insured person, the surviving spouse receives a widow's/widower's annuity, which currently ranges from 956 francs to 1,912 francs per month, depending on the (deceased) spouse's average contribution/income over the years. Additionally, the widow's/widower's old-age rent is increased by 20% (up to a maximum individual AHV rent of currently 2,370 francs).

In the case of both BV (Pillar 2) and Pillar 3 savings, marriage generates an additional life insurance in favor of the partner in the form of a transfer of accumulated funds (in the event of death). However, in the case of divorce, the contributions of

[29] Splitting is not done automatically. It is, however, carried out (i) in case of divorce, (ii) once both partners reach retirement and are entitled to receive an old-age pension, or (iii) if a partner dies and the surviving partner already receives an old-age or invalidity pension.

the two partners during the years of marriage are summed up and half of this sum is attributed to each individual (splitting), either by transferring the compensation amount from the pension fund of the economically stronger partner to the pension fund of the economically weaker partner or (in the absence of a BV pension account) by transferring the funds to a benefit account (*Freizügigkeitskonto*). Thus, in mere economic terms, a marriage that ends in a divorce favors the economically weaker partner and disfavors the economically stronger partner.[30] More generally, divorce may reduce the expected old-age pensions precisely in a situation when expenses are likely higher due to the need to run separate households.

6.5 Regular BV Pension or Lump-Sum Withdrawal?

Before retirement, Swiss consumers must decide how they wish to benefit from their lifelong savings in their occupational pension funds. Three options are available: (i) a fixed monthly pension paid out until death, (ii) a lump-sum capital withdrawal, and (iii) a combination of pension and capital withdrawal. The best decision for Swiss consumers depends on their personal preferences and individual situation. In the following, we briefly discuss the advantages and disadvantages of each solution.

The fixed pension has the advantage of offering consumers a high level of planning security because a fixed monthly amount is secured until death. With this option, *longevity "risk"* is borne by the pension fund and not by consumers. Clearly, the financial attractiveness of fixed pensions crucially depends on the conversion ratio and the individual life expectancy. Currently, the conversion ratio is set by law at 6.8% for all the mandatory savings. However, it is much lower for supermandatory pension savings. For instance, in 2022, an average conversion ratio of 5.5% on all pension savings (i.e., mandatory and supermandatory savings taken together) is realistic. Thus, pension savings worth 500,000 francs would be translated into an annual (monthly) pension of 27,500 francs (2,292 francs).

On the negative side, fixed pensions offer a lower payout and rather weak financial support for the survivors who live in the same household. In particular, in the case of death only 60% of the total occupational pensions are typically transferred to the spouse. Thus, especially if the individual life expectancy is not assumed to be high, a lump-sum withdrawal might be the better option.

Second, with fixed pensions, consumers have to deal with the *risk of inflation*. In fact, while inflation is typically low in Switzerland, pension funds are not obliged to adjust pensions to the higher costs of living.

Third, with lump-sum withdrawal, consumers obtain immediate and full retirement control of their pension savings, which offers them a great deal of flexibility along a number of dimensions. For instance, consumers can invest the funds according to a desired portfolio allocation, realize a major project (e.g., the purchase

[30] However, the economically weaker partner faces the risk of being unable to make pension contributions in the years following divorce, which may reduce his/her pension.

of a boat for a world trip), or ensure that their descendants receive a substantial inheritance. Importantly, in the event of death, the pension savings pass on fully to the heirs, which, as mentioned, does not happen with fixed pensions.

Fourth, since the tax applied to the one-time capital withdrawal is typically lower than the income tax rate applied to fixed pensions, the former may offer a tax advantage over the latter.

On the negative side, dealing with a large amount of capital may pose challenges to consumers: they are financially empowered but also bear the responsibility of having to manage their savings. Consumers with limited financial literacy and/or who suffer from self-commitment issues may feel uncomfortable with this solution. They may prefer fixed pension payments or, at least, want to rely on the guidance of financial advisors, such as banks or dedicated platforms.[31]

6.6 Reverse Mortgages in Switzerland

Similar to a regular mortgage, in a reverse mortgage, a financial institution provides a loan (to a homeowner) that is secured by the homeowner's property. Thus, a reverse mortgage allows homeowners to convert (part of) their real-estate equity into cash. However, unlike in a regular mortgage, interest costs are immediately deducted from the granted loan rather than charged periodically afterwards. In Switzerland, this has the additional advantage that reverse mortgages do not have to comply with the strict regulatory affordability requirements of standard mortgages.[32] Thus, in principle, homeowners could use reverse mortgages to benefit from the high level of real-estate prices in Switzerland and improve their financial situation during retirement. Nonetheless, in quantitative terms reverse mortgages do not currently play a particularly important role in Switzerland. This has several reasons. First, by international comparison, homeownership rates in Switzerland are 43% (average between 2010 and 2019), which is very low. Second, as the Swiss tax system allows deductibility of interest payments on mortgages, very few households pay back their mortgages. Thus, equity stakes are comparatively low, and the scope of reverse mortgages during retirement is limited. Third, reverse mortgages are simply not very well known or understood by Swiss consumers, and thus, few financial institutions offer them. As consumers will likely experience increased financial empowerment in the future and will have to find private solutions for improving their financial situation during retirement, it is well possible that reverse mortgages will become more popular among retirees.

[31] An example of a digital platform dedicated to the management of pension savings withdrawals as lump-sum payments is Plattform Säule Schweiz (PSS).

[32] Based on regulatory requirements set by the Swiss Financial Market Supervisory Authority (FINMA), financial institutions may provide mortgages up to 80% of the real-estate value only if the sum of interest expenses—calculated with a hypothetical mortgage interest rate of approximately 5%—and maintenance & incidental expenses—usually calculated as 1% of the real-estate value—do not exceed one-third of the homeowners' income (affordability requirement; *Tragbarkeit*).

6.7 De Lege Lata *Versus* De Lege Ferenda

In the last section, it is worth discussing possible reforms of the Swiss pension system. Given the steady increases in life expectancy and the persisting low-interest-rate environment, the need for reforms in the first two pillars is largely acknowledged.

As mentioned, the first pillar of the Swiss public pension system (AHV) is a pay-as-you-go system. Thus, it is intrinsically subject to imbalances due to the aging population. In recent decades, the ratio of AHV total expenses to GDP has been rising but rather moderately (from approximately 5.5% to approximately 6.4% in the last 40 years). Nonetheless, tax-based transfers of the Federal State to AHV have been increasing and, under the current regulatory regime, are expected to increase even further.

The second pillar of the Swiss pension system has been criticized for offering limited flexibility (e.g., with respect to investment choices) and is heavily plagued by the persistence of unattractive investment conditions on capital markets (low interest rates). In particular, the fact that pension funds have to guarantee a minimum rate of return on (mandatory) members' contributions and that, upon retirement, the conversion factor of those funds into annual BV pensions is fixed (for the mandatory part) at currently 6.8% causes a redistribution of wealth from the younger working generation to the retired population. This imbalance will worsen in the years to come if no countermeasures are taken.

As participants in an established and well-functioning direct democracy, Swiss citizens have the right and the (moral) duty to take part in important political decisions of general interest. In particular, by collecting more than 50,000 valid signatures the Swiss population has the possibility of challenging in an optional referendum new laws, including those that deal with reforms of the pension system. In fact, historically few topics have mobilized Swiss citizens in a manner comparable to the reforms of the pension system.

The need for reforms (even if not very dramatic ones) is undisputed and widely acknowledged. The challenge, however, is to design an overall pension reform package that has the chance of passing the scrutiny of the Swiss population in the optional referendum. Likely measures to make the Swiss pension system more sustainable include (i) the increase of retirement age (e.g., by linking it to life expectancy), (ii) additional means of financing for the first pillar (e.g., an increase of VAT), (iii) a reduction of the conversion ratio for BV pensions, (iv) higher contribution rates, (v) an earlier mandatory contribution age, (vi) higher flexibility in the retirement age (with appropriate incentives), and other minor adjustments.

While the quality of institutions is high in Switzerland, increased political polarization in the Swiss population has deteriorated the capability and willingness to make compromises. As several attempts to reform the system have not passed the scrutiny of popular voting in optional referenda, the exact shape of the reform will be the result of intense political negotiations that are still to come. In this respect, the Swiss executive power (Bundesrat) is continuously working to find viable solutions for reforming the Swiss pension system.

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The Korean Pension System

Young-Man Lee, YoonSu Kim, and Man Cho

Abstract Since its inception in 1960 only for government officials, the pension system in Korea has evolved into a more inclusive one by continuously expanding its coverage, to career soldiers in 1963, to the private school teachers and staff in 1975, to the post office employees in 1982, to the entire private sector workers in 1988, and to the self-employed persons in 1999. Currently, the system takes a typical multi-tier structure: namely, the tax-based mean-tested public assistance programs; the contribution-based public pension programs for all private-sector employees; and, the private retirement and personal savings programs. However, the system still lags other advanced economies in several aspects: for example, the relatively low income replacement ratio of 43.4% (the 69% on the average in the US, Japan, Germany, UK, and France); the low contrition rate of 9% versus 20.5% in those five; and, the low subscription rate for the private pension (16.9% vs. 54.3%). Going forward, the system is assessed to be vulnerable to the rapid population aging, the demise of the traditional family-support for elderlies, and the growing financial burden for future generations, for which we discuss several potential remedies, including the home pension program.

Y.-M. Lee (✉)
Hansung University, Seoul, Korea
e-mail: ymlee@hansung.ac.kr

Y. Kim
Korea Housing Finance Corporation, Busan, Korea
e-mail: yskim@hf.go.kr

M. Cho
School of Public Policy and Management, KDI, Yeongi-gun, Korea
e-mail: mancho@kdischool.ac.kr

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1 Introduction

Since the initiation of a limited program for public sector employees in 1960, the pension system in Korea has continuously evolved over time into a fairly comprehensive multitier one that includes various public and private pension programs covering retirees from different employment categories. Nonetheless, the system is shown to be vulnerable to a number of potential shocks, both demographic and financial in nature, such as the on-going phase of population aging (which represents one of the fastest, if not the fastest, one in the world), the intergenerational shift of the burden of pension contributions along with the expected depletion of the public pension fund (unless some reform is instituted prior to that), and the fairly low or minimal coverage of the pension benefits for certain segments of the population. Another defining characteristic of retirees in the country is the fact that their household portfolios very much fit to the descriptor of "asset-rich-cash-poor," i.e., generally high levels of real (often illiquid) assets such as houses and other real estate but low levels of disposable income from the pension and other sources.

The Korean economy has fairly continuously grown since the early 1960s, converting the country from one of the poorest agrarian societies with a per capita GDP less than US$100 to one of the most industrialized economies with an income level over US$30,000. In the course of the transition, the support system for the elderly population has also been changing from a family-based system, in which sons, usually the eldest in a family, care for their aged parents financially, to a more personal savings and pension-based system. Nonetheless, the pension system in the country still lags and is less complete compared to those of advanced countries, as evidenced by the fact that the income replacement ratio (by both public and private pensions) is 43.4%, which is 32nd among the OECD countries and much lower than the 69.5% observed from the five most advanced countries (i.e., the US, Japan, Germany, UK, and France); the subscription rate for the private pension is only 16.9% (among those 15–64 years old), compared to 54.3% in the same five countries; the starting age for the public pension program is currently 62 years old (compared to 67–75 in the five countries) and the contrition rate is 9% (20.5% in those five), which is more generous from the viewpoint of financial consumers; however, the funds for the four major public pension programs are expected to be depleted in 2055, 33 years from today, according to government predictions, which makes it warranted to have timely reform of the system.[1] In this chapter, we discuss key details of the Korean pension system along with a series of consumer-related issues observed from the Korean experience.

[1] The data used in this paragraph are from the Korea Economic Research Institute (2021).

Table 1 Population aging in Korea

	1960	1980	2000	2020	2040	2060
Population (A)	24,989,241	37,406,815	45,985,289	51,780,579	50,855,376	42,837,900
15–64 (B)	13,885,776	23,304,920	32,972,859	37,358,309	28,649,225	20,577,989
65+ (C)	935,006	1,446,114	3,371,806	8,125,432	17,223,537	18,814,555
C/A	0.037	0.039	0.073	0.157	0.339	0.439
C/B	0.067	0.062	0.102	0.217	0.601	0.914

Note Forecasts after 2020
Source Statistics Korea, Future population estimation, 2019

2 Demographic Trends of Relevance

Korea is a country where the current phase of population aging is one of the fastest, if not the fastest, in the world. To illustrate, in 2000, the ratio of the population aged 65 years or older to the total population reached 7.3%, and in 2017 this ratio reached 14%, doubling within only 17 years. As of 2019, 15.1% of the total population (51,779,000 people) were 65 years or older. Korea is expected to enter a superaged society when this ratio exceeds 20% by 2025, which is further projected to reach 34% in 2040 and 44% in 2060.[2]

The ratio of the population aged 65 years or older to the working-age population (15–64 years old) is similarly increasing very rapidly; that is, the ratio was 20.8% as of 2019, and is forecasted to be 29.3% in 2025, 60.1% in 2040, and 91.4% in 2060. By 2060, the elderly population aged 65 or older will be similar to the working age population (Table 1).

This rapid rate of population aging is due in large part to two main factors—the lengthening lifespan and the lowering birth rate. Thanks to the advancement in medical care and the rising income level, life expectancy in the country continues to grow longer, and the rate of women's participation in the labor market also constantly increases, which results in delayed marriage as well as an ever-declining birth rate. Life expectancy increased from 66.1 years old in 1980 to 76 years old in 2000 and further increased to 83.2 years old in 2020. It is expected to reach 86.8 years old by 2040. On the other hand, the total fertility rate of women fell from 2.9 in 1980 to 1.5 in 2000 and to 0.9 in 2020.

In Korea, there has traditionally been a family-based support system for elderly citizens. That is, it was usually the case that sons, the eldest in particular, supported their aged parents, and parents usually invested heavily in education for their children when they were young. The success of the children was that of the parents, and parents also inherited real estate and other assets from their children.

Currently, the elderly in Korea qualify as "house-rich-cash-poor" households. That is, they generally have low income but large assets (predominantly as housing and other real assets). For example, the income of elderly households aged 60 or older

[2] Statistics Korea, Future Population Estimation, 2019.

Table 2 Annual income of elderly households aged 65 or older by age, 2017 (in 10,000 Korean won)

	Total income	Earned income	Business income	Asset income	Private transfer income	Public transfer income	Private pension income	Others
Average	2,589.7	885.7	338.8	224.1	392.4	710.4	15.4	22.6
65–69 years old	3,055.3	1,158.4	515.0	221.0	306.1	814.5	13.7	26.7
70–74 years old	2,502.6	792.6	299.0	251.7	375.1	746.8	14.5	21.6
75–79 years old	2,324.8	706.3	271.1	233.6	473.1	605.5	14.8	20.3
80–84 years old	2,050.2	631.2	154.3	174.6	481.6	569.2	14.5	24.7
85 years old +	2,565.5	959.9	238.4	208.1	432.2	686.8	27.3	12.7

Note As of 2017, 10,000 Korean won was about $8.846 in U.S. dollars
Source Ministry of health and welfare, Elderly survey 2017, 2018

Table 3 Income poverty rates by age, 2016

	Aged over 65	Age 65–75	Aged over 75	Total population
Income poverty rates* (%)	43.80	35.50	55.90	17.40

Note income poverty rate is percentage with income less than 50% of the median equivalized household disposal income
Source OECD, Pensions at a Glance 2019, 2019.11

is 66% of the average household income. However, older households have more assets than the average household assets. Of the assets owned by elderly households, 81% are real estate assets, and 54% are houses.

The older the head of the household is, the lower the household income becomes. According to the 2017 Survey on the Elderly, elderly household income gradually decreases with age. Of the total income, the proportion that depends on private transfer income is approximately 15%, and the proportion that depends on public transfer income is approximately 27%. Older people are more dependent on private transfer income than on public transfer income.

The poverty rate of elderly households is the highest among OECD countries. As of 2016, the rate of households aged 65 or older with incomes less than half the national median equivalized household disposable income is 43.8%.[3] In elderly households aged 75 or older, the poverty rate is 55.9% (Tables 2 and 3). (However, this poverty ratio is purely based on household income and does not reflect the asset-rich nature of Korean elderly households.)

[3] The equivalized household income means the household income calculated for each size of household by reflecting the income disparity among the households of respective sizes.

As one important demographic trend to note, the traditional family-based parental support system has currently almost collapsed in the process of urbanization and industrialization during the last several decades. Families became small-scale nuclear families, and condominium-type high-rise apartment buildings suitable for nuclear families were the dominant type of residential property. In addition, as women participated in economic activities, the spouse of a male child became more unable to take care of her husband's parents.

The current elderly are the generation who support their parents and invest a lot of money in the education of their children but cannot receive support from their children. The elderly have many assets, such as real estate, to pass on to their children, but they have not been able to prepare an adequate pension for their life after retirement. As a result, the current elderly generation, those who are in their 50s–70s, can be characterized as the transitional "house-rich-income-poor" generation (Lee et al., 2016).

3 Korea's Pension System and Its Historical Development

3.1 Overview of the Pension System in Korea

The Korean pension system consists of two main components—public pensions and private pensions. Public pensions consist of three elements: the Basic Pension, the National Pension, and special occupational pensions. In addition, there is a social assistance program provided to households with incomes lower than a certain amount under the National Basic Living Security Act. Private pensions include various components—retirement pensions and personal pension savings, as well as the Home Pension and the Farmland Pension, which are the same as the reverse annuity mortgages backed by housing or farmland.

According to the recommendations of the OECD and others (OECD, 2013; International Labor Office, 2018), Korea also has a multitiered pension structure. Public assistance and the Basic Pension are located on the 0 floor (0 tier). Both public assistance and the Basic Pension are financed by general taxes. Public assistance is paid to households with incomes lower than a certain amount. Since a large portion of low-income households are aged 65 or older, elderly households benefit from public assistance. The Basic Pension is paid to the elderly aged 65 years or older who are below 70% of the median income level. Public assistance and the Basic Pension can be paid to eligible means-tested persons or households.

The first floor (first tier) consists of the National Pension and public occupational pensions. The National Pension and the public occupational pensions are operated as a funding system that pays benefits from the contributions of insured persons. However, when the reserve is depleted, the government is required to cover the shortfall with general taxes. For this reason, it is fair to say that the National Pension

and the public occupational pensions are being operated as a partially funded system by the national government.

The public occupational pensions consist of the Public Officials Pension, the Military Pension, the Special Post Office Pension, and the Private School Teachers and Staff Pension. Persons working in the included job categories are obligated to enroll in the pension for their respective occupation. In the Public Officials Pension, the Military Pension, and the Special Post Office Pension, the government and insured persons (public officials, military personnel, and special post office workers) make contributions separately. In the Private School Teachers and Staff Pension, the government, insured persons (teachers, professors, and employees of private school institutions) and private school institutions pay pension premiums separately.

The National Pension Plan targets all citizens over the age of 18 and below the age of 60, excluding public officials, military personnel, special post office workers, and private school teachers and staff. Among them, the employees and employer in workplaces and the self-employed are obligated to participate in the National Pension Plan, and others can also participate voluntarily. The employer pays half of the pension premium for employees in a workplace. The age from which one can start receiving pension benefits is currently 62 with at least 10 years of contributions. The pension age will gradually increase, reaching 65 from 2033.

In the second floor (second tier), there is a corporate retirement pension (corporate pension). Enterprises are obligated to accumulate some money for employees' retirement pay every year by law and must pay the benefit when the employee retires. Enterprises may operate a retirement pension plan instead of accumulating retirement pay by agreement with the employee. Therefore, it is not mandatory and can be selected voluntarily. In the retirement pension plan, an employer pays a pension premium for employees, and employees are annuitants entitled to receive the benefits.

In the retirement pension, the employer pays the pension premium entirely, and the employee becomes the annuitant entitled to receive benefits. Employees can make additional contributions if they want. Employees who have not participated in the retirement pension plan receive a lump sum retirement pay when they retire. The retirement pension plan can only be implemented by employees in a private sector workplace. Civil servants, military personnel, special post office workers, and private school teachers and staff are not eligible to join the retirement pension plan.

Public occupational pensions have the characteristics of a retirement pension. If persons who are working in the public sector retire after working for a certain period of time, they receive retirement pension benefits.

There is a personal savings pension and the reverse mortgages in the third floor (third tier). Anyone can enroll in the personal savings pension, he/she must be enrolled for a certain period or longer, and, at a certain age, they can receive pension benefits for a certain period. Premium payments are borne entirely by individuals, but there are tax reductions or income deductions for premium payments.

A reverse mortgage is a financial product that can be used for living expenses by borrowing a certain amount of money every month by using housing or farmland as collateral, among those who are over a certain age. There is the Home Pension with housing as collateral and the Farmland Pension with farmland as collateral (Fig. 1).

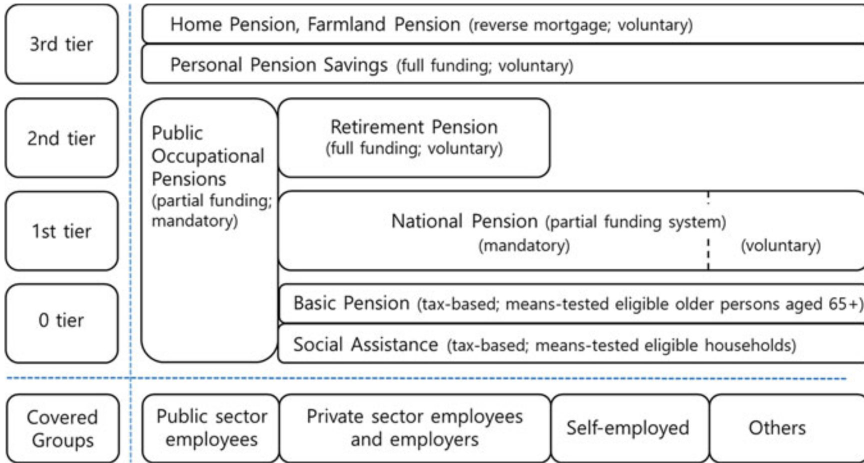

Fig. 1 Pension system in Korea

As of 2019, those who were insured by the public occupational pensions and the National Pension in the first tier included 3.38 million people and 22.21 million, respectively. The total number of insured persons of these two pensions amounts to 25.59 million. As of 2019, the working age population (18–59 years old) was 32.44 million, and those insured by either of the two pensions account for 78.9% of the total working age population. In Korea, people usually get jobs after completing college education, and hence they participate in the National Pension or the public occupational pensions before or after the age of 25. Compared to the population eligible for the National Pension or the public occupational pensions (ages 25–59), approximately 92% of the eligible population are enrolled in both pensions.

As of 2018, the total number of retirement pension participants was 6.1 million people. As mentioned earlier, public occupational pensions also have the characteristics of retirement pensions. Therefore, the number of second-tier pensioners was approximately 9.48 million in total. In addition, approximately 5.66 million people were enrolled in pension savings, 71,000 in the Home Pension, and 14,200 in the Farmland Pension as of 2019.

As of the end of 2019, the number of recipients of public occupational pensions and the National Pension was 5.9 million. Those insured by the public occupational pension and the National Pension start receiving pension benefits between the ages of 60 and 65. As of the end of 2019, the number of people aged 60 and over was 12.23 million, and the number of people aged 65 and over was 8.54 million. The beneficiaries of the two pensions are 48.3% of the population aged 60 or older and 69.1% of the population aged 65 or older. Although the ratio of insured persons of both pensions is high, the ratio of recipients is low because the National Pension plan has been introduced for only approximately 30 years.

The number of beneficiaries of social assistance and the Basic Pension varies every year because only eligible people or households with the right qualifications

can receive benefits. As of 2019, 671,500 people aged 65 or older received the living benefits of social assistance, and 5.31 million people aged 65 or older received Basic Pension benefits. Among elders aged 65 or older who receive a Basic Pension, those whose income, including Basic Pension benefits, does not meet the minimum cost of living are paid living benefits equal to the difference. Therefore, the Basic Pension recipients and the living benefit recipients may overlap (Tables 4, 5 and 6).

Table 4 Enrollment in the public occupational pensions and the national pension in Korea

		Insured persons		Recipients	
		Numbers	Ratio (A/B)	Numbers	Ratio (A/C)
Public occupational pensions	Public officials	1,195.1		535.9	
	Military pension	1,860		95.3	
	Private school teachers and staff	323.7		83.2	
	Special post office	3.5		2	
	Sum	3,382.3		716.4	
National pension		22,216.2		5,190.0	
1st tier (A)		25,598.5		5,906.4	
Working age population (B)	Aged 18–59	32,449.7	0.789		
	Aged 25–59	27,829.6	0.920		
Elderly population (C)	Aged 60 over			12,234.4	0.483
	Aged 65 over			8,545	0.691

Note As of the end of 2019, the unit of insured persons and recipients was 1,000
Source The numbers of subscribers and beneficiaries are from the websites of the respective pension management organizations; the population data are from Statistics Korea, Census 2019 and 2020

Table 5 Enrollment in the public and private pensions in Korea

	Public occupational pension (A)	National pension (B)	1st tier (A+B)	Retirement pension (C)	2nd tier (A+C)	Pension saving	Home pension	Farmland pension
Number	3,382.3	22,216.2	25,598.5	6,105	9,487.3	5,661	71	14.2

Note at the end of 2019. The retirement pension was as of the end of 2018. The unit was 1,000
Source The websites of the respective pension management organizations

Table 6 Number of recipients of social assistance and public pensions

	Living benefits of social assistance	Basic pension	Public occupational pensions (A)	National pension (B)	1st tier (A+B)
Recipients	671.5	5,313	716.4	5,190	5,906.4

Note At the end of 2019. The unit was 1,000
Source The Ministry of Health and Welfare website

3.2 A Historical Review of the Development of the Pension System in Korea

The first public pension introduced in Korea was the Public Officials Pension, which was introduced in 1960. The Public Officials Pension was for civil servants, which included military personnel and public school teachers. The Military Pension, which was intended for career soldiers, was separated from the Public Officials Pension in 1963. In 1975, the Private School Teachers and Staff Pension was introduced. Since private schools were responsible for a large part of public education, the Private School Pension was introduced to provide pension benefits similar to public school teachers to private school teachers (including professors at private universities). In 1978, private school staff members were also able to enroll in private school teachers and staff pensions. In 1982, the Special Post Office Pension was introduced for those who worked at special post offices.[4]

In 1988, the National Pension for all private sector workers was introduced. To settle the pension plan at the beginning, it was decided to gradually expand the subjects of enrollment. When the National Pension plan was introduced, the government made mandatory enrollment subject to workers in private workplaces with 10 or more regular workers. In 1992, the mandatory enrollment subjects were expanded to workers at private workplaces with five or more regular workers. In 1995, self-employed persons in rural areas were expanded to mandatory enrollment subjects, and in 1999, the mandatory enrollment subjects were expanded to self-employed persons in urban areas. In 2003, mandatory enrollment subjects were expanded to private workplaces with one or more regular workers.

At the time of the introduction of the National Pension plan, it was supposed to provide very generous pension benefits to those who were enrolled to promote their enrollment. The replacement rate with 40 years of contributions and the age of 60 reached 70%. The contribution was 9% of income. However, this generous pension plan was not sustainable in the long term and hence it was predicted that the reserves would be completely depleted by approximately 2031. Accordingly, there were two national pension reforms for the long-term sustainability of the National Pension.

The first National Pension reform took place in 1998. In the first reform, the government decided to lower the replacement rate from 70 to 60% and to increase the pension age from 60 to 65 every 5 years from 2013 to 2033. It was decided to reevaluate the fiscal soundness of the National Pension every 5 years. Due to these first reforms, the period of depletion of the National Pension fund was postponed to 2047.

[4] In Korea, a post office is operated by the government. Employees working at the post office are civil servants. When Korea was underdeveloped in the 1960s, it was difficult to provide post office services in mountainous or island areas, so the government allowed licensed civilians to provide post office services on behalf of the government. Such privately operated post offices are called special post offices. Those who operate special post offices and their employees are not civil servants, but have responsibilities and duties similar to those of public officials, and receive financial support from the government.

The second National Pension reform took place in 2007. In the second reform, it was decided that the replacement rate would be lowered from 60 to 50% in 2008 and then by 0.5 percentage points each year, reducing the replacement rate to 40% in 2028. With this reform, the period of depletion of the National Pension fund was extended to 2057. In addition, instead of gradually lowering the replacement rate of the National Pension, it was decided to introduce a tax-based Basic Pension.

Following the second National Pension reform, the Basic Old-Age Pension was introduced in that same year. The Basic Old-Age Pension provided pension benefits to elderly people aged 65 or older who were below 70% of the median income level. Initially, the benefit payment amount was set to 5% of the “A” value of the National Pension (the average monthly income of insured persons for the last 3 years), increasing this to 10% by 2028. In 2014, the Basic Old-Age Pension was renamed the Basic Pension. The recipients of the Basic Pension are the same as those of the Basic Old-Age Pension, but the pension benefits have been changed to a flat rate—254,760 Korean won (KRW) per month in 2020 and 300,000 won per month in 2021.

Social assistance pays low-income people so that they can maintain the minimum standard of living. Social assistance was introduced by the Protection of Minimum Living Standards Act in 1961, and eligible recipients include the elderly 65 years or older, children under 18 years of age, and the disabled without the ability to maintain a living. In 2000, the Protection of Minimum Living Standards Act was abolished, and the National Basic Living Security Act replaced it. Under the new act, the recipients of benefits were changed to households with a recognized income below the minimum cost of living.[5] In 2015, the recipients of benefits were changed to households with a recognized income equal to or less than a certain percentage of the standard median income.[6]

In Korea, the retirement pension, a type of corporate pension, was introduced in 2005 under the Act on the Guarantee of Employees’ Retirement Benefits enacted in that year. Previously, under the Labor Standards Act, employers were required to pay retirement pay to employees when they retire, but since 2005 this can be selectively decided between the retirement pay and the retirement pension plan by agreement between employees and employer.

The personal saving pension plan was first introduced in 1994 under the name of personal pension saving. Interest income from the Personal Pension Savings (PPS) is not taxed, and PPS itself is deducted from personal income tax up to 750,000 won per year. In 2001, the PPS program was terminated, and a new program—the Pension Saving Plan (PSP) was introduced as a replacement. Under PSP, the pension saving contribution is deducted up to 2.4 million won per year. In 2013, the pension saving account was introduced instead of the pension saving account. The pension saving

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[5] The recognized income means the aggregate of the assessed amount of income and the amount of converted income from properties of any individual household.

[6] The standard median income is the median value of the national equivalized household income in Korea: that is, it represents the median income of a four-person household estimated through the household equalization index (which standardizes and reflects both gross income and expenditure for families of different sizes).

account provides a tax deduction of 13.2% of the saving contributions within the limit of 3–4 million won per year. However, the pension benefits are taxed.

In 2007, the Home Pension, a reverse mortgage product with housing as collateral, was introduced. At the time of the introduction, homeowners aged 65 or older could enroll. In 2009, the age at which they could enroll was lowered to 60 and in 2020 it was lowered to 55 again. An enrolled person receives a fixed amount of loan every month, and when he/she dies, the mortgage principal will be repaid with the liquidation of the house used as the collateral.

In 2011, the Farmland Pension, another reverse mortgage product with farmland as collateral, was introduced. In the same way as the Home Pension, a certain amount of loan is provided every month, and when an enrolled person dies, the mortgage principal will be repaid with the liquidation of the collateral. Farmers who are eligible to enroll in the Farmland Pension plan must be 65 years of age or older and have more than 5 years of farming experience (Table 7).

Table 7 History of the pension system in Korea

Year	The development process of the pension system
1960	Introduction of the public officials pension
1961	Introduction of social assistance through the enactment of the Protection of Minimum living standards act
1963	Introducing the military pension separate from the public officials pension
1975	Introduction of the private school teachers and staff pension
1982	Introduction of the special post office pension
1988	Introduction of the national pension
1994	Introduction of the personal pension savings
1998	The first national pension reform
2000	Abolition of the protection of minimum living standards act. Expansion of social assistance by enactment of the national basic living security act
2001	Introduction of the pension savings by replacing the personal pension savings
2005	Introduction of the retirement pension
2007	The second national pension reform. Introduction of the basic old-age Pension. Introduction of the home pension
2011	Introduction of the farmland pension
2013	Introduction of the pension savings account that expanded the pension savings
2014	Introduction the basic pension by replacing the basic old-age pension

Table 8 Household equalization index

	1-person household	2-person household	3-person household	4-person household	5-person household	6-person household	7-person household
Current	0.370	0.630	0.815	1	1.185	1.370	1.556
After 2026	0.400	0.650	0.827	1	1.159	1.307	1.447

Note By 2026, the current index will be gradually adjusted to the new index
Source Ministry of Health and Welfare

4 The Public Pensions

4.1 Social Assistance and the Basic Pension

In Korea, the social assistance program pays benefits to means-tested eligible households in accordance with the National Basic Livelihood Security Act. Benefits are paid to households whose recognized income is less than a certain percentage of the standard median income (the median value of the equalized household income). The household's recognized income is calculated by including not only public pension benefits (the National Pension benefits and the Basic Pension benefits) but also private transfer income. In addition, the evaluated income into which household assets are converted is included in the recognized income. Even if households receive National Pension benefits or Basic Pension benefits, households with a recognized income less than a certain percentage of the standard median income can receive social assistance.

The standard median income is the median value of the equalized household income. It is calculated by multiplying the median income of a four-person household by the household equalization index for each size of household. Therefore, the standard median income depends on the household sizes (Table 8).

The benefits paid by the social assistance program include livelihood benefits, medical benefits, and housing benefits[7]: Livelihood benefits are paid to households with a recognized income of 30% or less of the standard median income; medical benefits are paid to households with a recognized income of 40% or less of the standard median income; and housing benefits are paid to households with a recognized income of 45% or less of the standard median income. These three benefits can be received in duplicate. Households with a recognized income of 30% or less of the standard median income are entitled to livelihood benefits, medical benefits, and housing benefits. Households with a recognized income exceeding 30% and not exceeding 40% of the standard median income are eligible for medical and housing benefits. In addition, households with a recognized income exceeding 40% of the standard median income and less than 45% of the standard median income can only receive housing benefits (Fig. 2).

[7] In addition, there are educational benefits, childbirth benefits, funeral benefits, and self-sufficiency benefits.

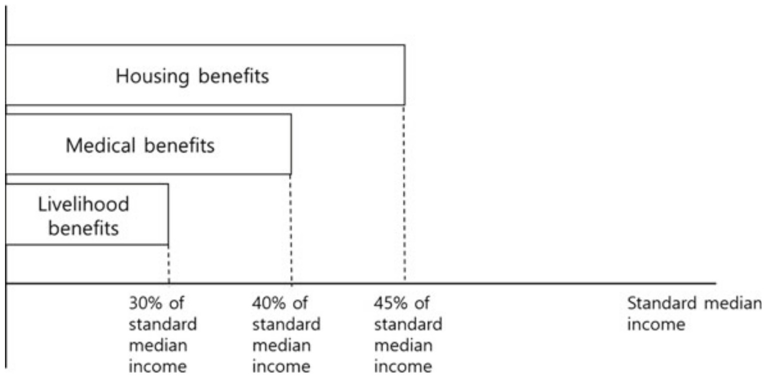

Fig. 2 Livelihood, medical, and housing benefits of social assistance

Recipients of livelihood benefits are paid in cash as much as an "amount equivalent to 30% of standard median income—recipient's recognized income." Therefore, recipients of livelihood benefits are guaranteed an income equivalent to 30% of the standard median income, regardless of their recognized income.

Cash is not paid directly to recipients of medical benefits, but when they receive treatment at a hospital, the government pays a large portion of the treatment fee on their behalf.

The rent subsidies are paid in cash to tenants among recipients of the housing benefits. Based on the smaller between the standard rent and the actual rent, the amount excluding the self-payment is paid as a rental subsidy. The standard rent is announced annually by the Minister of Land, Infrastructure and Transport for each of the four regions in the country. The standard rent is the rent for a house that meets the minimum residential standards and is determined differently by region depending on the household size. The self-payment is 30% of the amount excluding the standard amount of livelihood benefits[8] (30% of the standard median income) from the recipient's recognized income. Therefore, the higher the recognized income is, the larger the self-payment and the lower the rent subsidy. There is no self-payment if the recognized income is less than the standard amount of livelihood benefits. Housing repair expenses are supported for home owners among recipients of housing benefits.

Rent subsidy = Min (standard rent, actual rent) – self-payment

[8] According to the National Basic Livelihood Security Act, "livelihood benefits shall be paid by providing clothing, food, fuel expenses or other cash and goods essential to recipients' daily lives, so that they may have a livelihood," which is equivalent to the minimum living expenses (usually set as 30% of the median family income).

Self-payment $= 0.3\times$ (recognized income – standard amount of livelihood benefits)

If recognized income $\leq$ standard amount of livelihood benefits, self-payment $= 0$

The social assistance benefits are entirely covered by general taxes. As of 2019, approximately 1.23 million people received livelihood benefits, approximately 1.4 million people received medical benefits, and approximately 1.68 million people received housing benefits. For the housing benefit, the number of beneficiaries increased faster than before, with the abolition of the provision for obligatory providers (the provision for not becoming a recipient if there is an obligatory support) from the second half of 2018. Approximately one-third of recipients are aged 65 years or older (Table 9).

The Basic Pension provides benefits to the elderly aged 65 or older whose recognized income is less than or equal to the selection threshold. For the Basic Pension, the government announces the annual selection threshold so that approximately 70% of the elderly over 65 can receive benefits. If the couple is aged 65 or older, the selection threshold for couples is 1.6 times larger than that of an individual. As of 2020, the selection standard is 1,480,000 won (2,368,000 won for couples). In addition, there is a separate selection criterion for the elderly with the lower 40% of the income among the elderly over 65 years old. As of 2020, the selection criterion for the elderly with the lower 40% of the income is 380,000 won.

The recognized income is measured by summing the appraised income and the conversion income of the asset. The appraised income is evaluated as 70% of the amount after deducting a certain amount (as of 2020, 960,000 won) from earned income, plus other income.

Recognized income $=$ income appraised amount $+$ income conversion amount of the asset

Appraised income $= 0.7\times$ (earned income – 960,000 won) $+$ other income

Table 9 Number of social assistance recipients

	2015	2017	2019
Livelihood benefits	1,259.4	1,234.6	1,232.3
Medical benefits	1,434.9	1,390.9	1,397.6
Housing benefits	1,428.0	1,351.4	1,681.0

Note the unit was 1,000

Source Ministry of Health and Welfare and Ministry of Land, Infrastructure, and Transport

Table 10 Conditions for eligible recipients and benefits in the basic pension

	Normal recipient (income above the lower 40–70% or less)	Low-income recipient (income below the lower 40%)
Selection threshold amount	As of 2020, recognized income $\leq$ 1,480 thousand KRW (couple: recognized income $\leq$ 2, 368 thousand KRW)	As of 2020, recognized income $\leq$ 380 thousand KRW (couple: recognized income $\leq$ 608 thousand KRW)
Standard pension amount	As of 2020, 254,760 KRW	As of 2020, 300,000 KRW
Benefits	Public pension nonrecipients, national pension recipients who receives national pension benefits less than 150% of the standard pension amount: 100% of the standard pension amount Others: supplementary pension amount (50% of the standard pension amount) – 100% of the standard amount	Same as left

The benefits of the Basic Pension are paid at the maximum and below the standard pension amount. As of 2020, the standard pension amount was 300,000 won for those with an income less than 40% among the elderly aged 65 or older and 254,760 won for those with an income over 40% and less than 70%. One hundred percent of the standard pension amount is paid to those who are not public pension recipients or whose national pension benefits are 150% or less of the standard pension amount. If both members of a spouse receive the Basic Pension, the benefit to each is reduced by 20%. For other beneficiaries, the basic pension is provided between the supplementary pension amount (50% of the standard pension amount) and the standard pension amount depending on the amount of National Pension benefits (Table 10).

4.2 The National Pension

(1) Contribution

The National Pension plan targets all citizens aged 18 to less than 60 years old, excluding those who are eligible to participate in public occupational pensions. Employers and employees of all workplaces where more than one worker is working, and self-employed people in urban and rural areas are obligated to enroll, and others can join voluntarily.

The National Pension is operated by accumulating the contributions of insured persons and then paying benefits when the insured persons become over 60 years old. However, because pension expenditures are larger than contributions, the National Pension reserves will inevitably be depleted one day. When the reserves are depleted, the government has no choice but to fill the shortfall with general taxes or make

Table 11 Contributions of the national pension plan

	Contributions	Government's subsidy
Workplace-based insured person	Employer 4.5%, employee 4.5%	Workplace with less than five workers: 90% of the pension premiums for 3 years Workplace with five workers or more to less than 10 workers: 80% of the pension premiums for 3 years
Individually insured person, voluntarily insured person	Insured person 9%	Farmers: 50% of the pension premiums up to 43,650 won

Note The term "workplace-based insured person" means an employee employed in a workplace and an employer. The term "individually insured person" means a self-employed person who is not a workplace-based insured person. The term "voluntarily insured person" means an insured person who is neither a workplace-based insured person nor an individually insured person

insured persons pay more contributions to cover the shortfall. In this respect, it can be said that the National Pension is operated in a partially funded system by the government.

Insured persons are required to contribute 9% of the "standard monthly income"[9] of insured persons (insured persons' monthly income) as a pension premium, but there are upper and lower limits on the monthly standard income. As of 2020, the upper limit of the monthly standard income was 4.84 million won, and the lower limit was 310,000 won. Therefore, there are upper and lower limits on contributions. Those whose income exceeds 4.68 million won pay only 437,400 won (4.68 million multiplied by 0.09). Conversely, a person with an income of less than 310,000 won must pay 27,900 won (310,000 multiplied by 0.09).

The pension premiums of an employee in a workplace are paid by the employer and employee half and half. In other words, 4.5% is contributed by the employer and 4.5% by the employee. However, self-employed individuals are responsible for the full 9% pension premiums.

The government is subsidizing some people for their contributions. As of 2020, 90% of the pension premiums will be subsidized by the government for 3 years for employees who are working at workplaces with fewer than five workers and at the same time whose monthly income is less than 2.15 million won. In addition, 80% of the pension premiums are subsidized by the government for 3 years for employees who are working at workplaces with fewer than 10 workers to five or more workers and at the same time whose monthly income is less than 2.15 million won. As of 2020, the government has been subsidizing 50% of the pension premiums up to 43,650 won to farmers (Table 11).

[9] The term "standard monthly income" means an amount determined on the basis of the monthly income of an insured person in order to calculate his/her pension premiums and benefits.

Table 12 The pension age in the national pension

Year	– 2012	2013–2017	2018–2022	2023–2027	2028–2032	2033–
Pension age	60 years old	61 years old	62 years old	63 years old	64 years old	65 years old
Year of birth at the start of pension receipt	Before 1952	1953–1956	1957–1960	1961–1964	1965–1968	After 1969

Source National pension service

(2) **Pension Benefits**

The types of pension benefits paid by the National Pension plan include old-age pension, disability pension, survivor pension, and lump-sum refund. Those insured who pay contributions for more than 10 years receive an old-age pension from the age of 62 as of 2020. If the contribution period is less than 10 years, they do not receive old-age pensions and lump sum refunds. When the National Pension first began, the pension age was 60. Due to the first National Pension reform, the age at which the old-age pension begins to receive will be raised to 65 in the long term. The age at which the old-age pension begins is increased by 1 year every 5 years from 2013 to 2033 (Table 12).

The amount of the old-age pension consists of the Basic Pension amount and the dependents' pension amount. The Basic Pension amount is determined by the average of the "average monthly income" for the 3 years before pension receipt (A),[10] the average of the standard monthly incomes of the insured person for the participation period (B),[11] and the participation period as follows:

Monthly Basic Pension Amount (MBPA) $= k \times (A + B) \times (1 + 0.05 \times n)/12$

k: proportional constant, 1.32 as of 2020

A: The average of the average monthly income for the 3 years before pension receipt

B: The average of the standard monthly income during the participation period

n: The period exceeding 20 years (in month) during the participation period of the insured person

[10] The term "average monthly income" means an amount computed by averaging the standard monthly income for all workplace-based insured persons and individually insured persons each year. The average of the average monthly income is calculated using the value converted to the present value.

[11] The average monthly standard income during the participation period is calculated using the value converted to the present value.

Example 1
A person with 40 years of subscription with the same average income level throughout the period (i.e., A = B): MBPA = 1.2 * 2 * A * (1 + 0.05 * 20)/12 (assuming k = 1.2, same as the one to be in effect in 2028, k=1.35 in 2020, n = 20, i.e., 40 minus 20); Hence, MBPA = 2.4 * A * 2/12 = 0.4 * A, or a 40% income replacement ratio.

Example 2
A person with 40 years' subscription with an income level that is two times the average income level (i.e., B = 2A): MBPA = 1.2 * 3 * A * (1 + 0.05 * 20)/12 = 3.6 * A * 2/12 = 0.6 * A (assuming k = 1.2, and n = 20); Hence, a 30% income replacement ratio (i.e., 0.6A/2A = 0.3).

Example 3
A person with 40 years' subscription with the income level that is half of the average income level (i.e., B = 0.5A): MBPA = 1.2 * 1.5 * A * (1 + 0.05 * 20)/12 = 1.8 * A * 2/12 = 0.3 * A (assuming k = 1.2, and n = 20); Hence, 60% income replacement ratio (i.e., 0.3A/0.5A = 0.6).

The proportional constant "k" is a coefficient that determines the replacement rate of pension and is supposed to decrease by 0.015 every year from 1.5 in 2008 to 1.2 in 2028 according to the 2nd National Pension Reform. In 2020, k = 1.35. If "k" becomes 1.2, the replacement rate of pension for an insured person with an average income who has participated in the national pension plan for 40 years will be 40%.

"A" is the average of the average monthly income for the 3 years before pension receipt. It is a factor that has the effect of income redistributing. "B" is the average of the standard monthly income during the participation period. Therefore, half of the basic pension amount is determined by the average monthly income of all insured persons regardless of the insured person's own income, and the other half is determined in proportion to the insured person's own income.

"n" is the period of the participation period exceeding 20 years (calculated in months). Each time the participation period exceeds 20 years increases by 1 year, the basic pension amount increases by five percentage points. If the participation period is 40 years, the basic pension amount is doubled compared to the basic pension amount of a person with a participation period of 20 years or less (Table 13).

In the case of an early-age pension that receives the old-age pension early, the Basic Pension amount is reduced. An insured person can receive the old-age pension between 5 years and 1 year earlier than the starting age of the old-age pension, in

Table 13 Proportional constant and income replacement rate in the national pension

Year	1988–1998	1999–2007	2008–2028
Proportional constant	2.4	1.8	1.5 → 1.2 (decrease by 0.015 points every year)
Income replacement rate	70%	60%	50% → 40% (decrease by 0.5% points every year)

Source National pension service

which case 70%-94% of the Basic Pension amount is paid. The early-age pension can be applied by an insured person whose income is less than "A".

If a beneficiary who has reached the starting age of the old-age pension is engaged in a job with higher income than "A", the Basic Pension amount is reduced. A beneficiary engaged in work with income is paid 50–90% of the Basic Pension amount for 5 years from the start of the pension, depending on their age.

In addition, when an insured person becomes a disabled person, 60–100% of the Basic Pension amount is paid as the disability pension, depending on the disability level. When an insured person dies, 40–60% of the Basic Pension amount is paid to the survivors.

The dependents' pension is paid in a fixed amount depending on the number of dependents. As of 2020, if there is a spouse, 22,000 won was paid annually, and if there are children or parents supported by the beneficiary, 174,000 won was paid annually per dependent.

4.3 Public Occupational Pensions

(1) **Contribution**

The pension premiums of the Public Officials Pension are paid by the government and insured officials in a half-and-half division. The contribution ratio of the Public Officials Pension is 18% of the standard monthly income,[12] the insured official pays 9% of the standard monthly income as a contribution, and the government pays the rest. The standard monthly income refers to the amount of the insured official's income excluding nontaxable income.

There is an upper limit on the standard monthly income. The upper limit is the amount equivalent to 160% of the average of the standard monthly income for all insured officials. If an insured official's actual income is more than 160% of the average standard monthly income for all insured officials, the contribution amount is calculated and imposed with the income equivalent to 160% of the average standard monthly income for all insured officials. In addition, if the participation period exceeds 36 years, the contributions are not paid. The Special Post Office Pension also imposes contributions in the same way as the Public Officials Pension.

The Private School Teachers and Staff Pension imposes contributions in the same way as the Public Officials Pension, but there is a slight difference from the Public Officials Pension in the entity responsible for paying the pension premiums. In the case of private school teachers (including professors at private universities), 9% of the standard monthly income is paid by the insured person, 5.294% by the private school, and 3.706% by the government. In the case of private school staff, the insured person and the private school pay 9% each, and the government does not bear a separate burden.

[12] Until 2016, the contribution rate was 16%. This rate has been stepped up from 2017 to reach 18% in 2020.

Table 14 Contributions in the public occupational pensions

	Contributions	Limit of contributions
Public officials pension	18% of the standard monthly income – Insured person 9%+ government 9%	– The limit of contributions is set by using the standard monthly income equivalent to 160% of the average standard monthly income for all insured officials – If the participation period exceeds 36 years, the contributions are not paid
Special post office pension	Same as above	Same as above
Private school teachers and staff pension	18% of the standard monthly income Teachers: insured person 9%+ private school 5.294%+ government 3.706% Staffs: insured person 9%+ private school 9%	Same as above
Military pension	14% of the standard monthly income – insured person 7%+ government 7%	– The limit of contributions is set by using the standard monthly income equivalent to 180% of the average standard monthly income for all insured officials

The Military Pension is charged with 14% of the standard monthly income as pension premiums, and the government and insured persons pay 50% each. There is a limit on the amount of contributions, and the limit of contributions is set by using the standard monthly income equivalent to 180% of the average standard monthly income for all insured officials (Table 14).

(2) **Pension Benefits**

The Public Officials Pension pays the retirement pension to insured persons who reach the age of 60 and have participated for more than 10 years. The starting age for retirement pension receipt is expected to gradually increase to 65 years from 2022 to 2033.

The retirement pension amount is determined by the average standard monthly income of the insured person, the participation period, and the pension payment rate as follows. The pension participation period is only recognized up to 36 years (33 years before 2016).

Retirement pension amount $=$ *average standard monthly income* $\times$ *pension payment rate*

Table 15 Changes in the pension payment rates in the public officials pension

Year	– 2009	2010–2015	2016–2034	2035–
Pension payment rate (%)	2–2.5	1.9	1.878–1.704	1.7

Source National assembly budget office (2020)

The average standard monthly income during the participation period is calculated using the value converted to the present value. The pension payment rate is a factor that determines the replacement rate and varies depending on the period. The pension payment rate is 1.79% as of 2020, and it is expected to gradually decrease every year to 1.7% in 2035 (Table 15).

The income redistribution factor was introduced in 2016. If the average standard monthly income of an insured person during the participation period is larger than the average standard monthly income of all public officials for the last 3 years, the retirement pension amount is reduced, and if the former is less than the latter, the retirement pension amount is increased.

When a retired public official dies, the survivor pension, 60% of the retirement pension, is paid to survivors. Pension recipients may receive the early retirement pension up to 5 years early. The early retirement pension amount is 75–90% of the retirement pension amount. In addition, if a beneficiary earns income by working in a job with income after retirement, the retirement pension amount is reduced for 5 years. When a public official retires, the retirement allowance is paid in the form of a lump sum in addition to the retirement pension. If the participation period is less than 10 years, a lump sum refund is paid instead of the retirement pension. The benefits of the Special Post Office Pension and the Private School Teachers and Staff Pension are also calculated using the same method as the benefits of the Public Officials Pension.

For the Military Pension, noncommissioned officers, paramedics, and officers are eligible for enrollment. In the Military Pension, the retirement pension is paid when an insured person who has participated for more than 20 years retires. The retirement pension amount is calculated using the same method as the retirement pension of the Public Officials Pension, but the pension payment rate is 1.9%, which is different from the Public Officials Pension. The pension participation period is recognized as up to 33 years.

5 The Private Pension

5.1 The Retirement Pension

The retirement pension, which is a corporate pension, pays retirement benefits to an insured employee when he/she retires. The employer fully contributes pension

premiums for them, and there are two types of retirement pensions: defined benefits type and defined contribution type. According to the act on the guarantee of employees' retirement benefits, which regulates the operation of the Retirement Pension, employers select the defined benefit type and the defined contribution type after surveying opinions of the employee's representative on preferred type. In some cases, both types can be operated together in a workplace. In addition to both types, the employee can have an individual retirement pension account.

Retirement pension programs have more defined benefit types than defined contribution types, but the rate of defined benefit types is gradually decreasing, and conversely, the rate of defined contribution types is increasing. As of 2018, insured employees of defined benefit types accounted for 50% of all insured employees, and insured employees of defined contribution types accounted for 47% of all insured employees (Table 16).

(1) **Defined Benefits**

In the defined benefit type, the retirement pension fund for all employees is managed in one account per workplace under the responsibility of the employer. The employer is obligated to pay the full amount of retirement benefits when workers retire. Retirement benefits can be paid either as a pension or as a lump sum. If an employee is 55 years of age or older and has been employed for more than 10 years, retirement benefits are paid as a pension. If the worker wants, it can be paid as a lump sum. The amount of retirement benefits must be equivalent to 30 days or more of wages per year based on the average wage during the employment period.

To pay retirement benefits, the employer must have a reserve to pay retirement pensions so that the rate of the actual reserve to the standard liability reserve (the reserve rate) is at least a certain level (the minimum reserve rate). The standard liability reserve refers to the amount that must be accumulated for the payment of retirement benefits. The minimum reserve rate in 2020 is 90%, but in 2021, this rate is supposed to change to 100%.

Retirement pension fund operators who manage the reserves must notify the employer whether the reserves exceed the minimum reserve rate every year. If the reserve is less than 95% of the minimum reserve rate, the employer must make up for the shortage of the reserve. If the rate exceeds 100%, the employer can reduce

Table 16 Number of insured employees of the retirement pension

	DB and DC				IRP
	DB	DC	Others	Total	
2015	3,057,642	2,107,577	137,596	5,302,815	747,100
2016	3,115,145	2,295,037	152,072	5,562,254	778,492
2017	3,096,231	2,540,439	160,316	5,796,986	1,314,408
2018	3,053,230	2,866,991	184,483	6,104,704	1,712,343

Source Ministry of employment and labor, and statistics Korea, retirement pension statistics

the contribution that he should make in the future. In addition, if the rate exceeds 150%, the employer can receive the excess amount.

Retirement pension fund operators can invest up to 70% of the reserves in risky assets (listed stocks, bonds, equity collective investment securities, hybrid collective investment securities, etc.).

(2) Defined Contribution

In the defined contribution type, one retirement pension account is set up per workplace, but it is managed separately by the workers. The employer pays contributions equal to 1/12 of the annual wage to each worker's account, and a retirement pension fund operator manages it and pays a pension or lump-sum retirement allowance when the worker retires. Therefore, the employer is obligated only to bear the contribution. The amount of the retirement pension or lump-sum retirement allowance varies depending on the investment performance of the reserve.

Workers can make additional contributions independently of the employer's contributions. In this case, since the amount of the reserves increases, the amount of retirement pensions or lump-sum retirement allowances may also increase. The conditions for receiving retirement pensions are the same as those for defined benefit types. Workers can withdraw part of the reserves for the purpose of buying a home or spending medical expenses.

The employee insured by the defined contribution type can make a choice of the method of operating his/her own reserve. The retirement pension fund operator presents three or more operating methods to workers every half year, and workers can choose the operating method that he/she wants among them. Workers decide how to invest reserves under their own responsibility, but the investment for all risky assets is limited to 40% of the reserves.

(3) Individual Retirement Pension

The individual retirement pension is a pension product that combines the characteristics of individual pension savings and the defined contribution type of the retirement pension and that can be opened additionally by employees who participate in a defined benefit retirement pension or defined contribution retirement pension. The reserve is operated entirely by contributions of the employee who opens the individual retirement pension account. The employee who pays contributions can receive retirement pensions after the age of 55.

If a worker changes his/her job, he/she can receive lump-sum retirement payments and accumulate them in his/her individual retirement pension account. In this case, the retirement income tax imposed on the lump-sum retirement payment is deferred. In addition, he/she can also make additional contributions individually. Additional contributions can be accumulated within the limit of 18 million won per year. He/she receives a tax credit for additional contributions within a certain amount. In addition, self-employed persons can participate in the individual retirement pension plan. The individual retirement pension reserves are operated in the same way as the operation of the defined contribution retirement pension.

5.2 Pension Saving Account

There are three types in the pension savings account: trust type, fund type, and insurance type. In the trust type and fund type, a person who opens an account can freely accumulate the reserves. In the insurance type, he or she has to contribute a certain amount every month.

A person who opens an account can contribute up to 18 million won per year, combined with contributions for the IRP (individual retirement plan). In addition, in addition to the IRP, an insured person can receive a tax deduction on a percentage of contributions within the limit of 4 million won per year (3 million won for high-income people). Instead of this tax credit, he or she must have participated in the pension savings plan for at least 5 years. After the age of 55, he or she can receive a pension as a term pension or life pension for at least 10 years. Income tax is levied on pension incomes.

6 Reverse Mortgage

6.1 The Home Pension

The Home Pension is a reverse mortgage product in which a financial institution pays a certain amount each month to a homeowner who provides his/her house as collateral. The Korea Housing Finance Corporation, a public corporation specializing in mortgage securitization, guarantees the payment of principal and interest to the mortgage institution. The homeowner borrows additional loans from the mortgage institution for interest and guarantee fees every month and pays interest to financial institutions and guarantee fees to the Korea Housing Finance Corporation on the borrowed loans.

The loan interest rate is a variable rate, and the guarantee fee is 0.75% per year. The pensioner is required to pay an upfront fee equal to 1.5% of the house price.

A homeowner can be enrolled in the home pension plan if the homeowner or his/her spouse is 55 years of age or older. There are two types of Home Pension: the lifetime annuity type and the term annuity type. The former provides monthly payments every month until the pensioner dies, while the latter makes monthly payments for a predetermined time period.

The total loan is repaid with the liquidation of the collateral when the contract expires (whether the homeowner dies or the contract expires otherwise). If the sale price of the collateralized house exceeds the total loan amount, the homeowner (or his/her heir) receives the difference. Conversely, if the sale price of the collateralized house does not reach the total loan amount, the heir does not pay the difference, and the Korea Housing Finance Corporation bears the difference, one form of credit loss. In this respect, the Home Pension loan can be called a nonrecourse mortgage.

Although the Home Pension product is a reverse mortgage with a house as collateral, it is a mechanism that converts home equity owned by elderly households into cash. In general, to monetize a house into cash and use it for living expenses after retirement, it is necessary to sell the house. In the case of selling the house, the homeowner must reside by lease. However, the Home Pension program has the advantage that it can be used for living expenses after retirement by converting the equity of the house into cash while continuing to live in the house.

6.2 Farmland Pension

The Farmland Pension is a financial product that the Korea Rural Community Corporation, a public corporation, lends a certain amount each month in the form of a pension to a farmer that provides his/her own farmland as collateral. The Korea Rural Community Corporation provides loans with funding from the government's Farmland Management Fund. Since reverse mortgages have three risks (longevity risk, interest risk, and property price risk), the Korea Rural Community Corporation receives risk premiums of 0.5% of the loan amount from the pensioner (borrower) as a contribution to these risks. The pensioner borrows additional loans from the Korea Rural Community Corporation and pays interest and risk premiums on the borrowed loans to the Korea Rural Community Corporation. There are fixed and variable rates for loan interest rates.

There are two types of Farmland Pension: the lifetime annuity type and the term annuity type. The former provides monthly payments every month until the pensioner dies, while the latter makes monthly payments for a certain period of time but does not collect the total loan until the pensioner dies.

The Farmland Pension plan is offered for farmland owners who are 65 years of age or older with more than 5 years of farming experience. The pensioner has the advantage of being able to continue farming while providing living expenses by using farmland as collateral.

The Farmland Pension loan is also a nonrecourse mortgage, similar to the Home Pension loan. The total loan is repaid by selling the collateralized farmland when the pensioner dies. If the sale price of the collateralized farmland exceeds the total loan amount, the heir receives the difference. Conversely, if the sale price of the collateralized farmland does not reach the total loan amount, the heir does not pay the difference.

7 Financial Consumer Issues in Korea

There are currently two main issues to be addressed in the Korean pension system. The first issue concerns the extent of the intergenerational transfer of burdens in public pension programs. That is, the public pensions, especially the National Pension, have

a structure in which the reserves will be depleted in the long term (in 2055 as predicted by the government), simply because contributions are less than benefits (Kim, 2019; National Assembly Budget Office, 2020). When the reserves are exhausted, future generations will have no choice but to bear the burden of the costs that should have been that of the current generation.

To solve this problem, it is necessary either to lower the benefit level or to increase the contribution amount (or both) while delaying the starting age for receiving benefits. Increasing contributions is a highly unpopular and unwelcome policy option. Therefore, in the first and second reforms of the National Pension, the government decided to lower the benefit level along with the delay in receiving the pension benefit. These reforms have delayed the depletion of the National Pension reserves, but that is still inevitable and predictable. However, as the starting age became older with the smaller benefit level, the problem for financial consumers is further reduction in the coverage rate of the public pension, which is already adequate in covering elderly living expenses.

In 2018 and 2019, the Commission for the Third Reform of the National Pension was launched, but here too, the proposal to increase contributions was rejected by the President. The problem of the transfer of the burden between generations in financing public pension programs is constantly being raised, but the solution has not been decided and implemented, as it resembles the issue of hanging a bell on the cat's neck.

The second issue is that the income replacement rate of the National Pension is very low, so the national pension benefits are not sufficient in financing a reasonable level of living expenditure by the elderly. For the National Pension, assuming a 40-year contribution, the replacement rate is only 40%. The government intends to raise the benefit level of the Basic Pension, considering that if 10% of the income is replaced with the Basic Pension's benefits, then the replacement ratio can go up to 50%. However, in Korea, people usually get a job around the age of 25, so the period of participation in the National Pension cannot exceed 35 years, for which the replacement rate is at most 35%. Here, again, the solution is to increase the contribution of the National Pension to raise the benefit level, but no one is willing to propose that unpopular policy.

Related to the coverage issue, retirees in Korea generally have a period of five to 10 years between the end of working and the start of the public pension. That is, partly because of the rigid labor market in Korea, workers tend to retire between 55 and 60 years old, whereas the starting age for public pension benefits will be set at 65 in the near future. Private pension programs (e.g., the Retirement Pension and the Personal Pension Savings in particular) are supposed to fill this gap, but these programs are subscribed to on a voluntary basis, and the subscription rate is still fairly low. Because people are generally myopic and lack self-control, they do not save enough for their future. Compulsory saving would be necessary in the future, but raising contributions for the National Pension (one form of compulsory saving) is a highly unpopular policy option, as mentioned earlier.

As a final point, the role of real assets as a source of supplemental income for retirees is an important policy issue in Korea. As stated, the elderly population in the

country very much fits with the descriptor of "asset-rich-cash-poor," with approximately 80% of elderly households having their houses but not enough annuities for their retirement. Hence, to further induce compulsory savings in addition to the National Pension, it appears to be necessary to monetize the real asset to expand the income supplement, with the reverse mortgage as one such instrument, for which policy designers should consider a way to expand its utilization on a more meaningful scale.

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Preparing for Rainy Days in Old Age in Singapore

Singapore's Central Provident Fund (CPF) System and Lease Buy Scheme (LBS)

Eileen Kuan, En Qi Seah, and Tien Foo Sing

Abstract Singapore's elderly population has grown exponentially over the past decades. It was estimated that by 2030, one in four residents will be 65 and above. The rapidly aging population raises the question of retirement adequacy of the elderly. Self-reliance, where individuals plan for their own retirement, is encouraged. Singapore's government emphasizes the need for sufficient retirement savings to meet the rising costs of living. Set up as a public pension program, the Central Provident Fund (CPF) mandates working Singapore citizens (SCs) and Singapore Permanent Residents (SPRs) to make compulsory contributions of a portion of their monthly salaries into designated CPF accounts. It is a defined-contribution, fully funded program where individuals save for their old age. The CPF Lifelong Income for the Elderly (LIFE) Scheme (lifelong payouts) and the Retirement Sum Scheme (limited-term payouts) support a basic standard of living for members from their payout eligibility age, which currently ranges between 62 and 65, depending on their birth cohort. Despite the original intent of establishing the CPF as an old-age security scheme, the roles of CPF funds have gradually expanded over the years. In 1968, the government allowed CPF funds to be used to finance housing mortgages. Today, housing expenditure has become one of the common uses of CPF funds. Housing equities constitute a dominant fraction of household wealth for the elderly in Singapore. Throughout one life cycle, many households face the dilemma of being "asset-rich, cash-poor" in their golden years. Housing monetization, which refers to the conversion of household wealth from a more illiquid source, such as housing, to a more liquid one, is often relied upon by elderly people to finance living expenses after retirement. The monetization option becomes increasingly important as households age and have a large proportion of wealth locked in housing.

E. Kuan · E. Q. Seah · T. F. Sing (✉)
Institute of Real Estate and Urban Studies, National University of Singapore, Singapore, Singapore
e-mail: bizstf@nus.edu.sg

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1 Introduction

The Central Provident Fund (CPF) was established in 1955 as a compulsory saving scheme for working Singapore citizens (SCs) and Singapore Permanent Residents (SPRs) to help build up wealth for retirement needs. Under the CPF scheme, working SCs and SPRs, and their employers contribute a fraction of their gross monthly wages to their CPF accounts. The CPF scheme has gradually been expanded into a multifaceted social security plan covering health care, housing, family protection, and investments.

2 Demographic Trends in Singapore

Today, almost one in six Singaporean residents is 65 or older, or around 548,000 senior citizens. By 2030, it was estimated that one in four residents would be 65 and above. Residents of this age group might want to unlock the value of their homes for retirement income or downsize to a smaller house after their children move out. Rising singlehood is the second trend. Compared to their parents' generation, a considerable proportion of those in their 30s stay single. More than two in 10 in their late-30s are single—a group that will probably live on their own and will need housing that caters to this independent lifestyle.

Figure 1 tracks the increasing ratio between the senior population (above 64 years old) and the working-age population (20–64 years old), while Fig. 2 plots the rising rate of singlehood among the elderly. Where the implications of these shifts extend beyond housing, there is no more pressing time than now to pay serious attention to these issues of demographic change, especially on the aging population and society.

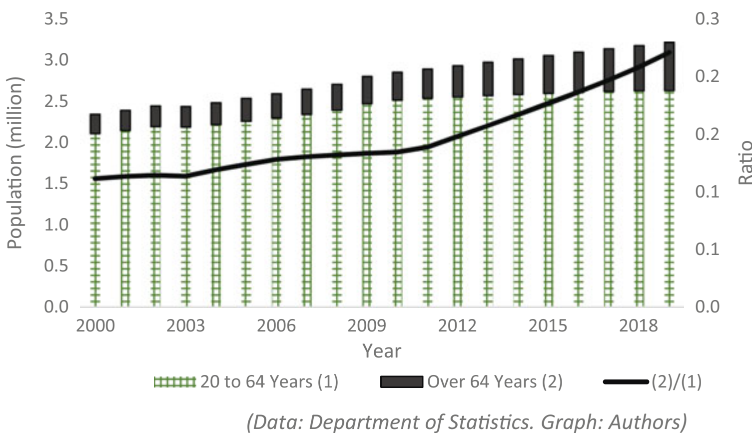

Fig. 1 Singapore's aging population

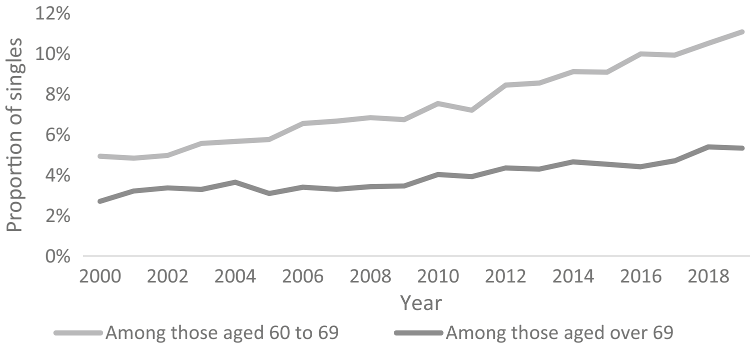

Fig. 2 Rising singles among the elderly

The average life expectancy of Singaporeans stands at 84.8 years old, or a health-adjusted 74.2 years old (*The Straits Times*, 20 June 2019). Given the statutory retirement age of 62 years set by the Ministry of Manpower, retired Singaporeans risk between 12 and 23 years on average of not having any employment salary to finance consumption through old age. Consequently, the growing number of workers approaching retirement remains a concern in Singapore.

3 Central Provident Fund Through the Years

Singapore inherited two pension systems from the British when the nation gained independence. The original pension scheme was not financially viable in the long run, leading to the establishment of the CPF Board as a response in 1955. The second system, the CPF system. was meant as an alternative mechanism to provide elderly people with financial security. It is a defined-contribution, fully funded scheme in which individuals save for their old-age financial support. Singapore's citizens and permanent residents eligible to be covered under the CPF Scheme contribute a proportion of their salary to their CPF accounts. Participation in the scheme is mandatory, except for the self-employed, who have an option not to but are strongly encouraged to at least have a medical savings account to help finance their costs for old age.

There have been several restrictions on the use being put in place to prevent individuals from overspending their CPF funds before retirement. For example, members must maintain a minimum sum in their accounts to generate monthly income for retirees to cover their basic financial needs.

The original intent and role of CPF funds as an old-age security scheme gradually developed and changed throughout the years. In 1968, the government allowed CPF funds to be used to finance mortgages. Today, financing housing has become one of the common uses of CPF funds.

Several other financing options available for the CPF were also made after 1968, such as the Singapore Bus Services Ltd. Share Scheme in 1978, the Approved Investment Scheme (AIS) in 1986, the use of CPF funds to buy insurance under the home protection insurance scheme in 1982, and the Dependents' Protection Scheme in 1989. The year 1984 saw the implementation of compulsory contributions to the Medisave Scheme, which can be used to defray hospitalization costs and other approved healthcare services and dependents such as children and parents.

The combined effect of all the options available for CPF holders was an unintentional diversion of funds meant for retirement into "nest-egg" propositions subject to other limitations (Teo, 2006). This realization led to the introduction of the Minimum Sum Scheme to start pay-outs in 1987 for CPF holders upon retirement at age 55 back then or later. However, the widespread use of CPF funds to finance housing mortgages meant that many CPF holders could not meet their retirement sum in their lifetime. In response, the government allowed for 50% of the Minimum Sum to take the form of the pledged property. If CPF funds were used to finance a housing mortgage, the property is automatically pledged as part of the Minimum Sum.

4 Retirement Adequacy Needs and the CPF

Retirement adequacy has been emphasized as a key concern for the elderly. As early as the 1980s and 1990s, the Singapore government emphasized the importance of individuals being self-dependent due to the rising cost of living. One of the state's role is to provide the policy infrastructure through which individuals are encouraged to be self-reliant. Individuals save for their old age to become an alternative mechanism of financial support to provide the elderly with financial security in old age. Informal support for the elderly generally refers to the familial support they can receive, while formal support includes government schemes such as the CPF. The CPF Board was established in 1955 as a defined-contribution, fully funded scheme. Singapore citizens and permanent residents eligible to be covered under the CPF Scheme had to contribute a proportion of their salary to their CPF accounts. Participation in the scheme is mandatory, except for the self-employed who could opt out but were strongly encouraged to at least have a medical saving account to help finance their costs for old age.

There are restrictions preventing the overuse of each member's CPF funds before retirement. For example, members must maintain a minimum sum in their accounts. The implementation of a minimum sum is to generate monthly income for retirees to cover their basic financial needs for daily necessities such as food or recurring bills such as rent and utilities.

The problem of a rapidly aging population calls into question the retirement adequacy needs of the elderly. This is, however, not a new concern. As early as the 1980s and 1990s, the Singapore government emphasized the need for sufficient funds for retirement through the setup of the CPF Board. The Singapore government emphasized the need for a sufficient CPF balance and personal savings to meet the

rising cost of living as citizens age. The elderly themselves were also observed to have been planning for their retirement needs. In a Sample Household Survey carried out by Singapore's Housing and Development Board (HDB) in 2008, 99.6% of the elderly had at least one financial source for retirement compared to 80% in 2003.

Despite a higher level of awareness of retirement adequacy among Singaporeans, there still exists a significant group of low-income elderly who are unable to meet their CPF minimum sum. This suggests that they are unlikely to have sufficient income or savings to meet their retirement expenses. This problem is also likely to be magnified if they experience disruptive events such as the onset of major illnesses or divorce. Housing mortgage loans for house purchases are available through either HDB or commercial banks. The other main pillar would be using CPF funds to finance the mortgage payments of the units. The use of CPF funds in the purchase of HDB units has been put in place since the 1960s.

5 Some CPF Statistics

In Singapore, the CPF is a fully funded pension model with defined contributions and is the major source of funds insuring against longevity and basic demands. Its capital market size is almost twice the size of the combined sums of life insurance and other pension funds (Figs. 3 and 4). Specifically, the CPF has grown from six times that of other pension funds in 1995 to 26 times by 2020. Hence, while there are other pension funds, discussion of the CPF is key to understanding the pension system in Singapore.

The CPF savings comprise compulsory monthly contributions from employees and employers. Figures 5, 6 and 7 describe the evolution of the contributions as a percentage of nonpensionable wage by contributor and age group. The contribution

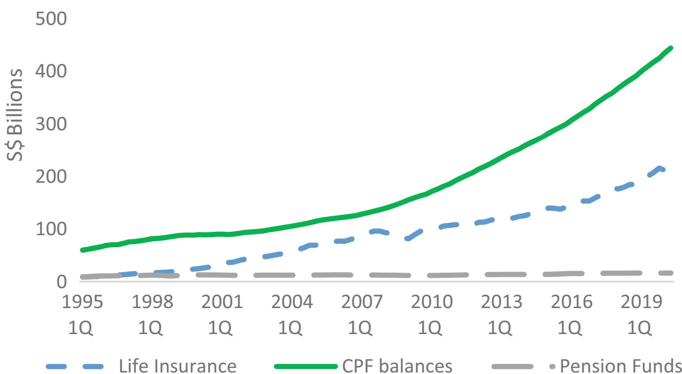

Fig. 3 Capital market shares

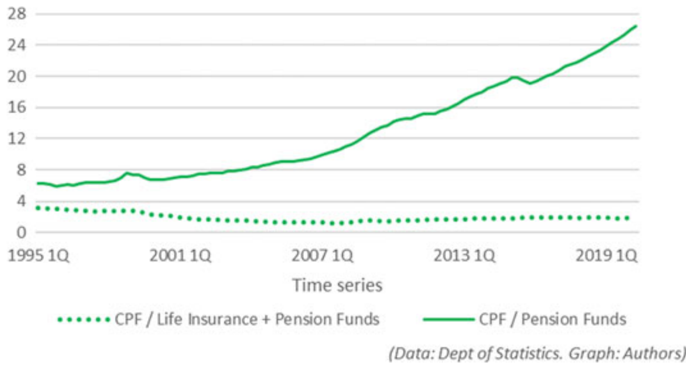

Fig. 4 Relative size of CPF balances

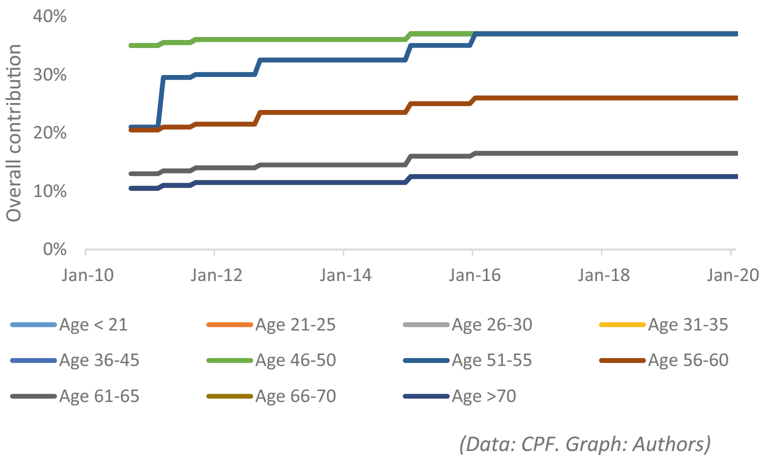

Fig. 5 Contributions from employer and employee (Nonpensionable Wage > S$1,499.99/Month) (Some rates may overlap with others and thus their trendlines do not display)

rates decline with age, but the rates across different age groups have increased since 2010. Upon eligibility, self-selection either into or out of the contributions system is not allowed. In terms of portability, contributions can be withdrawn under strict circumstances, such as permanently leaving Singapore and West Malaysia (CPF, 2020).

In alignment with the planned retirement needs, the personal savings for every worker are allocated into three accounts for housing (Ordinary Account, OA), healthcare (MediSave Account, MA), and old age and retirement-related expenses (Special Account, SA). Allocations to the OA decline with age, while the converse holds for the MA (Fig. 8). Age-specific rates remain fairly consistent over the past five to 10 years, and Fig. 9a, b track the account allocations for younger and more mature

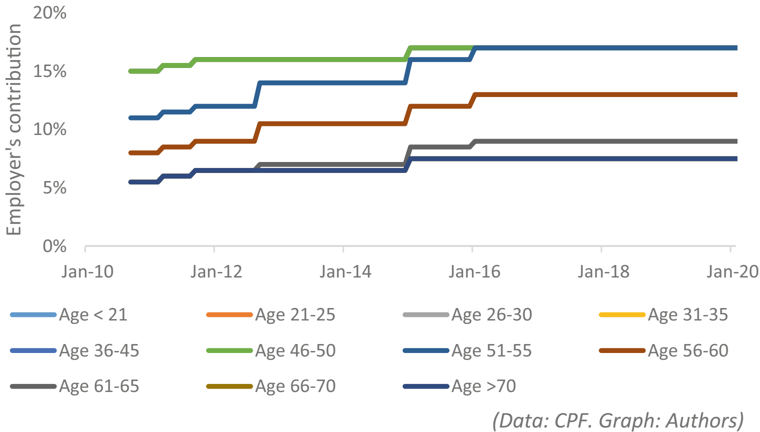

Fig. 6 Employer's contribution (Nonpensionable Wage > S$1,499.99/Month) (Some rates may overlap with others and thus their trendlines do not display)

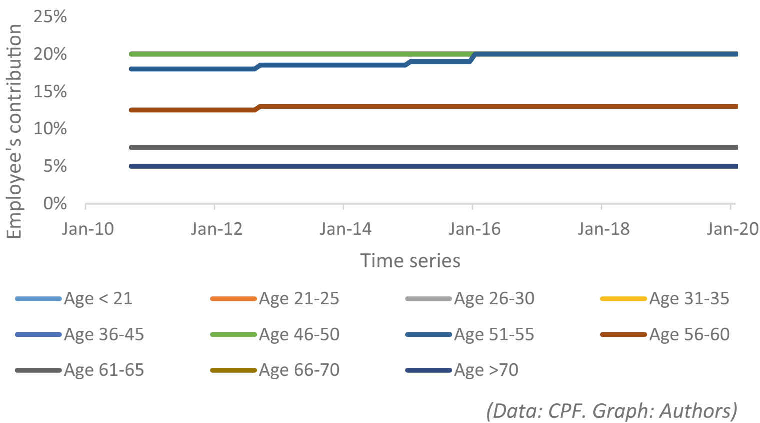

Fig. 7 Employee's contribution (Nonpensionable Wage > S$1,499.99/Month) (Some rates may overlap with others and thus their trendlines do not display)

workers, respectively. Figure 10 describes the allocations for workers aged below 36 for August 2020.

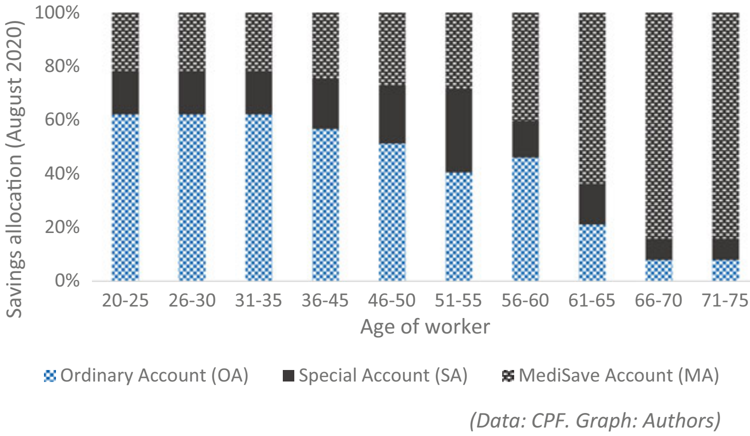

Fig. 8 Savings allocations (August 2020)

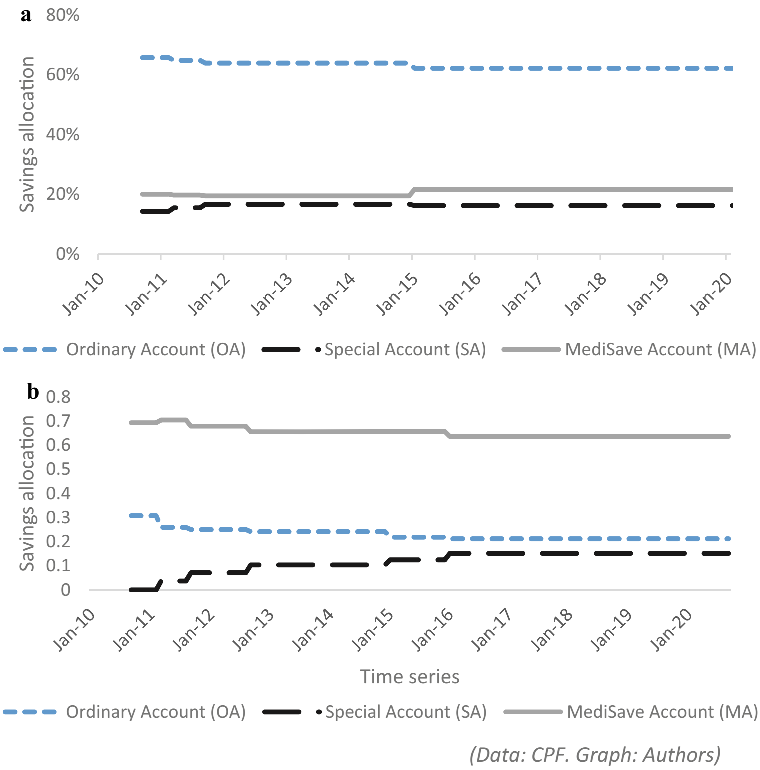

Fig. 9 **a** Savings allocations for workers < 36 years old. **b** Savings allocations for workers aged 61–65

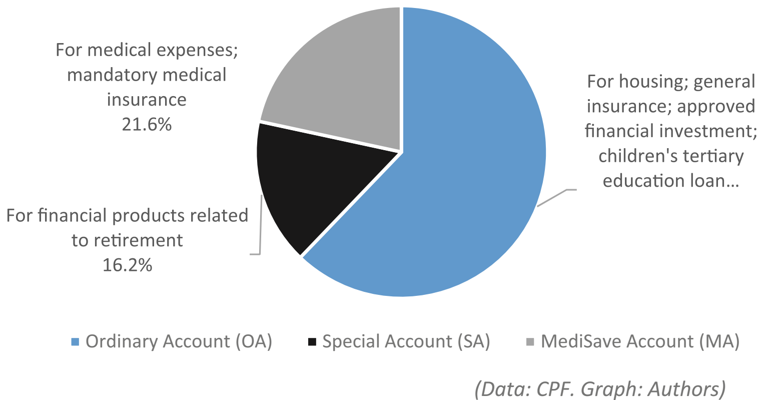

Fig. 10 Account allocations for workers aged < 36 years (August 2020)

At age 55, balances in the SA, followed by that in the OA, are transferred into a fourth account, the retirement account (RA). The RA provides for monthly pensions starting from a payout eligibility age, typically 65[1] depending on birth cohort, under either the CPF Lifelong Income for the Elderly (LIFE) Scheme[2] (lifelong payouts) or the earlier Retirement Sum Scheme (RSS)[3] (limited-term payouts). Either payout plan is compulsory[4] and auto-inclusive under applicability conditions. The dollar amount transferable into the RA by members who turn 55 in 2020 was set at S$181,000 ("Full Retirement Sum," FRS; US$132,436) and subsequently rises[5] to S$192,000 (up 3% per year on average) for the 2022 cohort. The required cash transfer is halved for owners of property leases that can last themselves until at least age 95.[6] The OA continues to exist even after the retirement sums are transferred into the RA. Any OA balance and RA savings above the basic retirement sum (BRS = 0.5 FRS) can be used for housing purposes (Ministry of Manpower, 2016).[7]

[1] As of 2020, the payout eligibility age is 65 years for members born after 1953. Refer to the CPF website for other eligibility ages. Members can choose to defer their payouts until age 70.

[2] The CPF LIFE Scheme was introduced in 2009 and is mandatory for residents born in 1958 or after (i.e., those aged 51 and below in 2009). It was first applied on 1 January 2013, when the oldest of these residents first turned 55. CPF members who were born before 1958 can choose to join CPF LIFE in 2009, after their payout eligibility age and one month before turning 80.

[3] This earlier payout plan started in 1987. It remains applicable to members not placed on CPF LIFE, including those with less than S$60,000 in the RA six months before their payout eligibility age (CPF website). Previously known as the Minimum Sum Scheme.

[4] Exemptions apply (refer to the CPF).

[5] According to the CPF, for each successive cohort of members turning age 55, the payouts need to be higher to account for long-term inflation and improvements in standard of living. Hence, the BRS has to be adjusted. https://www.cpf.gov.sg/Members/Schemes/schemes/retirement/retirement-sum-scheme.

[6] CPF Retirement planning booklet.

[7] https://www.mom.gov.sg/newsroom/parliament-questions-and-replies/2016/0324-written-answer-by-mr-lim-swee-say-pq-on-using-cpf-sa-and-ra-for-housing.

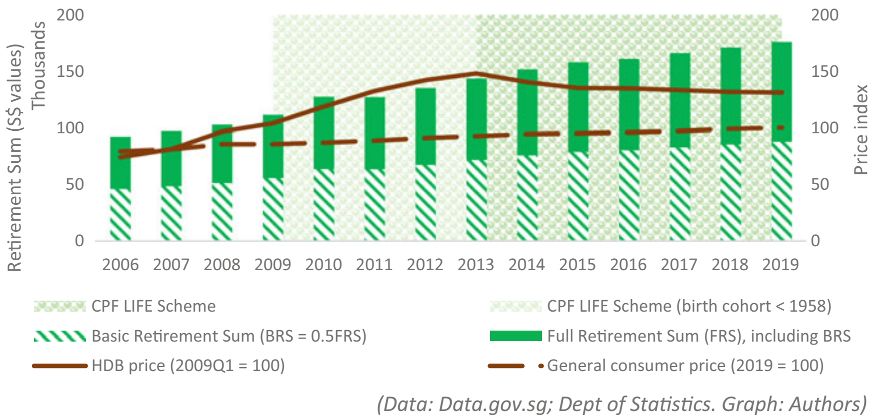

Fig. 11 Retirement sum

Under CPF LIFE (Standard Plan),[8] the default payout scheme for members born in 1958 or after, the funds generally no longer sit within individual RA (Dayani, 2020). Instead, such CPF LIFE pensioners receive lifelong payouts from the CPF LIFE Scheme to which they contributed premium payments using their RA balances. As with standard insurance, the monthly payouts to the CPF LIFE pensioners are higher in exchange for a higher premium (RA balance). For the same pension amount, the number of payouts increases with lifespan under CPF LIFE. In contrast, earlier birth cohorts whose main payout plan is the RSS withdraw their payouts from their individual RA balances up to what their RA can distribute, hence the limited-term payouts for RSS pensioners.

The basic retirement sum is regularly adjusted so that payouts keep pace with inflation and standard of living (Ministry of Manpower, *The Straits Times*, 2019). Figure 11 shows an average 5.14% annual increase in the retirement sum between 2008 and 2019.

CPF contributors receive annual interest between 2.5% (Ordinary Account) and 4.0% (Special,[9] MediSave[10] and Retirement[11] accounts), excluding extra interests, as of July 2022 (Fig. 12).[12] The interest rates are typically above risk-free rates to attract voluntary top-ups. Indeed, in their study of the effects of CPF interest rates,

[8] There are three CPF LIFE plans: Escalating Pan, Standard Plan and Basic Plan. Refer to https://www.cpf.gov.sg/member/retirement-income/monthly-payouts/cpf-life for details.

[9] The Special Account was introduced in July 1977. See CPF website.

[10] The MediSave Account was introduced in April 1984. See CPF website.

[11] The Retirement Account was introduced in January 1987.

[12] Refer to the CPF website for full monthly details and historical rates. As of July 2022, there is extra interest of 1% per annum on the first $60,000 (capped at $20,000 for OA) for CPF members aged < 55 years old. For those 55 and above, there is extra interest of 2% per annum on the first $30,000, 1% per annum on the next $30,000 (capped at $20,000 for OA) https://www.cpf.gov.sg/Members/AboutUs/about-us-info/cpf-interest-rates.

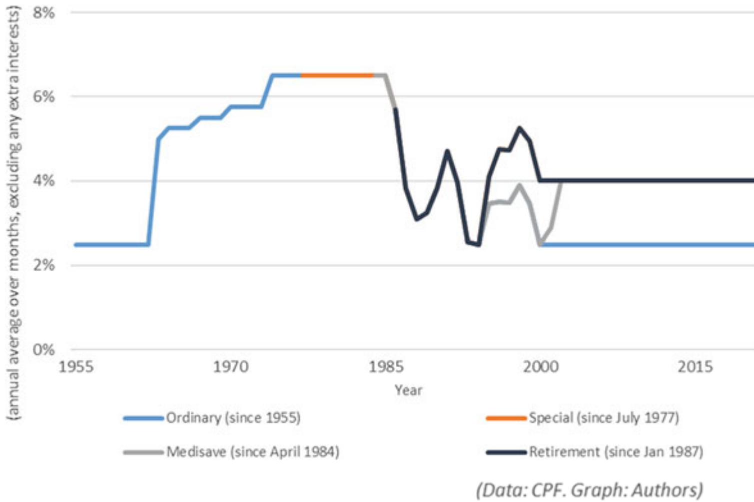

Fig. 12 CPF interest rates (Some rates may overlap with others and thus their trendlines do not display)

Deng et al. (2016) find that an additional 1% interest rate on the first S$60,000 savings incentivizes members with OA balances below S$20,000 to save 10% more in their accounts. At the same time, the government grants individuals tax exemptions on capital used to top up the savings and pays out grants[13] into CPF accounts.

As of March 2020, the total account balance of the CPF was estimated at S$435.4 billion[14] (US$318.6 billion), contributed by 4.0 million members (CPF Annual Report 2019). This is equivalent to S$108,838 (US$79,636) per member, 32.6% of household financial assets, and 21.8% of household net worth.[15] Figure 13 tracks the growth.

Any exponential growth in the CPF monies is less likely to be driven by population growth (steady; Fig. 14) or overall nominal wages (fluctuating; Fig. 15) than by either higher contribution rates (Fig. 5) or compounded interest earnings (Fig. 12).

6 Retirement and Housing Expenditures

As a national longevity insurance annuity scheme,[16] CPF Life presents an option for members to save for retirement needs. The CPF LIFE provides enough "rainy day"

[13] For example, MediSave top-ups for elderly cohorts.

[14] In today's dollars. The same applies throughout the text.

[15] https://www.tablebuilder.singstat.gov.sg/publicfacing/createDataTable.action?refId=15312.

[16] https://www.cpf.gov.sg/member/retirement-income/monthly-payouts/cpf-life.

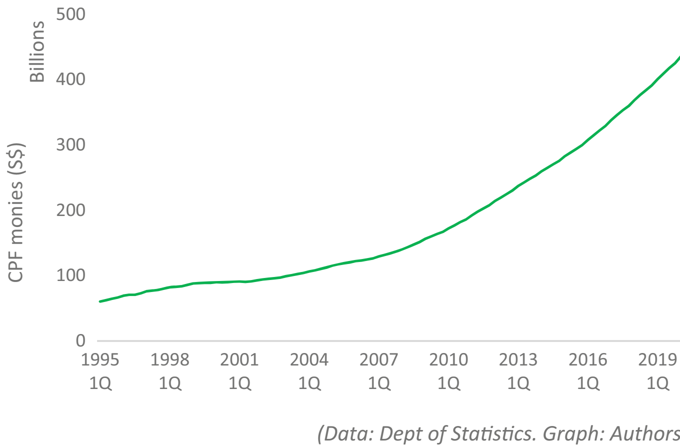

Fig. 13 CPF monies

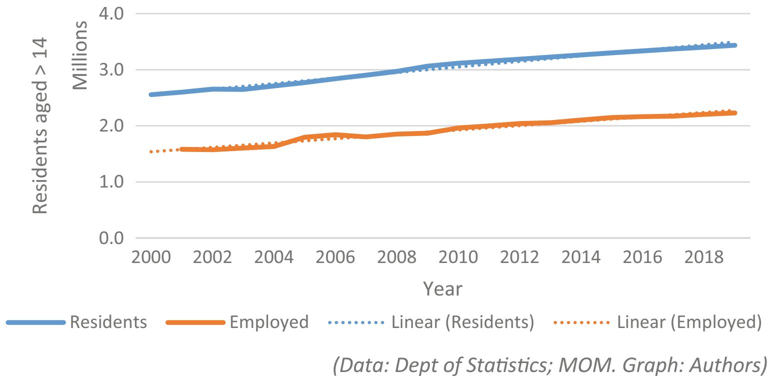

Fig. 14 Population of residents above age 14

protections against price inflations and rising living costs in Singapore[17] Singapore sets a statutory retirement age, so retirement is not expected to cause a shock to permanent income. By the rational expectation version of the standard permanent income hypothesis, if households are rational and foresighted, their consumption given retirement savings should not change upon expected retirement (Haider & Stephens, 2007). For CPF LIFE members aged 55 in 2020, a mandated RA of S$90,500 (US$66,218) is estimated to provide standard monthly pensions of between

[17] In 2020, Singapore is the world's 14th most costly city, based on the living costs of expatriates. *The Straits Times*, 16 July 2020.

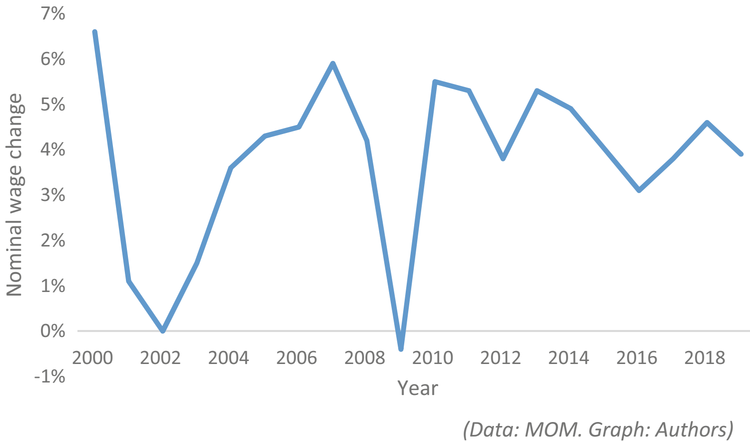

Fig. 15 Nominal wage change

S$750 and S$810[18] (US$549 to US$593). For one-person households in the lowest income quintile, among which 36.7% are aged above 64 (Department of Statistics), the average monthly expenditure[19] was estimated at S$1,204 (US$881) as of 2018. The disbursements may be insufficient to support a monthly lifestyle to which many retirees are accustomed to. Based on a daily two-meal subsistence of S$264[158] (US$193) per month, basic food needs already consume almost one-third of the payout each month.

Figure 16 shows that nominal increases in wages were less than those of the FRS, even before the COVID-19 economic crisis. It is unlikely that CPF members can rely on wage increases or savings interests to raise their RA balances or cope with increases to the pension premium. Instead, we will consider the option to directly top up the RA through the Lease Buyback Scheme (LBS), as offered under a CPF-Housing Development Board[20] (HDB) framework.

7 Housing Withdrawals

Housing withdrawals from CPF have increased over the years (Fig. 17). A quarter of all CPF withdrawals is used to service housing expenses such as down payments, mortgages, and fees. Under the CPF Public Housing and Private Properties schemes,

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[18] https://www.cpf.gov.sg/Assets/members/Documents/RetirementPayouts.pdf and CPF Retirement Planning Booklet https://www.cpf.gov.sg/Assets/members/Documents/RetirementPlanningBooklet_Eng.pdf.

[19] The expenditure data exclude imputed rental of owner-occupied accommodation (Department of Statistics).

[20] Singapore's public housing authority (HDB).

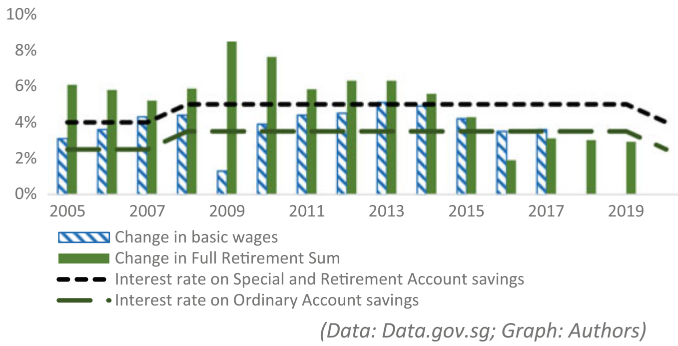

Fig. 16 Changes in nominal wage, retirement sum and CPF interest

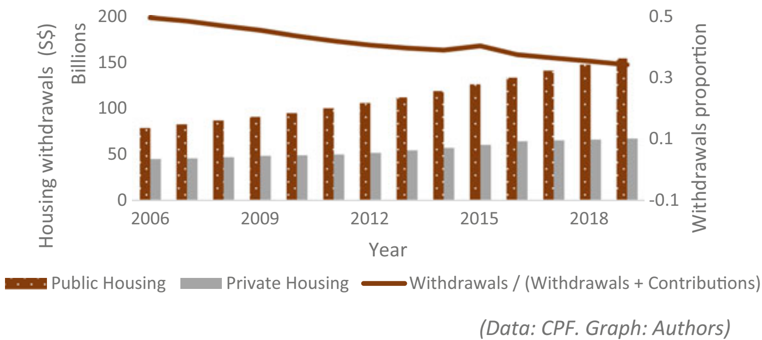

Fig. 17 Housing withdrawals from CPF

CPF members can withdraw up to their full OA savings, subject to a withdrawal limit of 120% of the home valuation, to finance their home purchases. The cash withdrawal amount is significant given that as much as 62.2% (August 2020) of CPF contributions are allocated under the OA.

We plot some broad patterns using available aggregate statistics, controlling for membership sizes. Figure 18 plots average[21] CPF figures available for 2014–2017. We observe an acceleration in the RA balance relative to its trend line around 2015. In contrast, there is no significant change in the positive trends for the SA and OA balances used to fund the RA. Increases in the SA and OA balances remain steady,

[21] Using end-of-year figures commonly available for the years 2014 to 2017, we compute average housing withdrawals based on the available number of CPF members of housing. We compute average RA balances over the number of members aged above 55. We compute average SA balances over the number of CPF members aged 55 and below. We compute average OA balances over both age brackets. We do not have the figures of other withdrawals such as for education loans. To the extent that the RA starts from age 55 and not 56, these account averages are subject to some measurement error. However, the measurement error applies consistently across the account types and study period.

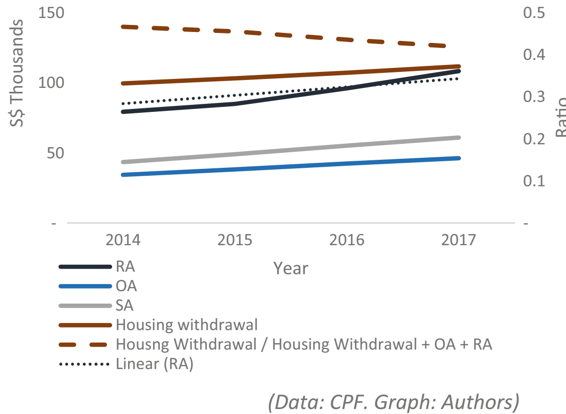

Fig. 18 Relative housing withdrawals

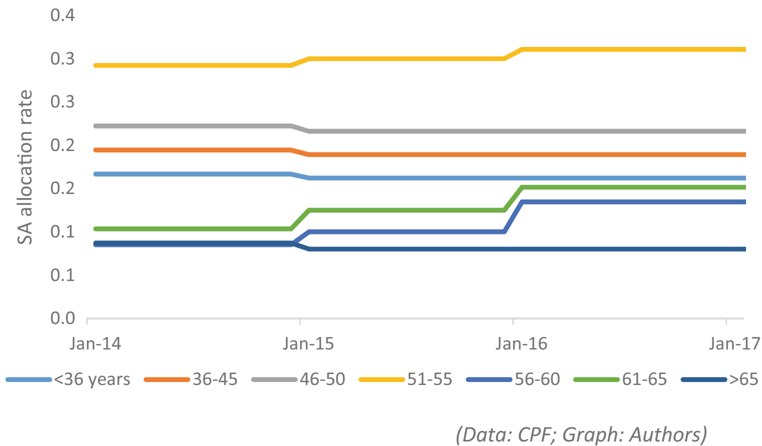

Fig. 19 SA allocation rates

perhaps due to generally stable allocation rates across all age brackets (Figs. 19 and 20).

CPF housing withdrawals decline relatively (downward sloping dash). Since any RA savings in excess of the BRS can also be used for housing purposes,[22] a trendwise rise in the RA balance might reflect relatively lower housing withdrawals from the account. If lower housing withdrawals were associated with higher RA balances, we may expect lower housing withdrawals from the CPF account to have a positive impact on pension income.

[22] https://www.mom.gov.sg/newsroom/parliament-questions-and-replies/2016/0324-written-answer-by-mr-lim-swee-say-pq-on-using-cpf-sa-and-ra-for-housing.

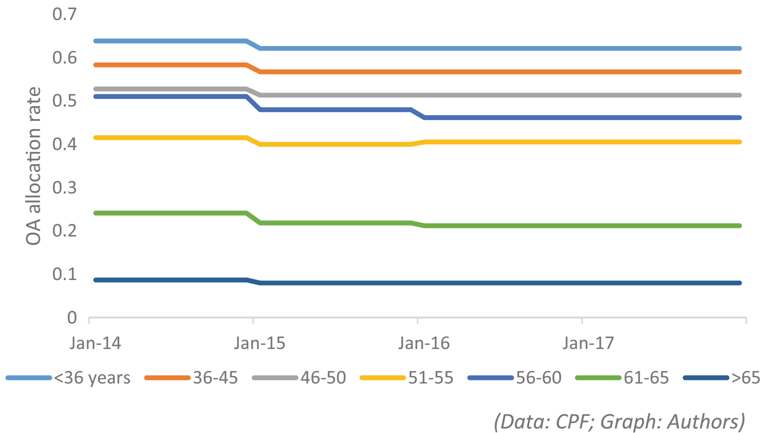

Fig. 20 OA allocation rates

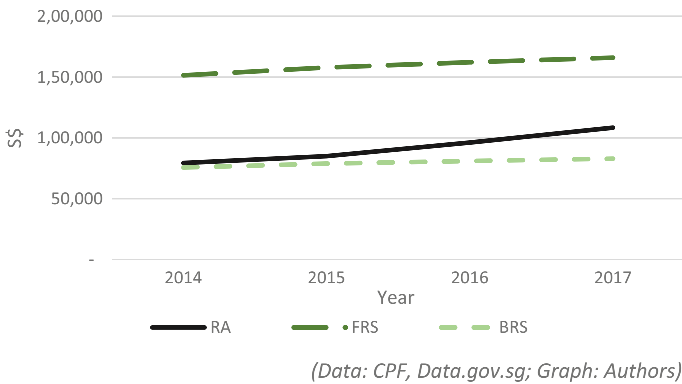

Fig. 21 RA relative to retirement sums

As a further investigation, we further examine the RA pattern in relation to the mandatory retirement sum. Figure 21 plots the positive trend in the mandated sum for retirement over the years and we do not observe any accelerated increase in the retirement sum that may otherwise cause a steeper rise in average RA savings observed around 2015.

Figure 22 plots a possible interplay with the housing market. The housing price index should positively affect housing expenditures, thereby OA housing withdrawals, *ceteris paribus*. The average RA balance increases as housing prices deflate, evident across different property types. Interestingly, the decline in the public[23] housing price index coincides closely with the first auto inclusion of CPF LIFE in 2013. After this year, CPF LIFE pensioners can no longer withdraw from the RA

[23] This phenomenon is less obvious for private housing prices.

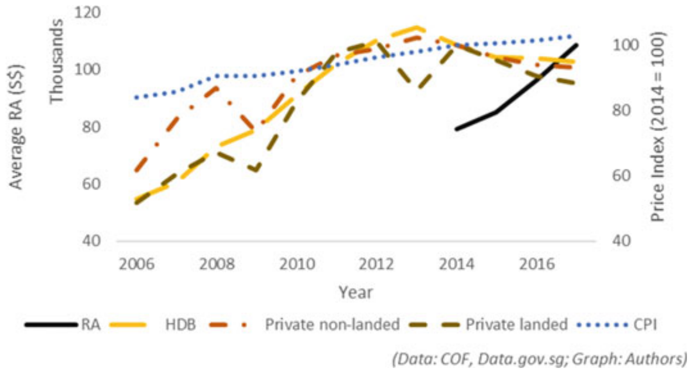

Fig. 22 RA and housing prices

for property purchases (Dayani, 2020). As a comparison, we include the trend for the consumer price index. We do not observe any response in the general price trend following the CPF LIFE implementation in 2009.

Taken together, these patterns suggest that OA savings and RA balances that are set aside to support retirement needs should be guarded to avoid excessive withdrawals for housing consumption. Consider this also in the following light. Perhaps as a deliberate policy by the CPF Public Housing Scheme, a significant 70.8 percent[24] of resident households own HDB[25] flats, which are typically 99-year leaseholds, with prices that may start from S$75,000 to S$484,00033[26] (HDB, Annual Report 2018/19; US$54,877 to US$354,138). Nationally, these noncash assets account for over 47.1 percent[27] of the financial portfolio (excluding CPF) in the first quarter of 2020. By implication, housing equities constitute a dominant fraction of household wealth for the elderly in Singapore who have their own homes but a limited income. It is of no surprise that Singapore's elderly tend to be asset-rich but cash-poor (The Straits Times, 17 September 2014). McCarthy et al. (2002) simulations indicate that a typical Singapore worker would have approximately 75 percent of his retirement wealth in housing assets from age 50.

8 Aging-In-Place

The Singapore Government set up two ministerial-level committees to deal with aging issues in 2004: the Inter-Ministerial Committee on Aging Population (IMC) and the

[24] Computed based on 1,079,200 million resident households residing in HDB dwellings in 2019 (Department of Statistics); and 90 percent of HDB resident households own their homes (HDB, 2020).

[25] See earlier footnote for description.

[26] In 2018/2019 dollars.

[27] Computed based on household sector balance figures from the Department of Statistics.

Committee on Aging Issues (CAI). These whole-government mechanisms have the task of developing strategies that address the potential needs of aging residents in terms of housing, medical, retirement, and social support, among others.

One policy thrust both committees have been pushing is the concept of " "aging-in-place," which is defined as" growing old in the home, community, and environment that one is familiar with, with minimal change or disruption to lives and activities. This is to promote social integration where the needs of seniors can be met within the community, rather than segregate them as a distinct and separate group of the population. "(CAI, 2006)."

Singaporeans expressed a strong preference to continue living in regular housing rather than specialized retirement housing or communities. A smaller proportion of respondents also expressed a desire to live with or be near their loved ones as they age. Most Singaporeans also seem to espouse this idea of aging, according to HDB and URA surveys, suggesting that this is indeed a direction that has broad national support.

9 Housing Monetization Options

Housing monetization refers to the conversion of household wealth from a more illiquid source, such as housing, to a more liquid one. This is often done to finance current expenditures for their living expenses. Housing monetization options become increasingly important as households age and have a large proportion of their wealth locked in their housing, particularly more pronounced for HDB households. The main housing monetization options for Singaporean households are (i) the Lease Buyback Scheme, (ii) Downsizing, and (iii) subletting.

10 Lease Buyback Scheme (LBS)

Launched in March 2009, the Lease Buyback Scheme (LBS) allows homeowners to partially monetize their properties and boost their retirement adequacy while living out their retirement in their flats. The LBS started as a new monetization option to help elderly households in three-room or smaller flats unlock their housing equity to meet their retirement needs. In a press release statement in February 2009, the HDB mentioned how the "LBS enables the elderly to age in place comfortably" and how elderly Singaporeans would be able to "continue to stay in their flats, in the same familiar environment and community that they have grown accustomed to." It was further added that the policy is particularly helpful to low-income elderly households of smaller flats who are unable to take advantage of other monetization options, such as downsizing.

The LBS is an equity sale scheme[28] targeting HDB flat owners aged at least 65. The purpose is for the elderly to convert their real wealth into CPF monies. For this, homeowners sell their choice length of the lease[29] to the HDB. Proceeds are used to top up the RA, from which the savings can be used to join CPF LIFE (HDB, 2020).[30] Owing to the resultant increased savings in the RA, the lease seller can expect to receive a higher stream of pension (pension supplement). The model requires such owners to sell their HDB flats with a minimum of 20 years in the balanced lease, and at the same time the owners must retain enough balanced leases to last them until at least age 95. Unlike with reverse mortgage under collateral arrangements, LBS owners do not face any property equity risks (MND, 29 Feb 2016).. The LBS market may sustain better than commercial reverse mortgages, where suppliers bear property equity risks that undercut any profit. In their simulations, Chia and Tsui (2005) show that there is a negligible probability of loss in the HDB LBS against a 0.58 probability of loss for private suppliers of reverse mortgage schemes.

The government has made various enhancements to the LBS in April 2010,[31] February 2013,[32] April 2015,[33] and 1 January 2019 to expand the eligibility of the scheme to more seniors. While the LBS was first only open to elderly households living in three-room or smaller HDB flats, the scheme was extended in 2015 to elderly households living in four-room flats. The eligibility age limit has also been extended from 62 to 65 years. In August 2019, Minister for National Development Lawrence Wong further announced lifting restrictions for five-room and larger HDB flat owners. The 2019 enhancement to extend the LBS to five-room and larger flats has made the LBS available to the elderly living in larger flats so that many more can benefit from the scheme and aging-in-place.

The income ceiling was also raised from S$3,000 to S$12,000 (US$2,195 to US$8,780), which allows more senior households to participate in the program. LBS

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[28] Ministry of Development, Singapore. "Written Answer by Ministry of National Development on Reverse Mortgages," 29 February 2016.

[29] Proceeds from the lease sale to the HDB must top up the RA to the age-adjusted Full Requirement Sum (for sole home owners) or Basic Retirement Sum (for more than one owner). Up to S$100,000 of the first round of balance may be kept as cash, beyond which owners have to use the remaining amounts to further top up their RAs to the *current* Full Retirement Sum before they can apportion the rest in cash (CPF, 2020).

[30] https://www.hdb.gov.sg/cs/infoweb/residential/living-in-an-hdb-flat/for-our-seniors/monetising-your-flat-for-retirement/lease-buyback-scheme.

[31] The LBS was extended to (a) elderly who had previously owned four-room or bigger flat (they enjoy a government subsidy of $5,000 under the LBS); and (b) those with an outstanding loan of more than $5,000 but would have proceeds of at least $60,000 for the purchase of an Immediate Annuity under the CPF LIFE.

[32] Enhancements included lowering of CPF RA top-up requirements, relaxation of eligibility criteria (no restriction on past housing subsidies consumed, ex-private property owners, or those with outstanding loan of more than $5,000) and increase of LBS bonus to $20,000.

[33] Enhancements included extension to four-room flats, raising of income ceiling to $10,000 (further raised to $12,000 on 24 August 2015, relaxation of top-up requirements for households with two or more owners and availing households of the choice of retaining the lease (15 to 35 years, in five-year increments).

participants can age in place by continuing to stay in their flats for a period varying from 15 to 35 years—while receiving HDB bonuses, cash, and top-ups to their CPF RA in exchange for the tail-end of their leases.

As of 2018, there were 130,000 elderly households eligible for the LBS (*The Straits Times*, 1 January 2019). From 1 March 2009 until 31 August 2019, 4,242 households took up the LBS (HDB, 2020). The take-up was low at approximately 3,100 or 2.4% as of October 2018, but increased significantly to 24.0% in 2019. The take-up is likely to rise further as Singapore ages over the next decade (Sing, 2018).

11 Other Monetization Options

11.1 Downsizing

Downsizing can be done by selling existing homes on the open market and purchasing a cheaper house. The houses that these owners eventually shift into are typically smaller in size. The cash proceeds obtained from the sale can be used to finance their current living expenditure or to purchase an annuity to generate another income stream for themselves. Elderly people who downsize typically previously resided in a property that is larger than they need, usually in cases where their adult children have moved out. The process, however, involves high search and monetary costs. Studies by Phang (2017) using the Singapore Life Panel from Singapore Management University reported that respondents typically estimate a one-in-three chance to sell their house as part of their downsizing plans.

11.2 Subletting

Subletting or renting out part of one's residential properties is also another option for elderly households, with at least one spare room available for rent. This option, however, proved to be unpopular among the elderly. In a study by the MND, only 10% of the eligible elderly households engaged in any subletting activity to earn additional income. The majority of respondents who did not sublet cited reasons such as privacy and security concerns, lack of spare room, and no need for rental income.

11.3 Reverse Mortgages

Similar to the LBS, reverse mortgages (RMs) allow homeowners to borrow money using the equity value of their property as collateral. RMs have been available to

private property owners since 1997 through lenders such as OCBC and NTUC Income. It was not until July 2002 that commercial bank loans were allowed to replace HDB loans to purchase HDB flats starting from January 2003. In 2006, the CAI in their report recommended for the HDB to work with financial institutions to offer RMs for elderly HDB lessees. The scheme, however, abruptly fell out of favor with the banks, homeowners, and policymakers from 2007 to 2008 following the property market downturn where housing values fell sharply. RMs are not available today in Singapore but are often compared to the LBS initiative.

12 Other Pension Schemes

The CPF forms the pillar of Singapore's pension system and provides for most of the social security functions, but there are other schemes, such as the Supplementary Retirement Scheme (SRS), to complement the CPF. Beginning in 2001, the SRS (Ministry of Finance)[34] is operated by Singapore's three main banks—DBS Ltd., OCBC Ltd. and UOB Ltd. It is a voluntary scheme for all[35] residents as well as foreigners, with the advantage of tax benefits on the contributions. For an income base of S$102,000 (2016; US$74,632), the contribution rate is 15% for nonforeigners and 35% for foreigners. Withdrawals can be made any time, but tax and penalties apply depending on the statutory retirement age or prematurity.

13 Summary

The CPF is the single major pension system in Singapore. The government has a complex plan to ensure that residents fund their own retirement. For most Singaporeans, the CPF is more than a pension fund per se: it is the prescribed means of securing shelter into retirement. The CPF lends itself heavily to key markets in the economy. One corollary is that housing consumption expenditure is essential to CPF policies, and property wealth activity becomes an important channel to improve pension income. The LBS is a pension financing instrument to subsist retirement needs. While it differs from the traditional reverse mortgage, decisions around it can be very sophisticated so members would benefit from financial literacy. We can expect the CPF to continue growing as it develops its life cycle approach.

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[34] https://www.mof.gov.sg/docs/default-source/mof-for/individuals/srs/srs_booklet---7-dec-2017e42cafd2dab847f78b5cfb6919b476b2.pdf.

[35] Subject to eligibility conditions. For more details refer to the Ministry of Finance website.

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The Chinese Pension System: The Fragmented System

Zining Liu

Abstract This chapter provides a detailed overview of the reform and current state of the pension system in China. China is the largest developing country in the world and is facing an aging population before becoming rich. It is a challenge to provide adequate retirement sources for the elderly if we only consider traditional family support as old-age support. Therefore, the pension system in China has developed in recent years to establish a three-pillar framework. The first pillar of the pension system includes the Employee Basic Pension (EBP) and Resident Basic Pension (RBP), which provide the major retirement security for the Chinese population. The second pillar of the pension system includes the enterprise annuity for employees in urban enterprises and the occupational annuity for employees in the government and public institutes. The third pillar of the pension system is personal annuity insurance, which has been developed in recent years and is still in an early stage. Two major problems exist in the current pension system in China. The first problem is the fragmented public pension system, which provides unequal retirement security between employees who are formally employed and other residents. The second problem is the low demand for private pension programs and the less-developed market for the private pension market.

1 Economic and Demographic Backgrounds

Since the founding of the People's Republic of China, the country has achieved great success in economic development as well as reducing poverty. More specifically, as shown in Table 1, from 1952 to 2019, gross domestic product (GDP) increased by 1,459 times, and per capita GDP increased from 119 yuan to 70,890 yuan. Other economic indicators, such as fiscal revenue, foreign direct investment, and exported goods' value, also indicate that the economy in China has improved in the past few decades.

Z. Liu (✉)
School of Insurance, Central University of Finance and Economics, Beijing, China
e-mail: ziningliu@cufe.edu.cn

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Table 1 Economic trends in China

Category	1952	2019	Growth
GDP	RMB 67.9 billion	RMB 99.1 trillion	1,459 times
Fiscal revenue	RMB 6.2 billion (in 1950)	RMB 19.0 trillion	12% annually on average
Industrial added value	RMB 12 billion	RMB 31.7 trillion	2,642 times
Per capita GDP	RMB 119	RMB 70,892	595 times
Nonfinancial FDI	US $ 920 million (in 1983)	US$ 138 billion	150 times
Exported goods' value	US $ 1.9 billion	US $ 5.3 trillion	2,789 times

Source Statistical Communiqué of the People's Republic of China on the National economic and social development, National bureau of statistics

Table 2 presents the improvement of living standards in the People's Republic of China by showing the welfare indicators at different times, including in the early years after its founding, 1980, and 2018. For the poverty status shown in Table 2, the rural poverty incidence decreased from 96.2% in 1980 to 1.7% in 2018, indicating the poverty reduction progress achieved by China. Moreover, the national average education level is increasing; for example, the gross enrollment rate for higher education has increased from 2.22% in 1980 to 48.1% in 2018.

However, as the largest developing country, China is facing the challenge that it is "becoming old before getting rich". The total population in 2019 was 1.40 billion. As shown in Fig. 1, the old population (the population aged 65 and over) is expected to increase from 24.6 million in 1950 to 176.0 million in 2019 and further increase

Table 2 The improvement in living standards in China

Index	Early years after 1949	1980	2018
Rural poverty rate under the current poverty line	Extreme poverty	96.2%	1.7%
Per capita disposable income	RMB 98 (in 1956)	RMB 171 (in 1978)	RMB 28,228
Life expectancy	35	65	77
Infant mortality rate	200‰	48‰	6.1‰
Preschool enrollment rate	20%	95.5% (in 1978)	Completion rate of nine-year compulsory education: 94.2%
Gross enrollment rate for higher education	0.22%	2.22%	48.1%
Average years of schooling for people aged 15 and above	80% illiterate	5.3	9.6

Source National bureau of statistics

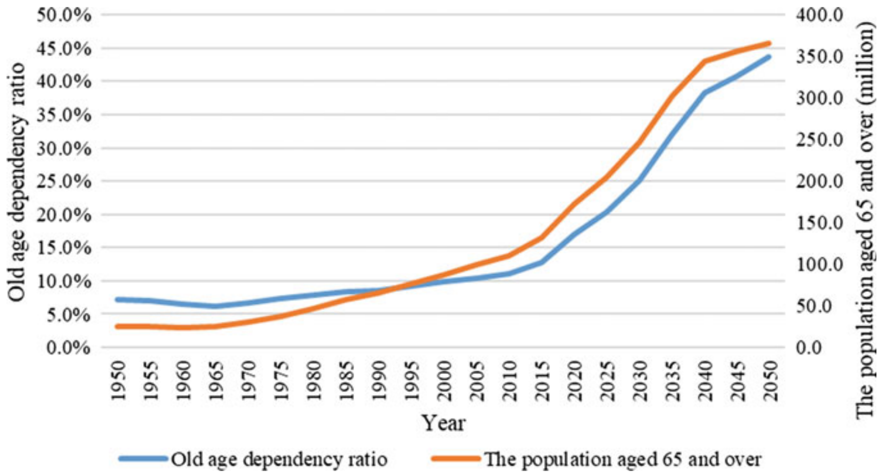

Fig. 1 Old-age population in China, 1950–2050. *Source* United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019, Online Edition. Rev. 1

to 365.6 million in 2050. The old-age dependency ratio (the ratio of the population aged 65 and over to the population aged between 15 and 64) is expected to increase from 7.2% in 1950 to 43.6% in 2050.

The aging population in China is mainly due to increased life expectancy and a lower fertility rate in recent years, as shown in Fig. 2. Life expectancy[1] increased from 43.7 in 1960 to 76.7 in 2018. The fertility rate[2] decreased from 5.76 in 1960 to 1.69 in 2018. Given the fast population aging, the pension system in China has to face the challenges of a dwindling labor force and the pressure to provide retirement security.

2 The Overview of the Pension Systems

2.1 Framework of Pension Systems

The Chinese pension system has three pillars: public pension system, employer-sponsored annuity program, and personal annuity insurance (Fang & Feng, 2018).

The first pillar, the public pension system in China, has undergone several reforms since the 1950s and aims to achieve universal coverage in recent years. Until 2020,

[1] Life expectancy at birth indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life.

[2] Total fertility rate represents the number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children in accordance with age-specific fertility rates of the specified year.

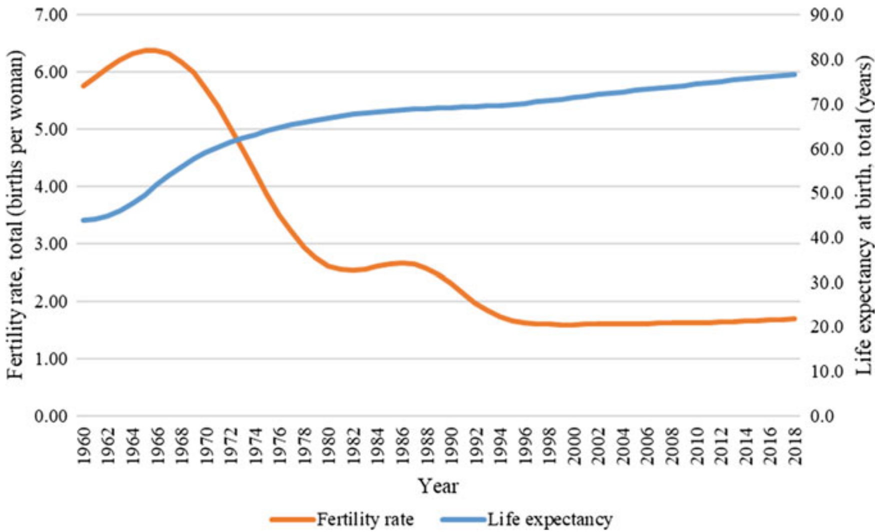

Fig. 2 Fertility rate and life expectancy in China, 1960–2018. *Source* World development indicators, The World Bank, https://www.data.worldbank.org/indicator/

the system encompassed two major schemes that are intended to cover all formal employees and other residents. The first major scheme includes the Urban Employee Basic Pension (UEBP) and Public Employee Pension (PEP), which were merged as the Employee Basic Pension (EBP) in 2015 (see Table 3 and Fig. 3). The second major scheme includes the Urban Resident Basic Pension (URBP) and New Rural Resident Basic Pension (NRBP), which were merged into the Resident Basic Pension (RBP) in 2014 (see Fig. 3). EBP participants are employees in urban enterprises, the government, and public institutes. RBP participants are other residents not involved in the EBP.

The second pillar includes the enterprise annuity for employees in urban enterprises and the occupational annuity for employees in the government and public institutes. The Enterprise Annuity was introduced in 1991 and has grown considerably in recent years. The contribution of employers and employees constitutes an individual account, while part of the investment return of the enterprise annuity contributes to the individual account, and the rest of the investment return constitutes an enterprise account. A document released by the Ministry of Human Resources and Social Security (MOHRSS) in 2011 (see Table 3) further made requirements about the fund management of the Enterprise Annuity. As part of the pension system reform for the PEP in 2015, employers such as the government and public institutes are required to provide the Occupational Annuity as a complement to public pension benefits provided by the first pillar. The contribution of employers and employees as well as the investment return of the Occupational Annuity fund contributes to the individual account. A document released by the MOHRSS and Ministry of Finance in 2016 (see Table 3) further made requirements about the fund management of the Occupational

Table 3 Pension law and the administrative authority

Pension programs	Pension laws	Year	Administrative authority	Content
Employee basic pension (EBP)	Decision on reforming the urban employee basic pension for enterprises	1991	The state council	Build a retirement security system supported by individuals, employers, and the government
	Announcement on deepening the reform of the urban employee basic pension for enterprises	1995	The state council	Implement one pay-as-you-go (PAYG) system and one fully funded system
	Decision on establishing a unified urban employee basic pension for enterprises	1997	The state council	Individual contribution rate is 11%; employer contribution rate is 20%; minimum contribution years: 15; annuity factor: 120
	Decision on improving urban employee basic pension for enterprises	2005	The state council	Involve the self-employed; change the individual contribution rate from 11 to 8%; supplement individual account which has been used to support the PAYG pillar
	Decision on reforming the public employee pension for the government and public institutes	2015	The state council	Merge PEP into UEBP; require individual contribution for employees in PEP
Resident basic pension (RBP)	Guidelines on the pilot program of new rural resident basic pension	2009	The state council	Implement one pay-as-you-go (PAYG) system and one fully funded system; Require contribution from central and local government, and local community; individual contribution (RMB 100 - 500)

(continued)

Table 3 (continued)

Pension programs	Pension laws	Year	Administrative authority	Content
	Guidelines on the pilot program of urban resident basic pension	2011	The state council	Implement one pay-as-you-go (PAYG) system and one fully funded system; Require contribution from central and local government, and local community; individual contribution (RMB 100 - 1,000)
	Opinions on establishing a unified resident basic pension for urban and rural residents	2014	The state council	Implement one pay-as-you-go (PAYG) system and one fully funded system; Require contribution from central and local government, and local community; individual contribution (RMB 100 - 2,000)
Enterprise annuity and occupational annuity	Announcement on the fund management of enterprise annuity (amended in 2015)	2011	MOHRSS	Fund investment, information disclosure, supervision, and so on
	announcement on occupational annuity for the government and public institutions	2015	General office of the state council	Fund-raising channels, fund management, payment, and so on
	announcement on the temporary fund management of occupational annuity	2016	MOHRSS and ministry of finance	Fund investment, information disclosure, supervision, and so on
	Enterprise annuity measures	2017	MOHRSS and ministry of finance	Fund-raising channels, fund management, payment, and so on
Personal annuity insurance	Announcement on the pilot program of individual tax deferred commercial pension	2018	Ministry of finance	25% of the commercial pension income is tax exempt

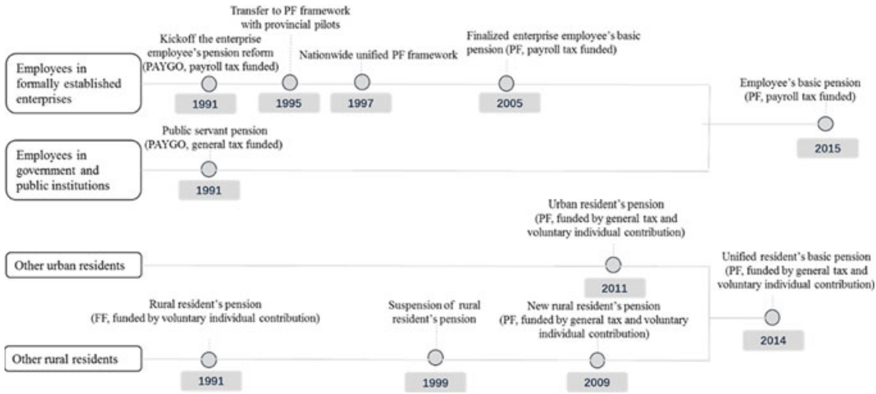

Fig. 3 Chinese public pension system (Zheng et al., 2019). *Notes* PAYG (pay-as-you-go); PF, partially funded; FF, fully funded

Annuity. The contribution of employees is fully funded in the accounts for both the Occupational Annuity and Enterprise Annuity. The Occupational Annuity differs from the Enterprise Annuity in that the employer's contribution to the Occupational Annuity is notional for those employers fully supported by government finance.

The third pillar is personal annuity insurance, which has been developed in recent years. More specifically, the document released by the Ministry of Finance in 2018 (see Table 3) announced the pilot program of individual income tax deferred annuity insurance products in some cities, including Shanghai, Fujian Province and Suzhou Industrial Park.

2.2 *Pension Law and the Administrative Authority*

The Social Insurance Law enacted in 2011 and amended in 2018 helps to enforce the regulations that require individual contributions as well as employers' contributions for their employees. Although the public pension system is established by the State Council (see Table 3), it is regulated by the MOHRSS. Moreover, local governments are responsible for managing these schemes and have the right to decide the basic pension benefit in the Resident Basic Pension. Thus, the serious inequalities in the generosity of public pension schemes across different locations lead to the fragmented nature of the public pension system. This feature also leads to portability challenges when individuals change their employment to a different public pension administrative region (Fang & Feng, 2018).

The second pillar—the Enterprise Annuity and Occupational Annuity—must be established in urban enterprises, the government, and public institutes. The fund management of the Enterprise Annuity is regulated by the MOHRSS as required by the document released in 2011 and amended in 2015 (see Table 3). The fund

management of the Occupational Annuity is regulated by the MOHRSS and Ministry of Finance as required by the document released in 2016 (see Table 3).

The third pillar has been in the pilot program stage since 2018 (see Table 3) and is regulated by the Ministry of Finance, MOHRSS, and the Taxation Administration. Meanwhile, China Banking and Insurance Information Technology Management Co., Ltd. is responsible for regulating the individual account of personal annuity insurance and provides basic services such as individual account management, information inquiry, tax audit, external supervision, and other related services for the government.

3 Public Pension Programs

3.1 The History of the Public Pension System

In this section, we introduce the history of the public pension system as well as the current states of the public pension system, including the Urban Employee Basic Pension (UEBP), Public Employee Pension (PEP), Urban Resident Basic Pension (URBP), and New Rural Resident Basic Pension (NRBP).

Urban Employee Basic Pension (UEBP)

The UEBP was announced as labor insurance to cover employees in urban enterprises in 1951, and the government set up a labor insurance fund to pay for retirees. In 1966, the labor insurance was canceled, and the enterprise affords the benefits in the UEBP. After that, the UEBP improved in 1991, 1995, and 1997 regarding contribution requirements and fund-raising channels. The 1997 reform confirmed the finalized system of the UEBP, which combined one pay-as-you-go system and one fully funded system. The eligible retirement age in the UEBP is 50 for female workers, 55 for female cadres, and 60 for males, while individuals can choose to retire early if the contribution history satisfies 15 or more years.

- **Pay-as-you-go system**: The enterprise is required to contribute 20% of the wage paid to the workforce, and this contribution constitutes the social pooling account. The social pooling account is a pay-as-you-go system, and the employee can obtain the basic pension from this account according to the number of contribution years, the indexed individual wage, and the local average wage. To be more specific, the basic pension pays 1% of the average of the indexed individual wage and the local average wage for each year of coverage, subject to a minimum of 15 years of contributions. The pension in payment is indexed to a mix of wages and prices, which has been approximately 10% in recent years.
- **Fully funded system**: The employee is required to contribute 8% of his/her wage, and this contribution constitutes the individual account. The individual account is a fully funded system, and the employee can obtain the pension from this accumulated individual account. The monthly benefits in the individual account

Table 4 Annuity factor at different retirement ages

Age	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
Annuity factor	233	230	226	223	220	216	212	208	204	199	195	190	185	180	175	170
Age	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	
Annuity factor	164	158	152	145	139	132	125	117	109	101	93	84	75	65	56	

are the accumulated amount divided by the annuity factor (expected number of months in retirement, see Table 4), which is 139 if retired at age 60.

Public Employee Pension (PEP)

The PEP was also announced as labor insurance, the same as the UEBP, to cover employees in the government and public institutes in 1951, and the government set up the labor insurance fund to pay for retirees (Table 5). The PEP is mandatory for all employees in the government and public institutes. In 1978, the PEP was finalized as a pay-as-you-go system, and the workers were not required to contribute since the government tax affords all expenditures in this system. In 2015, the PEP was merged into the UEBP as a uniform system called the EBP. The employees in the government and public institutes need to establish a social pooling account and an individual account as required in the UEBP. In 2019, the government decided to lower the contribution rate in the social pooling account from 20 to 16%. Henceforth, the EBP system is finalized and aims to cover all employees in the formal sector (i.e., enterprises, the government, and public institutes). The EBP is mandatory for all employees in urban enterprises, while the self-employed can choose to voluntarily participate in the UEBP.

Urban Resident Basic Pension (URBP) and New Rural Resident Basic Pension (NRBP)

Retirement security for rural and urban residents has been underdeveloped for a long time. The NRBP and the URBP were established in 2009 and 2011, respectively. The residents can choose to participate in these two systems voluntarily. These two systems were merged into one uniform system as the RBP in 2014. The RBP combines one pay-as-you-go system and one fully funded system.

- **Pay-as-you-go system**: In the pay-as-you-go system, the government contributes to each resident, and the participant can receive 88 yuan per month[3] as the minimum basic pension. Local government can increase the minimum basic pension according to its own economic development and local government revenue. The basic pension provided by government finance in the pay-as-you-go system constitutes part of the total benefit of the RBP.

[3] The minimum basic pension was 55 yuan when the NRBP and URBP were first established, increased to 70 yuan in 2014 and further increased to 88 yuan in 2018.

Table 5 Public pension system in China

Scheme		Participants	Contribution and benefit
EBP	UEBP (Established in 1951; finalized in 1997)	Employees in urban formal enterprises (mandatory)	Basic pension in the social pooling account (Pay-as-you-go, 16% of payroll) Pension in the individual account (Fully funded, 8% of individual wage)
	PEP (Established in 1953; finalized in 1978, merged with UEBP in 2015)	Employees in the government and public institutes (mandatory)	Average replacement rate 90% (No contribution required before the merger while with the same contribution requirements with the UEBP after the merger)
RBP	URBP (2011)	Urban residents (voluntary)	Basic pension in the social pooling account (Pay-as-you-go, government subsidy) Pension in the individual account (Fully funded, 100 yuan to 2,000 yuan every year)
	NRBP (2009)	Rural residents (voluntary)	

- **Fully funded system**: In the fully funded system, the participant can choose to contribute from 100 yuan to 2,000 yuan (100, 200, 300, 400, 500, 600, 700, 800, 900, 1,000, 1,500, 2,000) each year. A participant who is not involved in the EBP with a contribution history of 15 or more years is eligible to receive the basic pension when reaching 60 years old and over. The total benefit of the RBP includes the pension from the individual account. The monthly benefit in the individual account is the accumulated amount divided by the expected number of months in retirement, which is 139 if retired at age 60. However, the elderly, who were already 60 years old when the NRBP and URBP were established, can receive the minimum basic pension for free.

3.2 Basic Statistics of the Public Pension System

Coverage rate

Because of the expansion of the public pension system to rural residents and urban residents in 2009 and 2011, the population involved in the public pension system has increased dramatically since 2010. The coverage rate (i.e., the proportion of the population affected by the EBP and RBP to the population aged 15 and over) increased from 32.2% in 2010 to 81.3% in 2018 (see Fig. 4). The population covered by the RBP increased from 102.8 million in 2010 to 532.7 million in 2018, a five-fold increase.

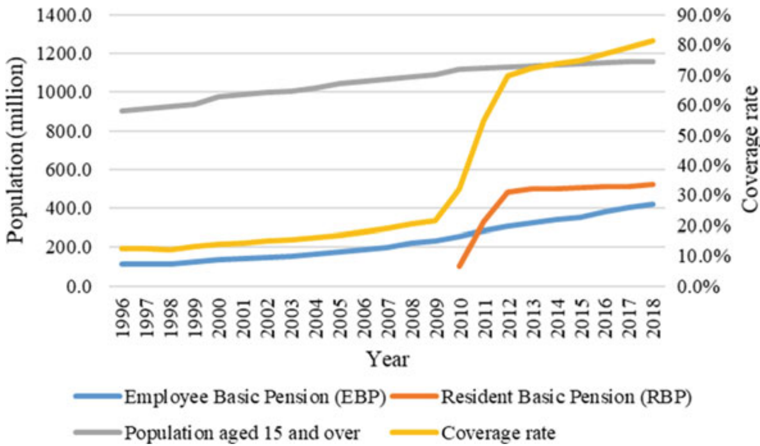

Fig. 4 Coverage rate of the public pension system. *Source* National bureau of statistics and ministry of human resources and social security fund revenue and expenditure

Fund revenue and expenditure

Table 6 presents the revenue, expenditure, and accumulative surplus of the public pension system. It is obvious that the pension fund scale of the UEBP is larger than that of the RBP since the revenue is 5,291.9 billion yuan for the UEBP and 410.7 billion yuan in 2019 for the RBP. The pension fund scale of the RBP has increased rapidly in recent years, from 45.3 billion yuan in 2010 to 410.7 billion yuan in 2018.

Replacement rate

Figure 5 presents the average pension (pension benefits per pensioner in UEBP), the average wage of urban workers, and the average replacement rate (pension benefits per pensioner as a percentage of the average wage of workers). The results show that the replacement rate decreased from 73.2% in 1996 to 44.2% in 2019, reflecting the fact that it is a challenge to provide sustainable and stable retirement security for elderly Chinese people.

3.3 Other Retirement Income Sources Provided by the Government

The Chinese government also provides an Old-Age Pension Allowance to maintain adequate retirement security for people aged 80 and over. In 2019, 31 provinces in China established the Old-Age Pension Allowance system, while the eligible age to receive it and the benefit amount were decided by the local government and even differed by region within one province. Most provinces provide 100 yuan per month for the oldest elderly, while the more developed regions provide higher benefits. For

Table 6 Revenue, expenditure, and accumulative surplus of the public pension system (Billion Yuan)

Year	Employee basic pension (UEBP)			Resident basic pension (RBP)		
	Revenue	Expenditure	Accumulative surplus	Revenue	Expenditure	Accumulative surplus
1995	95.0	84.8	43.0			
1996	117.2	103.2	57.9			
1997	133.8	125.1	68.3			
1998	145.9	151.2	58.8			
1999	196.5	192.5	73.4			
2000	227.8	211.5	94.7			
2001	248.9	232.1	105.4			
2002	317.1	284.3	160.8			
2003	368.0	312.2	220.7			
2004	425.8	350.2	297.5			
2005	509.3	404.0	404.1			
2006	631.0	489.7	548.9			
2007	783.4	596.5	739.1			
2008	974.0	739.0	993.1			
2009	1,149.1	889.4	1,252.6			
2010	1,342.0	1,055.5	1,536.5	45.3	20.0	42.3
2011	1,689.5	1,276.5	1,949.7	107.0	58.8	119.9
2012	2,000.1	1,556.2	2,394.1	182.9	115.0	230.2
2013	2,268.0	1,847.0	2,826.9	205.2	134.8	300.6
2014	2,531.0	2,175.5	3,180.0	231.0	157.1	384.5
2015	2,934.1	2,581.3	3,534.5	285.5	211.7	459.2
2016	3,505.8	3,185.4	3,858.0	293.3	215.0	538.5
2017	4,331.0	3,805.2	4,388.5	330.4	237.2	631.8
2018	5,116.8	4,464.5	5,090.1	383.8	290.6	725.0
2019	5,291.9	4,922.8	5,462.3	410.7	311.4	824.9

Source National bureau of statistics and ministry of human resources and social security. The revenue and expenditure of the Resident basic pension in 2010 and 2011 refer to the revenue and expenditure of the New rural resident basic pension

example, in Beijing, the elderly aged between 80 and 89 can receive 200 yuan per month, the elderly aged between 90 and 99 can receive 500 yuan per month, and those aged 100 and over can receive 800 yuan per month. In Gansu Province, the elderly aged between 80 and 89 can receive 100 yuan per month, those aged between 90 and 99 can receive 200 yuan per month, and the elderly aged 100 and over can receive 300 yuan per month.

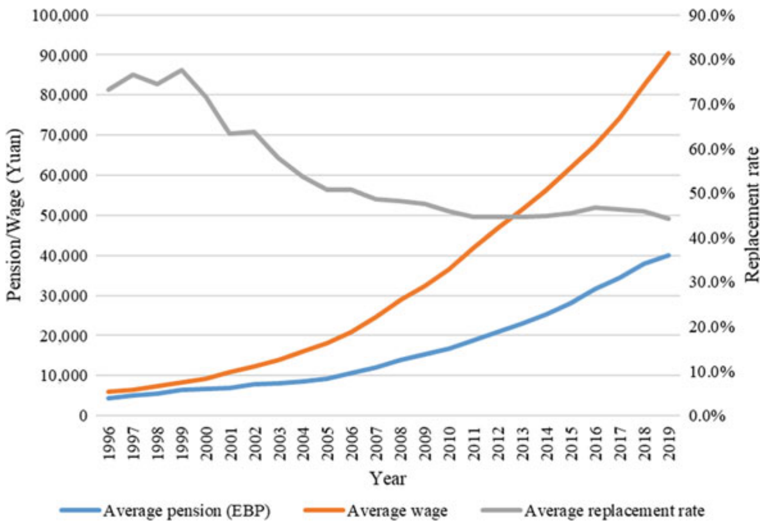

Fig. 5 Average pension, age, and replacement rate. *Source* National bureau of statistics and ministry of human resources and social security

3.4 International Social Security Agreement

China and Japan signed the China-Japan social security agreement in May 2019, and the Chinese document was released by the General Office of the Ministry of Human Resources and Social Security.[4] This document aims to effectively solve the problem of the repeated contribution to public pension programs by employees who are working in China and Japan. The Employee Basic Pension (EBP) in China can be transferred to the National Annuity 国民年金 (excluding the National Annuity Fund) and Welfare Annuity 厚生年金 (excluding the Welfare Annuity Fund) in Japan and vice versa.

China and Korea signed the China-Korea social security agreement in January 2013, and the Chinese document was released by the General Office of the Ministry of Human Resources and Social Security.[5] This document also aims to effectively solve the problem of the repeated contribution to public pension programs by employees who are working in China and Korea. The Employee Basic Pension (EBP), Urban Resident Basic Pension (URBP), New Rural Resident Basic Pension (NRBP), and unemployment insurance in China can be transferred to the National

[4] See the China-Japan social security agreement released by General Office of the Ministry of Human Resources and Social Security in http://www.mohrss.gov.cn/SYrlzyhshbzb/zhuanti/waiguorencanbao/sbsbhmxd/201908/t20190828_331980.html (in Chinese) and https://www.jetro.go.jp/biznews/2019/05/811be39a5ce54fd4.html (in Japanese).

[5] See the China-Korea social security agreement released by General Office of the Ministry of Human Resources and Social Security in http://www.mohrss.gov.cn/SYrlzyhshbzb/shehuibaozhang/zcwj/SHBZzonghe/201301/t20130110_86924.html (in Chinese).

Annuity, Government Civil Servant Annuity, Private School Faculty Annuity, and employment insurance in Korea and vice versa.

China and Germany signed the China-Germany social security agreement in 2002, and the Chinese document was released by the General Office of the Ministry of Labor and Social Security, which merged into the Ministry of Human Resources and Social Security in 2008.[6] This document also aims to effectively solve the problem of the repeated contribution to public pension programs by employees who are working in China and Germany. The public pension programs and unemployment insurance in China can be transferred to public pension programs and the German Employment Promotion program in Germany and vice versa.

4 Public Pension Programs (Employer-Sponsored Annuity Program)

4.1 The History of Employer-Sponsored Annuity Program

The employer-sponsored annuity program is divided into two separate systems in China: the Enterprise Annuity was developed in 1991 and aims to cover employees in urban enterprises; and the Occupational Annuity was developed in 2015 and aims to cover employees in the government and public institutes. These two programs have different setups regarding fund management, contribution rate, payment, and so on.

In 1991, The State Council released an official document "Decision on reforming the Urban Employee Basic Pension for Enterprises" (see Table 3), which mentioned that the pension system supported only by the government and the employer should be changed and suggested that enterprises can voluntarily provide supplementary pensions to the employees. The fund of the Enterprise Annuity can be withdrawn from enterprise capital, employees' welfare funds, or other channels. However, this document only provides a general idea of the Enterprise Annuity without detailed information about fund management, contribution rate, payment, and so on.

In 1995, the Ministry of Labor and Social Security (merged with the Ministry of Human Resources in 2008 as the Ministry of Human Resources and Social Security) released the official document "Opinion on establishing the supplementary pension system for enterprises". This document provides five examples in China and overseas about how to establish the supplementary pension system. This suggests that an individual account can be established. The employer can receive the lump-sum benefit from the Enterprise Annuity or receive it by month or year. The enterprise can decide to use a defined contribution system or defined benefit system as well as the investment return of the individual account. The enterprise should choose a

[6] See the China-Germany social security agreement released by General Office of the Ministry of Labor and Social Security in http://www.mohrss.gov.cn/SYrlzyhshbzb/zhuanti/waiguorencanbao/sbsbhmxd/201203/t20120313_67199.htm (in Chinese).

qualified supplementary insurance agency or establish a self-owned institute to be responsible for fund management. However, this document still does not provide detailed information about the contribution rate, payment, and so on.

The document released by the Ministry of Human Resources and Social Security (MOHRSS) and Ministry of Finance in 2017 provides a clear structure about how to establish the Enterprise Annuity. It requires that the enterprise's contribution to the Enterprise Annuity shall not exceed 8% of total employees' wages in the enterprise and the total contributions from the enterprise and the employees shall not exceed 12% of employees' wages in the enterprise. The contribution of the individual and part of the contribution of the enterprise constitutes an individual account. All of the investment income of individual contributions belongs to the employer himself/herself, while only part of the investment income of the enterprise's contribution belongs to the employer. The enterprise can make an agreement with the employee that all of the enterprise's contribution and its investment income belong to the employee from the beginning, or the employee can gradually possess the enterprise's contribution and its investment income as the employee's working life in the enterprise increases. This document actually requires that the enterprise use a defined contribution (DC) system in the Enterprise Annuity, which means that an individual account with a certain contribution rate is established while the investment return and payment are uncertain.

For the Occupational Annuity, the General Office of the State Council released a document in 2015 (see Table 3) about the fund-raising channels, fund management, contribution rate, payment, and so on for Occupational Annuity. The document requires that public sector employer contributes 8% of the employee's wages and the employee contributes an additional 4%, with tax preferences applied. The contribution of the employer and the employee as well as the investment return of the Occupational Annuity fund contributes to the individual account. Implementation of the Occupational Annuity is still in the initial stage, with little publicly available information about the extent of coverage.

4.2 Fund Management of Employer-Sponsored Annuity Program

For the fund management of the Enterprise Annuity, in 2011, the MOHRSS released the document "Announcement on the Fund Management of the Enterprise Annuity" (amended in 2015), which made clear requirements about the management of the individual account and the investment restriction of the Enterprise Annuity fund:

- The proportion of liquid assets, such as demand deposits, central bank bills, bond repurchases, and monetary funds, shall not be less than 5% of the net asset value of the Enterprise Annuity investment portfolio; the proportion of bond repurchases shall not be higher than 40% of the net asset value of the Enterprise Annuity investment portfolio;

- The proportion of fixed income products (e.g., fixed deposits, agreement deposits, treasury bonds, financial bonds, corporate bonds, universal insurance products, and other fixed-income products), convertible bonds (including convertible bonds for separate transactions), bond funds, and investment-linked insurance products (the proportion of stock investment is not higher than 30%) shall not be higher than 95% of the net asset value of the Enterprise Annuity investment portfolio.
- The proportion of equity products (e.g., stock), equity funds, hybrid funds, and investment-linked insurance products shall not be higher than 30% of the net asset value of the Enterprise Annuity investment portfolio. Moreover, the Enterprise Annuity fund may not directly invest in warrants, while warrants derived from stocks, convertible bonds, and other investment products should be sold within 10 trading days from the date of listing the warrants on transaction.

For the fund management of Occupational Annuity, in 2016, the MOHRSS released the document "Announcement on the Temporary Fund Management of Occupational Annuity." The requirements of Occupational Annuity fund management are similar to those of Enterprise Annuity fund management. The difference is that Occupational Annuity funds have different investment restrictions regarding specific investment products: the proportion of fixed deposits over one year, agreement deposits, treasury bonds, financial bonds, corporate bonds, trust products, financial products provided by commercial banks, fixed-income pension products, and mixed pension products shall not be higher than 135% of the net asset value of the enterprise annuity investment portfolio.

4.3 Tax Policy of Employer-Sponsored Annuity Program

In 2014, the State Taxation Administration released the document "Announcement on Personal Income Tax for Enterprise Annuity and Occupational Annuity." This document provides clear rules about preferential tax policy in employer-sponsored annuity programs. The detailed tax policy is listed below.

- When enterprises, the government and public institutions (hereafter referred to as employers) contribute to the individual account in annuity programs for employees according to the contribution rate required by the government, the employees do not pay personal income tax temporarily for the employers' contribution.
- The contribution by the employee according to the contribution rate required by the government is tax exempt if the contribution rate does not exceed 4%.
- The contribution by the employee and employer exceeding the standard contribution rate is not tax-exempt and should be taxed by being incorporated into the individual's current salary.
- The tax base of personal salary for the enterprise annuity is the average monthly salary of the previous year. The portion of the average monthly salary that exceeds the average monthly salary of the employee in the located city by more than 300% shall not be included in the tax base of the personal salary.

When the investment income of the annuity fund is included in the individual account, the individual does not pay personal income tax temporarily. Individuals who have reached the national retirement age and received monthly annuities will be taxed in full at the tax rate applicable to the item "Wages and Salaries."

4.4 Basic Statistics of the Enterprise Annuity

As shown in Table 7, even though the number of employers involved by the enterprise annuity and the number of providers are increasing by year, the scale of the Enterprise Annuity is still limited as the second pillar in the pension system. In 2019, the scale of the Enterprise Annuity asset was 1,798.5 billion yuan, accounting for 31.5% of the fund revenue of the EBP and RBP (5,291.9 billion yuan and 410.7 billion yuan), indicating that the Enterprise Annuity is still an underdeveloped market. In terms of the number of participants and the number of providers (enterprises) in 2019, the Enterprise Annuity system had 25.5 million participants, representing only approximately 5.9% of the number of UEBP participants (434.9 million). The number of enterprises providing the Enterprise Annuity in 2019 was 96,000, approximately 0.32% of the total enterprises. Total assets stood at approximately 1,798.5 billion yuan at the end of 2019, approximately 1.8% of GDP (99.1 trillion yuan). Enterprises offering pension plans tend to be large state-owned enterprises (SOEs) or monopolistic companies in, for example, the railway, electricity and communication industries (Cai & Cheng, 2014; Impavido, et al., 2009). Employers are increasingly

Table 7 Basic statistics of the enterprise annuity

Year	Employers (thousand)	Employees (million)	Assets (billion yuan)
2007	32.0	9.3	151.9
2008	33.1	10.4	191.1
2009	33.5	11.8	253.3
2010	37.1	13.4	280.9
2011	44.9	15.8	357.0
2012	54.7	18.5	482.1
2013	66.1	20.6	603.5
2014	73.3	22.9	768.9
2015	75.5	23.2	952.6
2016	76.3	23.3	1107.5
2017	80.4	23.3	1288.0
2018	87.4	23.9	1477.0
2019	96.0	25.5	1798.5

Source Summary of national enterprise annuity fund in 2019, Ministry of human resources and social security

offering defined contribution (DC) plans in which they are not responsible for how pension money is invested and do not guarantee a certain benefit. Most employers, however, cannot afford and have little incentive to offer pension plans. Legislation and regulations have played key roles in the development of pension plans.

4.5 Investment Return and Benefits of the Enterprise Annuity

The weighted average investment return rate of the Enterprise Annuity Fund was 8.3% in 2019, while it was once negative in 2008 and 2011. There is no specific trend of the investment return rate, while it has fluctuated around approximately 5% since 2008, as shown in Fig. 6. The investment income of the Enterprise Annuity Fund was 125.8 billion yuan in 2019. The Enterprise Annuity can be invested in both fixed-income assets and equity assets. The number of investment portfolios is increasing by year, and there were 4,327 investment portfolios in 2019. Approximately 72% of investment portfolios have equity assets, while the rest of them only invest in fixed-income assets. The weighted average investment return rate of investment portfolios with only fixed-income assets is 5.67%, while the weighted average investment return rate of investment portfolios with equity assets is 8.89%.

Table 8 presents the number of recipients of the Enterprise Annuity and the benefits received in each year from 2012 to 2019. It shows that the number of recipients is increasing by year. Approximately 1,804,600 people received pension benefits from the Enterprise Annuity in 2019; among them, 144,900 people choose to receive lump-sum benefits, while 1,659,700 people choose to receive benefits in installments. The total benefits received by recipients in 2019 were approximately 49.2 billion yuan; among them, approximately 10.4 billion yuan was received in lump-sum benefits, and approximately 38.9 billion yuan was received in installments. The average benefits received by each recipient in lump-sum benefits were 71,773.6 yuan, and the average benefits received by each recipient in installments were 23,438.0 yuan in 2019.

5 Private Pension Programs

5.1 The History of Personal Annuity Insurance

Regarding personal annuity insurance, in 2017, the State Council released the document "Several Opinions on Accelerating the Development of Commercial Pensions." This document encourages commercial insurance companies to develop diversified commercial insurance products to meet the demands of individuals and families in terms of protecting them against retirement risk and wealth management. It requires that insurance companies develop commercial pension products such as individual

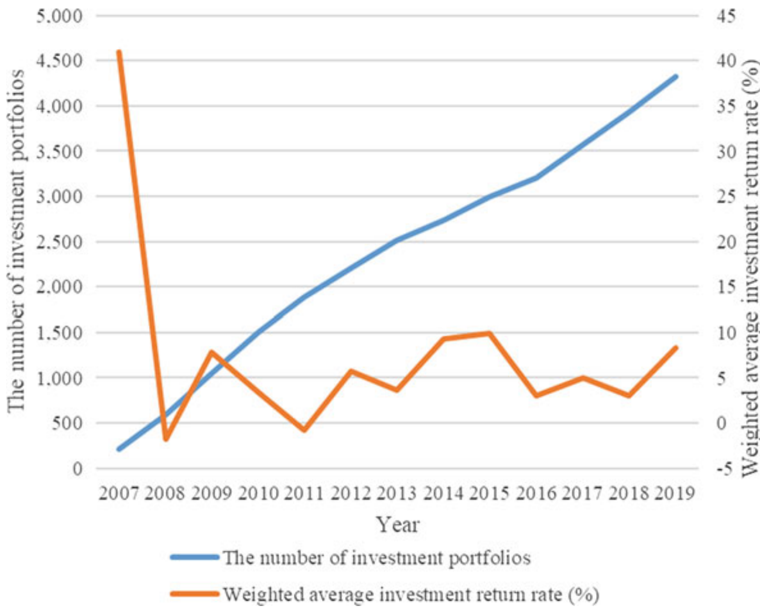

Fig. 6 Investment return and the number of investment portfolios of the enterprise annuity. *Note* The weighted average investment return rate in one year is calculated using the investment portfolios that operate during that year and using the weight of assets scale to average the investment rate. *Source* Summary of national enterprise annuity fund in 2019, Ministry of human resources and social security

Table 8 The number of recipients and benefits of the enterprise annuity

Year	2019	2018	2017	2016	2015	2014	2013	2012
Number of recipients (thousand)								
Total	1,804.6	1,563.5	1,275.1	1,054.8	897.0	476.0	578.3	505.5
Lump-sum	144.9	177.4	171.5	209.3	224.7	202.2	374.1	328.4
Installment	1,659.7	1,386.1	1,103.6	845.5	672.3	273.8	204.2	177.1
Benefits received by recipients (billion yuan)								
Total	49.2	43.9	34.5	29.6	26.1	14.1	19.6	14.8
Lump-sum	10.4	11.7	10.9	10.3	11.1	9.2	16.9	12.8
Installment	38.9	32.2	23.7	19.3	14.9	5.0	2.7	2.1

Source Summary of national enterprise annuity fund in each year, Ministry of human resources and social security

tax deferred commercial pensions and special products targeted at one-child families, families with no children, and "empty nest" families.

Furthermore, in 2018, the Ministry of Finance released the document "Announcement on the Pilot Program of Individual Tax Deferred Commercial Pensions,"

which mentions that 25% of the commercial pension income is tax exempt. Several pilot cities, including Shanghai, Fujian Province and Suzhou Industrial Park, were suggested to provide individual income tax deferred annuity insurance products. The model incorporates income tax deductions for individual premiums and does not tax investment returns, but benefits are subject to income taxation when received by individuals who reach the eligible age. However, the maximum premium that can receive a tax deduction is limited to 6% of one's taxable income or 12,000 yuan, whichever is lower. There are also tax preferences for annuity benefits, with 25% of the annuity free from income taxation.

5.2 Statistics Related to Personal Annuity Insurance

In terms of the third pillar, the supply side and demand side of the commercial pension market are both underdeveloped, mainly reflected in two aspects: first, the proportion of premium income of commercial pension to the residents' savings decreased from 0.15% in 2004 to 0.09% in 2015; second, the structure of commercial pension products fails to meet our expectations since the premium of pure security products accounted for 47.13% of the total premium income in 2004 while it decreased to 7.39% in 2015. Until 2018, there was no tax preference for commercial annuity insurance. However, it should be noted that many of these personal annuity insurance products are sold as wealth management products and are not intended to be kept in force for long durations; such products are thus unlikely to serve the genuine purpose of pension income. This means that most commercial pension products are investment-oriented insurance products instead of providing retirement security. The investment-oriented products ignore the supplementary function of commercial pensions in the multipillar pension system.

Implementation of the personal annuity insurance is still in the initial stage, with little publicly available information about the extent of coverage. Currently, 69 insurers in China are involved in the personal annuity insurance business through a variety of products. Personal annuity insurance has grown rapidly, with an average annual growth rate of 16.9% between 2001 and 2014. In 2014, personal annuity insurance income was 282.2 billion yuan (increasing more than 77.2% year-over-year). There were 69.433 million in-force policies covering 100 million people, providing protection amounting to 1.4 trillion yuan.

6 Alternative Programs (Reverse Mortgage)

Reverse mortgages provide an alternative source of retirement funding by allowing older homeowners to borrow against their home. To explore new ways to fund retirement, the Chinese government initiated a pilot program to facilitate the take-up of reverse mortgage products in urban China. The Chinese reverse mortgage pilot

program was introduced in mid-2014 by the Happy Life Insurance Company in four cities (Beijing, Shanghai, Guangzhou and Wuhan) and was extended to other major cities in 2016 and then nationwide in August 2018.[7] However, this pilot program of reserve mortgage products in several large Chinese cities saw almost no take-up. By the end of June 2018, only one insurance company of Happy Life Insurance Company had carried out relevant business, and 139 elderly people from 98 families had completed the underwriting procedures of reverse mortgage products.

Previous literature designed, fielded and analyzed two large surveys to ascertain the potential demand for reverse mortgages in China (Hanewald et al., 2020). They developed a flexible product design that overcomes issues raised with an unsuccessful reverse mortgage product currently piloted in China and found high stated demand for this product among educated urban Chinese. They developed a detailed product description that was very well understood by the survey participants. The high level of interest was consistent between older homeowners and adult children (of older homeowners) who were asked whether they would recommend the product to their parents. Eighty-nine percent of the older homeowners were interested in the product, and 84% of the adult children recommended the product to their parents.

7 Public Policy Issues of Importance

7.1 Unique Characteristics: Fragmented System and Unequal Retirement Security

It should be noted that there is an evident retirement security gap between different public pension schemes as well as among different regions caused by disparate economic development. Previous studies document both the absolute benefit gap and replacement rate gap between different pension schemes: the average monthly pension for retirees in the EBP, rural elderly residents, and urban elderly residents was approximately 2,000 yuan, 57.5 yuan, and 78 yuan (Wang et al., 2014); the replacement rate gap was as large as 46.9% in 2013 between the EBP and RBP (Zheng et al., 2019). The public pension fund is managed by the local government so that the contribution rate, actual benefits, and government subsidy are determined by the local government, even though the central government announces the general rule of the system. Workers in municipalities and east coast provinces earn much higher incomes than those in inland provinces; thus, the basic pension is higher in these regions since it is related to the average wage (Fang & Feng, 2018).

Previous studies have already found that biased expectations of future pension benefits, low participation, and low saving rates for residents may be due to a lack

[7] See Notice No. 43 [2018] of the China Banking and Insurance Regulatory Commission on Expanding the Scope of the Elderly Housing Reverse Mortgage Endowment Insurance, which was released on 8 August 2018.

of understanding of public pension programs. It is necessary to improve the understanding of public pension programs for rural and urban residents and encourage them to contribute more to these programs. It is also important to reduce the regional inequality of the pension benefits in public pension programs by managing the pension funds from the central government level or the provincial government level instead of the county level.

7.2 The Low Demand for Private Pension Programs and Reverse Mortgage

The fact that there is low demand for private pension programs and reverse mortgage products in China is well known by researchers. There are many reasons for this low demand, such as traditional family old-age support, lack of trust for commercial insurance products, low education level leading to lack of risk perception, and low income for most elderly people.

To increase the demand for private pension programs and reverse mortgages, the government and commercial insurance companies could make efforts from different perspectives. First, providers need to describe these products in an easy-to-understand way and should address key consumer concerns directly. Second, private pension programs should be marketed to both older residents and their adult children. In particular, reverse mortgage providers should encourage the broader family unit to discuss the decision to buy private pension products or the use of housing wealth in retirement. Third, narrow framing of the elderly could be an obstacle for the elderly to participate in private pension programs. The government should be devoted to increasing financial literacy and insurance literacy for the nation.

7.3 Evaluating China's Pension System: An International Comparison

Voluntary participation is essential given the nature of income volatility for many rural and urban residents. This is also supported by international experience, which generally has been poor with respect to coverage of rural workers in contributory schemes in low- or middle-income countries. It would be advisable to have flexibility on the periodicity of contributions within a year to allow for the specificities of rural incomes and access. Such an incentive-based approach (rather than mandated participation) has resulted in high coverage in numerous rural pension pilots in China in recent years. Therefore, the government's plan to achieve full pension coverage by 2020 is not ambitious but a real fact in China, which is not the case in other countries.

However, there is a tradeoff between this full coverage and adequate retirement security in public pension systems. Most residents only receive the minimum basic

pension benefits, which is 88 yuan (approximately US$13.6) per month required by the central government. Therefore, another difference between China and other developed countries in the pension system is that there is a fragmented public pension system in China, and many residents can only participate in low-welfare residents' public pension programs.

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The Bangladesh Pension System

Muhammad Ziaulhaq Mamun and Md. Zahid Hossain

Abstract This descriptive piece discusses the multidimensional aspects of the prevailing pension system in Bangladesh and provides a visionary roadmap for designing a pension system in comparison to international policy views. In Bangladesh, some two million government employees are entitled to draw retirement pensions and so are the employees of the formal private sector. However, the large chunk of the workforce employed in the informal sector are out of the pension scheme. Within the limit of laws, rules and regulations, this chapter identifies the details of government pension schemes, key differences between the public pension schemes, and private pension plans. The public pension program follows the traditional unfunded pay-as-you-go system where the payment is made from budgetary revenue. In contrast, the private pension schemes are either defined-benefit plans or defined-contribution plans where the contributed amount is invested to generate pension payments in the future. The financial sector (e.g., private commercial banks operating in Bangladesh) is no exception from the above-mentioned corporate pension schemes. The study notes that there is a direct correlation between the tenure of service and the size (as a percentage) of pension benefit. This case is found to be true in both public and corporate pension schemes. This chapter also explores the regulatory framework of the pension system in Bangladesh and finds that the absence of one single comprehensive legal guideline for the pension system has made it complex to manage pension funds. There is more wriggle room to make the existing system more flexible and more pro-employee.

M. Z. Mamun (✉)
East West University, Dhaka, Bangladesh
e-mail: mzmamun@ewubd.edu

Institute of Business Administration (IBA), University of Dhaka, Dhaka, Bangladesh

Md. Z. Hossain
Gulshan Branch, Bank Asia Ltd, Dhaka, Bangladesh
e-mail: zahid.hossain@bankasia-bd.com

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Abbreviations

AO	Accounts Officer
BBS	Bangladesh Bureau of Statistics
CAO	Chief Accounts Officer
DDO	Drawing and Disbursing Officer
EFT	Electronic Fund Transfer
FR	File/financial Record
GOB	Government of Bangladesh
HIES	Household Integrated Economic Survey
IMF	International Monetary Fund
IMR	Infant Mortality Rate
LPR	Leave Preparatory to Retirement
MOF	Ministry of Finance
NBR	National Board of Revenue
OAA	Old-Age Allowance
OECD	Organization for Economic Co-operation and Development
PAYG	Pay-as-you-go
PPO	Pension Payment Order
PRL	Postretirement Leave
UPL	Upper Poverty Line

1 Pensions as Old-Age Income Security in Bangladesh

Planning for retirement is a decisive phase of everybody's lives. A pension is a form of provision of annuities for aged people. Considering the increasing inflation level, narrow social security initiatives for senior citizens, economic environment, and population structure, an adequate pension system for senior citizens is crucial (Barkat et al., 2013). A pension is a sort of retirement plan that affords monthly earnings in retirement. In Bangladesh, government organizations and some large private companies usually offer pension schemes. With a pension plan, the employer contributes money to the pension plan while working. Ideally, every citizen should be covered with a pension facility to secure their life in old age (Siddiqui, 2016).

Currently, almost 8.5% of the world's population is over the age of 65 years. This figure is projected to increase to approximately 17% by 2050. Older people are less likely to work, and traditional sources of support from children and other family members are declining. This means that the asset base of the older population is not adequate to finance their needs and that poverty incidence among the older population is high. According to available statistics, more than half of Organization for Economic Co-operation and Development (OECD) countries have old-age poverty rates of more than 10.0%. On average, the poverty level for persons over 75 years of age, across

OECD countries, is 14.7%, which is 3.5% higher than the poverty level among 66–75 year-olds (OECD, 2015; UNDESA, 2015). For half of Latin American countries, the corresponding rates are over 20.0%. Public pension programs have emerged primarily to alleviate poverty among the older population.

There are now two types of public pension systems. A contributory pension system comprises two streams: mandatory contributions (e.g., public sector employees are mandated to pay a certain percentage of their income into the system) and voluntary contributions. The other scheme is a tax-financed (noncontributory) pension, also referred to as a "social pension" (Fig. 1). This is a regular cash transfer to older people with two main functions: (i) providing a minimum income to assist with poverty reduction and (ii) improving the distribution of resources. Eligibility criteria for such schemes include age, citizenship, residency, etc.

Traditionally, the pension system of many developed countries is divided into three types: public pensions, occupational pensions, and individual pensions. As a shift from this categorization, the World Bank proposed a different "three pillars" pension system in its 1994 report to avert the old-age crisis. The three pillars are: (i) a mandatory publicly managed pillar, (ii) a mandatory privately managed pillar and (iii) a voluntary pillar. One of the features of this system is that it applies equally to public and private sector employees (Willmore, 2000).

The first pillar of this system is an anti-poverty pillar that is financed by the government from tax revenue, and its benefit goes directly to the people with low income and few assets. The second pillar is the most important among the three, and it prompts controversies as well. This pillar assumes a "capitalized system" in which the contributions of the participants are invested, preferably in the financial market, to obtain a higher rate of return and to replace the pay-as-you-go system. The third is more of a supplementary savings pillar voluntarily participated in by those who want to save more for their unforeseeable future. Self-employed people can also contribute to this fund.

In face the challenges of global uncertainty, Bangladesh has already secured some certainty by providing a limited "safety net" fund—a pension fund system predominantly for public sector employees. However, no voluntary pension fund exists in Bangladesh to offer more choices, as mentioned above, covering the private and

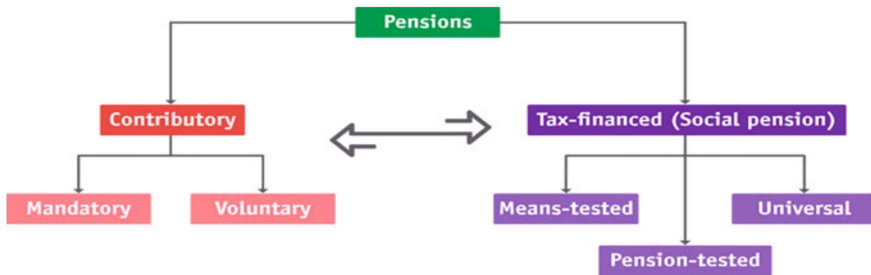

Fig. 1 Schematic presentation of a pension system

informal sectors. The constitution of Bangladesh contains fundamental responsibilities encompassing economic, social, and cultural rights. Among them, Article 15(d) has made it a fundamental responsibility of the State to secure citizens' "right to social security". However, with the rudimentary pension system that already exists and extends its service only to a limited class of employees, it is not possible to ensure social security (Barkat et al., 2013).

The budget for fiscal year 2019–20 included a plan for pensions for all. Pensions for all employed citizens in both formal and informal sectors will be ensured gradually. A "Universal Pension Authority" will be formed soon to introduce pensions for everyone, including all employed citizens. The Bangladesh government is also planning to bring all pensioners under its pension payment process—Electronic Fund Transfer (EFT). Currently, 27,000 pensioners are recipients of the EFT pension scheme. By the next fiscal year, this EFT process will be widened to cover all pensioners.

2 Economy, Demography and Old-Age Vulnerability in Bangladesh

2.1 Economic and Demographic Trends of Bangladesh

The economy of Bangladesh has come a long way since the country's independence in 1971. The ravages of the liberation war, combined with the wrath of natural calamities, political instability, corruption, etc., delayed the development process considerably, yet the economy has not only survived but has begun to show signs of sustained vibrancy (Barkat et al., 2003). The 1970s was the decade of reconstruction and rehabilitation for Bangladesh. Since then, a good deal of progress has been made in both economic and social spheres. Successes in reducing the infant mortality rate (IMR) and fertility rate, closing the gender gap in school education, and rapidly increasing female labor force participation are a few examples (Table 1).

Bangladesh recorded one of the fastest growth rates in the world in the past few years with a stable economic performance that has helped to reduce poverty and social inequalities (Table 2; Fig. 2). GDP growth was estimated to have reached 7.9% in 2019 and is forecast to fall to 2% in 2020 due to the outbreak of COVID-19 and pick up to 9.5% in 2021 (updated IMF forecasts on 14 April 2020). The post-pandemic global economic recovery and private consumption boosted by strong remittance flows from the Bangladeshi diaspora around the world are expected to be the key drivers of growth in 2021.

The financial situation (especially the banking sector) became weak due to a large share of nonperforming loans and an increase in restructured loans. Inflation moderated to 5.7% in 2019 and is expected to remain stable in 2020 (5.5%) and in 2021 (5.6%), despite the COVID-19 pandemic. The current account deficit was estimated to have narrowed to 2.7% of GDP in 2019 as higher textile exports provided

Table 1 Socioeconomic features since liberation (1971)

Year → ↓Socioeconomic features	1971	1980	1990	2000	2010	2015	2020	2021
Population	75 m	79.6 m	103.2 m	128 m	148 m	160 m	165 m	166 m
GDP per capita ($)	$70	$228	$306	$418	$781	$1,340	$2,064	$1,280
Average life expectancy	43 years	52.9 years	58.2 years	65.5 years	69.8 years	71 years	72.6 years	72.8 years
Child death rate at birth (‰)	170.00 ‰	198.60 ‰	143.80 ‰	64.37 ‰	48.70 ‰	32.00 ‰	24.73‰	28.95‰
Female fertility rate	5.00	6.35	4.50	3.23	2.32	2.00	2.03	1.97
Population growth rate	3.30%	2.69%	2.43%	2.00%	1.13%	1.30%	1.01%	0.98%
Population below poverty level	70.0%	63.0%	58.8%	49.2%	33.0%	24.0%	29.5%	20.0%
Development Status	Basket case	Basket case	Development revelation	Development revelation	Development revelation	Development revelation	Lower middle income	Lower middle income

Source Bangladesh Bureau of Statistics (BBS) Reports and World Bank data

Table 2 Economic growth (%) in Bangladesh (1991–2021)

Year	Economic growth (%)	Year	Economic growth (%)	Year	Economic growth (%)
1991	3.49	2002	3.83	2013	6.01
1992	5.44	2003	4.74	2014	6.06
1993	4.71	2004	5.24	2015	6.55
1994	3.89	2005	6.54	2016	7.11
1995	5.12	2006	6.67	2017	7.28
1996	4.52	2007	7.06	2018	7.86
1997	4.49	2008	6.01	2019	8.15
1998	5.18	2009	5.05	2020	3.51
1999	4.67	2010	5.57	2021	6.90
2000	5.29	2011	6.46		
2001	5.08	2012	6.52		

Source The GlobalEconomy.com, World Bank

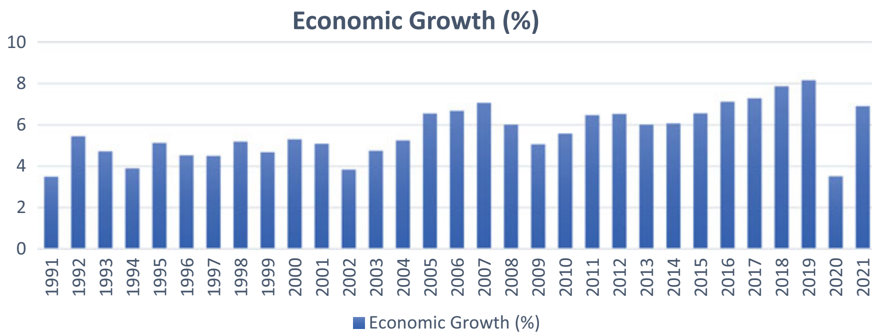

Fig. 2 Economic growth (%) in Bangladesh

support. Nonetheless, the deficit is forecast to widen to 2.2% in 2020 because of the high import requirements of the construction sector for mega-infrastructure projects; it is again gaining and was found to have reached 6.9% in 2021. Bangladesh is one of the most vulnerable countries in the world to climate change, with extreme weather events estimated to have caused a loss of approximately 1.8% of GDP in the past few decades. The official unemployment rate according to the latest survey of the Bangladesh Bureau of Statistics (BBS, 2018) was 4.2% during 2016–2018, but this more than doubles to 10.6% for the youth unemployment rate.

The Bangladesh economy relies on its huge human resources, rich agricultural soil, and abundant water resources. Agriculture represents 13.1% of GDP and employs 39.7% of the total workforce. The main crops include rice, tea, jute, wheat, sugarcane, tobacco, spices, and fruits. Bangladesh is the world's fourth-largest rice producer, although shortages caused by natural disasters occasionally

force the country to import rice. Industry represents 28.5% of GDP and employs 20.5% of the total workforce. Textiles is by far the largest industry, accounting for more than 80% of the country's total exports. Textile export income fell to $30.1 billion in January-November 2019 from $32.9 billion at the same time a year earlier, according to the Bangladesh Export Promotion Bureau (EPB, 2020). A risk factor for the clothing industry is the gap between the local supply and demand of cotton. Secondary industries include paper, leather, fertilizers, metals, and pharmaceuticals. Services account for 53.5% of GDP and employ 39.8% of the total workforce. Microfinance and computing are among the largest sectors, with the country's technology exports reaching approximately $1 billion per year. The government aims to increase technology exports to $5 billion by 2021.

2.2 *Old-Age Vulnerability and Income Security in Bangladesh*

In terms of population structure, Bangladesh is considered a young country, passing through the first demographic dividend phase. In 2018, the share of the 0–14 year-old cohort in the total population was approximately 22.0%, the share of the working-age group (i.e., 14–59 years) was approximately 43.0% and that of the old-age population (65+) was 7.0% (BBS, 2018). However, Bangladesh will become a rapidly aging nation: the portion of the old-age population is projected to reach 25.0% by 2050 (Fig. 3). Poverty among the older population is not low in Bangladesh. According to the Household Integrated Economic Survey 2016–17, using the upper poverty line (UPL), the headcount poverty rate among the 60+ population is estimated at 21.90%, against a national poverty rate of 24.30%.

The elderly poverty rate increases by approximately 0.6 percentage points if those aged 65 years and above are considered. The incidence of extreme poverty was lower, at approximately 12.0%, among the old-age population in 2016. However, members of this group are more vulnerable than the average person, according to 2016 data. In Bangladesh, due to improved quality of life, the number of people over 60 years old is increasing rapidly. This should be seen as an emerging challenge, as the

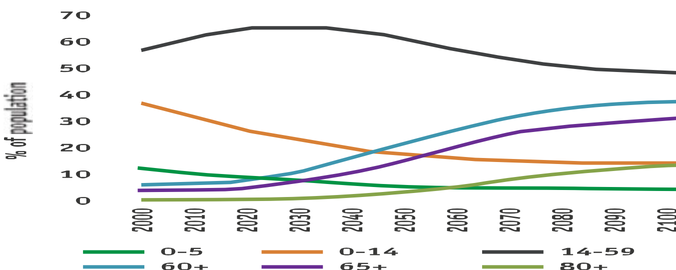

Fig. 3 Population projection by age cohort for Bangladesh (2000–2100) %

elderly will have special needs and require different care-giving services. Applying the definition of "vulnerable" groups adopted in the National Social Security Strategy (i.e., vulnerability threshold = UPL × 1.25) shows that vulnerability rates for the 60+ and 65+ population groups are 55.0% and 57.0%, respectively.

These estimates suggest that old-age vulnerability is 2–3 percentage points higher than average vulnerability (i.e., 53.0%). Significant variations are observed in poverty rates between elderly males and elderly females, at 20.0% and 24.4%, respectively, in the 60+ group and 22.0% and 26.0%, respectively, in the 65+ group. Similarly, elderly females are more vulnerable than elderly males. The vulnerability rates are 52.0% and 58.0%, respectively, for 60+ males and females and 54.0% and 59.0% for 65+ males and females.

One key factor in old-age poverty and vulnerability is the drop in labor income—as a direct outcome of their reduced participation in the labor market. Labor force participation across the life course in Bangladesh is defined as the proportion of the population engaged actively in the labor market, either by working or by looking for work. The data suggest a sharp decline in the proportion of both men and women working after the age of 55. For men, the figure drops from 99.6% between the ages of 35 and 54 to just 54.6% over the age of 65. For women, who have significantly lower labor force participation rates on average, the figure drops from 43.9% between the ages of 25 and 34 to 12.5% over the age of 65.

The marked dip in labor force participation after the age of 55 correlates strongly with the increase in disability around the same age. These issues have been discussed in studies undertaken by the General Economics Division of the Planning Commission. In addition to disability, discrimination against older workers is another driver of lower labor force participation. Older people can face discrimination in the labor market, such as being denied access to microcredit. A 2008 survey by Help Age International found that only 19.0% of older people in Bangladesh were able to access credit, compared with 45.0% of poor adults.

As the world's aging population grows and their support systems from children and other family members decline, they become more prone to poverty for obvious reasons, be it degenerative bodily parts and other factors attributable to ailments. The older generations, on average, cannot work to fend for themselves and as such the establishment of a pension system to prevent them from being pushed into poverty becomes incumbent on the government of any nation.

The increased incidence of disability in old age correlates strongly with lower labor force participation at older ages. Information gathered from the HIES suggests that problems with hearing, vision, mental disability, and mobility (walking) are strongly correlated with aging. The incidence of disability increases for those aged between 55 and 64 and those aged 65 and over. This is true for all types of disability, except for difficulty in meeting self-care needs. As noted, by 2050, the number of people in the age group of 65 and above will double from what it is now, and as such, with the absence of a public pension scheme, the poverty level of the nation may rise due to this factor.

A decreased ability to earn an income in old age suggests that older people depend on other individuals, personal savings, or social protection for old-age income security. The combination of sources of such external support available to individuals will vary significantly. It is likely that older people receive some form of support from their families, including those who have migrated to other parts of the country or abroad. Some older people may also have assets they can rely on for some irregular personal income. Several studies describe how some older people sell assets such as land and animals to contribute to dowry costs or health costs (Alam, 2018; Kabir et al., 2013). Khondker et al. (2014) provide important lessons that can support policymaking around social protection in old age:

- Economic vulnerability in old age is real, with increased levels of disability and lower rates of labor force participation, with aging leading to a reduced capacity to earn.
- The consequences of this economic vulnerability are shared by a large part of the population. Nearly one-third of the population lives in the same household as an older person, while many more people in other households will be part of a web of support to and from older people.
- Old age in Bangladesh has important gender dimensions. Most older women are widows, while most older men are married.
- Divergence in poverty rates by gender points to greater old-age vulnerability among women.
- Most older people in Bangladesh receive no regular income from social protection schemes.
- The key question for policymakers is whether income security in old age can be left primarily to families or older people themselves in the context of high levels of poverty and vulnerability in Bangladesh.

The studies also noted that the main implications of the social pension system are as follows:

- Lower coverage based on poor poverty data has led to high inclusion and exclusion errors, both by age criteria and by poverty criteria.
- Generosity (i.e., the transfer amount) appears inadequate given the number of beneficiaries and compared with the public contributory scheme.
- Actual benefits measured in terms of poverty rate and income distribution are far less than potential given inefficiency and the low level of the transfer amount.
- Exclusion of deserving beneficiaries is critically dependent on beneficiary coverage: it has been argued that this problem disappears under universal coverage or reduces significantly with a higher level of coverage.
- Even with an assumed 2.40% annual per capita GDP growth, the cost of a universal social pension ranges from 0.50% of GDP in 2013 at a 600 Bangladeshi taka transfer amount to 1.20% in 2050 with a transfer amount equal to 1,000 taka. The estimated costs seem affordable at the stipulated levels of allowances. There will, however, be questions about such low levels of allowances.

3 Overview of Pension Systems in Bangladesh

3.1 Historical Perspective

A pension system was first inaugurated by the Romans under Augustus Caesar. There was guaranteed income after retirement from work for Roman soldiers. In fact, there were also pension facilities for public sector workers. Historically, government-guaranteed pensions for aged persons (employees) emerged in France in the early nineteenth century, followed by the UK in 1834 and Germany in 1873. The first corporate pension system was established by the American Express Company in 1875. Workers who had been with the company for 20 years, had reached age 60 and had been recommended for retirement would be entitled to avail themselves of the pension facility (BLS, 1981). Several large corporations had started to provide pensions to their workers by the turn of the twentieth century throughout the world. Banks, and electronic and manufacturing companies were the first movers in this respect (OECD, 2015).

Bangladesh is a 50-year-old country that was liberated from Pakistan in 1971. It is a country that originally was a part of the Indian subcontinent and was under British rule for nearly 200 years (1757–1947). As such, the British have had a major role over the laws of the land, and many of the judicial practices are still binding in this country even 70 years after the end of the British Raj (rule) over the subcontinent. It is appalling to see that among other British laws that remain, many pertaining to the pension system still prevail in the country, with recent changes being made and reforms being introduced. The regulatory framework for the pension system dates to 1871, when the Indian Pension Act was passed to give native employees of the British government a pension upon their retirement (Appendix 1). Pension schemes for elderly people in this region were first adopted in 1924, but they were only for government servants.

In Bangladesh, unlike that of yesteryear Japan where people hardly ever migrated to other jobs, the trend here is for the working class to shift from job to job. As a result, many also cannot be benefactors of pension schemes, if any, that may be present in their current workplace. Furthermore, there are no general pension scheme guidelines or structures that are followed both by the private sector and the public sector. The public sector that comprises the workforce under the government also does not include all the different categories of jobs that fall under this sector, so that not all government workers benefit from pension fund schemes.

At present, there is no formal pension system in Bangladesh on a national scale, except for only employees in government service (civil and military). The number of government servants is approximately 1.4 million, which accounts for only 5% of the total employed population. The government launched the Old-Age Allowance (OAA) program as a social pension for elderly people in 1998 to alleviate the poverty situation. Pension issues are settled according to the rules of the Public Servants (Retirement) Act 1974 (Appendix 2). Autonomous bodies, public sector organizations, local authorities, public universities, etc., have similar pension schemes.

The population in private employment has abysmally small (almost nil) pension coverage. If the private sector is to be taken into account, there are no prerequisites for setting up pension schemes for employees in their corporate structure; nonetheless, many of the multinationals functioning in this arena do have such schemes designed for their staff, and set up policies with insurance companies that operate in the country based on the companies' requirements.

Additionally, workers from the agricultural sector constitute approximately 50% of total employment and contribute an approximately 40% share of the total GDP. Despite this size, this sector also does not have a pension system. The lack of popularity of a pension scheme in this country can be attributed to its shortsightedness in cultivating an awareness of the need for such a scheme among the working population.

3.2 Pension Schemes in Bangladesh

This descriptive piece considers the multidimensional aspects of the prevailing pension system in Bangladesh and provides a visionary roadmap for designing a pension system within the limit of laws, rules and regulations, and international policy reviews (Sa post, 2012). In Bangladesh, some two million government employees are entitled to draw retirement pensions, as are the employees of the formal private sector. However, the large chunk of the workforce employed in the informal sector remains out of pension schemes. The public pension program follows the traditional unfunded pay-as-you-go system where the payment is made from budgetary revenue.

In contrast, the private pension schemes are either defined-benefit plans or defined-contribution plans where the contributed amount is invested to generate pension payments in the future. The private financial institutions operating in Bangladesh are no exception to the abovementioned corporate pension schemes. It is noted that there is a direct correlation between the tenure of service and the size (as a percentage) of pension benefits in both public and corporate pension schemes. The regulatory framework of the pension system in Bangladesh noted the absence of one single comprehensive legal guideline for the pension system, which has made it complex to manage pension funds. There is more wriggle room to make the existing system more flexible and more pro-employee.

In quite a few countries, such as Bangladesh, public pensions have become an important source of income for the older population. There are two types of public pension systems: (1) a noncontributory (tax-financed) pension system, and (2) a contributory pension system. Formal social protection in old age in Bangladesh comprises both contributory and noncontributory schemes. The present form of pension schemes in different sectors is enumerated in the following sections.

3.2.1 Public Pension Programs (Means-Tested, Tax-Financed)

A noncontributory (tax-financed) public pension system is also referred to as a "social pension". This is a regular cash transfer to older people with two main functions: (i) providing a minimum income to assist with poverty reduction, and (ii) improving the distribution of resources. Eligibility criteria for such schemes include age, citizenship, residency, etc. They have three dominant forms in terms of the selection of beneficiaries or coverage: universal, means-tested (e.g., poverty threshold), and pension-tested (i.e., pension threshold). On the noncontributory side, the tax-financed Old-Age Allowance (OAA) program implemented by the Ministry of Social Welfare in 1998 is a social pension paid to poor older people with no requirement for previous contributions or job positions. In addition to its limited coverage, the main problem with the tax-financed social pension schemes is related to the accuracy of beneficiary selection using poverty data.

Old-Age Allowance (OAA) Program

The government of Bangladesh introduced the OAA Program in 1998. It covers elderly people who are not covered by the existing pension system. It is a strong beginning to provide security to underprivileged elderly people. The OAA constitutes one of the most substantial social protection schemes in terms of budget and coverage. The scheme has expanded at a remarkable speed over the past decades. It initially allocated benefits to approximately 400,000 older people, a figure that has increased by more than seven times today.

The transfer level has also increased from an initial monthly value of a meager 100 taka (US $1.18) to 500 taka (US $5.88) today, which truly will not suffice for a person's food requirements or medical needs. Even so, the coverage of the OAA is much more substantial than that of the civil service pension, with 3.2 million poor older people budgeted to receive a payment in the financial year 2016–2017 (i.e., 30.0% of the population aged 60 and over). Similar poverty-targeted social pension schemes are found in countries such as India, Indonesia, and the Philippines. Developing a well-structured and fair retirement and pension system is crucial for ensuring the social security of elderly people.

3.2.2 Public Pension Programs (Mandatory and Contribution-Based)

The contributory public pension system in Bangladesh comprises two streams:

(i) Mandatory contributions: Here, civil servants are mandated to pay a certain portion of their income on a regular basis as a savings for a pension to be built.
(ii) Voluntary contributions: This is a tax-efficient method of boosting retirement savings, as any additional voluntary contributions one makes to one's pension are deducted from one's wages before tax.

The public contributory pension and voluntary pensions cover the relatively better-off segment of the old-age population. On the contributory side, civil servants and

employees of public corporations are eligible for a pension based on their working history. The civil service pension provides income security for only a small proportion of the population, with approximately 330,000 recipients (approximately 3.30% of the population aged 60 and over). The indicative demographics of government employees in Bangladesh are shown in Table 3.

A public pension is granted to a public employee on his/her retirement from public service based on length of qualifying service rendered and emolument amount last drawn. A citizen enters public service at a young age and then spends the most valuable time of his/her life in the service, and ultimately, at the age of 59 years, he/she retires from service because of old age. Being used to a routinized life profile, it is difficult for a public employee to adjust to other occupations in society after retirement. His/her work capability is reduced. In most cases, he/she is no longer able to pursue any other occupation. In addition, many government officials become handicapped or die because of this. His/her dependent family members face serious financial setbacks.

For this compassionate viewpoint, the government has introduced pension, gratuity, group insurance, and benevolent funds for retired government officials and their dependents. Through this procedure, retired persons or their dependents do not have to depend on others to survive. At one time only government servants were entitled to a pension in Bangladesh. However, in the case of many autonomous organizations (semi-government), namely, public universities, nationalized enterprises, state-owned banks, etc., a pension system has been introduced. Government servants receive a pension from the government, and officials of autonomous bodies receive their pensions from their appointing authority.

The public pension plan is arranged by the government or other public bodies. It is a social security plan for alleviating poverty and providing a financial base for elderly persons, especially civil servants. For the public pension, Bangladesh follows the traditional pay-as-you-go (PAYG) pension scheme, which is an unfunded

Table 3 Indicative demographics of government employees in Bangladesh

Age (Years)	Frequency (f)	Relative frequency (%)	Cumulative relative frequency (%)
Below 20	8,076	0.84	0.84
21–25	74,932	7.75	8.59
26–30	126,103	13.05	21.64
31–35	162,526	16.82	38.46
36–40	138,696	14.35	52.81
41–45	104,335	10.79	63.60
46–50	132,324	13.69	77.29
51–55	114,202	11.82	89.11
56–60	103,946	10.75	99.86
61–65	1,383	0.14	100.00
Total	966,523	100.00	

pension system where the government pays its former employees (retired) mainly from budgetary revenue. Current workers contribute to paying current retirees in return for a promise that the future generation will contribute to them. However, the funds are not used to accumulate assets to use in paying benefits. The burden relies solely on the taxpayer. At present, there are close to 700,000 civil service pension holders.

The Public Pension Package

There is an acute need for social security for handicapped retired public employees or for the dependents of deceased employees. Against this backdrop, the government has introduced a "pension package" that constitutes several benevolent and medical facilities for retired public servants and their dependents. With this system, retired persons or their dependents do not have to depend on others for their survival. It should be noted that, unless otherwise mentioned, the term pension will refer to the whole pension package, not just the individual benefits of a pension. In Bangladesh, the benefits provided to a government servant after service are as follows:

- Leave Preparatory to Retirement (LPR)
- Gratuity
- Family Pension
- Government Accommodation
- Benevolent Fund
- Group Insurance
- Medical Allowances.

Pensionable Service and Amount of Pension

The pensionable period of service is five to 25 years, and the maximum rate of pension is 90% of the last basic pay of an employee. The five-to-24 years of pensionable period of service will be applicable only in the following cases:

(i) In case a government employee dies or is declared to be physically or mentally invalided by a medical board formed by the government; and
(ii) If dismissed from service after abolition of a permanent post.

The rate of pension is determined based on the following period of service shown in Table 4.

Types/Categories of Pension

According to the existing laws, rules, and regulations, public pensions can be classified into different types/categories according to the nature of the conclusion of the service. The different types/categories of pensions are detailed below:

Table 4 Pensionable period

Pensionable period of service	Rate of pension (%)	Pensionable period of service	Rate of pension (%)
5 years	21	16 years	57
6 years	24	17 years	63
7 years	27	18 years	65
8 years	30	19 years	69
9 years	33	20 years	72
10 years	36	21 years	75
11 years	39	22 years	79
12 years	43	23 years	83
13 years	47	24 years	87
14 years	51	25 years and above	90
15 years	54		

1. **Compensation Pension**
   When a public employee is given a pension after the abolition of a permanent post held by him/her in the process of the abolition of the government establishment where the post was positioned, downsizing, or any other reason for austerity, it is called compensation pension. A public employee can claim a compensation pension for his/her past service. He/she is either appointed to a new post or transferred to other establishments. The procedure in providing this pension involves the preparation of a list of the officials losing their jobs at a minimum expenditure of the government. The important point in this case is that in abolishing the posts, the income of the government must be increased. Again, in this process, the income of the government must be more than the amount of the compensation pension to be paid. In this process, if an employee is discharged from a post after completion of service in terms of fixed service conditions, he/she cannot claim any pension. For loss of any special pay, a pension or compensation allowance is not permitted. For example, if school teachers, or other employees performing duties in the postal department in addition to their own duties, are released from the department, they are not entitled to the pension.
2. **Invalid Pension**
   If a public employee's service concludes due to his/her physical or psychological invalidity, he/she receives an invalid pension. According to the Bangladesh Service Rules, if a public employee applies for an invalid pension before attaining 57 years of age, the head of his/her office of employment will process the sanction for the pension based on the medical certificate regarding invalidation of the employee. The employee shall be required to apply for an invalid pension in the prescribed form along with the recommendations of the concerned medical board

and relevant documents. A prescribed medical certificate is an essential requirement for invalid pensions. When an employee applies for an invalid pension and produces a doctor's certificate, he/she will not be kept in service, and no leave will be granted. Moreover, there is no opportunity for re-employment after invalid pensions. In some cases, invalid pensions are not allowed.

3. **Superannuation Pension**
   Most pensions belong to this category. When a public employee's service compulsorily concludes due to his/her attaining a certain age determined by law for retirement from public service, he/she becomes entitled to a superannuation pension. The retirement age of public employees is 59 according to the Public Servants (Retirement) Act, 1974. The government has increased the retirement age for judges of the Supreme Court and teachers at public universities to 65 years and raised the gross pension at retirement after the minimum qualifying service of 25 years from 80 to 90%.
4. **Retiring Pension**
   According to the law, the government may, if it considers it necessary in the public interest to do so, retire a public employee from service at any time after he/she has completed 25 years of service without assigning any reason (Forceful). Only the appointing authority is authorized to exercise this power and issue an order accordingly. However, no other appointing authority is authorized to exercise this power. If any subordinate appointing authority desires that an employee employed by it should retire after 25 years of service, it must make that proposal to the ministry concerned. In the case of gazette officers, the issue of retiring shall be referred to the President of Bangladesh for decision.
5. **Optional/Voluntary Pension**
   A public servant has an unqualified right to opt to retire from service at any time after he/she has completed 25 years of service upon the condition only that he/she shall have to give notice in writing to the appointing authority at least 30 days prior to the date of his/her intended retirement. In this case, the government is bound to accept the application and has no legal scope to refuse. However, such an option, once exercised, should be final and should not be permitted to be modified or withdrawn.
6. **Family Pension**
   When a pension is sanctioned to the family of a pensioner on his/her death, it is called a family pension. This benefit is granted to the nominated spouse or one or more family members of a civil servant in the event of death while in service or after retirement, provided the pensioner was on the date of death in receipt of a pension. In the case of the family pension, a public servant while remaining in service at any time afterwards may nominate one or more members of his/her family as successor for the whole or part of his/her family pension. However, in the absence of nomination and if the wife of the deceased pensioner or any member of the family is not available, his/her last controlling authority shall decide the successor of the family pension and gratuity. However, it is mentioned that the rules for the family pension are different for different members. The family pension issues are highlighted below:

- Sanctioning of Family Pension is Cumbersome
  - In principle, family pensions should require verification of the genuineness of claimants, including relationships and nominations (if any).
  - Verification of the death of the pensioner.
- Challenges—Running Pillar to Post
  - PPOs are not endorsed with family details and do not possess a joint photograph and descriptive roll.
  - Nomination for Pension, Gratuity and LTA missing.
  - Lack of simplified application (ideally only to the disburser like bank, etc., proving identity proof and death certificate).
  - Existing linkage with Ministry/Department.
  - Issues with separate PPO/GPO numbers.
- Need for a seamless payment of family pension from the very next day desirable.

Other Retirement Benefits

As mentioned earlier, a pension is a package that constitutes several additional benefits (Kagan, 2019). These include:

1. Leave Preparatory to Retirement (LPR): This is admissible to a retired public employee. The period of such leave may extend beyond the date of retirement but not beyond the completion of the 58 year of age, and if he/she proceeds on such leave before the date of his/her retirement, his/her retirement shall be effective on the expiry of the leave. After enjoying the LPR, if the retiree has earned leave to his/her credit, he/she will be entitled to 12 months' pay for 12 months of unenjoyed earned leave. The name LPR has changed to post-retirement leave (PRL).
2. Gratuity and commutation: This is a one-time lump sum benefit to the retiring civil servant requiring a minimum of one year of qualifying service and eligibility. The government presently allows a gratuity to the retiring person up to 80% of the emoluments of the retiree after his/her completing 25 years of pensionable service. Presently, a retired public servant is allowed a gratuity in lieu of 50% of the gross pension that he/she compulsorily surrenders at the rate of 200 taka (US $2.25) for every taka. He/he is also allowed to surrender the remaining 50% of his/her gross pension at the rate of 100 taka (US $1.12) for every taka. A retired government employee receives a gratuity at the following rate against his or her basic pay (Table 5).

   Using the above table, the monthly pension and gratuity amount of a government employee can be determined if we obtain his or her last basic pay before retirement. For example, Mr. X's basic pay was 70,000 taka (US $824) when he retired from his service after 30 years of serving the government. Considering a service period of 30 years, his pension rate will be 90%. Therefore, 90% of

Table 5 Gratuity rates

Pensionable service period	Rate of gratuity (against each taka)	Remarks
5 years or more but less than 10 years	265/-	50% or half of the last basic pay is to be multiplied by the rate of gratuity rate to find the total gratuity amount
10 years or more but less than 15 years	260/-	
15 years or more but less than 20 years	245/-	
20 years or more	230/-	

70,000 is 63,000 taka (US $741). His monthly pension will be half of Tk. 63,000 taka; that is 31,500 taka (US $371). A gratuity amount will 31,500 taka multiplied by 230, which will be 72,45,000 taka (US $85,235).

3. Government accommodation: In the event of death, retirement, including compulsory retirement, the retired person or his family is entitled to remain in the allotted accommodation. If the retired employee (allottee) dies while in service, his/her family shall be permitted to stay in the accommodation for two years subject to certain conditions from the date of the death of the allottee.
4. Benevolent fund: If a public employee dies in the middle of service life or within five years from the date of superannuation, his/her family shall be entitled to receive a benevolent fund grant from the benevolent fund for a period of 10 years according to the scale specified in the schedule of the Bangladesh Employees' Benevolence Board Act 2004, the law relating to the benevolent fund.
5. Group insurance: A Group Insurance Fund has been constituted by the government under the Bangladesh Employees' Benevolence Board Act 2004. All employees except Class III and Class IV employees are required to deposit premiums in the fund at the prescribed rates. This is managed by a trustee board. Every government employee may nominate someone to receive money from the fund. If an employee dies while in service, his/her family will receive one-time financial assistance from the fund. The amount of that assistance shall be equivalent to the pay of 24 months based on the last pay of the deceased employee. However, the amount in any case shall not exceed 100,000 taka.
6. General Provident Fund: Employees can invest up to 25% of their basic salary in the fund, which currently pays an interest rate of 12.5%.
7. Other retirement benefits: The government offers various retirement benefits to its employees in addition to a pension, including post-retirement leave encashment (within one year of retirement, entitling the civil servant to receive a salary for the period for which leave was due at the time of retirement), festival allowances, and medical benefits. Pensions for retired government employees and their families over a period of 12 years are shown in Table 6.

Table 6 Pensions for retired government employees and their families

Fiscal year	No. of Beneficiaries (in millions)	Budget (in million taka)
2019–20	6.3	230,100.00
2018–19	6.3	224,494.60
2017–18	6.26	100,181.80
2016–17	6	126,670.00
2015–16	5.85	111,439.50
2014–15	5.1	86,073.80
2013–14	4.81	68,160.50
2012–13	3.98	55,327.80
2011–12	3.25	50,414.50
2010–11	3.25	40,031.30
2009–10	3.25	37,606.50
2008–09	3.25	36,160.65

Source http://socialprotection.gov.bd/en/pension-for-retired-government-employees-and-their-families/

3.2.3 Corporate Pension

A corporate pension is a benefit plan by the company that provides financial support after retirement. The plan is based on the length of service and salary history of the employee. Generally, there is a requirement of duration of service with the company to be eligible for pension facilities. There are two types of pension plans:

(i) Defined-benefit plan
(ii) Defined-contribution plan

The defined-benefit plan is a traditional approach. However, the defined-contribution model has been widely used in recent years.

In Bangladesh, the practice of corporate pensions is rarely found (Khan, 2019). There is a provision regarding pensions for workers of private organizations and even people involved in agriculture. More than 45% of GDP is contributed by the agriculture and private industry sectors. Moreover, more than 60% of employment in the country is contributed by these sectors. There are several people who become financially and socially vulnerable during their retirement period and feel a need for financial support. Hence, the need for a pension system for eligible corporate as well as private sectors is considerable in Bangladesh (Ministry of Finance, 2019).

There are several nongovernmental initiatives that have an interest in the wellbeing of elderly people in Bangladesh. Some of them are:

- Bangladesh Association for the Aged
- Elders and Children Rehabilitation Centre
- Resource Integration Center (RIC)
- Service Center for Elderly People (SCEP)

- Elderly Development Initiatives (EDIs)
- Bangladesh Retired Government Employees Welfare Association, Dhaka
- Defense Personal Welfare Trust, Dhaka
- Bangladesh Women's Health Coalition (BWHC).

These organizations aim to work for the rights of elderly people and have their own dimensions of work. They can come forward to provide financial support to those who are not covered by the government pension system. In the State Bank of India, there is a fund-raising system under the National Pension System, where employees contribute @10% of their basic pay, and employers also contribute @10%. After retirement of the employee, they are eligible to get @50% of their last basic amounts until their death.

As noted, there is a very limited practice of corporate pensions in Bangladesh. The banking sector has introduced the concept of corporate pensions, enumerated below.

Terminal Benefits of Private Commercial Banks in Bangladesh

The following kinds of terminal benefits may be admissible to a regular and full-time employee of the bank:

(a) Gratuity
(b) Contributory Provident Fund
(c) Benevolent Fund
(d) Group Insurance
(e) Compensatory payment for refused earned leave

(a) Gratuity: All regular employees who rendered at least eight years of continuous service in a private Commercial Bank and

  (i) have not been dismissed from service as a measure of punishment; or
  (ii) have not resigned, left, or discontinued the service without properly notifying the competent authority, and

  A regular employee whose service is terminated before completion of eight years of continuous service in a private Commercial Bank on the following grounds:

  (i) He/she is discharged/terminated from service due to total or partial disablement; or
  (ii) Steps aside to facilitate succession; or
  (iii) The post to which he/she is appointed is abolished or he/she is retrenched from service for reduction of strength and redundancy.

  Amount: The amount of gratuity shall be computed at the rate of two months of substantive pay for each completed year of service or for any part thereof exceeding 180 days. The last pay drawn shall be the basis for such computation.

(b) Contributory Provident Fund: The eligibility for becoming a subscriber to the fund is:

(i) A regular employee of a private Commercial Bank shall be eligible to subscribe to the fund.
(ii) All eligible subscribers shall subscribe monthly to the fund beginning from the calendar month after entry into the regular service of the bank.

There shall be constituted a fund to be called the "Private Commercial Bank Employee's Contributory Provident Fund." The management of the fund shall vest in the Board and officers authorized in this behalf by the Board.

Conditions and rate of subscription:

- The amount of subscription shall be fixed at the minimum rate of 10%, and such a subscription shall be deducted from his/her monthly pay.
- The subscription of a subscriber who is on leave, other than extraordinary leave without pay, shall be deducted at the monthly rate from his/her leave salary, but no subscription shall be deducted for any period of extraordinary leave without pay.
- In the case of an employee under suspension, no subscription shall be deducted from his/her subsistence grant; however, if he/she is subsequently reinstated and with pay or leave salary with retrospective effect, the subscription at the usual rate shall be deducted in a lump-sum for the entire period of his/her suspension.
- No subscription to the fund shall be deducted for the last broken month of termination of service by retirement, resignation, discharge, dismissal, retrenchment, or death.
- The bank shall contribute to the credit of each subscriber an amount equal to his/her subscription but not exceeding 10% at the end of each month.

(c) Benevolent Fund: A private Commercial Bank may establish a fund to be called the "Benevolent Fund."

Source of Fund: The fund shall be credited by,

(i) All sums paid by the employees as a subscription to the fund.
(ii) All grants/donation made by the bank or other organizations and institutions or by individuals.
(iii) All income, profits or interests accruing to the fund or from investments of the fund.

Investment: The amount credited to the Benevolent Fund shall be kept in the bank or invested in such a manner as may be prescribed by the Board of Trustees to be constituted by the Board for management and administration of the fund.

Subscription to the fund:

(i) Every regular employee shall be liable to pay a monthly subscription equal to +1% of his/her substantive pay or 100 taka, whichever is less. Such a subscription shall be deducted from his/her pay monthly.
(ii) Where the amount of subscription cannot be deducted from the pay of the employee, the employee shall deposit the sum payable by him/her to the bank. If any amount of subscription remains unpaid due to inadvertence

or negligence of the employee, such amount shall be recoverable from him/her in such a manner as may be determined by the Board of Trustees.

(iii) However, default in the payment of subscription shall not affect his/her right or the right of his/her nominee(s) to receive the benevolent grant as provided in subrule 17.5.5, but the amount of the unpaid subscription will be adjusted from the benevolent grant payable to him/her or to his/her nominee(s) in the event of his/her death during the service.

Payment of a benevolent grant:

If an employee is declared completely incapacitated physically or mentally to discharge the official duties and is terminated from service for that reason, or dies during the continuance of his/her employment, then he/she or his/her nominee(s), as the case may be, shall be entitled to receive a benevolent grant for an amount equal to his/her 12 months' substantive pay last drawn with a maximum of 200,000 taka, whichever is less, in a lump-sum. In the absence of any valid nomination made by the employee, the benevolent grant shall be paid to the legal heir/heirs (as per succession certificate) of the deceased employee.

(d) Group Insurance: If an employee happens to die in the course of his/her service in a private Commercial Bank, the bank shall pay to the nominee(s) a sum, to be fixed by the bank from time to time, which shall not be less than 24 months' initial basic pay of the corresponding grade of pay.

(e) Compensatory payment for unavailable earned leave: A compensatory payment for the period of unavailable earned leave may be made to a regular and full-time employee of the bank at the time of his/her release due to retirement/resignation or in the event of his/her death during his service in the bank to his nominee(s) or legal heir/heirs for a maximum period of 12 months in case of retirement/death and for a maximum period of 120 days in case of resignation. The compensation for the period of such unavailable earned leave shall be calculated based on the employee's substantive pay last drawn.

3.2.4 Personal/Individual Pension Scheme

The Individual Pension Scheme is a registered plan intended for one person. It is a defined benefit plan, which means that the individual will receive an amount upon retirement. The plan is sponsored by an incorporated business for its owners or executives. Taxes will not have to be paid on the contributions made by the business, and taxes will have to be paid only on the amounts withdrawn. Investment earnings are also tax-sheltered if they remain in the plan. In Bangladesh, the said pension plan is rarely practiced (*Financial Post*, 11 October 2011). Therefore, there is still room for a large portion of the working population to be put under this pension scheme. The advantages of such schemes are as follows:

- Predictable retirement income.
- The participant can buy back prior years of service upon the plan's implementation.

- Returns are tax-sheltered.
- In the case of early retirement, the business can supplement the plan with an additional contribution.
- Assets are not locked in for a connected person.

3.2.5 Alternative Pension-Like Programs (Reverse Mortgage)

In Bangladesh, there is hardly any structured alternative pension program. When people who have led a luxurious life in the past are old and their health does not enable them to work, but they would still like to lead the sort of life they had up to now, they can seek earnings from financial institutions for loans. So they mortgage their existing home or other acceptable property and receive a lump-sum amount from the bank; upon the death of the owner the bank takes over the mortgaged property. This type of reverse mortgage is new in the present market scene in Bangladesh. Because of its newness, it does not encourage trust and faith, and it shows signs of confusion due to its procedures. At present, there is no approved reverse mortgage mechanism in Bangladesh.

Options for Bangladesh

Considering the present pension scenario, Bangladesh should take the following measures into consideration.

(1) Bangladesh should expand the contributory pension system for private sector employees and self-employed persons. Given the large share of informality in employment (close to 90%), this may be a medium-term option for Bangladesh.
(2) The coverage of the social pension (e.g., the OAA) could be increased from the current rate of 30% to equate with the extent of vulnerability (i.e., 56%). This would reduce inclusion and exclusion errors as well as bring a large segment of the elderly population under the system.
(3) The monthly transfer amount should be enhanced to the level of the lower or upper poverty lines to restore adequacy and must be inflation-indexed to preserve its real value.
(4) There is a need to modify the current poverty-targeted social pension to a universal minimum pension, with the exception that individuals covered by contributory pension schemes are excluded. This is preferable to using a means-tested scheme, as it saves on costs and is easier to implement.

3.3 Pension Approval Processes in Bangladesh

In Bangladesh, there is no dedicated authority for pensions. Manual processing and pension case preparation involve huge involvement and wastage of human resources and are liable to errors of omission and commission. Pension preparation, issuance of pension payment orders (PPOs) and payments include all powers vested with

Table 7 Number of pension payment points and payments

Pension payment points	%	Pension payment (taka)
Banks	60	6,874
CAOs of ministries	3	8,216
Divisional account offices	2	7,096
District accounts offices	10	6,913
Upzila (Subdistrict) accounts offices	25	6,587

AOs (account officers), with no checks and balances and functional separation. Pre-retirement processes by the DDO/HOD are manual, lengthy, and extremely cumbersome and require superfluous and redundant documents. Generation of PPOs involves purely manual processes including calculation and FR (File/financial record), and they are issued manually without unique code numbers/verification. Additionally, the procedures related to service books/records may include a lack of security and lack of knowledge/importance of maintenance.

The whole pension payment process is costly, non-friendly and extremely cumbersome. Most pensioners need to physically travel every month to the CAO, AO, banks, etc., to collect pensions. The processing is conducted by banks for different Line Ministries (LM). As such, the reimbursement claims go from bank to LMs and vice-versa. The process becomes lengthy due to the multiple LM accounting heads for pension payments. Additionally, there are no LM accounts for proper budgeting, no LM has details of pensioner counts (no more their employees) and many LMs do not even have enough budgets for pension payments. The cost of payment to pensioners becomes high because of several payment points and heavy commission to banks, and banks lack in knowledge, capability, and capacity to handle pensions (Table 7).

Some deficiencies in this process are as follows:

- Redundancy of welfare officers.
- Lack of a mechanism for monitoring pension cases at the district, division, and line ministry levels.
- Lack of accountability and responsibility on the part of various officials at different levels.
- Simplification of Pension Rules, 2009 for resolving Procedural Delay not strictly followed.
- All powers are vested with AOs with no division of rights and responsibilities.
- No authority to take the overall responsibility for pension implementation.
- Nonexistence of dedicated authority/agency for pension system implementation.

It is important to note that there is only one legal institution that is involved in the disbursement of pension funds to incumbents in the public sector: the state-owned Sonali Bank, which works as a treasury of the central bank. In the public sector, it is further imperative to state that there is no centralized designated agency that is involved in the accounting process and the data maintenance of the incumbents. The government offices calculate the pension recipients' accumulated pension and then

it lodges this information with Sonali Bank that then engages in disbursement of the same, and here definitely discrepancies and anomalies might occur.

The government has taken the initiative to digitize the pension system since 2021, which is said to be easier and more accurate. Under the digitized system, pensioners will receive the money through an electronic fund transfer (EFT) and verify their accounts through a mobile phone-based app every six months. The new system will immediately replace the existing manual pension arrangements.

3.4 Systemic Reforms in Pensions

As a part of systematic reforms in pensions, a dedicated pension office has been established at the office of the CGA. This office is solely responsible for (i) the issuance of PPOs and the monitoring of pension cases at DDOs, (ii) ensuring payment at the bank/AO, and (iii) generating MIS at the central level with the provision of unified numbers and a central repository.

The major systematic reform in pension took place in 2016 through the creation of the Centralized Pensioners Database. The database is linked with national identification (NID), mapped to PPOs and banking accounts and mobile numbers. The employee database created has a unified payroll account that uses the employees' database and maps employees to NID (2015). It helps to create proper planning, budgeting, and forecasting for expenditure. Additionally, the unique ID and system-generated PPOs (electronic PPO) helped in tracking and avoided leakage and duplication. However, at the initial stage of data entry, there is a possibility of ghost pensioners, leakages, and double dipping, leading to a drain on resources. To avoid harassment for pension beneficiaries, the pension approval process was simplified, and a circular issued in 2018.

The automated centralized pension processing made the accounting and payment system linked with iBAS++ and decentralized payment points at the front end. Here, pension processing includes the processing of pension cases (Final report), the generation and issuance of PPOs, etc. Pension accounting includes budgeting and accounting (single head with FD), and family pension (single head with FD) and pension payment systems (Kashem, 2020). The manual pension processing and payment system used to incur huge involvement and wastage of human resources, liable to errors of omission and commission. A diagrammatic linking of the central processing, accounting and payment system with different offices using iBAS++ is shown in Fig. 4.

In addition, some strategy-level improvements have been made as systemic reforms in pensions. These include:

- The option for full commutation, leading to zero pension in old age, was abolished (2016).
- Restoration of pension 15 years after retirement as old age income security (2018).
- Introduction of annual increase of pension amount (2016).

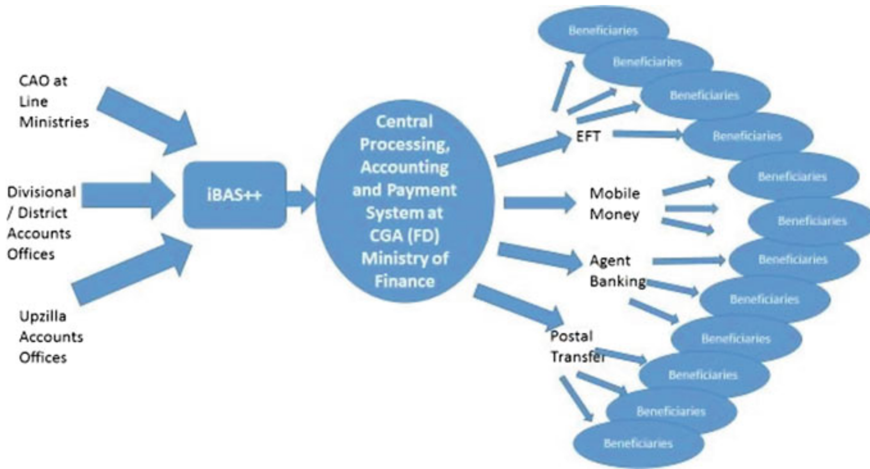

Fig. 4 Linking of the central processing, accounting, and payment system iBAS++

- Some protection from inflation and eroding purchasing power.

To reform the payment system, the EFT for pensions was introduced by (a) extensive use of the banking system, (b) introduction of decentralized multiple payment points, and (c) receipt of credit in individual pensioners' accounts with SMSs. In this process, the pension budget was brought under the single major accounting head of the Finance Ministry. Therefore, no Ministry accounts for proper budgeting/number of pensioners or amounts, as they are no longer their employees. Additionally, multiple accounting heads for pension payments for all ministries were abolished.

3.5 Strategic Reforms in the Pension System of Bangladesh

The notable strategic reforms in the pension system of Bangladesh are as follows:

- Pension Office established at the office of the CGA. It is responsible for the issuance of PPOs and the monitoring of pension cases at DDOs ensuring payment at the bank/AO.
- Generate MIS at the central level with the provision of unified numbers and a central repository. All powers are vested with AOs with no division of rights and responsibilities, no authority to take the overall responsibility of pension implementation and nonexistence of dedicated authority/agency for pension system implementation.
- Strategy Level Improvement includes the following: Option of full commutation abolished (full commutation leading to zero pension in old age), restoration of pension after 15 years from retirement (old age income security), annual

increase of pension amount introduced (some protection from inflation and eroding purchasing power).

- Procedural improvement includes Unique ID, system-generated PPOs (Electronic PPO) introduction for tracking, leakage and avoiding duplication, Pension approval process simplified and circular issues (harassment for pension beneficiaries).
- EFT for pensions introduced to extensively use banking system, decentralize multiple payment points, pensioners receive credit in individual accounts with SMSs.
- The pension budget under a single major accounting head of the Finance Ministry includes the following: no ministry accounts for proper budgeting/number of pensioners or amounts as they are no longer their employees and multiple accounting heads for pension payment for all ministries abolished.

4 Public Policy Issues of Importance

4.1 Budget and Pension Expenditure in Bangladesh

An unfunded defined pension financial scheme is mostly followed in Bangladesh. An unfunded pension plan is an employer-managed retirement plan that uses the employer's current income to fund pension payments as they become necessary. This contrasts with an advance-funded pension plan where an employer sets aside funds systematically and in advance to cover any pension plan expenses, such as payments to retirees and their beneficiaries. Unfunded pension plans do not have any assets set aside, meaning that retirement benefits are usually paid directly from employer contributions. Additionally, pay-as-you-go (PAYG) retirement accounts can be set up by companies or the government. It is the largest component of the Social Protection Budget and accounts for less than 10% of the recurrent expenditure, 5% of the total expenditure and 1% of the GDP in Bangladesh. Table 8 enumerates the last decade's pension expenditures in Bangladesh.

4.2 Taxation and Tax Exemption on Pension Income

In Bangladesh, private employees are set to face a heavy tax burden from the next fiscal year, 2020–2021, as the national budget proposed the imposition of tax on their gratuity receipts after retirement or completion of service if their employers do not obtain approval for the funds from the National Board of Revenue (NBR). The revenue board usually allows tax exemption on income up to 2.5 crore taka ($2.94 million by private employees from their employers as retirement or termination benefits. Now, employees will have to pay income tax at a rate of up to 25% on their

Table 8 Recent pension expenditures in Bangladesh

Year	Pension expenditures (in billion taka/US $)
2017–18	147.13 taka ($1.73 billion)
2016–17	155.20 taka ($1.83 billion)
2015–16	104.55 taka ($1.23 billion)
2014–15	71.29 taka ($0.84 billion)
2013–14	54.08 taka ($0.64 billion)
2012–13	60.32 taka ($0.71 billion)
2011–12	63.77 taka ($0.75 billion)
2010–11	56.27 taka ($0.66 billion)
2009–10	43.95 taka ($0.52 billion)

gratuity income, considered as lifetime savings of private employees, as they do not have pension benefits (Uddin, 2020).

The Finance Act 2020 restricts the prior tax exemption (under the Income Tax Ordinance 1984) on all employer-provided gratuity payments of up to 25 million taka ($290,000) to only those payments made by the government or from a government-approved gratuity fund (De, 2020). The government's intention is to encourage private employers to establish separately managed trusts for the funding of their gratuity payment liabilities. The Labor Act (2013) requires employers to provide a defined benefit lump-sum gratuity payment at the end of an employee's service, at 30 days' pay per year of completed service for individuals with under 10 years, or 45 days' pay per year of completed service for those 10 or more years.

4.3 Future Reforms

For future reforms for the integration of the twin database (i.e., Employee and Pensioner), the following considerations are considered:

- Demographic changes.
- Large recruitment in past years.
- Pay hikes have increased government expenses and pension entitlement.
- Retirement benefit tilted towards heavy lump-sum gratuity payments.
- Life expectancy has increased considerably to 72 years.
- Regular higher amount of monthly pension matched with inflation.

4.4 Fiscal Sustainability

- 1998–2008: Compounded Annual Growth Rate (CAGR) 13.45%.
- 2010–2015: Astronomical Growth of 23.75% (CAGR).

- Recent changes in pension entitlement—growth in retirement benefits outpace growth of revenue earnings.
- Pension payment from 2016–17 to 2025–26 at a CAGR of 33.42%.
- Implicit Pension Debt at 10% discounting rate is 27% of GDP.

In conclusion it can be said that the current DB system is neither fiscally sustainable nor actuarially fair. The benefit of an integrated payroll system with an employees' database will improve fiscal planning for short-, medium-, and long-term expenditures. Forecast projections for salary and pension expenditures and assessing the impact of parametric and/or systemic reforms to salary and pension benefits is of paramount importance. A draft plan for universal pension and civil service pension reform waits for consideration by a new Cabinet.

4.5 Universal Pension Scheme: New Approaches by the Government

As a developing country, Bangladesh has recently opted for a great step on the pathway to communal welfare which is to be known as the "Universal Pension Scheme." The government is planning to implement this universal pension scheme within 2023. Bangladesh is now enjoying a demographic dividend and the gap between working and retired people will increase day by day. The average life expectancy of Bangladeshis today is 73 years, which is expected to be 80 years in 2050 and 85 years in 2075. This means that in next three decades Bangladeshis will live for 20 years after retirement (Khondker and Razzaque, 2019, Rashid, 2019).

Today the dependency ratio of old people is 7.7%, which is expected to be 24% and 48% respectively in 2050 and 2075. Considering the increase in life expectancy and dependency ratio this universal pension scheme is very important. To promote social security, the government has taken this initiative to provide pensions for all. This shows both economic strength and a visionary mindset to become a part of a developed societal structure. To ensure the success of this project for the social security of citizens, all the necessary legal measures of international standards will be maintained. The process should be scrutinized by a separate authority so that no one can misuse the money of the scheme. The main features of the proposed pension scheme are as follows:

- All Bangladeshi working citizens between the age of 18–50 years (based on national ID) are eligible for this scheme. Initially this scheme will be voluntary but will be made mandatory in future.
- The pensioners will enjoy this scheme till their death (lifetime). At the age of 60 (prescribed) the subscribers will start receiving the pension based on accumulated amounts including the profit.
- Largely, pensioners will be required to provide a regular minimum subscription for minimum 10 years to avail themselves of pension benefits.

- At first the employees of public and autonomous bodies will be out of this scheme.
- Every eligible citizen will have a unique single pension account, so that even if they change job the scheme will be the same. However, the amount of subscription will be decided as per salary and other factors (the amount should be more than the minimum amount of subscription).
- Organizations can also take part in the scheme. In this case, subscription fees will be decided by the national pension authority.
- Nonresident Bangladeshis can also participate in this scheme by providing subscription fees on a quarterly basis.
- Installment amounts of subscription fees will be decided by real situations, law, and practice. The pension authority will ensure maximum returns on deposits.
- All subscribers of this scheme will need to pay the minimum amount to their scheme account on a yearly basis, otherwise the account will freeze. The account can be resumed on payment of late and missed subscription fees.
- If anyone dies before 75 years, their nominees will get the remaining amount (up to the age of 75 of the subscriber).
- If anyone dies before completing 10 years of subscription payment, the deposited amount will be provided to nominees with profit.
- The accumulated amount in the account of a pensioner cannot be withdrawn at one time. But the subscribers of this scheme can avail themselves of loans up to 50% of the total amount paid including interest (on request).
- The subscription amount can get investment tax exemption. The monthly pension amount will be income tax free.
- The government can give subscriptions to citizens earning below the minimum income level.
- The government will bear all expenses of the pension authority.

5 Legal or Regulatory Framework of Pension Schemes in Bangladesh

5.1 Historical Perspective

There is no law providing for a comprehensive pension system for elderly people in the country's private sector, such as with those in the public sector. Implementation of the scheme may not begin shortly as the law and other related regulations will have to be passed by parliament. The Bangladesh government sought to make a law in 2015 to introduce a mandatory pension scheme for private sector employees. It was aimed at helping the elderly people at the fag-end of their lives. However, the plan has not yet materialized. People familiar with developments say the matter lies with the Finance Ministry for a detailed study on how a voluntary pension system can be introduced in the formal and informal private sectors. The Planning Commission (PC) proposed it for enhancing the social safety net for the people in the country.

Bangladesh's regulatory framework for the pension system dates to 1871, when the Indian Pension Act was passed to give native employees the British government pension upon their retirement (Appendix 2). This Act was carefully crafted to fit with the peculiar situation of British India. It provided no system at all for the people in general or to form the basis for a modern pension system. Pension issues are settled according to the rules of the Public Servants (Retirement) Act, 1974.

In Bangladesh, the pension system is an agreement between the government and employees. It is a financial security for employees when they enter retirement. The employees contribute to the pension scheme while working and can avail themselves of the fund of monthly income after their retirement. However, the fund is further contributed to by the government according to the payroll policy of the country. Furthermore, there is an interest calculation on the pension fund. This pension system is reviewed yearly according to the employee's service book. There is an instruction to update the service book of the employees within the month of February of each year (Finance Ministry).

5.2 *Simplified Family Pension Rules 2020*

The Government of Bangladesh Finance and Revenue Department simplified family pension rules by an order in 2020. A government servant after completion of five years becomes eligible to nominate his or her family members to receive any gratuity that has not been paid to the government servant before his/her death. In the case of nominating more than one person as a nominee, the amount of share payable to each nominee will be as per his/her specification during the time of nomination. However, any government servant holds the right to cancel any nomination previously made by writing to the appropriate authority along with a fresh nomination list. If no nomination in favor of a member is made before the death of the government servant, then the fund will be payable to family members except (i) son (25 years), (ii) grandson (18 year) (iii) married daughter and married granddaughter, whose husbands are alive. When the government servant leaves no family, the amount of gratuity shall be payable to the following surviving relatives:

(1) Brother below the age of 18 years.
(2) Unmarried and widowed sisters.
(3) Father and mother.

In the case of an adopted child, he/she will be considered a child when the adoption is legally recognized. If the government servant had more than one wife and the number of surviving widows and children does not exceed four, then the pension will be equally divided among the surviving widows and children, excluding sons above the age of 25 years and married daughters.

6 Overview of Financial Rules and Regulations

The government has introduced several financial rules and regulations for the benefit of the people of the country. These rules and regulations are summarized below:

1. **The Government and Autonomous Bodies Employees Benevolent Fund and Group Insurance Ordinance, 1982**
   The ordinance consolidates and amends the law/rule relating to the benevolent fund and group insurance of the persons in the service of the country and certain autonomous bodies. The two funds and a board known as the "Board of Trustees of the Government and Autonomous Bodies Employees Benevolent and Insurance Fund" have been established by the government under the provisions of this ordinance for carrying out its purpose.
   A government servant must pay a certain amount of money as a premium/contribution to these two funds. Benefits in certain cases are given to an employee or his/her family from the benevolent fund. Special grants are also paid to the employees from this fund, e.g., for the marriage of a daughter, scholarships for study and extreme financial distress. In the case of death while in service, the family of a government servant receives one lump-sum payment from the group insurance fund.
2. **The General Provident Fund Rules, 1979**
   A government servant after two years of service and until the attainment of 52 years of age must contribute to the General Provident Fund (GPF). However, contribution to the GPF is optional up to two years of service and after 52 years of age until the date of retirement. Employees in service abroad or on deputation must continue contributions in the same manner as being in regular service in the parent organization. The relevant audit office maintains the account of each contributor separately, and the compound rate of interest is calculated on the yearly balance of the deposits of everyone.
   A refundable advance can be paid in certain installments, up to a certain limit of his/her deposit on approval from the relevant authority on grounds such as house building and repair, the purchase of land, performing Hajj in the case of a Muslim employee, marriage, and other religious functions. A government servant can withdraw all his deposits in the GPF along with the interest at the time of retiring from service or if the incumbent resigns or leaves the service on medical grounds.
3. **Pension and Gratuity Rules**
   When a government employee retires after serving in the government for a certain period of years, he/she receives a monthly emolument for his/her maintenance or that of his/her family during the remaining period of life. A government officer must apply for the pension in a prescribed form to the approving authority along with all related papers/documents as required by the rules. In the case of non-gazette staff, the head of the office will examine the Service Book and ensure that the entire period of service is duly verified before sanctioning the pension. An amount equivalent to one year's basic salary is allowed to an

employee, as a lump-sum grant provided that one year of earned leave is due to his/her credit after allowing the desired LPR.

A government servant or his/her family is entitled to various types of pensions depending on the circumstances, e.g., compensation pension, invalid pension, superannuation pension, retirement pension, family pension, etc. At least 10 years of service is required before allowing a pension to a government servant, and the amount of pension varies depending on the pensionable service length. According to Rule 300 (a) of the Bangladesh Service Rules, if a person resigns from government service or is dismissed or removed from the service due to misconduct, bankruptcy, incompetence, or failure to pass the prescribed examination, his/her job is considered forfeited. In such cases, the government will have the right to withdraw his/her pension or keep it in abeyance either in part or in full until the appeal, if any, by the incumbent is considered. However, Rule 300 (b) says that if someone resigns for the purpose of joining any other pensionable job, it will not be considered as resignation from government service.

However, recently, the High Court declared that part of Rule 300 (a) of the first part of the Bangladesh Service Rules (BSR) regarding nonreceipt of pension due to resignation from service conflicts with the Constitution. Voluntary resignation from government services prior to completion of 25 years of service shall not disentangle the person from his or her entitlement to pension benefits.

4. **Charge Allowance Rules, 1982**

According to this rule, a government employee will obtain a charge allowance when he/she is authorized in addition to his/her own charge to hold an additional charge of an office equivalent to his/her office or a higher office. A person holding a lower post and transferring to a higher post on a temporary basis is on current charge. The holding of a current/additional charge is discouraged by the government. A person must hand over the charge of the present post/office when he/she is authorized to take up the current charge of a higher office. The current charge of an incumbent is not a promotion/or a new appointment as such, and one cannot claim pay-scale and other privileges/benefits allowable for being in the post, but one can claim the charge allowance. The charge allowance rules are applicable for posts in both revenue and development budgets.

5. **Festival Allowance Rules, 1988**

During every Eid Festival, Muslim employees are allowed to draw an allowance amounting to one month's basic salary, which is equivalent to the salary drawn in the previous month. The members of other religions employed in the service also receive a festival allowance amounting to two months of basic salary in one installment during their main religious festival. A gazette officer will not receive a festival allowance if he/she draws a recreational allowance in a particular fiscal year. Employees on LPR are also entitled to receive this allowance, but not those who are in full retirement. Employees who are in work-charged establishments and drawing pay on a regular scale will also receive a festival allowance under this rule.

6. **Treasury and Subsidiary Rules**
   The procedures for the deposit and withdrawal of money to and from the Government Exchequer are controlled by these rules. They have three parts:
   Part 1 contains the "The Treasury Rules" commonly known as TRs. The TRs are the principal rules guiding the procedure for deposit and withdrawal.
   Part 2 contains "The Subsidiary Rules" or SRs. The SRs are rules that describe the detailed procedures for the TRs.
   Part 3 contains related executive instructions, executive orders, appendices, and forms.
   The TRs are approved by the President due to their importance in the application of the financial management system. The Finance Ministry issues SRs. The Executive Engineers of the Road Divisions in the Roads & Highways Department (RHD), having drawn and disbursement powers, often come across and deal with these rules while discharging their duties with respect to financial matters.
7. **General Financial Rules**
   The procedures for spending money from the Public Fund are governed by the General Financial Rules. Unless any specific procedures are mentioned in the CPWA & CPWD codes, the procedures as laid down in the GFR are applicable to the RHD.
8. **Accounts Code Volumes (I to IV), Audit Code, Audit Manual**
   The four volumes of the Accounts Code are as follows:
   Volume 1: Contains details of the functions of the Comptroller and Auditor General of Bangladesh in relation to Government Accounts and the main directions issued by him for general principles and methods of accounting.
   Volume II: Contains the directions issued by the Comptroller and Auditor General relating to initial accounts kept by the Treasuries (Thana) and District Accounts Officers. It also describes the form in which accounts are to be rendered by them to the Audit and Accounts Officer.
   Volume III: Contains Comptroller and Auditor General's directions regarding the initial and subsidiary accounts kept by the Public Works and RHD Officers and accounts submitted by these officers to the Audit & Accounts offices.
   Volume IV: Contains instructions to the form in which accounts must be kept in the Accounts office, under the control of the Comptroller and Auditor-General and the procedure to be adopted in keeping them. The instructions relating to the preparation of certain pro-forma accounts of the RHD have been included in this volume.
   Audit Code:
   The principles and basic features of auditing the government offices by the representative of the Comptroller and Auditor General are contained in this Code.

Audit Manual:

The manual contains the detailed procedures and instructions for auditing government offices and departments by the representative of the Comptroller & Auditor General.

9. **Central Public Works Accounts Code**

The rules contained in the Central Public Works Accounts Code primarily describe the financial methods and procedures to be observed by Public Works Offices in dealing with transactions specifically relating to Public Works and in keeping and rendering accounts of such transactions supplementary to the rules that are contained in the CPWD code, the General Financial Rules, and the Treasury Rules of the Government. The officers of the RHD, particularly the divisional officers (EE), are required to follow the rules under this code while incurring expenditure of public funds and making accounts for the same under different heads of accounts. This code is supplemented by a book of forms that is used for maintaining accounts in divisional offices.

10. **Central Public Works Department Code**

The Central Public Works Department Code contains rules and procedures to be followed when giving technical and financial sanctions and approvals. This Code is intended to define the scope and functions, with respect to financial matters, of a Public Works Department (PWD) in particular. The previous PWD was named the Communications and Buildings (C&B) department, which was divided into two separate departments, namely, the PWD and RHD, and hence, the CPWD Code is also applicable to the RHD. The code is divided into six sections:

Section I: Introduction

Section II: Establishment and Miscellaneous

Section III: Duties of Officers of Public Works Department

Section IV: Works

Section V: Building

Section VI: Stores

Together with other accounting procedures, practices, and methods to be applied, this code contains rules and general procedures for project works:

1. Administrative approval.
2. Technical sanction.
3. Expenditure sanction.
4. Appropriation of funds.
5. Estimates.
6. Deposit works.

It also describes the duties and responsibilities of officers while dealing with financial and accounting matters relating to the establishment, for example

payrolls. The levels of financial authority of the RHD are subject to review as the need arises.

7 Summary, Conclusions and Recommendations

Pension funds play an important role in instilling motivation and perhaps also in reducing job migration. Having a pension scheme adopted for the entire population will, if not totally eradicate poverty, help alleviate it by enabling people to support themselves in their old age instead of being dependent on financial support from the working population. Enabling the entire workforce pertaining to both the private and public sector to benefit from a secured future by necessitating both government bodies and private sector employers to establish pension schemes is an urgent need for the government if it wants the nation to develop.

With the present pension scheme status of Bangladesh, it can be stated that most of the current workforce, both in the private sector and public sector, are not going to benefit from the pension schemes that are prevalent in the country unless reforms are made and implemented in securing pensions for them. The reforms set in the pension schemes in 2006 have focused on and tried to implement the usage of national identification cards to ensure that deserving recipients instead of ghost recipients benefit from pension funds, but more scientific reforms are needed. Distinctions also need to be considered when speaking of the workforce as it needs to be broken down into its various constituents.

First, what must be laid out is the economic and demographic scenario pertaining to the nation at present. The nation is fast moving from being mainly an agrarian economy to an industrial and service-oriented economy, especially when it will be graduating from the LDC category to the developing category in 2024. Having stated this, the second point that needs to be recognized at this stage is the fact that close to 37.75% of its working population is still invested in farming, while 87% of civilian employment is in the private sector and 13% in the government sector (World Bank, 2020). It is also important to clarify why the pension scheme needs to be broadly spread over the whole economy.

Despite growth in most of the financial indicators, the per capita income of the country is still low ($2,000+, PPP $5,400+). The disposable income of a household would be more focused on the purchase of consumer goods or business setups if it was not to be used for elderly care, which could then be if not fully but partially supported using pension funds retrieved from the workplace of the elderly, leading to the building of a stronger economy. It will set the country toward a better future by securing its aging population, thereby reducing the dependent population only to the number of those who are specially gifted and to children in society.

To establish social security, the fundamental responsibility provisions of the constitution and traditional wisdom should be taken into consideration. Traditional wisdom tells us that a pension is “the fortune of those who have no fortune.” In a country where most people live in poverty, a capacious pension system is needed to

give them the blessings of a "fortune." Furthermore, in considering the essentiality of pensions, Article 15(d) of the constitution can be interpreted to cover a pension as a basic human right. This can help introduce compulsory private pension funds by assimilating largely utilitarian commercial fund management with the philosophical foundations underlying human rights law. Given this, the state can design and ensure a pension system universally accessible to every citizen and based on traditional wisdom and human rights.

Recommendations

The following issues need to be taken into consideration regarding pension systems in Bangladesh.

Bangladesh should expand the contributory pension system for private sector employees and self-employed persons. Given the large share of informality in employment, this may be a medium-term option.

The coverage of the social pension could be increased to equate with the extent of vulnerability. This would reduce inclusion and exclusion errors as well as bring a large segment of the elderly population under the system.

The monthly transfer amount should be enhanced to the level of the lower or upper poverty lines of 2016 to restore adequacy and must be inflation-indexed to preserve its real value.

There is a need to modify the current poverty-targeted social pension to a universal minimum pension, with the exception that individuals covered by contributory pension schemes are excluded. This is preferable to using a means-tested scheme, as it saves costs and is easier to implement. Such systems operate in Kyrgyzstan, Moldova, Thailand, and Vietnam (for government pensions).

Establishment of quality authorities to oversee the pension system of Bangladesh. This will ensure proper management of pension funds.

Most of the pension funds in Bangladesh are deposited in banks. However, the banking sector in Bangladesh faces many different challenges. Therefore, different product options, such as bonds and mutual funds, need to be introduced. Regulatory directions for institutional investors to mobilize pension funds need to be outlined.

Most elderly people in Bangladesh are still unbanked. Most of them use to receive transfer payments but not for payment in real time. Greater financial inclusion is a prerequisite for the universal pension system in Bangladesh.

In the case of contributory pension schemes, low-income service holders will not be willing to make deposits in pension funds, so transforming the informal pension system to a formal system should become mandatory.

Appendices

Appendix 1: The Pensions Act, 1871 [8th August 1871]

An act to consolidate and amend the law relating to pensions and grants by government of money or land-revenue.

Preamble

WHEREAS, it is expedient to consolidate and amend the law relating to pensions and grants by government of money or land-revenue; it is enacted as follows:

I Preliminary

1. Short title: This Act may be called the Pensions Act, 1871.
2. Extent of Act: It extends to the whole of Bangladesh. [Repealed].
   [Repealed by the Repealing Act, 1938.]
3. Interpretation-section: in this act, the expression "grant of money or land-revenue" includes anything payable on the part of government with respect to any right, privilege, perquisite, or office.
   [Repealed]

3A. [Omitted by Sect. 3 and 2nd Schedule of the Bangladesh Laws (Revision and Declaration) Act, 1973 (Act No. VIII of 1973)].

II Rights to Pensions

4. Bar of suits relating to pensions: Except as hereinafter provided, no Civil Court shall entertain any suit relating to any pension or grant of money or land-revenue conferred or made by the Government or any former Government, whatever may have been the consideration for any such pension or grant, and whatever may have been the nature of the payment, claim or right for which such pension or grant may have been substituted.
5. Claims to be made to Collector or other authorized officer: Any person having a claim relating to any such pension or grant may prefer such claim to the Collector of the District or Deputy Commissioner or other officer authorized in this behalf by the Government; and such Collector, Deputy Commissioner or other officer shall dispose of such claim in accordance with such rules as the Chief Revenue-authority may, subject to the general control of the Government, from time to time prescribe in this behalf.
6. Civil Court empowered to take cognizance of such claims: A Civil Court, otherwise competent to try the same, shall take cognizance of any such claim upon receiving a certificate from such Collector, Deputy Commissioner or other officer authorized in that behalf that the case may be so tried, but shall not make any order or decree in any suit whatever by which the liability of Government to pay any such pension or grant as aforesaid is affected directly or indirectly.

7. Pensions for lands held under grants in perpetuity: nothing in sects. 4 and 6 applies to:

   pensions heretofore granted by Government in the territories subject to the Lieutenant-Governor of Bengal, either wholly or in part as an indemnity for loss sustained by the resumption by a Native Government of lands held under sanads (certificates) purporting to confer a right in perpetuity. Such pensions shall not be liable to resumption on the death of the recipient, but every such pension shall be capable of alienation and descent and may be sued for and recovered in the same manner as any other property.

III Mode of Payment

8. Payment to be made by collector or other authorized officer: All pensions or grants by government of money or land-revenue shall be paid by the collector or the deputy commissioner or other authorized officer, subject to such rules as may, from time to time, be prescribed by the chief controlling revenue authority.
9. Saving of rights of grantees of land-revenue: Nothing in Sects. 4 and 8 shall affect the right of a grantee of land-revenue, whose claim to such a grant is admitted by the government, to recover such revenue from the persons liable to pay the same under any law for the time being in force for the recovery of the rent of land.
10. Commutation of pensions: The Government may, with the consent of the holder, order the whole or any part of his pension or grant of money or land-revenue to be commuted for a lump sum on such terms as may seem fit.

IV Miscellaneous

11. Exemption of pension from attachment: No pension granted or continued by Government on political considerations, or on account of past services or present infirmities or as a compassionate allowance, and no money due or to become due on account of any such pension or allowance, shall be liable to seizure, attachment or sequestration by process of any Court in Bangladesh, at the instance of a creditor, for any demand against the pensioner, or in satisfaction of a decree or order of any such Court.

    This section also applies in Bangladesh to pensions granted or continued, after the separation of Burma from India, by the Government of Burma.
12. Assignments, etc., in anticipation of pension, to be void: All assignments, agreements, orders, sales and securities of every kind made by the person entitled to any pension, pay or allowance mentioned in Sect. 11, with respect to any money not payable at or before the making thereof, on account of any such pension, pay or allowance, or for giving or assigning any future interest therein, are null and void.
13. Reward to informers: Whoever proves to the satisfaction of the government that any pension is fraudulently or unduly received by the person enjoying the benefit thereof shall be entitled to a reward equivalent to the amount of such pension for the period of six months.

14. Power to make rules: 2[the] chief controlling revenue-authority may, with the consent of the government, from time to time make rules consistent with this act respecting all or any of the following matters:
    (1) the place and times at which, and the person to whom, any pension shall be paid;
    (2) injuries into the identity of claimants;
    (3) records to be kept on the subject of pensions;
    (4) transmission of such records;
    (5) correction of such records;
    (6) delivery of certificates to pensioners
    (7) registers of such certificates;
    (8) reference the Civil Court, under Sect. 6, of persons claiming a right of succession to, or participation in, pensions or grants of money or land-revenue payable by government; and generally, for the guidance of officers under this Act.

All such rules shall be published in the official Gazette and shall thereupon have the force of law.

Notes:

Throughout this Act, except when otherwise provided, the words “Bangladesh” and “Government” were substituted for the words “Pakistan” and “Central Government” or “the Provincial Government” or “appropriate Government,” respectively, by Sect. 3 and the 2nd Schedule of the Bangladesh Laws (Revision And Declaration) Act, 1973 (Act No. VIII of 1973).

The word “The” was substituted for the words “In each Province the” by Sect. 3 and the 2nd Schedule of the Bangladesh Laws (Revision and Declaration) Act, 1973 (Act No. VIII of 1973).

Appendix 2: Public Servants (Retirement) Act, 1974

Public Servants (Retirement) Act, 1974 an Act to consolidate and amend the law relating to the retirement of public servants and to provide for matters connected therewith. During British rule, the retirement age was set at 55 years, and in Pakistan it was raised to 60. Following the emergence of Bangladesh, the retirement age was set at 57 under the Public Servants (Retirement) Ordinance 1973 (Ordinance No. XXVI of 1973), which was later repealed by the Act of 1974 without affecting the retirement age of 57.

The law is applicable to public servants, i.e., a person who is, for the time being, in the service of the republic or of any corporation, nationalized enterprise or local authority. It also includes a person who, based on having been at any time in the service of Pakistan, purports to claim any right to employment in the service of the

republic. The applicability of the law excludes those persons who are (a) members of the defense service, (b) teachers or employees of any university, (c) employed in or under a commission, committee or board set up for specific purposes, (d) contingent or work-charged employees or workers as defined in the State-owned Manufacturing Industries Workers (Terms and conditions of service) Ordinance 1973, and (e) elected or nominated under any law to hold any office.

Some of the basic features of the Act are as follows: (a) a public servant must retire from service on completion of 57 years of his/her age; (b) re-employment of a public servant in any manner in the service of the republic or of any corporation, nationalized enterprise or local authority is prohibited; (c) the prohibition for re-employment does not apply if it relates to any office specified in the Constitution of Bangladesh; (d) the President may in public interest employ a public servant on contract after his or her retirement.

One of the important features of this Act is the provision of optional retirement. Under this provision, a public servant may opt to retire from service at any time after he has completed 25 years of service by giving notice in writing to the appointing authority at least 30 days prior to the date of his intended retirement. The option thus exercised is final and cannot be permitted to be modified or withdrawn. Under the provision of optional retirement, the government is also vested with the authority to retire a public servant, without assigning any reason, if it considers it necessary in public interest to do so. This authority was accorded to the government by ordinance No. 1 of 1983 and made effective from 28 July 1983. The only condition is that the public servant, intending to opt for such retirement, shall have to give a notice in writing to the appointing authority at least 30 days prior to the date of his intended retirement.

The right of optional retirement given to the public servant is an unfettered right, and the appointing authority is bound to accept the option and has no legal scope to refuse to accept the option. Finally, the Act provides for withholding payment of retirement benefits to public servants in certain specified cases. Thus, if any judicial proceedings or any departmental proceedings are pending, instituted by the government or the employer, as the case may be, at the time of retirement of a public servant, he/she shall not be entitled to any retirement benefits. However, he/she will be entitled to the subscriptions to any provident fund and the interest thereon. The payment of any pension or other retirement benefits shall be subject to the findings of such proceedings.

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The Indonesian Pension System

Rofikoh Rokhim, Wardatul Adawiyah, and Ida Ayu Agung Faradynawati

Abstract Indonesia is the fourth most populous country in the world, with a population of 273.5 million in 2020. Approximately 14.4% of Indonesia's population is in the elderly age group and 8.4% of the total population is in the retirement age group. The current pension system in Indonesia is classified into two major categories: mandatory and voluntary. The mandatory pension fund provider consists of three institutions: PT Taspen (Persero) or Taspen hereafter, PT Asabri (Persero) or Asabri hereafter, and BPJS Ketenagakerjaan. The voluntary pension scheme providers consist of two types, namely, Employer Pension Funds (DPPK) and Financial Institution Pension Funds. (DPLK). There are currently no alternative pension-like programs, such as reverse mortgages, in Indonesia. However, there are some challenges faced by the Indonesian pension system. A low participation rate remains one of the biggest challenges faced by BPJS Ketenagakerjaan, and Indonesia's retirement scheme ranked 30th among 39 countries in the Mercer CFA Institute Global Pension Index in 2020. In addition, the Indonesian government also needs to review the regulation that allows BPJS Ketenagakerjaan's participants to redeem retirement savings prior to retirement.

R. Rokhim (✉) · W. Adawiyah
Faculty of Economics and Business, University of Indonesia, Depok, Indonesia
e-mail: rofikoh.rokhim@ui.ac.id

W. Adawiyah
e-mail: adawiyah@ui.ac.id

I. A. A. Faradynawati
Department of Real Estate and Construction Management, KTH Royal Institute of Technology, Stockholm, Sweden
e-mail: iaafa@kth.se

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1 Economic and Demographic Background

1.1 Situation of the Aging Population

According to the Indonesian Central Bureau of Statistics, the population of Indonesia in 2019 was 268.07 million, and it was estimated to have reached 273.5 million in 2020 based on data from the UN. With a total population of more than 260 million people, Indonesia is one of the top four most populous countries in the world. Based on data from the UN in 2020, the growth of the population in 2019 reached 1.10%, or an increase of approximately 2.9 million people from 2018 to 2019.

Figure 1 shows that the male population is greater than the female population, representing 50.23% (approximately 134.7 million) of the total population. Of the total population, 26.3% (70.6 million people) were aged between 0 and 14 years, 59.2% (158.8 million people) were aged between 15 and 54 years, and just 14.4% (38.7 million people) of the population of Indonesia were aged over 55 years.

Based on data from the UN, Indonesia's total median age is 30.2 years (2020 estimate). The number indicates that half of the population is older than 30.2 years, while the other half is younger. When divided by sex, the female median age was 1.2 years older (30.8 years) than the male counterpart (29.6 years).

The National Development Planning Agency, known as Bappenas, classifies age groups into seven categories as follows:

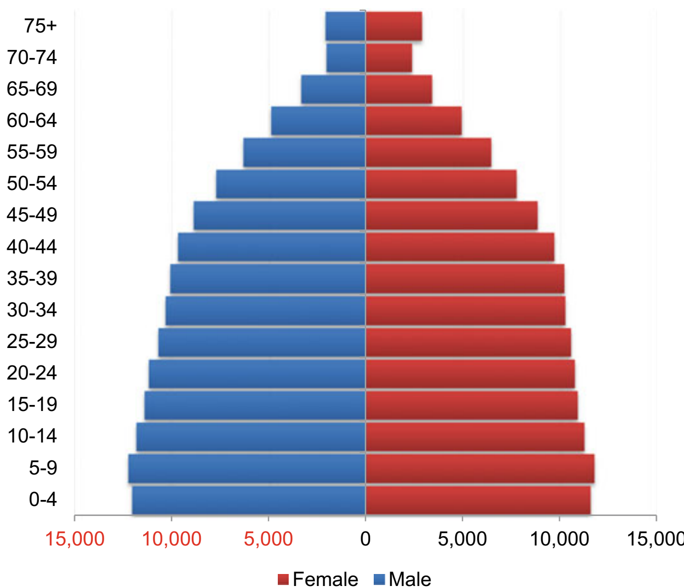

Fig. 1 Indonesia population pyramid 2019 *(in 1,000 People). Source* Created by author (2020)

Table 1 Number of population based on age group *(in 1,000 People)*

Age group	Male	Female	Total
Children (Under 15 years)	36,103.8	34,532.2	70,636.0
Young age (15–24 years)	22,573.8	21,638.0	44,211.8
Early working (25–34 years)	21,011.3	20,798.9	41,810.2
Middle age (35–44 years)	19,737.3	19,895.2	39,632.5
Preretirement (45–54 years)	16,575.8	16,556.8	33,132.6
Retirement (55–64 years)	11,209.9	11,358.1	22,568.0
Old (65 years and above)	7,445.8	8,638.0	16,083.8

Source Created by author (2020)

- Under 15 years: children
- 15–24 years: young age
- 25–34 years: early working
- 35–44 years: middle age
- 45–54 years: preretirement age
- 55–64 years: retirement age
- 65 years and above: old age.

Table 1 shows that approximately 8.4% of the total population is in the retirement age group (22.6 million people), and approximately 14.4% of Indonesia's population is in the elderly age group.

1.2 Poverty Rate and Living Costs for the Elderly

The population of Indonesia over the age of 55 years will dominate the share of the total population (Mangkoesoebroto, 2017) (Table 2).

The old age dependency ratio is expected to increase more than 20% from the total population of Indonesia from 2010 to 2050 (Fig. 2; Table 3).

Based on data from the National Economic and Welfare Survey (Susenas), the poverty rate for elderly people was only slightly higher than the all-individual poverty

Table 2 Population dependency ratio (2010–2070)

Retirement age	Population dependency ratio (2010–2070)			
	2010	2030	2050	2070
55	21.1	35.7	51.8	57.6
60	13.4	23.7	36.8	41.5
65	8.7	15.4	25.4	29.2

Source Created by author, data from Mangkoesoebroto (2017)

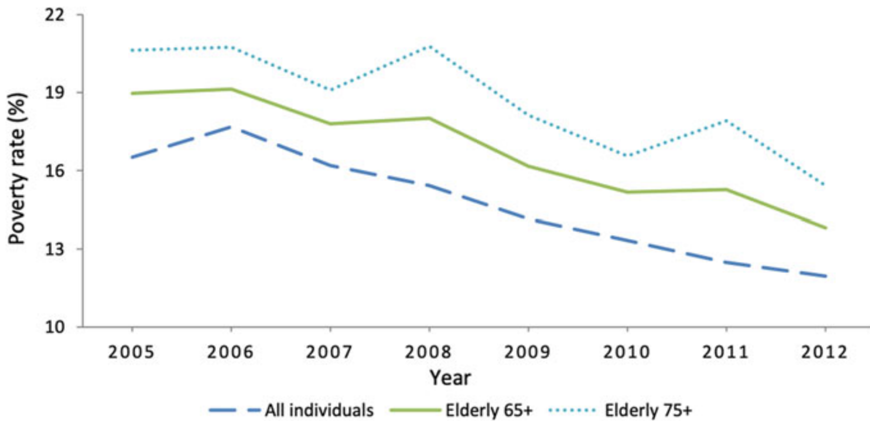

Fig. 2 Poverty rates in Indonesia, annual Susenas rounds (March) (2005–2012)

Table 3 Poverty rates for persons aged 60 and above in Indonesia (2005–2012)

Year	Total	Poverty rates (%)				Population share			
		60+	65+	70+	75+	60+	65+	70+	75+
2005	16.51	17.69	18.97	19.72	20.63	8.02	5.12	3.13	1.48
2006	17.68	17.88	19.13	19.55	20.75	8.67	5.75	3.47	1.70
2007	16.19	16.55	17.80	18.52	19.10	8.78	5.91	3.66	1.92
2008	15.42	16.82	18.01	19.04	20.78	8.33	5.61	3.42	1.77
2009	14.15	15.16	16.16	17.01	18.13	8.81	5.86	3.62	1.89
2010	13.33	14.18	15.17	15.83	16.56	9.20	6.12	3.76	1.94
2011	12.49	13.84	15,27	16.52	17.91	7.58	5.03	3.06	1.61
2012	11.96	12.65	13.81	14.92	15.42	7.56	5.02	3.05	1.61

Source Calculations by TNP2K based on annual Susenas rounds (March)
Note Official BPS poverty lines (rural/urban province level) applied. Poverty rates refer to individuals, Survey weights applied

rate. The poverty rate for age 60+ in 2012 was approximately 12.65%, for age 65+ approximately 13.81% and for age 75+ approximately 15.42%.

Based on Sumini et al. (2020), elderly protection consists of two types: financing and non-financing. The financing types consist of pension and old-age savings. The non-financing types consist of health (i.e., health insurance, health security, and regional health security) and care (i.e., nursing homes). The policy for the elderly in Indonesia is regulated in law number 13 of 1998. The policy is a reference for the provision of elderly services, such as:

a. Nursing Home Services managed by the government. This service covers the need for clothing, food, social religion, recreational and regular health checks.

b. Nursing home care managed by nonprofit institutions. This service is similar to government nursing homes.

Senior Living Services managed by the private sector. For this service, elderly people need to pay expensive fees (Thristiawati, 2017). For example, the monthly senior living cost in Jakarta is 16 million rupiahs.

2 Overview of the Pension System

The current pension system in Indonesia is classified into three pillars: the Public Pension Plan, the Occupational Pension Plan, and the Voluntary Pillar (Brodjonegoro & Simanjuntak, 2002).

2.1 Public Pension Plan

Different from other countries, the public pension plan in Indonesia is not 100% supported by general or specified tax revenues. Only several parties, such as government employees, can benefit from this scheme. The Public Pension Plan is also categorized as a mandatory pension plan. Based on the International Social Security Association (ISSA), the mandatory old-age income programs are defined as follows:

a. Contributory

Contributory Pension can be classified into:

- Contributory flat-rate pension

  This pension plan does not depend on the earnings of the employees, but it depends on the length of service, residency, or other factors. This plan will be financed by payroll tax contributions from employees, employers, or both.
- Contributory earnings-related pension

  This pension plan depends on earnings and will be financed by payroll tax contributions from employees, employers, or both.

b. Noncontributory

Noncontributory Pension can be classified into:

- Noncontributory means-tested pension

  This pension plan is paid to eligible persons whose own or family income, assets, or both fall below certain limits. It will be financed through government contribution without any contributions from employees or employers.
- Noncontributory universal pension

This pension plan is paid to eligible persons based on residency, and it will be financed by the government without any contributions from employees and employers.

Contributory		Non-Contributory	
Flat-rate	Earnings-related	Means-tested	Universal
–	–	–	–

Source Created by author (2020)

For Indonesia, the type of pension plan is the contributory earnings-related pension.

2.2 Occupational Pension Plan

Occupational pension plans are also known as provident funds. Through this pension plan, employee and employer contributions are set for each employee in publicly managed special funds. Benefits are paid as a lump sum with accrued interest. This is mandatory for all companies except small companies with fewer than 10 workers and for the self-employed. The contributions between employers and employees are 3.7% and 2%, respectively.

2.3 Voluntary Pillar

Pension plans are voluntary for employees and employers based on Law No. 11/1992. Based on Law Number 11 of 1992 concerning pension funds, voluntary pension scheme providers consist of two types, namely, Employer Pension Funds (DPPK) and Financial Institution Pension Funds (DPLK). Employer Pension Funds are a pension fund that is established by an individual or entity that employs workers to organize the Defined Benefit Pension Program and Defined Contribution Pension Program for the benefit of its employees and create obligation to the employer. Financial Institution Pension Funds are pension funds established by banks or a life insurance company to organize a Defined Contribution Pension Program for individuals, both employees and independent workers. The entity should be separated from the pension funds managing the pension program of that particular bank or life insurance company employees.

Figure 3 shows the current pension scheme in Indonesia.

The current pension system in Indonesia is classified into two major categories: mandatory and voluntary. The mandatory pension fund provider consists of three institutions: PT Taspen (Persero) or Taspen, PT Asabri (Persero) or Asabri, and BPJS

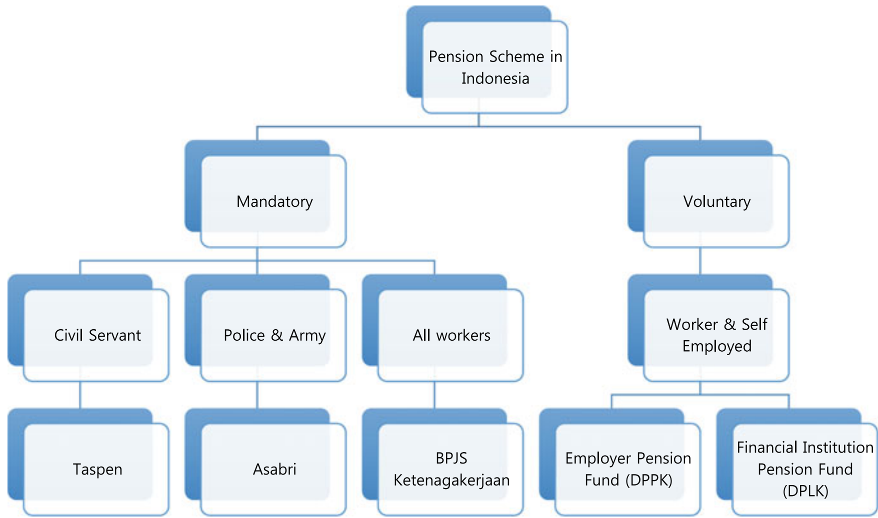

Fig. 3 Framework of the Indonesian pension system. *Source* Created by author (2020)

Ketenagakerjaan. Taspen was established on 17 April 1963, as mandated by Government Regulation Number 15 of 1963 to manage pension funds for civil servants and high-rank state officials. Taspen is a state-owned enterprise that provides not only pension benefits but also work accident benefits, retirement savings, and death benefits.

Previously, Taspen also managed a pension program for army and police officers; however, the Indonesian government decided to spin off the management of the army and police officer pension program to a new entity named the Asabri in 1971. One of the main reasons for the spinoff is the difference in retirement ages of army and police officers and civil servants. Unlike civil servants, army and police officers are also considered to be high-risk jobs due to their nature of work. Since 30 December 1992, the ASABRI changed its legal status as a state-owned enterprise to PT Asabri (Persero) and currently provides 18 benefit programs, including a pension program mandated by Government Regulation Number 102 of 2015 for army, police, and civil servants under the Ministry of Defense and National Police.

BPJS Ketenagakerjaan, previously PT Jamsostek (Persero), was established in 2011 as governed by Law No 24 of 2011 concerning Social Security Administrative Body Law, and Law No 40 of 2004 concerning the National Social Security System mandated that the pension and retirement savings program managed by Taspen and Asabri should be merged into BPJS Ketenagakerjaan by 2029 (BPJS Ketenagakerjaan, 2020). Other benefit programs, such as spouse and children benefit and bereavement support payments, will remain at each entity. Since 1 July 2015, all business entities have been required to gradually register for BPJS Ketenagakerjaan programs, including pension benefits, work-related accident benefits, death benefits, and retirement savings (Alizia et al., 2015). Government Regulation Number 84

of 2013 mentioned that employers with 10 or more employees or who pay wages of at least 1 million Indonesian rupiah per month are obligated to join employee social security programs. BPJS Ketenagakerjaan will give administrative sanction for employers who do not register for the program. Figure 3 shows the current pension scheme in Indonesia.

Based on Holzman and Hinz, there are multipillar schemes to ensure greater flexibility and financial security to the old in contrast to reliance on one single system. The pillars of old-age income security are as follows:

a. Zero pillar
This pillar aims to alleviate poverty among the elderly. This is a noncontributory pillar and is usually financed by the government in the form of basic pension schemes or social assistance.
b. First pillar
This pillar aims to prevent the poverty of the elderly. It takes the form of mandatory contributions linked to earnings, such as minimum pensions within earnings-related plans or separate targeted programs for retirement income.
c. Second pillar
This pillar aims to protect elderly people from relative poverty and provides benefits supplementary to the income from the first pillar to contributions. It is the basis of defined benefits and defined contribution plans with independent investment management.
d. Third pillar
This pillar consists of voluntary contributions in various forms, including occupational or private saving plans and products for individuals.
e. Fourth pillar
This pillar is such informal support or other formal social programs and other individual assets.

Table 4 shows the summary of objectives, characteristics and participation of the multipillar pension taxonomy based on Holzman et al. (2005) (Fig. 4).

3 Public Pension Program (Means-Tested, Tax-Based)

Based on data from TNP2K, there are some considerable benefits related to social pensions. Many policies about social welfare have been redesigned through assets or means tests, income tests, claw-back taxes, diagnostic criteria, behavioral requirements and status characteristics. This policy was focused on social protection programs on poverty.

Currently, Indonesia still does not have a social pension scheme that is means-tested or universal (IOPS, 2017). However, based on the report of TNP2K, Table 5 shows the observation results regarding the guidance for a specific government or policy maker on whether to adopt a social pension and what kind of social pension to design.

Table 4 The Multipillar pension taxonomy

Pillar	Objectives	Characteristics	Participation
0	Elderly poverty protection	"Basic" or "social pension," at least social assistance, universal or means-tested	Universal or residual
1	Elderly poverty protection and consumption smoothing	Public pension plan, publicly managed, defined benefit or notional defined contribution	Mandated
2	Consumption smoothing and elderly poverty protection through minimum pension	Occupational or personal pension plans, fully funded defined benefit or fully funded defined contribution	Mandated
3	Consumption smoothing	Occupational or personal pension plans, partially or fully funded defined benefit or funded defined contribution	Voluntary
4	Elderly poverty protection and consumption smoothing	Access to informal (e.g., family support), other formal social programs (e.g., health) and other individual financial and nonfinancial assets (e.g., homeownership)	Voluntary

Source Holzman et al. (2005)

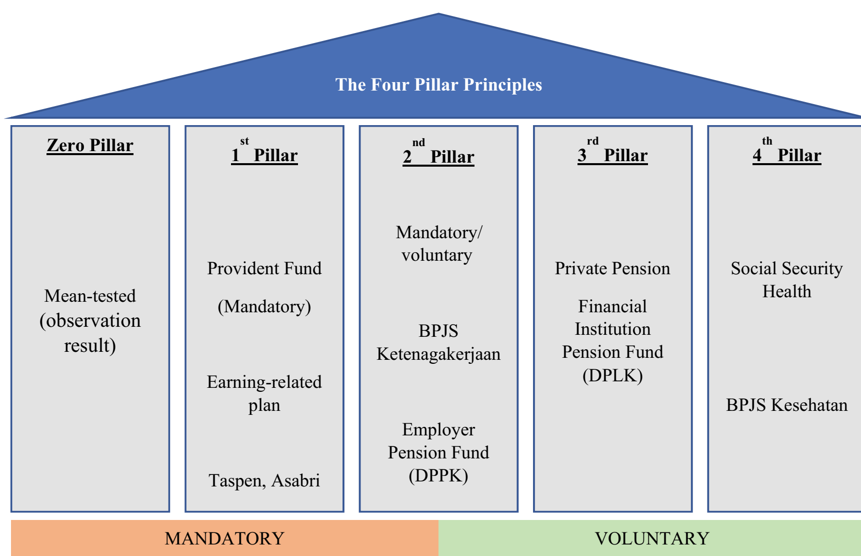

Fig. 4 The four pillar principles of Indonesia's pension scheme. *Source* Created by author (2020)

Table 5 Zero pillar scheme

Country	"Zero Pillar"	Age	Monthly benefit level	
			US $	U5 $ PPP
Asia				
Bangladesh	Means tested		4	10
Brunei Darussalam	Universal	60	201	268
Hong Kong	Means tested		140	197
India	Means tested	60	4	10
Indonesia	Means tested		33	42
Korea, Republic of	Means tested	65	80	115
Malaysia	Means tested	60	94	163
Mongolia	Means tested		26	65
Nepal	Pensions tested	70	6	15
Papua New Guinea	Universal	60	14	16
Philippines	Means tested		12	20
Seychelles	Universal	63	173	433
Thailand	Pensions tested	60	19	34
Timor-Leste	Universal	60	20	58
Vietnam	Means tested	60	6	14
Vietnam	Pensions tested	80	9	21

Source Priebe & Howell (2014)

4 Public Pension Programs (Mandatory, Contribution-Based)

As previously stated, the mandatory public pension fund provider consists of three institutions: Taspen, Asabri, and BPJS Ketenagakerjaan.

4.1 Taspen

Taspen was established on 17 April 1963, as mandated by Government Regulation Number 15 of 1963 to manage pension funds for civil servants and high-rank state officials. Taspen is a state-owned enterprise that provides not only pension benefits but also work accident benefits, retirement savings, and death benefits. Taspen provides two major categories of participants, civil servants and high-rank state officials. Participants are obligated to pay monthly contributions as much as 2% of their monthly salary as mandated by Law Number 20 of 1952 concerning the Civil Servant Pension. The benefits provided for these categories are as follows (Tables 6 and 7).

Table 6 Benefits for civil servants

Beneficiary	Benefit
Retiree	(2.5% × Working Period (in years) × latest basic salary) + allowances
	(minimum = 40% × latest basic salary) + allowances
	(maximum = 75% × latest basic salary) + allowances
Widow/Widower	(36% × latest basic salary) + allowances
Child	(36% × latest basic salary) + allowances
Parent	20% × Widow Pension of Deceased Participant
Widow/Widower child of deceased participant	(72% × latest basic salary) + allowances
Bereavement support Payment	3 × Latest income

Source PT Taspen Persero (2020)

Table 7 Benefits for high-rank state officials

Position	Beneficiary	Benefit
President and Vice President	Retiree	100% × latest basic salary
	Widow/Widower	50% × latest basic salary
	Child	50% × latest basic salary
	Parent	None
Others	Retiree	1% × working period (in months) × latest basic salary
		minimum = 6% × latest basic salary
		maximum = 75% × latest basic salary
	Widow/Widower	50% × latest basic salary
	Child	50% × latest basic salary
	Parent	None

Source PT Taspen Persero (2020)

4.2 Asabri

Ministry of Defense Regulation Number 14 of 2013 concerning Asabri Insurance Benefit mandated the pension contribution to be 3.25% of participants' monthly income (PT Asabri Persero, 2020). The monthly income consists of basic salary, spouse benefit (10% of basic salary), and children benefit (2% of basic salary for each child). Pension benefit is calculated using two main factors, namely, the contribution index factor (FII) and income (P). FII is the accumulation of the ending value of participant contributions and its development during the contribution period that are stated as an index of latest income (P) when participants quit, retire or die. P is the

participant's latest income, consisting of basic salary, spouse benefit, and children benefit, one month prior to retirement, resign, or having passed away. The pension benefit received by participants and their families is as follows:

4.2.1 Insurance Benefit (SA)

Benefit paid to participants with pension rights and calculated as the Contribution Index Factor multiplied by the income level at one month prior to retirement, or FII × P.

4.2.2 Insurance Cash Value Compensation (SNTA)

Benefit paid to participants who are terminated without pension rights or without pension-related allowances and to the heirs of participants who die while on active duty. Benefit is calculated as the Contribution Index Factor multiplied by the income level at one month prior to retirement, or FII × P.

4.2.3 Service Connected Disability Benefit (SCKD)

The lump-sum benefit is paid to participants with service-connected disability as a result of direct action or not the result of direct action during the war or other work appointments according to the specified level and class of disability based on the Decree of the TNI Commander or the Decree of the Chief of Police. The benefits are listed as follows:

(i) Mild disability consists of the following:
   a. Class B receives 37,500,000 rupiah
   b. Class C receives 45,000,000 rupiah

(ii) Moderate disability consists of the following:
   a. Class B receives 42,500,000 rupiah
   b. Class C receives 50,000,000 rupiah

(iii) Marked disability consists of the following:
   a. Class B receives 47,500,000 rupiah
   b. Class C receives 55,000,000 rupiah.

4.2.4 Non-Service Connected Disability Benefit (SCBKD)

The lump–sum benefit is paid to participants with nonservice-connected disability according to the specified level and class of disability based on the Decree of the TNI Commander or the Decree of the Chief of Police. The benefits are listed as follows:

i. Mild disability (Class A) receives 30,000,000 rupiah
ii. Moderate disability (Class A) receives 35,000,000 rupiah
iii. Marked disability (Class A) receives 40,000,000 rupiah.

4.2.5 Death Risk Benefit (SRK)

The benefit paid to the heir of the participant was calculated as follows:

i. Officer/Civil Servant Classes IV and III receive $7 \times P$
ii. Non-Commissioned Officer/Civil Servant Class II receives $8 \times P$
iii. Enlisted/Civil Servant Class I receives $9 \times P$.

4.2.6 Specific Death Risk Benefit (SRKK)

The lump-sum benefit is paid to the heir of the participant who dies based on the Decree of the TNI Commander or the Decree of the Chief of Police. Beneficiary receives 100,000,000 rupiah, including the Insurance Cash Value Compensation.

4.2.7 Funeral Expenses Benefit (SBP)

The lumpsum benefit is paid to the heir of the deceased participants and can be as much as 3,500,000 rupiah.

4.2.8 Spouse Funeral Expenses Benefit (SBPI/S)

The lump-sum benefit is paid to the heir of the active participant's spouse or deceased participant and can be as much as 3,000,000 rupiah.

4.2.9 Children's Funeral Expenses Benefit (SBPA)

The lump-sum benefit is paid to the heir of active participant's or deceased participant and can be as much as 2,500,000 rupiah.

4.3 BPJS Ketenagakerjaan

The participants of the BPJS Ketenagakerjaan Pension Program are registered workers who gave paid contributions (PNB Law Firm, 2020). Participants are workers who fall into these categories:

1. Employee of a nonstate official employer
2. Employee of a company
3. Employee of a sole proprietorship.

Workers who are registered by the employer have a maximum age of one month before entering retirement age. The official retirement age has changed from 56 to 57 years since 1 January 2019.

Pension security contributions are calculated at 3%, consisting of 2% employer contributions and 1% employee contributions. The monthly wages used as the basis for calculating contributions consist of the basic wage and fixed allowances. Since 2019, the maximum wage limit used as the basis for calculation is set at 8,512,400 rupiah. BPJS Ketenagakerjaan adjusts the amount of wages by using one plus the previous year's gross domestic product (GDP) growth rate as the multiplier. BPJS Ketenagakerjaan will determine and announce the adjustment of the highest wage limit no later than one month after the Central Bureau of Statistics (BPS) announces the GDP data.

Employers who do not meet the contribution payment requirements will be subject to a fine of 2% for each month of delay. The benefits of the BPJS Ketenagakerjaan pension program are as follows:

4.3.1 Pension Benefit

A monthly cash payment is provided to participants with a minimum 15 years (or equivalent to 180 months) of contribution. Participants receive monthly payment when entering retirement age until death. The pension benefit formula is as follows:

- Monthly benefit in year 1 = 1% × (contribution period/12) × (weighted average wage during contribution period).
- Monthly benefit in year 2 onward = previous year benefit × indexed factor.

4.3.2 Disability Benefit

A monthly cash payment is provided to participants who are permanently ill or disabled until they die or are able to return to work. Participants are qualified for disability pension if they have been registered for at least one month and have a density rate of at least 80%. The disability benefit is calculated as 100% of the pension benefit.

4.3.3 Survivors Benefit

A monthly cash payment is provided to registered widows/widowers of the participants until they remarry or die with the following conditions:

- Participants passed away when the contribution period was less than 15 years. The contribution period used in calculating the benefit is 15 years, provided that it meets at least one year of participation and a density rate of 80%, or
- Participants passed away during the retirement benefit period.

The survivor benefit is calculated as 50% of the pension benefit.

4.3.4 Child Benefit

A monthly cash payment is provided to the children of the participants (up to two children who have been registered in the pension program) until they reach the age of 23 years, are working, or are married. The following conditions apply:

- Participants passed away when the contribution period was less than 15 years. The contribution period used in calculating the benefit is 15 years, provided that it meets at least one year of participation and a density rate of 80% and does not have widow/widower as heir.
- Participant passed away during retirement benefit period and does not have widow/widower as heir.
- The widow/widower as the beneficiary of the late participant's retirement benefit has passed away.

The child benefit is calculated as 50% of the pension benefit.

4.3.5 Parent Benefit for Single and Unmarried Workers

The benefit is provided to the parents (father/mother) of single or unmarried participants. If the contribution period of single participants is less than 15 years, the contribution period used in calculating benefit is 15 years provided that they meet a minimum membership of one year and meet a density rate of 80%. The parent benefit is calculated as 20% of the pension benefit.

4.3.6 Lump-Sum Benefit

Participants are not entitled to a monthly pension benefit but are entitled to a benefit in the form of accumulated contributions plus the results of the fund investment return, if:

- Participant has reached retirement age and does not meet the minimum contribution period of 15 years.
- Having permanent total disability and not fulfilling the incidence of disability after at least one month of being a participant and at least 80% density rate.
- Participants passed away and did not meet the minimum one-year membership period and a minimum density rate of 80%.

Payment of pension benefit is made for the first time after supporting documents are complete and payment of pension benefit for the following month on the 1st of the current month and if the 1st falls on a holiday, the payment is made on the following working day. In the event that a participant has entered retirement age but he/she is employed, participants may choose to receive pension benefits when they reach retirement age or when they stop working provided that it is not later than three years after retirement age.

5 Private Pension Programs (Mandatory and Voluntary Savings)

Based on pension law no. 11/1992, there are two types of private pension funds in Indonesia, as follows:

5.1 Employer Pension Fund (EPF)

Bank Indonesia defines EPF as the pension funds set up by a person or entity that employs employees, as the founder, to administer a defined benefit pension plan (DBPP) or a defined contribution pension plan (DCPP) for the benefit of some or all of its employees as participants, which gives rise to liability for employers and financial institutions. Based on data from the Financial Services Authority (FSA), there were 197 EPFs in Indonesia until November 2020. There are two types of pension programs of EPF, as follows:

5.1.1 Program Pension *Manfaat Pasti* (Defined Benefit Pension Plan/DBPP)

This is a program where the benefit is fixed and stipulated under the pension fund rule or another pension fund program that is not categorized as a defined contribution program. In this pension program, determination of the level of employee contributions to a defined benefit program should be performed by actuarial calculations at least once every three years. The contribution rate from employees should not more than three times the accrual rate used to calculate the pension benefit for the related

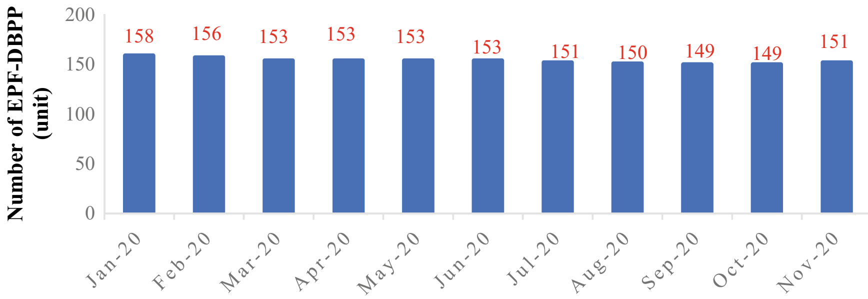

Fig. 5 Number of EPF-DBPPs from January to November 2020. *Source* Created by author, data from Otoritas Jasa Keuangan (2020)

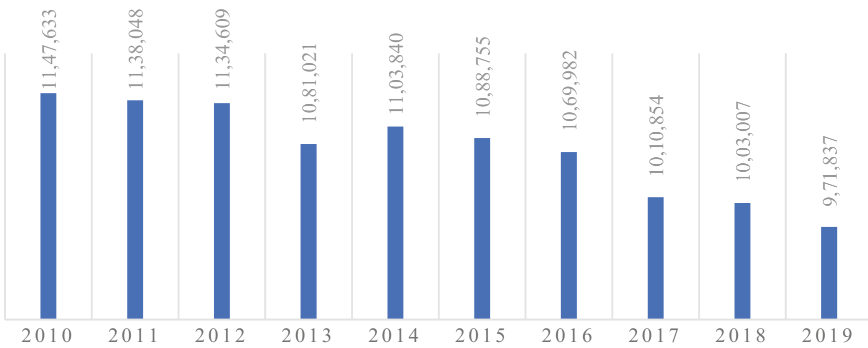

Fig. 6 Participation in the pension fund in Indonesia 2010–2019. *Source* Created by author, data from Otoritas Jasa Keuangan (2020)

year. In the case of a lump sum formula-defined benefit program, the annual contribution rate must not be more than 3% of the multiple pension salary used to calculate the pension benefits (rights) for the related year (Figs. 5 and 6).

5.1.2 Program Pension *Iuran Pasti* (Defined Contribution Pension Plan/DCPP)

This is a program where the contribution is fixed and stipulated under the pension fund rule and the whole contribution and investment result is recorded in the accounts of each member as a pension benefit. In this pension program, the contributions are paid based on a fixed percentage of salary or on the profits of employers made in a particular year (i.e., profit-based pension plans). The annual total contribution by an employer and employee to define contribution plans should not be more than 20% of pensionable salary. Employees should not be required to make contributions that equate to more than 60% of their employers' contributions. The maximum limits

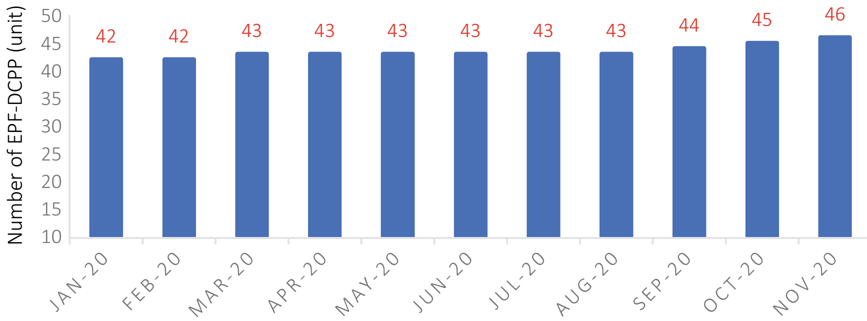

Fig. 7 Number of EPF-DCPPs from January–November 2020. *Source* Created by author, data from Otoritas Jasa Keuangan (2020)

for members' contributions are also valid for financial institution pension funds. Based on data from Otoritas Jasa Keuangan, there were 46 EPF-DCPP institutions in Indonesia as of November 2020 (Fig. 7).

5.2 *Financial Institution Pension Fund (FIPF)*

The Financial Services Authority (Otoritas Jasa Keuangan) defines the FIPF as a pension fund that is founded by a bank or life insurance company to manage a defined benefit pension plan for individuals of both employees or independent workers, which is separated from the employer pension fund for employees of the involved bank or life insurance company. Based on data from the Otoritas Jasa Keuangan, there were 24 FIPF institutions in Indonesia as of November 2020 (Fig. 8).

Overall, the number of participants in pension funds increased during the 2014–2019 period, although it decreased in 2019 compared to 2018. Most of the participants came from the FIPF. Despite having the smallest number of entities, the FIPF has the

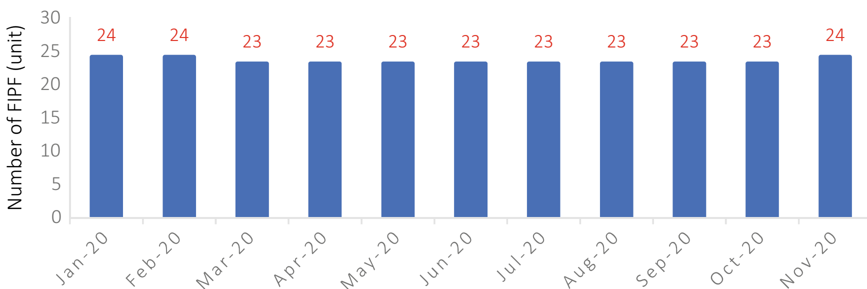

Fig. 8 Number of FIPFs from January–November 2020. *Source* Created by author, data from Otoritas Jasa Keuangan (2020)

Table 8 Private pension fund participants

Type	2014	2015	2016	2017	2018	2019
EPF-DB	1,103,840	1,088,755	1,069,982	1,010,854	1,003,007	971,837
Growth rate (%)		−0.01	−0.02	−0.06	−0.01	−0.03
EPF-DC	342,169	352,610	363,121	389,241	392,300	405,662
Growth rate (%)		0.03	0.03	0.07	0.01	0.03
FIPF	2,479,435	2,748,162	2,961,942	3,055,617	3,239,767	3,010,174
Growth rate (%)		−0.01	−0.02	−0.06	−0.01	−0.03
Total	**3,925,444**	**4,189,527**	**4,395,045**	**4,455,712**	**4,635,074**	**4,387,673**

Source Created by author, data from Otoritas Jasa Keuangan (2020)

Table 9 Net assets and investments of private pension funds

Type	2014	2015	2016	2017	2018	2019	Oct-20
Net assets	192.9	206.51	234.47	260.82	268.03	289.74	297.07
Investment	186.14	200.35	229.31	255.28	261.07	282.64	287.37
Investment to assets ratio	96.50%	97.02%	97.80%	97.88%	97.40%	97.55%	96.73%

Source Created by author, data from Otoritas Jasa Keuangan (2020)

largest participant base. In 2019, there were 3 million FIPF participants. Meanwhile, the number of EPF-DBPP participants reached 0.97 million, and EPF-DCPP participants reached 0.41 million. The annual growth rate of the number of participants has decreased for the EPF-DBPP and FIPF, and a positive annual growth rate was only achieved by the EPF-DCPP (Table 8).

Table 9 explains the amount of net assets compared to investments in private pension funds in Indonesia. Total net assets have consistently grown every year from 2014 to October 2020. The increase in net assets has been accompanied by an increased amount of investments. However, in terms of the ratio of investments compared to net assets, the October 2020 period has decreased compared to the 2015 to 2019 period.

In terms of rate of return, private pension fund investment performance in 2018 reached its lowest point since 2014. After reaching the highest rate of return in 2012 of 12.21%, the rate of return for pension funds decreased drastically to 3.59% in 2013. However, since 2014, the rate of return has again reached a new equilibrium point at the rate of 8–9% per year but decreased to the level of 7.60% in 2018 (Fig. 9).

5.3 Defined Contribution Pension Plan (Individual Type)

For the private personal pension, the FIPF can only be used in terms of a defined contribution pension plan (DCPP). The contribution rate for personal or individual

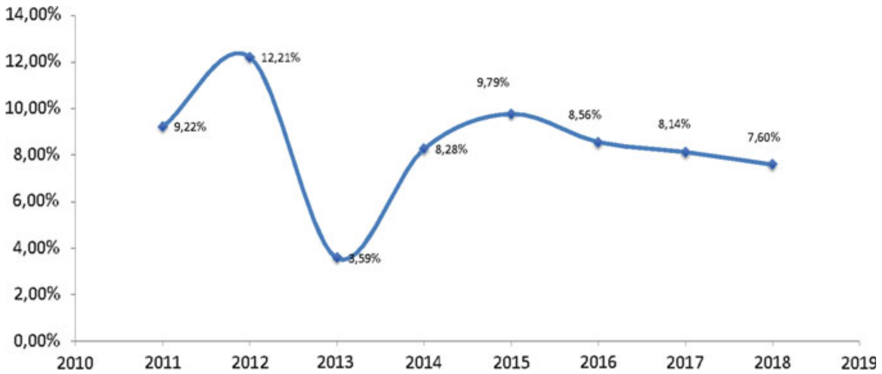

Fig. 9 Private pension funds rate of return. *Source* Created by author, data from Otoritas Jasa Keuangan (2020)

type will usually be defined in the contract/pension agreement between an individual and financial institution. The benefit from a personal pension will be received when the members reach the legal retirement age set in the range of 45–65 years old. Members also have an option for early retirement. The benefit is paid on a monthly basis through purchasing a life annuity from a bank or an insurance company.

6 Alternative (Pension-Like) Programs (E.G., Reverse Mortgages)

There are currently no alternative pension-like programs, such as reverse mortgages, in Indonesia.

7 Public Policy Issues of Importance

7.1 Low Participation Rate

A low participation rate remains one of the biggest challenges faced by BPJS Ketenagakerjaan, as the provider of the universal pension scheme in Indonesia. As of May 2021, there were 128.45 million people in Indonesia, and approximately 90 million meet the criteria or are entitled to become participants in social employment security. Among 48.64 million workers who already registered as BPJS Ketenagakerjaan participants, only 27.8 million workers still pay regular contributions. These statistics show that the coverage of active participants is only 30.3% of total eligible workers. The active participants are dominated by workers in formal sectors, while

the largest percentage of the Indonesian workforce is informal workers. BPJS Ketenagakerjaan needs to formulate a strategy to accelerate the participation growth rate, particularly for informal workers.

Indonesia's retirement scheme ranked 30th among 39 countries in the Mercer CFA Institute Global Pension Index in 2020. The index assesses the retirement income system based on three sub-indices (sustainability, adequacy, and integrity). Indonesia earned a C grade with an overall index value of 51.4, and the scores for each sub-index all fall below the global average standard. To strengthen the index value, increasing the coverage of both formal and informal workers as well as the self-employed is critical. In addition, the Indonesian government also needs to review the regulation that allows BPJS Ketenagakerjaan's participants to redeem retirement savings prior to retirement. Along with the low coverage, this scheme could potentially affect the retirement system's adequacy and sustainability in the long run.

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The Vietnamese Pension System and Aging Population

Van T. T. Dinh, Thuc H. T. Pham, Tiep M. Bui, and Tu N. Ho

Abstract Vietnam is considered one of the countries with the fastest aging rates in the world, reducing the available time to prepare for the aging population recently. The increasing number of older people in Vietnam sets a dependency burden, posing many challenges for the social security and pension system. The pension system in Vietnam includes two types: compulsory pension and voluntary pension. In the compulsory pension system, public pension funds are managed by the government and sponsored by payroll taxes on employers and employees. However, only 23.5–30% of the elderly had pensions and welfare from the state budget and social insurance fund. The development of voluntary pension funds in Vietnam has been in effect since 2013, and voluntary pension programs are currently implemented under the government's regulations through voluntary pension insurance products (annuities) provided by life insurance companies, investment funds or other financial institutions. To date, Vietnam's population has approximately 10% participating in life insurance, in which pension insurance packages account for a small proportion. The pension system in Vietnam shows some weaknesses that need to be improved to address the aging population in the near future. First, women are more likely to lack adequate older age protection. Second, a large proportion of informal employees do not have access to public social insurance benefits. Third, voluntary pension programs have not been shown to be effective and developed. Fourth, the small contributed public pension fund is inadequate with the growing number of beneficiaries. Finally, the current tax-funded pension schemes have provided only a small number of elderly individuals with low benefits insufficient to ensure a decent living in old age. The

V. T. T. Dinh (✉)
Texas Tech University, Lubbock, TX, USA
e-mail: van.dinh@ttu.edu

V. T. T. Dinh · T. H. T. Pham
VNU - University of Economics and Business, Hanoi, Vietnam

T. M. Bui
Haiphong University, Haiphong, Vietnam

T. N. Ho
National Institute of Finance, Hanoi, Vietnam

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government needs to launch solutions to support women employees, to encourage employees working in informal economic sectors to participate in social insurance and unemployment insurance, to change the current tax-funded schemes to increase the amount of public insurance funds and at the same time to support voluntary pension market development to share the burden of the public fund.

Keywords Pension · Aging population · Vietnam · Retirement · Insurance company · Voluntary pension

1 Economic Growth and Population Age Structure in Vietnam

1.1 Population-Economic Growth Relationship

Recent empirical studies on population-economic relations have shown the important influence of changes in population age structure on economic growth.

The age structure of the population or the population structure by age is the proportion of the population in each age group compared to the total population. The population is the subject of all socioeconomic development processes. At different ages, people have different economic behaviors, so changing the age structure of the population will have a great impact on the resource allocation process, growth, development and political and social stability in any country. Therefore, when there is a protective change, the proportion of the population at each age in the total population will have changes in production, consumption and thus economic growth. In a country with young people and a high proportion of children, the state will need more resources to spend on education, health and nurturing. Meanwhile, in a country with a large proportion of working-age people, the government has the opportunity to promote economic growth thanks to its abundant human resources, high savings and investment, and a strong financial system. Moreover, if a country has a higher proportion of older people, it will have to spend more on health care and increase consumption, and social security issues should be adequately addressed.

Changes in the age structure of the population alter the proportion of the population groups. With the new quantitative approach, in their studies, demographers offer views on first and second demographic returns (Mason et al., 2008). The first demographic income appears when the growth rate of the productive population is higher than that of the consumer population, thereby increasing per capita income and promoting economic growth. The second demographic dividend is the benefits that can be obtained because the forecasts of an aging population increase the incentives to save and accumulate capital in the economy, thereby increasing the numbers of millionaires. The proportion of high-income people promotes the consumption of the outputs of the production process and increases the capital resources for production. Therefore, a country coping with an aging population should have appropriate

policies. In that case, the increase in savings (from young workers or income transfers) and preparation sustainability for the financial retirement system can lead to a healthy, affluent aging population and a prosperous society.

1.2 Changes in Population Structures in Vietnam

Vietnam's population has continuously increased through historical periods, even though there is a difference in the population growth rate, birth rate and death rate in each period. The population data also partly reflect the historical context, the standard of living of the people and the state's concern with population and development issues.

According to the 2019 Population and Housing Census, the total population of Vietnam was 96,208,984, of which the male population was 47,881,061, accounting for 49.8%, and the female population was 48,327,923, accounting for 50.2%.

The 2017 population change survey of the General Statistics Office (GSO), officially announced in June 2019, showed that the rate of the elderly 60+ is 12.7%, equivalent to 12.22 million people over 60 years old. The percentage of elderly individuals over 65 years old was 8.3%, equal to 7.99 million people. Vietnam is the third most populous country in Southeast Asia (after Indonesia and the Philippines) and 15th in the world. In just 10 years (2009–2019), the population of Vietnam increased by 10.4 million people. The average population growth rate in the 2009–2019 period was 1.14% per year, slightly lower than that in the 1999–2009 period (1.18% per year), but the rate of the elderly population increased rapidly (GSO, 2019).

The population pyramids of 2014 and 2049 show that along with the decline in the child population, there is an increase in the elderly population. When the golden

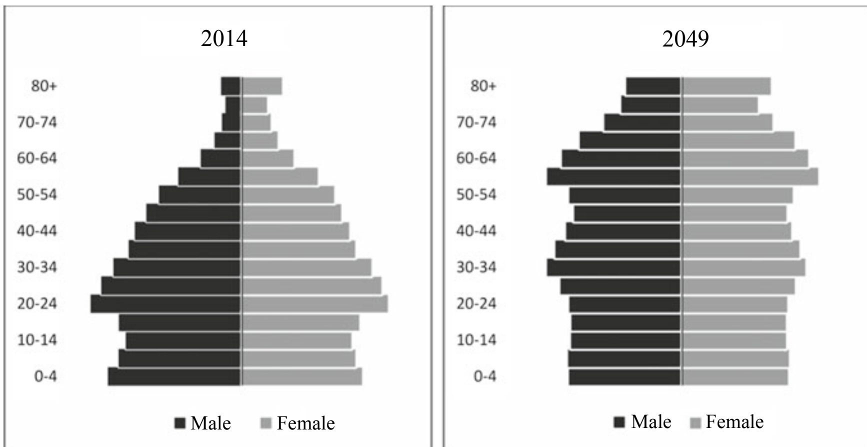

Fig. 1 Forecast population Pyramid of Vietnam, 2014–2049. *Source* GSO and UNFPA (2016a, 2016b)

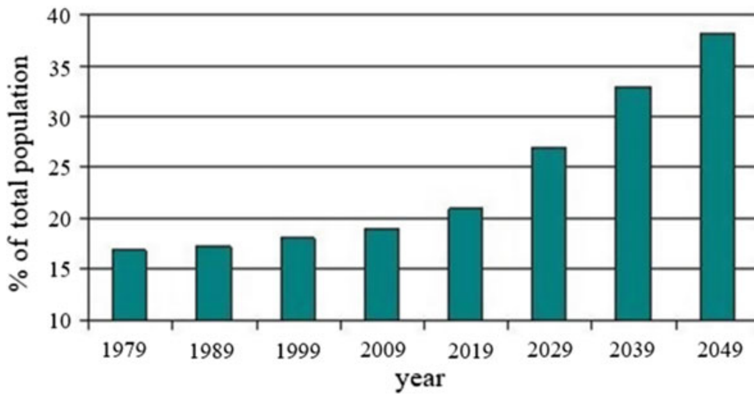

Fig. 2 Proportion of the Elderly Population in Vietnam, 1979–2049. *Source* GSO and UNFPA (2016a, 2016b)

population opportunity ends, the Vietnamese population is then only characteristic of an aging population with a series of human resource challenges for growth or social security issues, including financing for retirement, which is a serious problem (GSO & UNFPA, 2016a, 2016b).

The increase in the elderly population is recognized as a success of humanity in improving the quality of life and prolonging the human life span. However, the fact is that the elderly population is facing weaker health and declining income sources or is no longer able to work to generate income as age increases. This means an increase in health spending, insurance spending or an increasing need for social security for the elderly once Vietnam enters a period of rapid aging (Fig. 2).

The aging index, which is calculated as the number of people aged 60 and over per 100 children under the age of 15, had increased from 16.6 in 1979 to 35.5 in 2009. It is forecasted that the index will grow faster in the next few decades and will go up to approximately 100 in 2035, and by 2049 this will be 141, which means 141 elderly for every 100 children (GSO, 2016).

In many recent studies, if the aging population is prepared with appropriate policies and a strong pension financial system, aging does not mean a burden. Nevertheless, it can be exploited from the second demographic income from this transition. "Second demographic returns" are the benefits that can be obtained because projections of an aging population increase the incentives for saving and capital accumulation in the economy. The increasing proportion of high-income earners promotes the consumption of the outputs of the manufacturing process and increases the capital resources for production. Vietnam is coping with the aging population forecast now. In that case, savings will increase (from the time when young workers accumulate wealth to prepare for old age or from income transfers), and ongoing preparations for the financial retirement system can lead to a healthy, affluent aging population and a prosperous society.

The motivation to save for retirement from a young age also helps the current workforce to work more actively, contributing to the financial retirement system more. This has a positive impact on economic growth both now and in the future.

If the experience and skills of the elderly are effectively exploited, they can make a positive economic contribution. Healthy older workers with extensive work experience can support a young workforce for higher productivity. In addition, they are also an important connection factor in the family when market mechanisms and industrial lifestyles are rapidly eroding the family structure.

The increasing number of older people in Vietnam sets a dependency burden, posing many challenges for the social security system and the financial retirement system. The rapid increase in the proportion of the elderly means fewer taxpayers and more people needing state subsidies. Declining government revenues, along with rising costs of pensions and health care, put the social security net under pressure.

The aging rate of Vietnam's population is taking place faster than in many countries with better socioeconomic conditions, and the preparation time to deal with aging issues in Vietnam is very short. While it took France 115 years to move to an aging population, Sweden took 85 years, America 35 years, and Vietnam will take only 20 years. Two impacting factors are life expectancy at birth, which has increased approximately 1.5 times faster than the increase in life expectancy globally, and the fertility rate, which has dropped sharply. The average life expectancy in Vietnam is 73.6 years, of which the life expectancy for men is 71.0 years and for women is 76.3 years. From 1989 to the present, the average life expectancy in Vietnam has continuously increased, from 65.2 years in 1989 to 73.6 years in 2019 (GSO, 2019).

1.3 Living Costs and Pensions for the Elderly

Currently, the majority of older people live in low-income households. In 2016, almost 68% of older people were living in households where the per capita income was less than 100,000 Vietnamese dong or US$4.50 per day, while 31.5% were living on less than 50,000 dong (US$2.25), as Fig. 3 shows. Specific categories of older people are more likely to live in low-income households: for example, 81% of older people in rural areas and 88% of older members of ethnic minorities were living on less than 100,000 dong per day (Kidd et al., 2019).

These statistics, sobering as they are, underestimate the challenges faced by older persons since they assume that incomes are shared equally across the household. In reality, a high proportion of older people are no longer able to work or contribute financially to the household: 48% of women and 35% of men aged 65–69 no longer participate in the labor force, rising to 91% of women and 85% of men aged 80 and above. This is largely the result of increasing disability in old age: approximately 30% of those aged 65 have a disability, respectively rising to 70% of 80-year-old individuals (Kidd et al., 2019).

Without an independent source of income, older people can lose their autonomy. They are less able to contribute to society and become increasingly dependent on

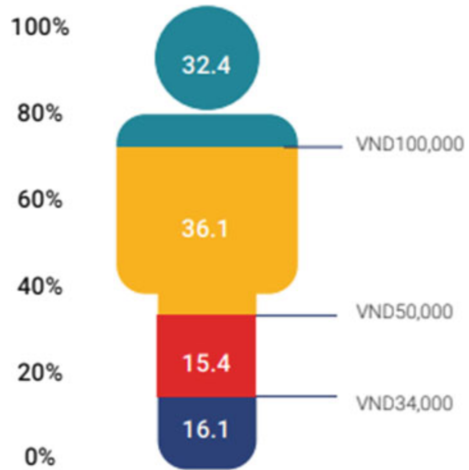

Fig. 3 Proportion of older people living under different per capita daily incomes. *Source* Kidd et al. (2019)

others, potentially losing their sense of self-worth and dignity. If they are perceived as a burden, they can experience social exclusion, including discrimination and mistreatment. Already, 11% of older women and 3% of older men live alone in Vietnam (Hai, 2019). A pension can help older people retain their autonomy for much longer, ensuring that they continue as givers to society rather than takers.

1.4 The Improvement of Per Capita Income and Proportion of Trained Workers

Since the reform and opening market over 30 years, Vietnam's per capita income has increased from the lowest level in the world to a low-middle-income country with a GDP per capita of US$3,521 in 2020. The poverty rate dropped sharply from more than 70% to less than 6% (US$ 3.2/day at purchasing power parity). Thanks to high economic growth, people's per capita income will continue to improve, and Vietnam's per capita income is forecasted to be over US$10,000 by 2030. In addition, the growing middle class in Vietnam currently accounts for 13% of the population and will grow to 26% by 2026.[1] The proportion of trained workers increased from 10.3% in 2000 to 22.8% in 2019 as Vietnam's education system had improved. The increase in per capita income along with a higher educational level will develop the social insurance scheme, unemployment insurance and social security funds.

[1] https://www.worldbank.org/vi/country/vietnam/overview.

2 Frame of Pension System in Vietnam

2.1 First Step of the Vietnamese Pension System

The pension system is a part of the Vietnamese social insurance system, which has been in operation since 1962. Before 1995, the pension system was a predefined entitlement system with only public sector employees participating, and many authorities managed it under the government's oversight. In that system, the pension rate was determined based on the number of years of contribution and base income (usually the salary at the time of retirement). The benefit was paid out from the social insurance fund, which was formed from employers' contributions (part of the salary fund) and government subsidies. Insurance funds were managed and sponsored by the government and are part of the state budget. For nearly 30 years, especially during the fierce war years, this system had made a significant contribution to stabilizing the income and living standards of the system participants. However, the complexity and difficulties arising from financial and administrative management, coupled with the rapid growth of the private sector, prompted the government to reform the system. Pay-as-you-go (PAYG) retirees had a predetermined benefit rate in 1995 and established Vietnam Social Security (VSI) at the same time to administer the system under government patronage.

2.2 The Vietnamese Pension System at the Current Time

Currently, the pension system in Vietnam includes two types: compulsory pension and voluntary pension. The Social Insurance Fund was formed based on the contributions of the participants. The current pension system has a strong commitment from the political system, developed in a relatively stable legal framework. However, the social insurance participation in the informal sector is still low; by the beginning of 2019, the number of people receiving the state pension (participating in social insurance) was only approximately 2.15 million, with an average retirement of 3.9 million/month (GSO, 2019). The rate of pension entitlement is at the maximum and long, while the life expectancy of pensioners is on the rise nowadays. Therefore, to ensure sustainable old-age income, the international trend is to use social pensions to achieve universal pension and social security in economies (Fig. 4).

Around the world, the traditional pension system under the mechanism of real revenues, real spending PAYG, is gradually being transferred to a funded pension system (fully/partially) from voluntary contributions by individuals participating in private retirement programs. This campaign pension system has enabled pension funds to voluntarily accumulate assets to invest in the financial markets (Luu, 2014). Even though the development of pension funds in Vietnam has been in effect since 2013, it is still in its early stages (Fig. 5).

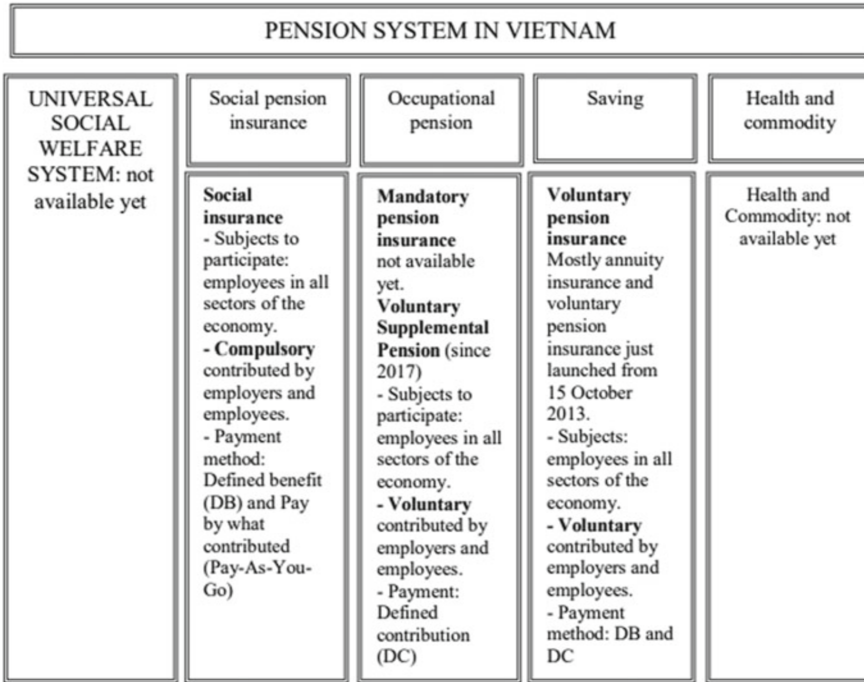

Fig. 4 Pension system in Vietnam. *Source* Luu (2014)

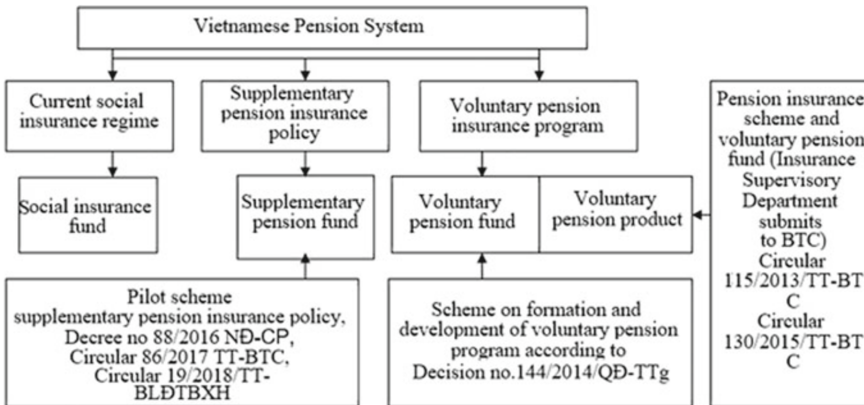

Fig. 5 Regulatory structure of the Vietnamese pension system. *Source* MOF (2013) (Circular 115/2013/TT-BTC)

Accordingly, voluntary pension programs in Vietnam are currently implemented under the government's regulations through voluntary pension insurance products (annuities) provided by life insurance companies, sercurities companies and banks.

3 Frame of the Public Pension System in Vietnam

According to the Law on Social Insurance 2014, generally speaking, employees in the public sector are required to have a specific number of years of social insurance payments for each field, industry group and the rate of pension entitlement to receive social pension. The maximum pension entitlement rate of the employee is 75% of the average monthly salary paid for social insurance, corresponding to the retirement age of 55 for women and 60 for men, except for some specific cases in a profession or field. The employee's working age and retirement age may be lower or higher, as specified in the Law on Social Insurance (National Assembly, 2014). The employee's basic pension is calculated as follows:

$$\begin{aligned}\textbf{Pension} &= \textbf{Rate of pension entitlement}\\ &\quad \times \textbf{level of average monthly salary paid for social insurance}\end{aligned}$$

where:

- For male employees: 45% of the average monthly salary paid for social insurance, corresponding to 18 years of social insurance payment, then 2% more of each additional year.
- For female employees, 45% of the average monthly salary paid social insurance corresponding to 15 years of social insurance payment, then 2% more of each additional year.
- In case the employee retires before the required age, the monthly pension of the employee eligible for retirement before the age is calculated as the full retirement age; then, for each year of retirement before the required age, there is a 2% reduction. If the retirement age has an odd time to the entire six months, the reduction will be 1%, and from over six months, the percentage rate will not be reduced.

4 Public Pension Benefits in Vietnam

4.1 Law on the Elderly and Social Protection Policy for the Elderly

On 23 November 2009, the National Assembly promulgated the Law on the Elderly, effective 1 July 2010. This Law provides for the rights and obligations of older people;

responsibilities of the family, the State and society in caring for and promoting the role of the elderly; and the Vietnam Association of the Elderly.

According to the provisions of the Law on the Elderly 2009, the elderly are Vietnamese citizens from 60 years of age or older. Article 17 of the Law on the Elderly 2009 provides for the beneficiaries of social protection policies. Under Article 18 of the Law on the Elderly, the elderly are entitled to s*ocial protection policies, monthly social benefits and funeral expenses* (National Assembly, 2009).

Social Insurance Age

- **Required Age for Pension**

  Age 60 (men) or age 55 (women) with at least 20 years of contributions (at least 15 years of contributions for women civil servants living in communes, wards, or townships).

  Age 55 (men; age 50 for coal miners) or age 50 (women) with at least 20 years of contributions, including at least 15 years of employment in coal mining or other hazardous or arduous working conditions, or in certain geographic regions. At any age with at least 20 years of contributions, including 15 years in extremely hazardous or arduous working conditions, and an assessed degree of disability of at least 61%.

  Age 55 (men) or age 50 (women) with at least 20 years of contributions and an assessed reduced working capacity of at least 61%.

  Age 50 (men) or age 45 (women) with at least 20 years of contributions and an assessed reduced working capacity of at least 81%.

  At any age with at least 20 years of contributions if the insured contracted HIV/AIDS in the workplace.

  For military and police personnel, age 55 (men) or age 50 (women) with at least 20 years of contributions; age 50 (men) or age 45 (women) with at least 20 years of contributions, including at least 15 years of employment in hazardous or arduous working conditions or in certain regions; age 50 (men) or age 45 (women) with at least 20 years of contributions and an assessed reduced working capacity of at least 61%.

  Pension supplement: Paid if the insured individuals had sufficient contributions to finance at least a 75% replacement rate.

- **Old-age Grant**

  Age 60 (men) or age 55 (women) with less than 20 years of contributions and ineligible for the old-age pension (less than 15 years for women civil servants living in communes, wards, or townships). At any age with less than 15 years of contributions and an assessed degree of disability of at least 61%.

  At any age if diagnosed with certain specified diseases or for demobilized army or police personnel who are ineligible for the old-age pension. If emigrating permanently, with less than 20 years of contributions after 12 months of leave with no paid contributions during the leave period.

- **Disability Pension**

  See old-age pension (social insurance).

- **Survivor Pension**
  The deceased had at least 15 years of contributions, received or was entitled to receive an old-age pension, or was a disability pensioner with an assessed reduced working capacity of at least 61%. The benefit is paid to up to four dependent survivors.
  Eligible survivors include a widower (aged 60 or older) or a widow (aged 55 or older) with income less than the legal monthly minimum wage for civil servants (no age limit with an assessed reduced working capacity of at least 81%), children younger than age 18 (no limit with an assessed reduced working capacity of at least 81%), a father (aged 60 or older) or a mother (aged 55 or older) with an income less than the legal monthly minimum wage for civil servants; or a father-in-law (aged 60 or older) or a mother-in-law (aged 55 or older) with income less than the legal monthly minimum wage for civil servants (no limit with an assessed reduced working capacity of at least 81%).
  The legal monthly minimum wage for civil servants is 1,210,000 dong (US$ 45).
  Survivor lump-sum allowance: Paid to survivors who do not meet the eligibility requirements for a survivor pension if the deceased received or was entitled to receive an old-age or disability pension.
- **Survivor Grant**
  Paid if the deceased had less than 15 years of contributions.
- **Funeral Grant**
  Paid to the person who pays for the funeral if the deceased received the old-age or disability pension or had at least 12 months of contributions.

Social Assistance

- **Old-age Social Pension**
  Aged 60–79, needy, and living alone without family support; or aged 80 or older and not receiving any contributory pension.
- **Disability Allowance**
  Assessed with at least a 61% reduced working capacity and does not qualify for a contributory pension.
- **Caregiver's Support**
  Paid to caregivers of persons with an assessed reduced working capacity of at least 81%.
- **Funeral Grant**
  Paid to cover the cost of the funeral if the deceased was aged 60 or older, needy, and living alone without family support; aged 80 or older and not receiving any contributory pension; with an assessed reduced working capacity of at least 61% and not receiving any contributory pension; or receiving the orphan benefit, single-parent benefit, HIV allowance, or disabled child allowance.

4.2 Benefits from the State Retirement Regime

Provisions on beneficiaries of social protection policies under the Law on the Elderly 2009 include the following: (1) older people from poor households without an obligor and a right to serve or an obligor and the right to care for these people who are enjoying the monthly social allowance; (2) people aged 80 years or older who are not one of the above cases and do not have a monthly pension or social insurance allowance.

According to the social protection policy: *(1) Older adults are entitled to health insurance, a monthly social allowance and support for funeral expenses upon death; (2) Older adults from poor households who have no obligations and rights to support, have no conditions to live in the community, have aspirations and are admitted to social protection establishments are entitled to benefits: monthly nursing allowance; supply of materials for daily activities; receiving health insurance; supply of common medicine; provision of tools and means of rehabilitation assistance; burial after death (National Assembly*, 2009).

- **Monthly Social Allowance**
  The standard level of social allowance to determine the monthly social allowance, the monthly nurturing allowance for the elderly, is 180,000 dong or US$ 65 (standard coefficient 1.0).

  The lowest monthly social allowance level for the elderly specified in Article 17 of the Law on the Elderly (2009) living in a community is managed by the People's Committees of Communes, Wards and Townships as follows:

  – The rate of 180,000 dong/person/month (coefficient 1.0) for the elderly from 60 years old to 80 years old in a poor household without a person having obligations and rights to support; or having someone with obligations and rights taking care but this person is receiving the monthly social allowance;
  – The rate of 270,000 dong/person/month (coefficient 1.5) for older adults aged 80 years and over belonging to poor households without a person having obligations and rights to serve; or someone with obligations and rights to worship but this person is receiving the monthly social allowance;
  – The rate of 180,000 dong/person/month (coefficient 1.0) for people aged 80 years or older who do not fall into the above two categories without salary, monthly social insurance allowance or monthly social allowance.
  – The rate of 360,000 dong/person/month (coefficient 2.0) for the elderly was raised in social protection establishments.
  – The rate of 360,000 dong/person/month (coefficient 2.0) for older people who are eligible to be admitted to live in social protection establishments but have people who receive care in the community.

- **Funeral Expenses Support**
  The rate of support for funeral costs upon the death of the elderly specified in Articles 18 and 19 of the Law on the Elderly is 3,000,000 dong.

- **Health Insurance Card**
  Persons aged 80 years or older who are enjoying monthly social insurance benefits or other monthly benefits but have not yet been granted a free health insurance card shall be issued with a health insurance card by the government.

4.3 The Current Vietnam Pension Entitlement

The rapid increase in per capita income along with a higher proportion of trained workers are positive factors that increase the number of people participating in the social insurance system in Vietnam for two reasons: (i) An increase in per capita income creates savings available for people to participate in social insurance for a long time; (ii) When the level of trained workers is improved, they tend to work in factories and offices, that is, in the formal economic sector, not in the underground economy.

In 2016, the number of people receiving a monthly pension was 2.3 million people (approximately 23% of the elderly population). The average benefit is 3.7 million dong/month, equivalent to approximately seven times the poverty line for the period 2010–2015 (Ministry of Labour, Invalids and Social Affairs, MOLISA, 2017).

With the social pension system (or a monthly allowance), by the end of 2016, nearly 110,000 people aged 60–79 and 1.9 million people aged 80 and over received monthly benefits. Therefore, the coverage rate of this system was also approximately 20% of the elderly population. The main goal of this system was to support the elderly to reduce difficulties and ensure income security. The minimum benefit amount was 270,000 dong/person/month, but this is low because it is only half of the general poverty line for 2010–2015 (MOLISA, 2017) (Fig. 6).

By the end of 2020, 16.1 million people were participating in the compulsory social insurance program, and approximately 1.1 million people were participating in the voluntary social insurance program. This means that only 32% of the workforce participated in the social insurance system.[2]

4.4 Taxation

Tax residents are subject to personal income tax (PIT) on their worldwide employment income, regardless of where the income is paid or earned, at progressive rates from 5% to a maximum of 35%. Nonresident taxpayers are subject to PIT at a flat rate of 20% in Vietnam.

In general, a typical monthly salary package in Vietnam will include gross salary and mandatory social security. PIT is levied on the balance after deducting mandatory

[2] https://nhandan.vn/bhxh-va-cuoc-song/gan-1-1-trieu-nguoi-tham-gia-bao-hiem-xa-hoi-tu-nguyen--629304/.

social insurance contributions. Companies conduct PIT finalization on behalf of their employees at the beginning of the year for taxable income arising from the previous year.

Tax-exempt incomes: Vietnam's tax authorities have singled out a number of incomes that are exempt from PIT. These include:

- Overseas remittances, retirement pensions, scholarships.

4.5 *Changes in the Social Insurance Law in 2021*

4.5.1 Changes in Conditions for Having Pension Benefits for Subjects of Compulsory Social Insurance

According to Article 54 of the Law on Social Insurance, the conditions for pension entitlement to compulsory social insurance participants will be adjusted for each group of subjects as follows:

Group of employees, civil servants and public employees

This group of people, if they have 20 years or more of participation in social insurance, will be entitled to pension if:

- Under normal working conditions, male employees need to be 60 years + 3 months; female employees need to be 55 years + 4 months.

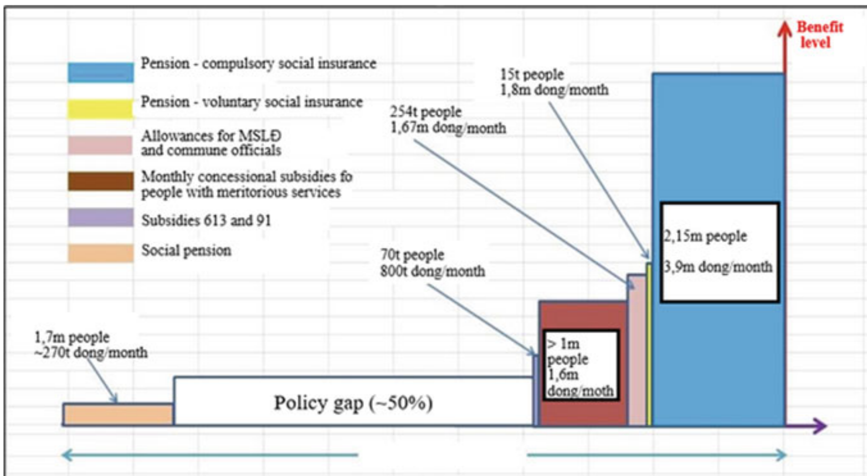

Fig. 6 Elderly population coverage of Vietnam's pension system. *Source* MOLISA (2017)

- In heavy, hazardous, dangerous or extremely heavy, hazardous or dangerous work conditions, have 15 years working in regions with extremely difficult socioeconomic conditions: Male employees need to be 55 years old + 3 months; female employees need to be 50 years for women + 4 months.
- People working in coal mining for 15 years or more: Male employees need to be 50 years + 3 months, Female employees need to be 45 years old + 4 months.
- People infected with HIV due to occupational accidents while performing assigned tasks.

Group of professional soldiers, officers and noncommissioned officers

According to regulations, if they have 20 years of social insurance payment, they will be entitled to a pension that satisfies the following conditions:

- For normal working conditions, male employees are 55 years old + 3 months, and female employees are 50 years old + 4 months, except for the subjects of Law on Officers of the People's Army of Vietnam, Law on People's Public Security, Law on Cipher, Law on Military professional personnel, defense workers and officers.
- In heavy, hazardous, dangerous or extremely heavy, hazardous or dangerous work conditions, have 15 years of working in regions with extremely difficult socioeconomic conditions: male employees are need to be 50 years old + 3 months; female employees are need to be 50 years + 4 month old.

  People working in coal mining for 15 years or more: Male employees need to be full 50 years + 3 months female employees from 45 years old + 4 months.
- People infected with HIV due to occupational risks and accidents while performing assigned tasks.

The labor group is communal cadres, civil servants and part-time workers in the commune

This group of subjects participates in social insurance; if they quit their job, they have at least 15–20 years of social insurance payment, male employees are 60 years old + 3 months, female employees are 55 years old + 4 months, they will have pension benefits.

4.5.2 Changes in Conditions for Pension Entitlement to Persons with Working Capacity Impairment

According to Article 55 of the Law on Social Insurance, the conditions for pension entitlement to the groups of subjects with decreased working capacity are as follows:

Group of employees, civil servants and public employees

The conditions for having pension benefits for employees, civil servants and public employees of decreased working capacity are having 20 years of payment of social insurance premiums and meeting the following requirements:

- For males aged 55 years + 3 months and females aged 50 years and 4 months, the decreased working capacity rate ranged from 61% to less than 81%.
- Males were 50 years old + 3 months, females were 45 years old + 4 months, and the decreased working capacity rate was 81% or more.
- Having 15 years working in extremely heavy, hazardous or dangerous jobs and having a decreased working capacity of 61% or more.

Group of professional soldiers, officers and noncommissioned officers

When they quit their jobs, these people have enough time to pay social insurance for at least 20 years and suffer a decreased working capacity of 61% or more.

4.5.3 Changes in Conditions for Pension Entitlement to Voluntary Social Insurance Participants

From 1 January 2021 onward, subjects participating in voluntary social insurance will be entitled to a pension if:

- 60 years old + 3 months old for male employees, 55 years + 4 months old for female employees
- 20 years of social insurance payment or more.

4.5.4 Changes in Pension Rates

In addition to the change in conditions, the latest Social Insurance Law made adjustments to the pension rate in 2021.

Subjects participating in compulsory social insurance

Monthly pension: Depends on the rate of monthly pension entitlement and changes as follows:

- Male employees: In 2021, male employees for 19 years of social insurance payment received 45%; then, for every additional year, 2% is added for a maximum of 75%.
- Female employees: For 15 years of social insurance payment, they enjoy 45%, then for every additional year, 2% is added for a maximum 75%.

Lump-sum allowance upon retirement

Employees whose time of participation in social insurance is higher than the number of years corresponding to the pension rate of 75%, when retiring, in addition to a pension, receive a lump-sum benefit. The one-time subsidy rate calculated according to the difference in the number of years participating in social insurance is higher than the corresponding number of years with a pension rate of 75%. Each year is calculated by 0.5 months of the average salary paid for social insurance.

Subjects participating in voluntary social insurance

Rate of enjoying monthly pension:

- For male employees: In 2021, a full 19 years of payment will merit 45%, then for every additional year 2% will be added for a maximum of 75%.
- Female employees: For every 15 years of social insurance payment, they will merit 45%, then for every additional year 2% will be added for a maximum of 75%.

Lump-sum allowance upon retirement:

The rate of entitlement to a one-time pension upon retirement is similar to that of employees participating in compulsory social insurance. Employees whose time participating in social insurance is higher than the number of years corresponding to the pension rate of 75%, when retiring, in addition to pension benefits, will receive a lump-sum allowance. The one-time subsidy rate calculated according to the difference in the number of years participating in social insurance is higher than the corresponding number of years with a pension rate of 75%. Each year is calculated by 0.5 months of the average salary paid for social insurance.

5 Voluntary Pension System in Vietnam

In addition to participating in self-employed pension insurance under the public program, employees have more options for personal retirement when participating in the retirement insurance programs of life insurance companies or other financial institutions.

Since 2013, Vietnam has seen six life insurance companies provide voluntary pension insurance under the law, namely, Prudential Vietnam, Bao Viet Life, Manulife, AIA Vietnam, Dai-ichi Vietnam, and PVI Sun Life (currently Sun Life Vietnam). Eligible life insurance companies implement retirement insurance products in the Vietnamese insurance market (Hai, 2019) (Fig. 7).

Dai-ichi Life Vietnam is a life insurance company that launched the first voluntary pension insurance on the market on 15 October 2013. Manulife, AIA Vietnam and PVI Sunlife also announced bringing voluntary retirement insurance to the market. Dai-ichi Life Vietnam and Bao Viet Life develop voluntary retirement products for groups and individuals who can join, and four life insurance companies, including Manulife, Sun Life Vietnam, and AIA Vietnam, focus on implementing a line of pension insurance products for the group of employees working in enterprises, particularly Prudential Vietnam, which develops a line of retirement insurance for individuals.

The voluntary pension insurance market in Vietnam only recognized a few voluntary pension insurance contracts when this type of insurance was introduced in October 2013. In these type of insurance policies, most of the holders are life insurances themselves buying life insurance for their employees. There are only few

N.O	Life insurance company	Pension insurance product		Year
		For business	For individuals	
1	Dai-ichi Life VN	Hưng nghiệp hưu trí	An nhàn hưu trí	2013
2	Manulife	Manulife - Điểm tựa hưu trí		2013
3	PVI Sun Life*	Hưu trí PVI Sunlife		2013
4	AIA VN	An nghiệp hưu trí		2014
5	Prudential VN		Phú - An thịnh hưu trí	2015
6	Bảo Việt Nhân thọ	Hưu trí vững nghiệp	Hưu trí An Khang	2015

Fig. 7 Main voluntary pension providers. * PVI sun life was renamed Sun Life Vietnam on November 7, 2016.
Source ISA – MOF (2017, 2018a, 2018b)

corporates buying these policies for their employees. From which the main contributors came. It is the employees of insurance enterprises, and some corporate customers agree in principle (ISA – MOF, 2017, 2018a, 2018b). In 2017, the Ministry of Finance has just issued Decision 902/QD-BTC, effective from 22 May 2017 on the publication of administrative procedures in the field of finance and banking under the jurisdiction of the ministry, which stipulates the procedure for granting the certificate of eligibility for business in voluntary pension fund management services. Life insurance, fund management in accordance with specialized laws, must meet the following conditions:

1. For life insurance enterprises, they must meet the conditions to deploy retirement insurance products in accordance with the provisions of the law on pension insurance business.
2. A fund management company must have at least five years of experience in the field of fund management; the total value of assets under management must be at least 1,000 billion dong; and it is operating in the management of an open-ended fund or a bond fun.

This has meant that only two fund management companies—Dragon Capital Fund and SSI Asset Management—have started offering pension packages to their customers recently. However, the proportion of pension products offered by these companies is still very small.

5.1 Voluntary Pension Fund Operation in Vietnam

Due to the fund's asset formation and the investment characteristics of the life insurance company, the operation of pension insurance products and voluntary pension funds in Vietnam becomes favorable in terms of asset value and asset structure allocation in line with the investment strategy and investment goals of the voluntary pension fund. Accordingly, investment in assets of the voluntary pension fund must comply with the law, take self-responsibility for investment activities, and ensure safety, efficiency, the spread of risks, liquidity, and value of investment assets commensurate with the responsibility and risk profile of the voluntary pension insurance product.

5.2 The Net Worth of the Voluntary Pension Fund

Voluntary superannuation is a fund formed from the premium source of voluntary pension insurance policies and is a part of the policy owner fund. The assets of the voluntary pension fund are not divisible but common to all insurance policies in the voluntary pension fund.

In Vietnam, life insurance companies that meet the conditions to establish and manage voluntary pension funds in Vietnam are required to contribute and maintain at least 200 billion dong from their equity captital to the Fund. Thus, assets of the voluntary pension fund operating in Vietnam include assets formed from (i) insurance premiums, (ii) contributions by life insurers in accordance with the law, and (iii) assets derived from investment returns of the above sources.

According to the current regulations, the voluntary retirement insurance premiums paid by employers to employees are the deferred payment of personal income tax and retirement insurance payments by individuals. Self-paying will be deducted before calculating taxable income with a maximum deduction rate of 1 million dong/month. This is also the fundamental difference between voluntary pension insurance and other life insurance products in Vietnam (Table 1).

Data accumulated annually from 2013 to the end of 2019 in Table 2 shows that in a short time, from 74 voluntary pension insurance policies with a total value of only 7 billion dong in 2013, the number of newly exploited contracts had increased to 45.100 contracts worth 4.568 billion dong. However, the contribution of voluntary pension insurance was still modest compared to the entire insurance market in Vietnam in the period 2013–2019; specifically, the number of new exploitation contracts of the type of voluntary pension insurance accounted for only 0.375%, insurance value accounted for only 0.132% and insurance premiums accounted for 0.94% of the whole insurance market. The above data shows that although voluntary pension insurance products appeared on the insurance market in October 2013, at the same time, legal regulations were still inadequate. From the voluntary pension insurance policy of these individual retirement accounts, there was also the significant growth in the period 2013–2019.

Table 1 Voluntary pension insurance contracts in the life insurance market of Vietnam in 2013–2019

Year	Insurance contract number		Insurance money (billion dong)		Insurance fee (billion dong)	
	Pension insurance	Insurance market	Pension insurance	Insurance market	Pension insurance	Insurance market
2013	74	1.178.437	7	31.381	0,344	7.216
2014	10.912	1.064.614	1.089	219.900	208	8.155
2015	8.121	1.293.951	844	307.922	206	12.175
2016	5.571	1.538.896	564	428.588	98	17.498
2017	8.294	1.964.262	836	579.687	120	22.552
2018	6.180	2.248.158	620	827.158	142	29.608
2019	5.948	2.716.671	608	1.054.655	204	34.453
Total	45.100	12.004.989	4.568	3.449.291	632	67.596
Proportion (%)	0,375	100	0,132	100	0,94	100

* Types of insurance on the insurance market include life insurance, term insurance, mixed insurance, periodical insurance, investment-linked insurance (including unit-linked insurance and universal life insurance), health insurance; no supplementary insurance yet
Sources ISA – MOF (2017, 2019)

Table 2 Regulations on investment in voluntary pension fund assets in Vietnam

Asset	Proportion of asset distribution
Deposits at credit institutions	Unlimited purchase, but not more than 20% of the total investment assets of the voluntary pension fund in a credit institution
Government bonds	Unlimited purchase, but not less than 40% of the voluntary pension fund's total investment assets
Guaranteed corporate bonds and municipal bonds	Purchase not more than 25% of the total investment asset value of the voluntary pension fund
Corporate shares and bonds without guarantee, capital contribution to other businesses	Purchase not more than 20% of the total investment assets value of the voluntary pension fund The investment in issued shares of an enterprise or corporate bonds must not exceed 5% of the volume of each issue and must not exceed 5% of the total investment asset value of the voluntary pension fund

Source Synthesized from Circular115/2013/TT-BTC – MOF (2013)

As of May 2018, according to data from Ministry of Finance, the total new operating fee revenues of voluntary pension insurance accounted for only 0.63% of the total new fee revenue of service insurance. In the period 2013–2018, reports on voluntary pension fund operations all recognized Sun Life Vietnam as the market leader in voluntary pension insurance. In Vietnam, both in terms of asset size and total operating revenue, the total assets of the Sun Life pension fund reached 1.411 billion dong, recorded on 31 December 2018 (ISA – MOF, 2017, 2018a, 2018b).

Private insurance companies mainly engage in commercial insurance products, and pension insurance accounts for a very small proportion in the insurance market. For example, in 2019, according to the Insurance Administration and Supervision Department (2020), in the life insurance field, the premium revenue of new insurance contracts was 34.453 billion dong, but the pension insurance premium was only 204 billion dong (accounting for 0.592% of total premium revenue in the whole life insurance market). Private insurance companies prioritizing expansion are investment-linked insurance and endowment insurance (accounting for 73.5% and 11.76%, respectively, of the total insurance market premium revenue in 2019).

5.3 Asset Allocation in the Portfolio Structure

According to current regulations, the assets of the voluntary pension fund are not allowed to directly invest in real estate, gold, silver, precious metals and gems; or invest in stocks of securities companies, finance companies, or finance leasing companies. However, depending on changes in financial markets and investment activities, the Ministry of Finance may adjust the portfolio and investment limit of the voluntary pension fund according to Circular 115/2013/TT-BTC.

Life insurance companies' portfolios are volatile with low returns, mainly focusing on government bonds and deposits at credit institutions and risky investments. High risks such as stocks, corporate bonds without guarantees, and capital contribution account for a small proportion of total investment assets (ISA – MOF, 2017, 2018a, 2018b) (Table 3).

At the beginning, as voluntary pension funds in Vietnam are mainly affiliated and managed by life insurance companies, the portfolio structure of voluntary pension funds is similar to the general portfolio structure. The safety of life insurance companies focuses mainly on deposits at credit institutions and government bonds in accordance with the regulations on asset allocation (Table 4).

Table 3 Asset structure of life insurance companies in Vietnam in 2014–2019

Proportion of asset value (%)	2014	2015	2016	2017	2018	2019
Government bonds	62,88	69,94	67,92	63,82	N/A	44,43
Deposits at credit institutions	25,72	18,64	20,97	24,45	–	39,84
Corporate bonds with guarantees	0,8	0,75	1,14	1,63	–	4,59
Corporate shares and bonds without guarantee	4,26	4,27	4,71	6,35	–	7,69
Capital contribution to other businesses	0,38	0,27	0,22	0,21	–	0,74
Real estate business	0,04	0,00	0,00	0,00	–	0,16
Loan	5,63	5,16	4,17	3,37	–	2,24
Investment trust	0,07	0,13	0,57	0,00	–	0,14
Others	0,22	0,83	0,47	0,16	–	0,16
Total	100	100	100	100	–	100

Sources ISA – MOF (2017, 2018a, 2018b, 2019)

Table 4 Asset structure of voluntary pension funds in Vietnam as of 31 December 2018

Asset value (billion dong)	Dai-ichi life VN	Manulife	Sun life	AIA VN	Prudential VN*	Bao Viet Nhan Tho
Money at funds	0,42	3,55			9,14	9,4
Deposits with credit institutions	42,20	37,75	410,26	41,56	85,11	153,22
Government bonds	116,46	215,86	729,81	251,57	121,75	400,28
Corporate bonds with government guarantees, and municipal bonds	42,71		177,72	35,52		
Corporate shares and bonds without guarantee						
Capital contribution to other businesses	10,00	46	30,21			
Receivables from investment interests and other assets	12,27	13,98	17,29	12,64	4,05	23,94
Total	223,68	317,21	1.411,48	341,41	219,16	586,84

[*] Prudential VN: Figures as at 31/12/2017
Sources ISA – MOF (2017, 2018a, 2018b)

5.4 The Revenue and Operating Costs of the Voluntary Pension Fund

Voluntary fund revenue is recognized when interest is accrued on an accrual basis on the reliably determinable economic benefits of the fund's assets. Voluntary pension funds in the market today are mainly from (i) annuity premiums and (ii) interest from investments, including investments in demand deposits, term deposits, bonds and stocks as needed.

Initial costs, hedging costs and contract administration costs are calculated and recognized in accordance with the Rules and Terms of Group Pension products approved by the Ministry of Finance in accordance with Official Letter No. 18204/BTC-QLBH dated 30/12/2013, and Rules and Terms of Voluntary Pension products approved by the Ministry of Finance in accordance with Official Letter No. 2995/BTC-QLBH dated 9/3/2015. At the same time, the term costs of the voluntary pension funds are recognized on an accrual basis, mainly comprising the following fees: (i) initial fees; (ii) risk insurance premium; (iii) insurance policy administration fees; (iv) fund management fee; (v) retirement account transfer fees; (vi) spending on professional reserves and (vii) amortization to the corresponding portion of the life insurer in the fund (ISA – MOF, 2017, 2018a, 2018b) (Table 5).

5.5 The Investment Interest Rate of the Voluntary Pension Fund

Voluntary retirement funds are professionally invested in delivering long-term efficiency with a safe and prudent investment strategy. Accordingly, the investment interest rates are publicly announced by the voluntary pension insurance funds every month, recognized at nominal value and adjusted in accordance with the fund's investment orientation under the general situation of the economy. When conducting investment activities of the fund, the actual investment interest rate may fluctuate compared to the announced investment interest rate depending on the favorable level of the market, thereby leading to interest rate accumulating in value account being increased or decreased. However, voluntary pension funds also publish specific interest rates on minimum accumulation commitments to individual retirement accounts to ensure voluntary retirement insurance benefits for policyholders.

According to Table 6, Prudential Vietnam's voluntary pension fund has the lowest interest rate paid to the policyholder. In 2018, Bao Viet Life's Voluntary Pension Fund accumulated the value of customers' accounts at the highest published interest rate for the voluntary pension product in Vietnam's life insurance market.

In general, as of 2018, voluntary pension funds in Vietnam were still in the early stage of formation and development. Domestic companies already participated in voluntary pension insurance, but the number was still limited. According to statistics, there were more than 100 groups, corporations, joint-stock companies, limited

Table 5 Revenue and expenses for voluntary pension funds in Vietnam in 2017–2018

Unit: billion dong	Dai-ichi life VN		Manulife		Sun life VN		AIA VN		Prudential VN		Bao Viet Nhan Tho	
	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018
Income	20,74	16,88	31,88	33,59	252,83	397,67	36,61	33,12	0,22	N/a	172,98	171,67
Cost	2,46	2,29	18,28	19,82	252,83	397,67	9,62	19,46	4,33	N/a	156,33	155,03
Difference	18,28	14,58	13,60	13,77	–	–	26,99	22,66	N/a	N/a	16,65	16,64

* Prudential VN: In 2017, income recorded from insurance premiums invested in the voluntary pension fund; recognition expenses from initial cost, risk insurance fee, insurance contract management fee, fund management fee

Sources ISA – MOF (2017, 2018a, 2018b)

Table 6 Return rate of voluntary pension funds in Vietnam Between 2013 and 2018

Unit: % year	Dai-ichi life VN		Manulife		Sun life VN		AIA VN		Prudential VN		Bao Viet Nhan Tho	
	(i)	(ii)	(i)	(ii)	(i)	(ii)	(i)	(ii)	(i)	(ii)	(i)	(ii)
2013	10,75	8,78	N/a	N/a	N/a	N/a	N/a	N/a	N/a	N/a	N/a	N/a
2014	10,49	8,98	8,78	6,78	5,89	8	8,13	6	N/a	N/a	N/a	N/a
2015	8,55	8,06	9,06	7,06	7,32	7,51	8,12	5,5	3,55	4	5.49	5,5
2016	8,67	7,07	8,84	6,84	7,75	7,05	9,38	7,54	5,85	4	8,05	7,30
2017	8,69	7,00	8,41	6,41	7,41	6,73	9,06	7,25	6,26	4	7,51	6,75
2018	6,97	6,00	7,81	5,81	7,44	6,39	7,73	6,24	N/a	N/a	7,68	6,55

(i) Real interest in investment
(ii) Interest paid to the insurance buyers
Sources ISA – MOF (2017, 2018a, 2018b)

liability companies, and foreign enterprises participating in retirement insurance, equivalent to approximately 60,000 employees, having benefits from the programs in 2017. To be licensed to deploy voluntary pension insurance, insurers need to meet the very strict conditions of capital and solvency margins and have to build building technology infrastructure to be able to manage millions of individual accounts. Developments and statistics from the market showed that employees, participating enterprises and insurance enterprises were hesitant to join voluntary pension funds. Thereby, it showed that the concept of the voluntary pension fund is still relatively new to the market even up to the present. Indeed, the incentive and support mechanisms for the voluntary pension fund were not significant and had not created a driving force for market development (Hai, 2019).

5.6 Cumulative Opportunity for Retirement from Life Insurers in Vietnam

The life insurance industry in Vietnam has only been developing for around 20 years; however, its growth is relatively fast, and it has made mutual contributions to financial safety and well-being for Vietnamese people. To date, Vietnam's population has approximately only 10% participating in life insurance, in which pension insurance packages account for a small proportion because life insurers have still not created firm confidence for consumers.

However, with the general development of Vietnam's financial industry, insurance companies and fund management companies are constantly innovating and improving products, and the benefits of insurance packages become increasingly competitive and create more trust among the public. For a common insurance package in current insurance companies, which is a universal insurance product, the premium payment period is short (less than or equal to the working time of the employee) but

insured for participants up to the age of 99 with many attractive benefits in terms of medical or health care expense coverage. Many employees have joined life insurance packages to increase financial reserves against the risks of life and for their old age. It is also a quite effective savings enabling Vietnamese people to ensure a better retirement by paying only a small amount of money annually (Giang & Phi, 2017). However, the proportion of people participating in life insurance in Vietnam is still very low in comparision with other countries in the region of approximately 80–90%. In addition, only people under 65 can participate in life insurance packages. As a result, the current elderly population and those who already have an underlying health problem cannot participate in this channel to increase financial provision for retirement.

5.7 Taxation

Circular No 115/2013/TT-BTC provided guidance on the law on personal income tax, while Decree No 65/2013/ND-CP established personal and corporate tax incentives for voluntary pension funds. The government hopes that by introducing a tax incentive regime for such products, workers will increasingly save for retirement and reduce their reliance on the state Social Insurance Fund (SIF); tax incentives are as follows:

- employee contributions up to 1 million dong ($43.38) per month are tax deductible.
- employer contributions up to 1 million dong($43.38) per employee per month are deductible as a business expense.
- pension benefits from employer contributions are subject to income tax and an initial 10% withholding tax when received at normal retirement age (60 for men, 55 for women).
- benefits from employee contributions, funeral coverage, death are exempt from tax.

5.8 Pension Fund Investments

It is assumed that the pattern of pension fund investments is similar to the life insurance market with potentially heavy emphasis on government bonds. Government bonds must comprise at least 40% of total fund investments, while investment in corporate shares and bonds is limited to 20% of total fund investments. In any event, the private sector pension market is currently very small.

As per MOF Circular No 115/2013/TT-BC, investments can be handled by insurance companies or fund managers. Cooperation between insurers offering private pension products and securities firms and fund management companies is already showing signs of development into a more integrated form of the overall financial services industry. A number of the leading life insurers (such as Prudential Vietnam

Assurance PLC and Manulife-Vietnam Ltd.) have already established asset and fund management operations capable of integrally handling the technical and consumer demands of a potentially expanding private life insurance and pensions industry.

6 Issues of the Vietnamese Pension System

6.1 Rapid Aging of the Population

According to the Allianz pension report 2020, Vietnam placed 57th out of 70 economies in a global ranking of pension system development, lagging behind most of its Southeast Asian peers. With an average score of 4.37 out of 7, Vietnam's pension system is weaker than in Indonesia (28), Singapore (30), the Philippines (37), and Thailand (52). In Southeast Asia, Vietnam only did better than Malaysia (61), and Laos (63), according to this report, which analyzed pension systems in 70 countries and territories in terms of sustainability and adequacy.

The ranking is based on three sub-indexes, including the financial and demographic starting point that reflects the baseline of specific countries in terms of demographics and public finances; sustainability that measures how pension systems react to demographic change; and adequacy that measures how pension systems provide an adequate standard of living for the elderly.

Allianz said the main issues of Vietnam's pension system is insufficient adequacy, where among the 70 economies analyzed, it ranked 60th in the sub-indexes and 32nd in terms of sustainability. According to the report, Vietnam's retirement age population is set to triple from 11.4% now to 32.7% in 2050.

Vietnam's current population is approximately 96.2 million, putting the percentage of elderly people at approximately 11.7%, according to statistics from MOLISA. As the population ages, Vietnam's social insurance fund could be in trouble in the future and might collapse by 2037 if the current retirement age remains unchanged, Vietnam Social Security (VSS) has warned.

The World Bank forecasted Vietnam's pension fund shortage by 2030 due to its aging population. The bank stated in a 2019 report that Vietnam should raise pension payments in accordance with inflation, but ensure the increased sum is lower than the minimum wage. The country should also raise its retirement age for both male and female workers to the same level step by step, the World Bank added. The number of Vietnamese over 65 will rise from 6.3 million now to 18 million by 2040, accounting for over 18% of the population and transforming Vietnam from a young society into an old one, a labor ministry report quoted the United Nations as saying (World Bank, 2017).

Table 7 API Pension Report

Weight: country	API 2020		API 2020 financial and demographic starting point		API 2020 sustainability		API 2020 adequacy	
			20%		40%		40%	
	Rank	Sum	Rank	Sum	Rank	Result	Rank	Result
Sweden	1	2.91	18	3.38	6	2.96	13	2.62
Belgium	2	2.92	46	4.26	3	2.85	8	2.31
Denmark	3	2.96	17	3.32	13	3.24	11	2.51
New Zealand	4	3.00	21	3.46	27	3.83	1	1.94
United States	5	3.04	11	3.10	14	3.29	16	2.77
Australia	6	3.13	10	3.04	16	3.34	22	2.96
Netherlands	7	3.13	39	4.00	30	3.87	2	1.95
Norway	8	3.16	16	3.28	29	3.86	10	2.39
Bulgaria	9	3.16	32	3.80	2	2.67	36	3.33
Canada	10	3.24	20	3.42	26	3.80	12	2.59
China	11	3.25	46	4.26	5	2.94	26	3.06
Czech Republic	12	3.26	42	4.16	4	2.86	34	3.22
Latvia	13	3.27	26	3.64	17	3.36	23	2.99
Ireland	14	3.31	41	4.12	9	3.14	27	3.08
Luxembourg	15	3.35	40	4.04	39	4.10	7	2.27
United Kingdom	16	3.36	24	3.58	23	3.57	25	3.03
Slovakia	17	3.36	44	4.24	11	3.18	28	3.09
Italy	18	3.39	70	6.10	10	3.17	6	2.25
Taiwan	19	3.43	60	4.96	15	3.33	15	2.77
Kazakhstan	20	3.48	7	2.94	33	3.88	37	3.36
Finland	21	3.49	34	3.84	35	4.02	17	2.79
Israel	22	3.51	8	2.98	53	4.49	18	2.80
Switzerland	23	3.52	43	4.18	63	4.67	4	2.05
Japan	24	3.52	66	5.52	38	4.10	3	1.96
Estonia	25	3.53	28	3.70	42	4.16	19	2.81
Germany	26	3.56	56	4.76	21	3.52	24	3.01
Lithuania	27	3.57	38	3.94	12	3.22	42	3.74
Indonesia	28	3.59	15	3.20	1	2.48	60	4.89
Korea	29	3.59	62	5.22	8	3.12	35	3.25
Singapore	30	3.61	53	4.60	62	4.66	5	2.08
Peru	31	3.72	15	3.20	34	3.98	41	3.71

(continued)

Table 7 (continued)

Weight: country	API 2020		API 2020 financial and demographic starting point		API 2020 sustainability		API 2020 adequacy	
			20%		40%		40%	
	Rank	Sum	Rank	Sum	Rank	Result	Rank	Result
Malta	32	3.74	52	4.58	40	4.12	21	2.93
Russia	33	3.78	25	3.62	22	3.56	49	4.09
Austria	34	3.84	65	5.50	51	4.45	10	2.39
Mexico	35	3.84	15	3.20	7	3.12	58	4.89
Egypt	36	3.88	12	3.12	20	3.48	54	4.66
Philippines	37	3.91	2	2.44	25	3.71	57	4.85
India	38	3.91	23	3.54	31	3.87	51	4.15
Hong Kong SAR	39	3.92	36	3.86	46	4.35	38	3.52
Colombia	41	3.93	30	3.72	41	4.13	43	3.84
South Africa	41	3.93	6	2.88	24	3.59	55	4.80
Turkey	42	3.95	50	4.34	19	3.40	52	4.30
Brazil	43	3.98	58	4.82	45	4.34	32	3.20
Spain	44	3.98	67	5.88	47	4.39	14	2.63
Hungary	45	4.05	54	4.68	59	4.59	31	3.19
Croatia	46	4.05	55	4.70	38	4.10	40	3.69
Slovenia	47	4.07	63	5.28	50	4.43	29	3.12
Cyprus	48	4.08	57	4.80	61	4.64	30	3.16
Portugal	49	4.12	70	6.10	49	4.40	20	2.85
Romania	50	4.12	37	3.88	48	4.40	44	3.98
France	51	4.16	59	4.84	64	4.76	34	3.22
Thailand	52	4.18	47	4.28	44	4.33	45	3.99
Chile	53	4.22	30	3.72	60	4.61	47	4.09
Poland	54	4.27	61	5.10	36	4.05	46	4.08
Kenya	55	4.33	4	2.84	43	4.25	61	5.15
Ukraine	56	4.36	51	4.56	55	4.52	49	4.09
Vietnam	57	4.37	48	4.30	32	3.87	60	4.89
Greece	58	4.43	70	6.10	52	4.47	39	3.56
Argentina	59	4.46	22	3.50	58	4.58	56	4.82
Morocco	60	4.47	34	3.84	18	3.36	67	5.88
Malaysia	61	4.52	5	2.86	70	5.72	51	4.15

(continued)

Table 7 (continued)

Weight: country	API 2020		API 2020 financial and demographic starting point		API 2020 sustainability		API 2020 adequacy	
			20%		40%		40%	
	Rank	Sum	Rank	Sum	Rank	Result	Rank	Result
Kuwait	62	4.59	35	3.84	67	4.96	53	4.59
Laos	63	4.63	3	2.62	28	3.85	69	6.41
Nigeria	64	4.63	1	1.46	57	4.58	68	6.27
Bahrain	65	4.70	27	3.68	56	4.55	62	5.37
Qatar	66	4.78	19	3.40	66	4.87	63	5.38
Saudi Arabia	67	5.03	10	3.04	68	5.32	65	5.74
Sri Lanka	68	5.18	32	3.80	69	5.61	64	5.46
United Arab Emirates	69	5.29	64	5.28	65	4.77	66	5.83
Lebanon	70	5.45	49	4.32	54	4.50	70	6.97

Source Allianz (2020)

6.2 Gaps in the Vietnamese Pension System

Women are more likely to lack adequate old-age protection. In 2016, only 12% of women aged 65 years and above received a social insurance pension, while the percentage was 26% for men. Moreover, due to an earlier retirement age, women currently have five fewer years to accumulate contributions than men. This, in addition to challenges related to unpaid or unstable working arrangements, contributes to lower pensions at retirement. In addition, women's life courses, characterized by longer periods dedicated to taking care of others, result in lower labor market participation, more part-time or irregular work, shorter contributory histories, and lower earnings. All these features affect their pension entitlements in contributory pension systems. As a result, women receive 20% lower pensions than men in Vietnam (Kidd et al., 2019). As stated earlier, women in Vietnam live longer than men, and therefore their requirement for mechanisms that guarantee old-age income security is even more important.

The extension of social security and the formalization of the informal economy are two faces of the same coin. Among the key issues associated with the low coverage of social security is the incompatibility of the current design of the VSS scheme with labor market characteristics, particularly for workers in nonstandard forms of work, and the low compliance among formal sector firms, especially among small and medium enterprises. Approximately 76.2% of total employment is informal, and many of these workers are not covered by the contributory pension scheme or the noncontributory tax-funded pension. Approximately 97.9% of informal workers do not have access to social insurance benefits.

The voluntary contributory pension scheme has been shown not to be effective in closing coverage gaps. While the voluntary social insurance scheme aims at covering workers without compulsory coverage, the scheme only reached approximately 227,000 people in 2015—equivalent to approximately 0.3% of the 53,673,000 active labor force participants between the ages of 15 and 69 (Kidd et al., 2019). Vietnam's experience, as well as other countries' experiences, illustrate the limited effectiveness of voluntary schemes for the extension of coverage, as they only reach a small number of workers.

An increase in the number of contributors in the short term is not expected to lead to an immediate increase in the number of beneficiaries under the current system. By the nature of the contributory pension scheme, time will be required before new contributors start retiring and receiving pensions. In addition, the high share of workers in nonstandard forms of employment—including short-term and irregular employment—creates an additional challenge for workers to accumulate enough contributions to qualify for a decent pension.

The current tax-funded pension schemes provide a minority of elderly individuals with low benefits. Although the social pension is legally available to all elderly above 80, a recent analysis of the 2016 Vietnam Household Living Standards Survey estimated that less than 60% of eligible recipients actually receive the benefit, with a bias existing toward men. The benefit is set at 270,000 dong ($11.60), which is equivalent to only 33.75% and 27% of the rural and urban poverty standard of 800,000 dong and 1,000,000 dong, respectively. At 5.6% GDP per capita, the benefit value is among the lowest compared with other similar middle-income countries. The low value of transfer may explain the high poverty rates among over 80-year-old individuals, even if they receive a social pension. Moreover, the value of the means-tested pension for people aged 60–70, living in poverty and with no family support is slightly higher at 405,000 dong per month but only reaches approximately 95,000 older persons (Hoang, 2018).

In addition to considerable coverage gaps, the contributory benefits provided are often low compared to the total wage and hence insufficient to ensure a decent living in old age. Rather than being associated with the pension formula, this issue stems from the common practices of underreporting wages, using base salaries rather than full salaries as the reference for insurable earnings, and the limited compliance of employers and workers.

6.3 Financial Sustainability of the Pension System

In Vietnam, the financial pressure on the system is compounded by demographic changes and several other factors. The rapid aging transition and the natural maturation of Vietnam's pension system creates a particular situation with consequences for the pension system and the cost of that system. Rising costs are a normal phenomenon shared by many aging societies around the world as their pension systems mature

and their population ages. Similar to other countries, Vietnam needs to take action now to avoid potential problems.

High replacement rates and low statutory retirement ages seem to be at odds with the fast aging population. Presently, women can retire at 55 years and men at 60, whereas the life expectancy at age 60 is expected to increase from 18.9 years for men and 21.6 years for women in 2015 to 20.9 years and 25.0 years, respectively, by 2060 Kidd et al. (2019). Longer life expectancy implies that people will require pensions for a longer period of time (or will extend their working careers if their health conditions allow it). In combination with a decreasing ratio of contributors to beneficiaries, this trend may pose financial challenges to the system. This presents an important argument for the need for the establishment of equal retirement age for both women and men. The current replacement rates are too high to ensure the financial sustainability of the system. The maximum replacement rate is 75% of the reference wage after 35 years of contributions. For people with between 20 and 35 years of service, the replacement rates in Vietnam are too high compared to the "insured wage" (not necessarily to the total wage). Meanwhile, 20 years of contributions are required to qualify for minimum pensions.

A high number of lump-sum withdrawals negatively impacts the extension of social insurance coverage. People who have discontinued social insurance payments for at least one year and have not reached 20 years of contributions are entitled to receive a lump-sum payment. However, lump-sum payments do not provide adequate protection in old age. The number of insured persons opting for the social insurance lump sum is nearly 500,000 per year, which is high compared to the number of social insurance pensioners per year. In addition, lump-sum payments are concentrated among young cohorts, which impacts the level of old-age income protection even more.

The pension scheme for civil servants is exposing the pension fund of private sector workers to financial risks. Pensions for the private sector are based on lifetime earnings, while pensions for the public sector are still based on the average earnings of the last few years of insurance. As the latter reference earnings are generally higher, private sector workers partially finance the public sector's fund.

7 Conclusion

The two basic types of pensions in Vietnam are compulsory and voluntary, in which mandatory pension based on the Social Insurance Fund and voluntary assistance based on the participant's contribution can go through public or voluntary private systems. In the context of Vietnam's rapid aging population, workers entering retirement age and experience old age with longer life with higher costs, it's a challenge for the public social pension system. Social insurance policy currently has had extremely positive impacts on people's lives. The pension regime should be clearly defined for each beneficiary; especially the elderly, the poor, and the ethnic minorities who receive the benefits and exemption from health insurance premiums.

However, the rapidly aging population is also coupled with the burden on the public pension financial system. This trend has led workers to look for other voluntary pension options to accumulate more wealth for retirement. Mutual funds, investment trusts, voluntary private pension insurance, and life insurance are channels that can support the public pension system and help people to accumulate assets and preventing future risks for themselves and their family.

In the context of the COVID-19 epidemic negatively affecting the national economy, some policies can reduce the number of people entitled to one-time social insurance benefits, such as increasing unemployment insurance benefits, poverty reduction policies, social assistance for poor people, job creation policies and vocational training to improve worker skills. In addition, the percentage of laborers working in the underground economic sector accounts for a significant proportion in Vietnam. Therefore, the government needs to launch solutions to propagate and encourage these employees to participate in social insurance and unemployment insurance so that they can clearly realize the long-term benefits and ensure social security in the future.

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Special Topics

Role of the Private Pension Programs

Sangho Kim

Abstract This chapter presents the role of private pension programs. We start by classifying OECD countries according to income sources of the elderly. Next, we establish the theoretical background of saving for retirement for a theoretical analysis. The main goal of the article is to identify barriers to the development of private pension programs and suggest necessary conditions for developing and promoting private pensions. In this article, factors that hinder the development of private pension programs are classified into institutional, social and economic factors. We focus on key factors that seem to be reasonable and those that can lead to improvement if efforts are made in a variety of appropriate ways. To mitigate problems connected with unfunded public pension schemes, multipillar systems for incomes in retirement need to be reinforced. This means that funded private pension plans should play a greater role in securing old-age income at the cost of public Pay-as-you-go (PAYG) schemes. The government should provide financial consumers not only with well-functioning capital markets and insurance markets but also with comprehensive information about pension products. Tax incentives and subsidies for employers and employees can extensively promote the enrollment of private pension products. Furthermore, financial knowledge is a decisive factor that can affect the participation and returns of private pension products. Providing proper financial education and more financial information not only for students but also for financial consumers is necessary.

1 Introduction

This chapter presents the role of private pension programs. We start by classifying OECD countries according to income sources of the elderly, despite public and private pension plans varying extensively across OECD member countries. Next, we establish the theoretical background of saving for retirement for a theoretical analysis. The main goal of the article is to identify barriers to the development

S. Kim (✉)
Gwangju Institute of Science and Technology, Gwangju, Korea
e-mail: socialpolicy@gist.ac.kr

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of private pension programs and suggest necessary conditions for developing and promoting private pensions.

Most of the elderly had to suffer from poverty until the nineteenth century, and it became tougher as they became older. The best solution that human beings designed against the longevity risk was voluntary support for parents within families. Parents provided their children with wealth (housing and assets) while children took care of their old parents in return. After the Industrial Revolution, however, this privately organized system could no longer work due to the collapse of the extended family system. Responding to the new social circumstances, a public pension scheme was introduced for the first time in Germany by Bismarck in 1889, in which the pension entitlement age was extremely high, namely, 70 (*Gesetz betreffend die Invalidität- und Altersversicherung*, Article 9). This statutory pension insurance, which emphasized solidarity with a component for redistribution in the pension formula, contributed to reducing the poverty of retirees and consequently mitigating tensions and conflicts in society. Thereafter, other European countries successively introduced a state pension plan according to the German model, and it became widespread in the world after the Second World War. The elderly could get to realize their dream to retire from active work.[1]

Thanks to the booming economy and the population growth after the Second World War, compulsory state pensions became a foundation stone of welfare states against income shortfalls in retirement, especially in Western Europe. Low fertility and increased longevity, especially after the 1970s, however, posed socioeconomic challenges in many industrialized economies. We observed that rapid population aging places mounting financial pressure on public pensions, which mostly operate based on the Pay-as-you-go (PAYG) system. State pension plans were threatened due to aging and low economic growth. As a response to that, many countries implemented pension reforms to restore the long-term stability of the programs, and the level of pension benefits is expected to decrease further in the future.

A good example of a pension reform is Germany, which carried out the “Pension Reform 2001” to enhance the financial stability of statutory pension insurance (GRV) and sustain the international competitiveness of firms. A paradigm shift was made from a benefit goal to the contribution rate goal (Reimann, 2004, p. 320). The highest contribution rate must not be higher than 20% until 2020 and 22% until 2030. To compensate for the reduction of unfunded state pensions (pension gap),[2] a subsidies/tax-supported voluntary corporate and personal program (Riester pensions) was introduced,[3] in which families with low incomes and children benefit more. The full coverage goal for old-age income was planned to be reached through a public–private pension mix that vitalizes voluntary private funded programs with defined contribution (DC) plans. A common feature of personal pension products is

[1] For the development of public pensions from the beginning see Arza and Johnson (2006).

[2] Pension gap is the difference between the desired incomes in retirement and the public pension benefits.

[3] The name of Riester pensions stems from Walter Riester who introduced these pensions as Federal Minister for Labor and Social Affairs.

that there is no risk of loss of the nominal amount at the beginning of the payout phase (BMAS, 2020b, p. 151).

The number of Riester contracts increased over 1 million yearly until 2011. Despite this performance, Riester pensions are criticized above all due to their low rate of return. While the guaranteed rate of return started at 3.25%, it was only 0.9% in 2021. The increasing number of Riester contracts began to fall from 2012 and became even negative after 2018. In 2020, the number of Riester contracts amounted to 16.4 million. The reasons for the decrease are, among other things, the trend of a low rate of return since the global financial crisis in 2008 and the consequent restraint for the private pension plan (BMAS, 2020a, pp. 147–148). In fact, the real investment rate of return of private pensions was only 0.4% in 2018, although the 15-year annual average amounted to 2.5%. (OECD, 2019, p. 215) Due to the Riester pensions, voluntary occupational and personal pension plans covered 57.0% and 33.8% of the working-age population, respectively, in 2018 (OECD, 2019, p. 207).

Occupational pensions are pension arrangements between employers and employees within labor contracts. Postwar labor shortages encouraged companies to develop occupational pensions (Whiteside, 2006, p. 691). Due to the parametric reforms of the public pension, which led to a reduction in benefits, additional provision was needed to maintain the living standards of retirees. In addition, long life expectancy made personal pension arrangements more necessary to meet the need for a prolonged retirement period. The role of private pension programs became more important for incomes in retirement over time. As a consequence, occupational pensions and personal pensions are gaining a greater role in securing the incomes of the elderly. Occupational pensions have traditionally been provided by employers on a voluntary basis. Currently, governments in many countries promote occupational pensions by supplying various tax incentives and subsidies.

In OECD countries, the income of people over the age of 65 amounted to 87.4% of the average income of the total population in 2016. Incomes for the elderly even exceeded those for the total population in France (103.2%), Israel (101.2%) and Luxembourg (105.3%). Older people fared well with high relative incomes in Greece (96.8%), Italy (99.6%), Portugal (99.0%) and Spain (95.3%). As noted by Esping-Andersen and Myles (2006, p. 842), we can identify that the total level of societal expenditure for retirees by the three welfare pillars (family, the market and government) seems to be convergent among wealthy countries regardless of their social security systems. The average income of older people as a percentage of the average income of the total population is 83.8% and 93.8% in the United Kingdom and in the United States, respectively, which are well known as market-based countries, while it is 85.5% in Sweden, which is famous as a generous welfare state (OECD, 2019, p. 185).

The net replacement rate of mandatory public and private pension schemes (defined as an individual net pension entitlement divided by net pre-retirement earnings) averages 58.6% for men (57.6% for women) in OECD countries. However, it varies from 28.4% in the UK to 93.8% in Turkey. The calculations are based on national rules that apply in 2018 and workers with average earnings and a full career

entering the labor market in 2018 at the age of 22. Private pension programs are prevalent in the UK, the US and Canada. In the UK, the net replacement rate of mandatory public and private pension schemes increases from 28.4 to 61.0% if voluntary private pensions are included. The net replacement rates of mandatory public and private pension schemes are 49.4% and 50.7% in the US and Canada, respectively, while the net replacement rates increase to 83.7% and 83.3%, respectively, if voluntary private pensions are included (OECD, 2019, p. 157).

Occupational and personal pensions coexist in 32 out of the 36 OECD countries, and the role of DC plans and personal plans is increasing at the cost of defined benefits (DB) plans. Seventeen countries had private mandatory/quasi-mandatory funded pension plans (occupational and personal) in 2018, which led to high coverage of the working-age population. Furthermore, automatic-enrollment programs in a funded occupational pension plan are becoming popular. There are six countries that introduced automatic-enrollment at the national level: Italy (2007), New Zealand (2007), Turkey (2017), the UK (2012), Lithuania (2019) and Poland (2019). Canada and the US have introduced automatic enrollment at the firm level (OECD, 2019, p. 206).

Globalization and increasing economic integration, such as the in European Union, intensified competition between firms that operate worldwide, and reducing production costs became more important to achieve and sustain international competitiveness. As a consequence, governments became increasingly hesitant to increase the contributions of state pension plans, which stimulated the expansion of the role of privately funded programs. Based on this background, the role of private pension programs is expected to rise continuously in the future.

2 Classification of OECD Countries According to Income Sources of the Elderly

Chile is of particular interest because public pension plans were mostly replaced by mandatory personal account systems. This reform was strongly supported and advocated by the OECD and the World Bank (Averting Old Age Crisis, 1994),[4] and mandatory personal accounts became prevalent in Latin America and transition countries from centrally planned to market economies that adopted the Chile model. Private occupational pensions are mandatory in Finland and Switzerland, while they are quasi-mandatory in Denmark, the Netherlands and Sweden with an industry-wide collective bargaining system. In Finland, where contribution rates of occupational pensions are determined by the government, 93.0% of the working-age population was covered in 2018 (OECD, 2019, p. 206).

[4] The World Bank strongly recommended the introduction of a multipillar system for income security of the elderly and economic development, in which capital accumulation in private pension plans with fully funded components was emphasized.

Regarding income sources, people aged over 65 in OECD countries had incomes amounting at 57.1% from public transfers (earnings-related pensions, resource-tested benefits, etc.) on average. Private occupational transfers (pensions, severance payments, death grants, etc.) account for 8.3% and capital, mostly private pensions, for 10.0% on average. Work represents 24.6% of the incomes of older people on average. Each country developed its own income security system for the elderly considering the political, cultural, social, economic, and demographic characteristics of the country. Nonetheless, we can classify OECD countries based on the component ratio of capital to the income of the elderly (Table 1).

First, capital is so prevalent that its ratio is more than twice as high as the average (10%). Canada (42.4%), New Zealand (26.8%), Denmark (22.2%) and Korea (22.5%) belong to this group, in which public transfers account for less than half of the income of the elderly. This means that state pension plans do not play a dominant role in old-age income. Korea is unique in this group in the sense that work is a dominant source of older people's incomes, while public transfers account for only one-fourth of old-age income. This reflects the late introduction of the statutory pension plan, the National Pension Scheme, in 1988.

Second, in some countries capital plays a minor role, in contrast, as its ratio is less than half of the average. They are Latvia (1.7%), Lithuania (3.2%), Estonia (2.1%), Slovakia (0.7%), Poland (0.8%), Slovenia (4.0%), the Czech Republic (2.6%) and Hungary (1.3%). Private occupational transfers do not contribute at all to incomes of the current elderly as well. These countries, which transformed their economic systems from a command economy to a market economy in the 1990s after the fall of the Soviet Union, privatized state pensions according to the Chile model. In Poland, voluntary personal pension plans covered 66.4% of the working-age population in 2018 (OECD, 2019, p. 207). The current minor role of personal pensions in old-age income comes from the late introduction of private pension plans after the transformation of the economy system.

Third, in other countries private pension plans are less important (the component ratio of capital in income amounts between 5 and 10%), while state pension plans with generous benefits play a dominant role (over 70%) in ensuring old-age income, and the relative incomes of the elderly are so high that they reach nearly 100% of the average income of the total population. They are Greece (5.0%), Portugal (5.8%), Italy (5.9%), and Spain (8.3%) (OECD, 2019, p. 201). Payments from public pension plans as a percent of GDP in 2015 were very high: Greece (16.8%), Portugal (13.3%), Italy (16.2%), and Spain (11.1%). The elderly of these countries rely heavily on the public retirement system with generous benefits, which places financial pressure on PAYG public pension schemes. In return, they endangered the solvency of the states in 2010 after the global financial crisis, and parametric reforms for unfunded public pensions were carried out to mitigate financial pressure.

Fourth, there are countries where private pensions are less important (the component ratio of capital in income lies between 5 and 10%), and GDP per capita is high, while older people are mainly (more than 70% of incomes) reliant on public pensions. They include Germany (10.0%), Ireland (5.5%), Austria (5.6%), Finland (8.5%), Luxembourg (5.8%) and Belgium (6.0%), where circumstances for the development

Table 1 Income sources of older people in percent (2016 or latest year)

	Public transfers	Private occupational transfers	Capital (mostly private pensions)	Work
Canada	35.1	0.0	42.4	22.5
New Zealand	41.7	0.0	26.8	31.5
Denmark	46.6	14.5	22.2	16.7
Korea	25.0	0.0	22.5	52.5
Latvia	57.1	0.0	1.7	41.3
Lithuania	62.0	0.0	3.2	34.8
Estonia	64.2	0.0	2.1	33.7
Slovakia	67.1	0.0	0.7	32.1
Poland	69.8	0.0	0.8	29.4
Slovenia	74.8	0.0	4.0	21.3
Czech Republic	78.1	0.0	2.6	19.3
Hungary	78.7	0.0	1.3	19.9
Greece	75.8	0.0	5.0	19.1
Portugal	77.4	0.0	5.8	16.8
Italy	75.1	0.0	5.9	19.0
Spain	71.4	0.0	8.3	20.3
Germany	70.6	4.8	10.0	14.6
Ireland	76.7	0.0	5.5	17.8
Austria	81.2	0.0	5.6	13.2
Finland	81.8	0.0	8.5	9.7
Luxembourg	82.6	0.0	9.1	8.3
Belgium	85.0	0.0	6.0	8.9
France	78.1	0.0	16.0	6.0
United States	41.3	7.6	15.9	35.3
United Kingdom	42.6	28.6	11.3	17.5
Japan	49.2	0.0	10.6	40.2
Chile	18.3	27.2	5.9	48.6
Mexico	6.1	27.1	11.1	55.8
Turkey	14.9	37.1	15.9	32.1
Netherlands	45.2	39.1	5.8	9.9
Sweden	52.4	17.8	12.9	16.9
Switzerland	43.2	30.6	11.2	15.0
OECD	57.1	8.3	10.0	24.6

Note Capital income includes private personal pensions and income from the returns on nonpension savings
Source Rearranging the table of OECD (2019, p. 185)

of private pensions became mature only late. Traditionally, capital markets were underdeveloped and hindered the investment of pension funds. France has similar characteristics with countries of this group except that capital as an income source represents a slightly higher ratio (16.0%) than those of these countries.

Fifth, in some countries capital accounts for slightly more than 10% of older people's incomes, and public transfers represent less than half of the income of the elderly. They include the US (15.9%), the UK (11.3%) and Japan (10.6%). In the US, retirees rely heavily on private voluntary pensions, while the only mandatory component for incomes in retirement is the public pension scheme, Social Security, which is a PAYG DB plan. Most large firms provide their employees with employer-sponsored voluntary pensions and retirement plans, and the government encourages employers and employees with tax incentives such as treating contributions as deductible expenses and deferral of taxation. However, only approximately half of private sector workers participate in employer plans (Bajtelsmit, 2022). This gave rise to not only the high coverage rate of private corporate pensions (43.6%) and personal pensions (19.3%) in 2018 but also the second-highest rate of payments (5.2%) from those pensions as a percent of GDP after the Netherlands (5.8%) in 2015. Meanwhile, payments from Social Security as a percent of GDP amounted at 7.1%, which was lower than the average in OECD countries in 2015 (OECD, 2019, pp. 201, 207). In the UK, the net replacement rate of mandatory public and private pension schemes is only 28.4%, while private occupational transfers and capital are as important as public transfers in the incomes of older people. In the US and the UK, individual responsibility and the role of the market for old-age income are emphasized. The government provides employers and employees with various tax incentives to promote the enrollment of private insurance products, and private voluntary pension programs are of particular importance for incomes in retirement. The early development of capital markets contributed to boosting private pension plans. In Japan, occupational and personal pensions are widespread, with coverage rates of 50.5% and 14.7%, respectively, in 2018, in which corporate pension benefits are mostly paid as lump-sum payments (OECD, 2019, p. 155). In addition, work is an important source for old-age income.

Sixth, mandatory personal account plans became prevalent through the privatization of public pension systems in Chile and Mexico.[5] In Chile, mandatory personal account plans covered 86.7% of the working-age population (OECD, 2019, p. 207). After the reform in favor of privately funded pension programs at the expense of public pensions, assets of private pensions as a percent of GDP amounted to 70.2% in 2018, while public pension reserve funds amounted to only 5.1% (OECD, 2019, p. 211). Chile became a model in Latin America and transition economies. In Mexico, work is a dominant source of old-age income, with the highest ratio (55.8%) in the OECD countries, while public transfers represent the lowest ratio (6.1%) as an income source for the elderly.

Seventh, Turkey is unique in the sense that the sum of ratios of private occupational transfers and capital in incomes of the elderly is the highest (53.0%), while public

[5] For the privatization of public pension schemes in Latin America, see Mesa-Lago (2006).

transfers are extremely underdeveloped (14.9%). Work is also an important source of older people's incomes. The elderly rely overwhelmingly on privately organized income sources.

Eighth, there are countries of special interest because occupational pensions are quasi-mandatory or mandatory. In the Netherlands and Sweden, the role of public pensions is substantially less than in the Bismarckian welfare states such as France and Germany, although traditionally, social solidarity is regarded as an important virtue of society. Instead, industry-wide occupational pension plans are quasi-mandatory. In the Netherlands, occupational pension plans covered 88.0% of the working-age population in 2018, and private occupational transfers comprised a high proportion (39.1%) of old-age income sources. Payments from private occupational and personal pensions as a percent of GDP were the highest (5.8%) in OECD countries in 2015. In Switzerland, mandatory occupational pension plans covered 73.6% of the working-age population in 2018, and private occupational transfers had a high ratio (30.6%) of old-age income sources as well. Payments from private occupational and personal pensions as a percent of GDP were the third highest at 5.1% (OECD, 2019, pp. 201, 207).

We can identify some characteristics through an analysis of Table 1. First, there exists a strong tendency for the public pension scheme to substantially substitute for private pensions in many countries, although they cannot be perfect substitutes. In countries with generous state pension plans, there is less room for private pension programs to develop for incomes in retirement. In Western European continental countries, public pension schemes are especially important for the incomes of the elderly. This is in part explained by the shrinkage of corporate pension plans caused by the bankruptcy of firms resulting from the Second World War. Governments needed to guarantee a certain level of income for retirees with a public pension scheme. Second, financial institutions such as the capital market affect the development of private pension programs. A well-working capital market is necessary for the development of private pension programs. Third, the economic system does have an impact on the development of private pensions by influencing the settlement of financial institutions. We can observe such phenomena in transition economies. Fourth, we cannot identify whether there exists a relationship between the development of corporate pensions and that of personal pensions.

3 Theory of Saving for Retirement

Retirement income goals can be separated into two classes: absolute level of income for minimal levels of need and appropriate level of income to maintain living standards during the working life (McGill et al., 2005, p. 402). In industrialized economies, the government guarantees a national minimum through the social security system to avoid old-age poverty. Therefore, it is expected that low-income earners are not willing to save actively for retirement, and benefits provided by

social safety nets can crowd out their retirement savings. It shows that the second class of retirement income goals is of main interest for most individuals.

There are several important motives for saving, such as retirement, leaving bequests and meeting contingencies. The life-cycle model emphasizes the motive for saving for retirement to explain the consumption and saving patterns of individuals at different ages. The life-cycle model assumes that individuals are egoistical and have a definite vision of their economic future. It further assumes that there is no liquidity constraint for individuals and that their behavior is rational and forward-looking. According to the life-cycle model, individuals try to maximize their utility by allocating consumption optimally over the life cycle given their lifetime incomes. Consumption is determined not by the time of receiving income but by the rate of time preference and lifetime income. Thus, individuals try to ensure their old-age income and increase their lifetime utility by restraining consumption while working and saving for retirement. The standard life-cycle model of consumption and saving is the most convenient tool for analyzing how an individual allocates resources in response to the availability of pension benefits (Kim & Klump, 2010, p. 1918). For consumption smoothing over the entire lifetime, individuals can save on employer-sponsored pensions and personal pensions.

The life-cycle model provides a reasonable description of the pattern of saving during working life for consumption in retirement, but there are some limitations. Among other things, there are individuals with bounded rational behavior in reality. Individuals with limited planning horizons are expected to fail to save adequately for their retirement due to overconsumption while working. This is often the case for people with low levels of education. Information that is necessary for making correct decisions for living in retirement can be provided insufficiently as well. For example, the development of future income, including pension benefits and mortality, is very uncertain for some individuals. This is especially the case if we take into account public pension reform, which comes into effect gradually in the future. The complexity of the process in calculating their expected retirement income, including the benefits provided by public pensions, can hinder the decision to save while working. In addition, the level of benefits in DC plans is connected with uncertainty. These factors can lead to failure to save appropriately for retirement. Furthermore, differing from the perspective of the life-cycle model representing rationally behaving individuals, Venti (2006) argues that there are behavioral and psychological factors that affect decisions in the planning and execution stages of saving in reality. He shows that numerous households in the US and EU countries failed to save adequately for retirement.

The widespread existence of employer-sponsored pensions indicates that they are in the interests of employers and employees. From the employer's perspective, employer-sponsored pensions are important for the management of human resources. Occupational pension programs were introduced partly for companies' need to manage their workforce efficiently, such as maintaining loyalty of valued employees with expertise (Clark et al., 2006, p. 19). In addition, employer-sponsored pension plans can play a significant role in attracting necessary workers by providing nonwage benefits. Employers are interested in retaining productive workers with

specific skills to avoid training-related investment, which would arise in the case of changing jobs. This aspect will be of more importance in highly competitive markets. Traditional DB plans, which are particularly important for workers with firm-specific skills, are being replaced by DC plans for young workers with more flexibility and mobility.

From the employee perspective, there are many kinds of incentives to participate in employer-based pensions as well. Employer-sponsored pensions can help secure their income in retirement. In addition, there are income tax incentives for employees that arise from deferring taxation from working ages to retirement ages. Retirement plans provide retirement income insurance against several kinds of risks as well: replacement rate inadequacy related to the complex process of estimating income levels in retirement, benefit reduction in state pensions, uncertain longevity, risk in investing liquid assets and inflation (McGill et al., 2005, p. 483).

4 Barriers to the Development of Private Pension Programs

Over the last few decades, there has been a global trend toward the disintermediation of saving for retirement, and the shift from DB to DC plans is an ongoing trend. This transition places more responsibility on individuals to make difficult decisions regarding how much to contribute and how to manage their DC products. Personal responsibility for adequate retirement income, including self-managed retirement funds, has increased over time. In the US, 50% of households are expected not to have enough to maintain their living standard in retirement (Bajtelsmit, 2022).

Above all, due to the complex process of managing private pension programs as supplementary schemes, individuals are more likely to be at risk of retirement income shortfalls than before. Of particular concern for financial consumers is that vulnerable social groups are more exposed to this risk owing to group-specific characteristics such as poverty, myopia and financial illiteracy. Furthermore, the trend that most retirees do not annuitize their assets at retirement makes the elderly more vulnerable. In this article, factors that hinder the development of private pension programs are classified into three categories. These barriers are expected to cause suboptimal retirement saving.[6]

First, there are institutional factors that restrict the development of private pension programs. An important barrier is the generous public pension scheme (see the countries which belong to the third and fourth categories in Table 1). Due to the generous pension benefits, individuals may not feel the need for additional saving for an adequate income in lengthening retirement periods. This implies that public pensions can substitute for private pension programs. An empirical study shows that generous public pension benefits are responsible for some part of the reduction in German aggregate capital formation (Kim & Klump, 2010, p. 1924). The economic

[6] For an analysis on conditions for the development of occupational pension schemes in Poland, see Szczepanski (2014).

system can affect the development of private pensions as well. In the transition countries from a command economy to a market economy, such as those in Eastern and Central Europe, insurance markets, in addition to financial markets, were underdeveloped, which made it more difficult for employers and employees to participate in private pension programs. Thus, the underdevelopment of financial institutions can be a decisive barrier to the development of private pensions. In addition, the existence of housing wealth and mortgages, which enhance financial security for the elderly, is likely to impact the development of private pensions. In Korea, the recent price spike of apartments and houses, especially in metropolitan areas, reduced the attractiveness of public pensions and private pension plans, which led to low participation in those pension plans. Experiences with a high rate of return on real estate can reduce the need for and willingness to participate in private pension programs for old-age income.

Second, there are social factors that negatively influence private pension programs. In the traditional extended family system, working people take care of their entire family members and do not have to prepare for elderly life in return. They can expect family support that voluntarily takes place in the form of intergenerational income redistribution within the family. In addition, the lack of trust in financial institutions and the government can be an obstacle for the development of private pensions. As the Polish case shows, making decisions for private pension products can be hindered by the distrust of financial institutions and an information gap that arises from restricting the access of financial consumers to comprehensive data about pension products (Rutecka-Gora, 2019, p. 108). Another barrier is the existence of individuals with short planning horizons (myopia) who are not aware of the necessity of long-term future planning. If there are many people with low pension-related awareness, the demand for private pensions and consequently the coverage rate will be low. Furthermore, financial literacy improves the quality of financial advice sought, which implies that financial literacy and financial advisory services are complementary (Kim et al., 2016). In contrast, limited financial literacy is expected to lead to a shortfall of awareness of retirement income needs, which consequently lowers participation in private pension programs. In Poland, people in general have limited financial knowledge, and the lack of proper financial knowledge is the most decisive factor for a low level of financial awareness. Women, less educated people and those living in rural areas especially have less knowledge of insurance (Pienkowska-Kamieniecka et al., 2021, p. 2). In the US, average levels of financial knowledge are low as well, and most people feel unprepared to make financial decisions on enrollment in private pension products with confidence (Bajtelsmit, 2022). This shows that insufficient financial knowledge and the lack of competence arising from that can be an important obstacle for promoting enrollment in private pension products.

Third, there are economic factors that can impact the development of private pension programs. Low-income earners are less likely to save for incomes to meet retirement needs. Poverty is expected to lead to a low rate of participation and low amount of contribution in private pensions. This is not to mention that the economic instability of a society, such as a high unemployment rate and high inflation rate, causes employers and employees not to participate actively in the programs. Another

barrier can be insufficient tax benefits that are not attractive enough as an incentive for employers and employees to participate in pension programs. In addition, volatility in global financial markets has made private pension programs less attractive, as we can observe in many countries. The willingness of individuals to save for consumption in retirement can depend on the returns they expect in the financial market. The low-interest-rate environment since the global financial crisis in 2008 has threatened private funded pensions by lowering the returns on assets, which consequently reduced the attractiveness of private pension products and lowered the coverage rate. After the 2008 financial and economic crisis, countries in Eastern and Central Europe that introduced multipillar pension systems decided to change their planned reform scenario, downsizing or fully reversing the development of their funded pension plans. The actions of governments have significantly reduced the growth of funded pension plans by cutting the amount of mandatory contributions paid into funds (Bielawska et al., 2017, p. 9). In Germany, the introduction of Riester pensions, which provide subsidies and tax incentives, contributed to promoting private pension programs, but experiences of a low rate of return after the global financial crisis led to a decreasing number of Riester contracts since 2018.

It is impossible to determine the common main barriers because they depend on the environment and the specific characteristics of each country. All complex factors are expected to affect the development of private pension programs in each country, and determining barriers that have common decisive influences on participation is very difficult. Detailed analysis of these barriers is beyond the scope of the article.

5 Necessary Conditions for Developing Private Pensions

We analyzed barriers that can affect the development of private pension plans, and they include factors that governments and other institutions are not able to influence directly as well. In this article, we focus on key factors that seem to be reasonable and those that can lead to improvement if efforts are made in a variety of appropriate ways.

First, one of the important barriers is generous public pension schemes. For example, in the Bismarckian welfare states and the Mediterranean countries, public pension benefits were generous, and their PAYG systems partly substituted for funded private pension programs and threatened the stability of public finances. Population aging accelerated this trend further, which has a direct impact on intergenerational income redistribution. To mitigate problems connected with unfunded public pension schemes, multipillar systems for incomes in retirement need to be reinforced as suggested by the World Bank. This means that funded private pension plans should play a greater role in securing old-age income at the cost of public PAYG schemes. It can contribute to strengthening capital accumulation for economic growth.

Second, the trust of financial consumers in financial institutions and the government is a necessary condition for developing private pensions. The lack of trust in those institutions causes uncertainty related to private pension plans, which

hinders participation in pension programs. The government should provide financial consumers not only with well-functioning capital markets and insurance markets but also with comprehensive information about pension products.

Third, tax incentives and subsidies for employers and employees can extensively promote the enrollment of private pension products. As we can observe in the US, Germany, and many European countries, tax incentives for funded corporate and personal pensions can contribute to enhancing participation and the amount of contributions for retirement saving. However, we must also take into account the negative effect of tax incentives on the stability of public finances. For example, the transition economies of Eastern and Central Europe (Hungary, Poland, Lithuania, Latvia, Estonia, Bulgaria, Slovakia and Romania) introduced mandatory funded multipillar systems by pension reforms. The transition costs for these systems between 2001 and 2012 in relation to GDP (measured as a sum of the value of contributions transferred to the pension funds) ranged from 1.6% in Romania to 16.0% in Poland[7] (Pienkowska-Kamieniecka et al., 2021, p. 19). It shows that tax incentives and subsidies can burden public finances.

Fourth, financial knowledge is a decisive factor that can affect the participation and returns of private pension products. Under current popular DC plans, the rate of return on assets depends on the results of participants' financial management. To promote participation and improve the performance of participants' financial management, more opportunities to enhance financial literacy should be provided by the state. Providing proper financial education and more financial information not only for students (e.g., in the school curriculum) but also for financial consumers is necessary. Enhancing actual financial knowledge by participating in a specific course in personal finance will improve the adequate decision making of individuals for retirement savings.

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[7] The transition costs were financed by taxes and other budgetary revenues, savings in the existing PAYG system and an increase of the general government debt.

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US Pensions and Taxation

Maji C. Rhee

Abstract This chapter focuses on US taxation of pension plans related to US persons abroad indicating American citizens and residents who work and live outside of the United States. From the financial consumers' perspective, "expatriates" or US persons abroad need enhanced "financial literacy" on how the domestic as well as foreign pension schemes will affect their obligation to comply with tax reporting and filing tax returns on their pension incomes from Social Security benefits and other private pension plans. This chapter presents four major themes. The first theme focuses on the US Social Security Taxation, Social Security Totalization, and Windfall Exemption which will affect US persons living and working in foreign countries. The second theme presents a generic pension and benefit pillar-based taxonomy and how they correspond to taxation in the US. The third theme is on private pension plans. Deduction and deferral options according to the optimal triplet representing three stages of taxation on the private pension schemes for establishing a basis for comparison in cross-border pension transfers are introduced. Rollovers and transfer of non-US foreign pensions, fiduciary liability, and corresponding risks on the US person are also discussed. The fourth theme relates to US persons' tax filing and reporting obligations under the Foreign Account Tax Compliance Act and Foreign Bank and Financial Account Regulations.

1 Introduction

> … pensions and other similar remuneration paid to a resident of a Contracting State in consideration of past employment shall be taxable only in that State.
>
> (OECD, Article 18, 2017).

In contrast to Article 18 of the OECD Model Tax Convention on Income and on Capital, pension income received by US citizens and residents living abroad is subject

M. C. Rhee (✉)
School of International Liberal Studies, Waseda University, Tokyo, Japan
e-mail: majirhee@waseda.jp

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to taxation in the US as well as in the foreign country where the individual resides.[1] Double taxation is a potential risk for these "expats," since pension income from foreign countries is subject to federal income taxation according to the worldwide income principle.[2]

The Internal Revenue Code (IRC) is based on taxation of worldwide income of US citizens and residents. The worldwide taxation principle means that regardless of an individual's residence or the place where the income is earned, income taxation is based on US citizenship. Every US person abroad is required to file a federal income tax return. Subsequently, a US person abroad has an obligation to file non-US financial accounts under the Foreign Bank and Financial Accounts (FBAR). Another filing is to disclose specified foreign financial assets including foreign trusts or pension income according to the Foreign Account Tax Compliance Act (FATCA).[3]

Retirement fund contributions and investment earnings are subject to income tax unlike health insurance premiums, which are not subject to federal taxation. US tax laws governing pension taxation for US citizens and residents are source-based. Unlike residence-based taxation, income generated by US citizens and residents are taxable regardless of where they live. US persons abroad must be aware of their duties to pay federal income tax and comply with the reporting obligation.[4]

This chapter focuses on US taxation of pension plans related to US persons abroad indicating American citizens and residents who work and live outside of the United States. This chapter is from the financial consumer protection perspective, including US persons abroad, as a unique category of financial consumers. It also introduces a generic pension taxonomy and corresponding US taxation as a basis for analysis. For the government-initiated retirement benefit, US Social Security tax in the context of bilateral social security treaties is discussed. Subsequently, themes related to US taxation of foreign private pensions, and impacts on foreign private pension trusts under the Foreign Account Tax Compliance Act (FATCA) are discussed.

Global mobility across the world has created nearly nine million Americans living and working abroad as of 2019.[5] In 2018, the US Government Accountability Office

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[1] OECD, Model Tax Convention on Income and on Capital 2017. https://www.oecd-ilibrary.org/taxation/model-tax-convention-on-income-and-on-capital-2017

[2] William Thomas Worster, "Human Rights Law and the Taxation Consequences for Renouncing Citizenship," *St. Louis University Law Journal* 62 (2017).

[3] A partial list of tax forms that have to filed by US persons abroad: Form 1040 US Individual Income Tax Return, Form W-7 Application for IRS Individual Taxpayer Identification Number, Form 2555 Foreign Earned Income, Form 1116 Foreign Tax Credit, Form 8833 Treaty-based Return Position Disclosure Under Sect. 6114 or Sect. 7701(b), Form 8621 Information Return by a shareholder of a Passive Foreign Investment Company, Form 114 Report of Foreign Bank and Financial Accounts, Form 8938 Foreign Account Tax Compliance Account, Form 3520 Annual Return to Report Transactions with Foreign Trust and Receipt of Certain Foreign Gifts, Form 3520-A Annual information of Foreign Trust with a US Owner.

[4] Dorsey Stuart, "Taxation of Pensions" in *Trends in Pensions 1992*, edited by John A. Turner and Daniel J. Beller. Washington, D.C.: US Government Printing Office, 1992.

[5] The survey conducted by Greenback Expat Tax Service, Africa: 231,854, East Asia and Pacific: 1,135,114, Europe and Eurasia: 2,027,914, Near East: 1,019,457, South Central Asia: 618,772,

(GAO) published a report "Workplace Retirement Accounts" which included estimates of American citizens abroad by geographic region, as of 2015.[6] In an ideal context, both public retirement benefits and private pension schemes across borders would function under the reciprocity-based principle or "fully-portable." When a US person is to make a relocation decision, lack of pension plan portability will be one of the risks related to retirement benefits and pension plans.[7] The need for particular "consumer competence" for US expats includes their access to US retirement benefits, diversification of private pension schemes, as well as recognizing potential tax liabilities due to US worldwide source-based income taxation filing.

The US domestic pension schemes, contributions by employees and employers and passive earnings such as interest, dividends and capital gains within a qualified retirement plan are not taxed until the employee receives the actual distribution from the plan. As a result, US individuals participating in foreign workplace retirement plans cannot deduct contributions to their accounts from their income on their US tax return. Deduction does not apply to the tax-deferred foreign retirement account in the country where the individual works. In this context, the possibility of portability of pension schemes between the US to a foreign country is not feasible and can be a primary risk factor.

Since US tax law does not recognize foreign retirement plans, the Internal Revenue Service (IRS) treats foreign retirement accounts as not tax-qualified. For example, the US domestic retirement plans which fulfill Sect. 401(k) requirements are tax deferred in the US, whereas foreign pension plans are not.

One of the only portable models can be found in the US-UK treaty. Although the limited portability of the pension option is primarily due to US worldwide income tax policy, for Americans who are participating in foreign pensions, Foreign Earned Income Exemption (FEIE) and Foreign Tax Credit (FTC) cases are introduced as tax efficient pension planning strategies. The statutory FEIE allows a US person to exclude $104,100. FEIE exclusion in most cases does not apply to an income from foreign pension or annuities.[8] In this context, Americans abroad emerge as one particular group of financial consumers who need to realize how foreign retirement benefits or pension plans are treated differently from the domestic retirement benefits or pension schemes.[9]

Western Hemisphere: 3,706,577, a total number resulted in 8,739,688. https://www.greenbacktaxservices.com/blog/estimates-show-increase-expats-worldwide/

[6] The Association of American Residents Overseas, https://www.aaro.org/about-aaro/8m-americans-abroad (last accessed on 30 May 2021).

[7] Jeffrey Chen, Yun Guan, & Ivy Tang, "Optimal Contracting of Pension Incentive: Evidence of Currency Risk Management in Multinational Companies," *Journal of Risk Financial Management* 13 (2), 2020, https://doi.org/10.3390/jrfm13020024 (last accessed on 31 May 2021).

[8] IRC Sect. 401(a), Sect. 402(c) Sect. 404 (a)(4) states pension plans without a US situs trust are not qualified.

[9] Paul M. Secunda & Brendan S. Maher, "Pension De-Risking," *Washington University Law Review* 93 (2016).

1.1 US Persons Abroad and Foreign Pensions[10]

The indica of a US person is a tax term which includes US citizens and permanent residents. The IRS defines the term "United States person." These definitions are important to determine eligibility to be qualified for deductions or exemptions.

- A citizen or resident of the United States,[11]
- A partnership created or organized in the United States or under the law of the United States or of any State, or the District of Columbia,
- A corporation created or organized in the United States or under the law of the United States or of any State, or the District of Columbia,
- Foreign estate or foreign trust,[12]
- Any other person that is not a foreign person.[13]

The term "United States citizen" means:

- An individual born in the United States,
- An individual whose parent is a US citizen,
- A former alien who has been naturalized as a US citizen,
- An individual born in Puerto Rico,
- An individual born in Guam, or in the US Virgin Islands.[14]

Two tests have to be met in order for a US person abroad to have foreign earned income and for housing costs be excluded from taxation. A *Bona fide* residence test is a requirement related to the location of the individual's residence and family. For the physical presence test, the US taxpayer must be present in a foreign country for at least 330 days during any consecutive 12-month period. When the tests are met, the money amount received as a pension paid by the US person can elect to apply FTC or FEIE for reducing the tax base amount.[15]

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[10] A Timeline of the Evolution of Retirement in the United States. http://scholarship.law.georgetown.edu/legal (last accessed on 30 May 2021).

[11] Residency or income in US territories includes Guam, the Commonwealth of the Northern Mariana Islands, American Samoa, the US Virgin Islands, or Puerto Rico. Form 8898 is required for *bona fide* resident tax exemption.

[12] IRC Sect. 7701(a)(31).

[13] Information for foreign persons classified by the IRS as: resident aliens who meet the green card test or the substantial presence test in the current year; nonresident aliens who have not met the green card test or the substantial presence test; dual status aliens who change residency status in the current year; foreign students who temporarily reside in the US; and other categories, including athletes and entertainers, agricultural workers, au pairs, dual status aliens, and expatriates. https://www.irs.gov/individuals/international-taxpayers/foreign-persons (last accessed on 31 May 2021).

[14] IRS *International Taxpayers*, https://www.irs.gov/individuals/international-taxpayers/foreign-persons (last accessed on 31 May 2021).

[15] IRC Sect. 911 (b)(1)(B); Treas. Reg. Section 1.911–3(c)(2).

1.2 US Tax Laws[16] and Non-US Pension Plans

Due to the worldwide taxation principle, US domestic tax laws are applied to foreign country pensions and deferred compensation plans. Taxation of deferred compensation of unfunded pension plans is delayed until the deferred benefits are paid. In funded pension plans, as soon as employees are vested, taxation of deferred compensation will occur.

US individuals who participate in foreign pension plans would be taxed on contributions to the plans, the accrued, and the distributions from the plans that have not actually been received. However, US employer and employee contributions and institutional investment through domestic retirement trusts that are defined benefit (DB) or contribution (DC) qualified plans or self-employed plans are exempt from federal income tax.

US persons who are employed outside the US and covered by a non-US pension or a supplemental executive retirement plan, which is a type of nonqualified deferred compensation plan, must comply with US taxation. For funded pension plans, the US Internal Revenue Code treats all foreign pension plans as "nonqualified."[17] If the employee has a "vested" interest in the plan, then the employee has current income while earning the pension, taxable before anything is paid out.

1.3 De-risking: US Consumer Financial Protection Bureau

In a globalized economy with active work mobility, the OECD High Level Principles of Financial Protection has taken a broad approach to good practice in private pension plans for protecting pensioners.[18]

US persons living and working overseas including "accidental Americans" are a particular group of financial consumers who are to be protected from risks of pension benefits and taxation. "Accidental Americans" also include dual citizens from birth who have not had substantial contacts with the US or were merely US citizens by birth with neither parent being a US citizen. This group of individuals as well as US persons who are long-term residents in foreign countries will still have to comply with taxation related to the private pension plans.

[16] Major US tax law related to retirement include Federal Statutes US Code: 29 USC. §§ 1001*et seq.*, Pension and Welfare Benefits Administration, 29 C.F.R.Parts 4000 *et seq.*, Pension Benefit Guaranty Corporation, Federal Judicial Decisions Supreme Court: Recent Decisions on Pensions, US Circuit Court of Appeals: Recent Decisions on Pensions.

[17] IRC Sect. 409A.

[18] OECD, *Core Principles of Private Pensions*, (2016), https://www.oecd.org/daf/fin/private-pensions/principles-private-pension-regulation.htm, International Organisation for Pension Supervisors, http://www.iopsweb.org/resources/ (last accessed on 31 May 2021).

The GAO is another government agency which promotes and protects pensioners' financial interests. Resources like knowledge of pension fund expectations, requirements, and sourcing processes to "re-link" US individuals working and living overseas are included in the GAO services.

1.4 Financial Consumer Protection and Pension Litigations in US

In the US, the Pension Benefit Guaranty Corporation (PBGC) is to protect pensioners from the guaranteed pension payments. When the reductions in pension plan payments take place, the plan trustees have to submit an application to the Treasury Department showing that proposed pension benefit reductions are necessary to keep the plan from running out of funds. Participants and beneficiaries will be notified of any application to reduce benefits, will be provided with an estimate of the reduction in their own benefits, and will have the opportunity to comment on the application.

With a defined benefit plan, the employer is legally required to ensure there are sufficient funds in the plan to pay the guaranteed benefits. If the company fails to meet its obligation, the federal government steps in. Defined benefit plans are the only type of pension insured by the PBGC. For example, the PBGC will take over insurance benefit payments up to a maximum amount in case an insurance company goes bankrupt. Such insurance protection helps make an individual's pension more secure.

One landmark case on pension advances in which the PBGC was involved in judicial decisions was in Minnesota in 2018.[19] The Attorney General of the State of Minnesota filed a lawsuit against two pension advance companies claiming state violation of lending laws by issuing loans without a license and falsely describing the transactions as "purchase agreements" rather than loans.[20]

Although domestic pension litigation cases in the US have been supported by government agencies like the PBGC, there are no equivalents for US persons abroad. The burden is placed on the US persons abroad to themselves meet the requirements of the IRC related to income tax bases, tax-deferred benefits, and private pension savings schemes. This, in turn, means there is greater need for higher financial literacy related to pension benefits and plans for Americans abroad.

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[19] Pension Benefit Guaranty Corporation, *Litigation Outline*, 2020, https://www.pbgc.gov (last accessed on 31 May 2021).

[20] Consumer Financial Protection Bureau, *CFPB and New York Department of Financial Services Sue Pension Advance Companies for Deceiving Consumers About Loan Costs*, (2015), www.cfpb.org (last accessed on 31 May 2021).

2 Retirement Benefits and Pension Taxonomy

This section explains how the pension taxonomy in the US correlates with corresponding taxation. Table 1 presents level of pillars and US taxation of pension plans according to the categorization in reference to a generic Structure of Retirement Income Provision based on the OECD 2009 framework.[21] in reference to the generic pension taxonomy developed by the OECD model.

Pillar or tier-based retirement categorization is useful for understanding key provisions of pension schemes and how schemes relate to US taxation.[22]

Although different types of retirement-income provision reflect a common taxonomy, pension systems of countries consist of four pillars with objectives, benefit types, financing and taxation modes. Pillar 0 and Pillar 1 are under the rules and regulations of the US Social Security Agency, Pillar 2 is under the US Department of Labor, and Pillar 3 is under Department of Treasury, and Internal Revenue Service.

Pillar 0 means "social assistance" for maintaining minimum incomes for the poor. Pillar 1 in the US includes Social Security. "Social security" is the public schemes for the social and economic protection of individuals and families.[23] If funding is provided on a form modeled on commercial insurance, it is termed "social insurance."[24] It is distinguished from "social assistance," which ensures minimum incomes for the poor.

Social Security is classified under five categories: (1) old-age, disability and survivors' benefits; (2) benefits for sickness and maternity; (3) occupational or work-related risks; (4) unemployment protection; and (5) family assistance. Within the categories, four kinds of benefits include (1) old-aged retirement, (2) disability, (3) survivors, and (4) medical insurance or Medicare. US Social Security and Medicare contributions are imposed via a tax on the wages of workers and their employers. The earnings-related pension benefit formula is progressive.[25]

Self-employed individuals pay both portions. The taxes paid are not put into a special account for the individual worker. They are used to pay benefits to those currently collecting benefits. This is known as either self-employment tax or the Federal Insurance Contributions Act.

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[21] OECD, *The Framework of Pensions at A Glance, 2009,* https://stats.oecd.org/index.aspx?queryid=69413 (last accessed on 15 May 2021).

[22] Yermo, Juan. *Revised Taxonomy for Pension Plans, Pension Funds and Pension Entities*, OECD, (2002), p. 4.

[23] Aline Grünewald, *Social Security around the World: A Review of Datasets*, University of Bremen, Centre for Social Policy Research ZeS-Working Paper No. 03/2014.

[24] Congressional Research Service, *Social Security: The Windfall Elimination Provision (WEP),* 4 February 2021 https://crsreports.congress.gov (last accessed on 15 May 2021).

[25] Social Security Administration, *Social Security Tax Rate*, https://www.ssa.gov/oact/progdata/oasdiRates.html (last accessed on 15 May 2021).

Table 1 Pillar-based pension taxonomy and US taxation

OECD pillar	Benefits and pension plans	US Taxation of retirement benefits and pensions
Pillar 0	Social Assistance Participation- Universal Major target—ensure minimum standard of living, Poverty reduction	Provider—Funding from Revenues A welfare program providing defined benefits for old age and disability
Pillar 1	Public Pension—Social Security Mandatory Savings component to achieve certain standard of living in retirement compared with that when working	Social Security tax paid by the employees Taxation: If the amount of social security included in income is the lesser of one-half of the benefits or one-half of the excess of the pensioner's income over a base amount equal to $25,000 for a single individual, $34,000 for a married couple Windfall Exemption Exception
Pillar 2	Occupational Benefit types: Fully Funded DB/DC Mandatory	Financial assets Voluntary Occupational Private pension fund: DB, DC State and local government employee retirement funds Federal government retirement funds: DB, DC plans
Pillar 3	Occupational Unfunded/non-financial funded/financial Voluntarily funded personal DC Individual or employer-provided Benefits determined – Defined Benefit or Defined Contribution Annuity reserves at life insurance companies	IRA, Private pension saving Voluntary, personal Traditional individual retirement accounts (IRAs) Contributions to DC are tax deferred, but employees pay tax when they withdraw funds. Roth-IRA account holders pay taxes when contributions are made
Pillar 4	Access to informal, voluntary Home Ownership, Pension Loan Scheme via Reverse Mortgage Type	Reverse mortgage payments are not taxable. Reverse mortgage payments are considered loan proceeds and not income. (IRS, 2021)

Reverse mortgage loans typically must be repaid either when the individual moves out of the home or at the time of death. In the US, most reverse mortgage loans are Home Equity Conversion Mortgages that must be paid off when the last surviving borrower or a qualified "Eligible Non-Borrowing Spouse" continues to live in the house.
Federal Trade Commission, Consumer Information, Reverse Mortgage, 2021, https://www.consumer.ftc.gov/articles/0192-reverse-mortgages (last accessed on 15 May 2021).

Table 2 Pensioner income in comparison

	United States	OECD
Average worker Earnings	$54,951	$41,584
Public pension spending	7.1% of GDP	8.0% of GDP
Life expectancy	At birth 78.8 At age 65 19.7	80.7 19.7
Population over age	% of Working age population 28.4	31.2

Pillar One and Taxation of Social Security

The amount that is included in income is the lesser of one-half of the benefits or one-half of the excess of the pensioner's income over a base amount equal to $25,000 for a single individual (Table 2).

Up to 85% of Social Security benefits may be included in income if a pensioner's income exceeds a higher adjusted base amount equal to $34,000 for a single individual, or $44,000 for a married couple.

Pensioners with income that exceeds the adjusted base amount must include in income the lesser of the sum of 85% of the excess of income over the adjusted base amount, plus the lesser of the amount that would otherwise be includable if the 85% rule did not apply or $4,500 or 85% of social security benefits.

Public pensions and state income tax structure differ among US states. The state of Michigan provides tax free allowance of $21,000 for people over age 65. However, if the individual receives both public and private pensions, the amount of income from the public pension is used to offset the $40,920 exemption amount.

The Railroad Retirement Plan is a unique feature in the US Advantages of the Railroad Retirement Plan, for railroad workers who have also been employed in other industries that pay into Social Security; these workers may have their Railroad Retirement credits, benefits, and taxes transferred to the Social Security system.[26]

Retirees may also be eligible for a refund for excess payments toward Social Security. These retirees must have paid taxes into both systems while working between 1951 and 1974. The Social Security tax refund is paid as a one-time lump sum.

Another advantage is retirement benefits may be passed to spouses, divorced spouses, widows, widowers, children, and parents of deceased workers. In order for family members to qualify, the individual must have been working in the railroad industry at the time of retirement or death. Railroad retirement payments increase each year with cost-of-living adjustments.[27]

[26] US Railroad Retirement Board, https://www.rrb.gov (last accessed on 1 June 2021).
[27] *Id*.

Pillar Two: OccupationalPension Scheme and Taxation

Pillar Two is an occupational pension scheme, and both defined benefit or defined contribution schemes are included. In a defined benefit plan, benefits are based on compensation and tenure with the employer. Defined benefit plans are in response to the Employee Retirement Income Security Act (ERISA) in 1974 enacted according to the US Constitutional mandate to regulate interstate commerce. The act is governed by federal statutory law, and ERISA guidelines state that all employers who engage in interstate commerce should provide defined benefit plans to their employees.[28]

The prevalence of defined benefits plans in the US is the result of the ERISA requirements. The provisions of ERISA do not apply to defined compensation plans. ERISA requires that a percentage of the retirement benefits become vested in the employees.[29]

For example, an employer may provide employees a benefit of 2% of pay for every year they work with the employer. If an employee works for 10 years for the employer and earns $100,000 per year, the employee would receive an annual pension of $20,000 payable for life.

$$2\% \text{ of pay } \times \text{ 10 years } \times \$100,000 = \$20,000/\text{yr}$$

Some small defined benefit plans like “cash balance plans” allow the payments to be paid out as a lump sum in lieu of a lifetime annuity.

An example of a traditional defined benefit plan in the state of Montana under the Public Employees’ Retirement System (PERS) provides retirement, disability, and death benefits to the state of Montana, the university system, local governments, and to certain school district employees.

In a defined benefit plan, both the amount the employer contributes and the employee’s future benefit is known. An employee’s benefit will be calculated using a formula based on the employee’s salary and years of service.[30]

Monthly Benefit Formula is based on membership service factor:

$$\begin{aligned}&\text{Membership Service Factor } \times \text{ years of Service Credit}\\&\times\text{Highest Average Compensation}\end{aligned}$$

The formula is based on the percentage of the length of employment or vested year % x service credit years x average final compensation. For example, according to the vested years, different percentages apply: 1.5% applies to employment for more than five years and less than 10 years of membership service, 1.7857%, employment

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[28] Employee Retirement Income Security Act (ERISA), 26 USC. §§ 401 *et seq*.

[29] Patrick Purcell & Jennifer Staman, *Summary of the Employee Retirement Income Security Act*, Cornel University Library, 2008, https://ecommons.cornell.edu/handle/1813/78103 (last accessed on 15 May 2021).

[30] Public Employee’s Retirement System of Mississippi, Retiree Handbook Providing Benefits for Life, https://www.pers.ms.gov/Content/Pages/Benefit-Calculators.aspx (last accessed on 16 May 2021).

for less than 30 years of membership service, and 2% for employment for 30 years or more of service.[31]

In the state of Montana, PERS full service begins with vesting: five years of membership service. Guaranteed Annual Benefit Adjustment is also applied to reflect yearly adjustments to plan "bases" or liabilities. Most defined benefit pension plans have a calculator system which will compute federal tax withholding amount for an individual to estimate tax withheld from the gross monthly retirement benefit. Once the gross monthly retirement amount is known, monthly tax according to the gross retirement income will be computed.

Pillar 3 and Taxation

Pillar Three mainly consist of private pension schemes in the US. Defined contribution (DC) is a pension plan based on the amount the member contributed to the plan by the sponsor plus the investment return.[32] The defined contribution plan contains a broad range of plans including profit-sharing plans, money purchase plans, 401(k) plans, employee stock ownership (ESOP) plans and plans with small businesses: Simple plans and Simplified Employment Pensions. There is no guarantee on rate of return. The limit for defined contribution plans is $57,000. The limitation for 2019 was $56,000. The limit for 2021 will be $58,000. The limit on the exclusion for deferrals in 2019 was $19,000, but has risen to $19,500 from 2021.

Among different types of DC plans, three types characterized the US DC plans: 401(k), employee stock ownership plans, and Individual Retirement Account.

1. 401(k) Plans developed specifically under the IRC Sect. 401(k). In 401(k), employees are allowed to make before-tax contributions from their salaries which are subject to social security contributions. 401(k) plans include matching employer contributions, such as a match equal to 50% of the employee's before-tax contributions up to 6% of salary.
2. Profit-sharing plans are established and maintained by an employer to provide for a specific contribution formula to be allocated among employees based on a specific allocation formula based on a percentage of salary.

   Employee stock ownership plans (ESOPs) are plans under which the employee accounts are primarily invested in shares of company stock. An ESOP is permitted to borrow money to purchase this stock. The loan is either from the employer or from a commercial lender with an employer guarantee, and with the purchased shares held in a suspense account to be allocated to employee accounts as the loan is repaid.

[31] Montana Public Employee Retirement Administration, http://mpera.mt.gov/MEMBERS/PERS (last accessed on 31 May 2021).

[32] There are no jury trials under ERISA. For instance, a lawsuit alleging the wrongful denial of benefits will be adjudicated based on dispositive motions submitted by both parties. The court will review the "administrative record" and determine whether the claim fiduciary's decision to deny benefits was reasonable.

Table 3 Cost of living adjustments to DB and DC plans in the US

	2021	2020
Defined benefit plan annual limit	$230,000	$230,000
Defined contribution plan annual limit	$58,000	$57,000
Elective deferral limit for purposes of cash or deferred arrangements (401(k) plans) and tax-sheltered annuities (403(b) plans)	$19,500	$19,500
Maximum deferral limit for 457 plans	$19,500	$19,500
Age 50 catch-up contribution limit to 401(k), 403(b) or 457(b) plans	$6,500	$6,500
Maximum deferral limit for SIMPLE plans	$13,500	$13,500
Age 50 catch-up contribution limit to SIMPLE plans	$3,000	$3,000
Minimum compensation considered in determining eligibility for a Simplified Employee Pension	$650	$600
Threshold for highly compensated employee	$130,000	$130,000
Key employee compensation limit for top heavy plan purposes	$185,000	$185,000
Annual compensation limit	$290,000	$285,000

3. Individual retirement arrangements (IRAs) are investment vehicles which include contributions by the IRA owner, or "rollover" contributions for distributions from employer plans, or contributions under employer-sponsored plans. A savings incentive match plan for employees (SIMPLE) can be adopted by an employer with fewer than 100 employees. Under the incentive match plan, employees earning at least $5,000 can contribute a portion of their salaries on a tax-deductible basis.

The maximum employee contribution under the IRA is $6,000, and $7,000 for employees age 50 or older for 2020. Employers either match the employee contribution up to 3% of salary, or make a straight contribution of 2% of salary. Both employee and employer contributions vest immediately. The IRA is owned by the employee, and benefits are available at any time, with an additional 10% tax applicable if withdrawn before age 59.5.[33]

Employer contributions under Pillar 3 are not subject to social security contributions. And, investment income is tax-deferred in most DC cases. Benefits in retirement from all types of plans are taxed as income except for Roth contributions and any other benefits financed through taxable employee contributions. The IRS has released the 2021 cost of living adjustments applicable to DB and DC plans.[34] (Table 3)

The cost of living adjustment reflected in defined benefit and defined contribution set the increased amount of the limitation for defined contribution plans at $58,000

[33] IRS Retirement Plans, https://www.irs.gov/retirement-plans/plan-participant-employee/retirement-topics-ira-contribution-limits (last accessed on 31 May 2021).

[34] Internal Revenue Services, https://www.irs.gov/retirement-plans/cola-increases-for-dollar-limitations-on-benefits-and-contributions, IRS News Release: *Income ranges for determining IRA eligibility change for 2021* (last accessed on 31 May 2021).

as of 2021. The limitation on the exclusion for elective deferrals for 2021 has also increased to $19,500.

Traditional IRA as Pre-tax Contribution

The traditional IRA, 403 (b), 457, and 401(k) plans are examples of tax-advantaged accounts that allow annual pre-tax contributions. Employees can contribute to a retirement plan using income that has not been subject to payroll or income taxes. The employees only pay ordinary income tax on their contribution and earnings when they withdraw money from the account.

Pre-tax contributions reduce the amount of taxable income. For example, suppose an employee's gross income is $150,000 in a given tax year. If the effective tax rate is 32%, tax liability for the year will be 0.32 × $150,000 = $48,000. Net income results in $150,000–$48,000 = $102,000.

If the employee contributes $15,000 towards a 401(k) plan, taxable income will be reduced to $102,000–$15,000 = $87,000, and the tax liability will be 0.32 × $150,000 = $48,000.

$$\begin{array}{l} \text{Gross income}\$150,000 \\ \text{Tax rate } 32\% \\ \underline{\text{Pre} - \text{tax contribution to } 401(k)\$15,000} \\ \text{Taxable income}\$87,000 \end{array}$$

In calculating a pre-tax contribution, the amount of taxes withheld will be reduced as the basis for the taxable amount is reduced.

Roth IRA—After-Tax Contribution Plans

Unlike the traditional IRA, which is a pre-tax contribution plan, the Roth IRA is an after-tax contribution plan. Although taxes are paid on withdrawals from pre-tax contribution plans, tax is paid at the time of Roth contributions, but their earnings can be withdrawn tax-free. Decisions on making pretax or after-tax contribution plans can be compared with the computation of the expected taxable income and the tax bracket rates at the time retirement benefits will be received.

Pension Taxonomy and Taxation of Foreign Private Pension Schemes

The pillar-based categories and domestic taxation matches according to the IRC. For a US person with foreign pension schemes or who plan for a rollover from a non-US scheme to another non-US or US pension schemes, a generic three-step procedure can be useful.

Defined contribution and taxation is based on three processes. The three types of procedural transactions include contribution, investment on the contributed amount, and distribution of the pension funds. Each procedure is met with taxation: (1) at the contribution stage, (2) at the investment stage, and (3) when benefits are received.

Taxation of income from the foreign private pensions pursuant to the IRC follows an E-E-T pattern meaning, (1) Exemption at the contribution, (2) Exemption at the

pension fund investment, and (3) Taxation when the benefits are received. At the distribution stage, the pensioner's "vested time" during the employment record is used for taxation. For US persons abroad, a point of reference to the distribution stage on defined contribution is the individual's residency status. To comply with entitlement of Foreign Earned Income Taxation, which will allow pre-tax deduction at the contribution stage or at the distribution stage, a US person must fulfil residency requirements either by physical presence or *bona fide* residency in a foreign country.

3 Public Pension Benefit and US Taxation

3.1 Bilateral Agreement and Taxation of Social Security

For US persons abroad, one of the issues is related to the public pension benefit while living and working in a foreign country. Public retirement benefit and the corresponding taxation is based on a bilateral Social Security agreement with a particular foreign country.

The US has bilateral Social Security Agreements or "Totalization Agreement" with 30 countries as of 2021.[35] These agreements allow US persons abroad to benefit from the foreign country's social insurance system while the person will be exempt from paying Social Security taxes. The purpose of totalization agreements is to avoid double taxation on social security tax. It is "relief from double Social Security tax with respect to the same employment or self-employment." Social Security tax is paid only to "one of the two countries on the same income."[36]

The totalization agreement allows US persons to benefit from the foreign country's social insurance system. The US person will pay the host country's social insurance tax and avoid US Social Security tax. Thus, if a US person is working for a foreign company, the person does not have to pay US Social Security tax. If a US person is self-employed in a foreign country, the person is subject to Medicare and Social Security tax.[37]

For Americans abroad, benefit portability arrangements between countries can be a major focus of interest. European Union member states have established agreements

[35] Countries with Social Security Agreements include Italy in November 1, 1978, Germany in 1979, Switzerland in 1980, Belgium in 1984, Norway in1984, Canada in 1984, UK in1985, Sweden in 1987, Spain in 1988, France in 1988, Portugal 1989, Netherlands in 1990, Austria in 1991, Finland in1992, Ireland in 1993, Luxembourg in 1993, Greece in 1994, South Korea in 2001, Chile in 2001, Australia in 2002, Japan in 2005, Denmark in 2008, Czech Republic in 2009, Poland in 2009, Slovakia in 2014, Hungary in 2016, Brazil in 2018, Uruguay in 2018, Slovenia in 2019, and Iceland in 2019. https://www.ssa.gov/international/agreements_overview.html (last accessed on 3 May 2021).

[36] Brent W. Jackson & Scott Cash, "Social Security Totalization Agreement," *Social Security Bulletin*, 78, (2018).

[37] IRS, Form 1040 Schedule C.

to make social benefits portable among member countries, including unemployment and family benefits.

Totalization is based on the rationale that social security benefits should be portable between two countries. If employees cannot gain access to national social security, they can be given the option to contribute to pension schemes in their home countries. Another example is providing employees full access to the statutory national pension scheme in a country with the social security treaty.

Limits to "Totalization Agreement"

In the absence of a totalization agreement, US persons abroad have to pay US Social Security taxes. If a US person abroad is self-employed, tax is due on any self-employment income. When income is earned by an employee, both the employer and the employee pay a tax of 7.65%.[38] A self-employed individual is required to pay both the employer and employee portions. The self-employed tax rate is 15.3%. The taxpayer is burdened with both the employer and the employee portion of Social Security and Medicare taxes.[39] For self-employed US persons abroad, rules of deductibility for US persons abroad as a non-resident alien apply.[40]

Social Security tax and Medicare tax are under the Federal Insurance Contribution Act (FICA) which comes in two patterns. One is FICA taxes based on wages related to the performance of services in the US, and the other is wages paid to a US person or resident for a US entity or a foreign affiliate of a US employer. For FICA purposes, if a foreign affiliate of a US employer/entity chooses to cover the Social Security tax for all US persons and resident employees related to a corporation, the company must file under IRC Sect. 3121(1).[41]

In the most recent Congressional Report in 2021, the Social Security Administration announced that the wage base for computing Social Security tax has increased to $142,800. In addition, beneficiaries of Social Security and Supplemental Security Income received a 1.3% cost of living adjustment for 2021.[42]

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[38] IRS *Social Security Tax Consequences of Working Abroad,* https://www.irs.gov/individuals/international-taxpayers/ (last accessed on 31 May 2021).

[39] Social Security tax in the US is a form of payroll tax imposed on both the employers and the employees. Social Security taxation is based on the Federal Insurance Contribution Act (FICA). FICA imposes two taxes on employers, employees, and self-employed workers. One is for Old Age, Survivors and Disability Insurance and the other is "Medicare Tax.".

[40] An irony of deductibility can be observed by an example: X has a part-time job because of the need to look after her two young children. X's total income is below the state poverty level for a parent and two children. Consequently, X receives the rent benefit, which is worth $150. X has just been asked to work one more day a week, which will earn her $50 more. However, X notes that this extra $50 will take her earnings over the state poverty level. She will therefore lose the state rent benefit and will not receive the full $50 because of income tax and contribution liability. At present rates, X will receive only $33 of the $50. The extra day's work will therefore leave X $117 a week worse off. X refuses to work the extra day. X is caught in the poverty trap. https://www.ssa.gov/pubs/EN-17-008.pdf.

[41] For FICA Tax, *See* FTC 2d/FIN ¶ H-4545.

[42] IRC Sec. 3101(b)(2).

Self-employer tax is imposed on a self-employed US citizen's net earnings from self-employment, regardless of where the services are performed. For 2021, the self-employment tax imposed on a single filer for the self-employed is:

12.4% OASDI on the first $142,800 of self-employment income.
+2.9% Medicare tax on the first $200,000 of self-employment income.[43]
+3.8% (2.90% regular Medicare tax +0.9% additional Medicare tax) on.
all self-employment income in excess of $200,000[44]

Exceptions to "wages" or "net earnings from self-employment" apply to employees of foreign governments and international organizations, non-resident aliens temporarily present in the US under student or trainee visas, and those covered under a foreign system under a totalization agreement.

Definition of an individual working for an American employer includes (1) the US government or any of its instrumentalities, (2) an individual who is a resident of the US, (3) a partnership of which at least two-thirds of the partners are US residents, (4) a trust of which all the trustees are US residents, and (5) a corporation organized under the laws of the US[45] Employees who fall under these categories are subject to US Social Security and Medicare taxes even if they are working outside of the US.[46]

If an individual is employed "in connection with" an American vessel or aircraft and either: (1) entered into the employment contract within the US, or (2) the vessel or aircraft lands at a US port while employed on it. In these cases, American employers must extend Social Security coverage to US persons abroad for foreign affiliates under "Contract Coverage Under Title II of the Social Security Act."[47]

Contract Coverage is an important concept because it relates to Social Security benefit eligibility requirements for a US person abroad at the time of receiving Social Security benefits. The Social Security benefit is to be based on the number of quarters worked in the US and having paid the Social Security Tax.

Certificate of Coverage and Social Security Taxes

The "Certificate of coverage" section explains whether an individual's social security tax is exempt in another country. A certificate of coverage issued by one country serves as proof of exemption from Social Security taxes on the same earnings in the other country.[48] In order to be qualified, a US person in Japan has to apply for social security benefits. If the person has Social Security credits in both the US and Japan, but not enough to be eligible for benefits in one country or the other, the agreement

[43] IRC Sec. 1401(a), Sec. 1401(b).

[44] IRC Sec. 1401(b)(2).

[45] A corporation organized under the laws of the US, any US state, or the District of Columbia, Puerto Rico, the Virgin Islands, Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands refer to Revenue Ruling 80–167.

[46] IRS Form 2032, Contract Coverage Under Title II of the Social Security Act.

[47] *Id*.

[48] Social Security Administration, *Totalization with Japan*, SSA Publication No. 05–10,165, August 2005.

makes it easier for a US person in Japan to qualify for benefits by letting the person add Social Security credits in both countries under the "Monthly Benefits" clause.

Employer and employee contributions are treated differently by the US tax code. Employer contributions are not taxed as income to the employee, avoiding personal income and Social Security payroll taxation when the contributions are made. Employee contributions are generally taxable under the personal income tax and the Social Security payroll tax. Employee contributions to salary reduction plans are an exception.

Example in US-UK Totalization

An example of a US person working in the UK will use the "certificate of coverage" rule. Since there is the US-UK totalization agreement, a US person would have to pay social insurance taxes to the UK and not to the US. The time spent working in the UK and paying into the UK social security program will be used in calculating the individual's US Social Security eligibility.

There is an additional element to the Social Security coverage and taxation. The amended US-UK tax treaty in 1997 provides for exclusive residence-country taxation of social security benefits. This treatment differs from the US model, which allows source country taxation of social security benefits.

3.2 US-Japan Totalization Agreements

Example of Bilateral Social Security Totalization Agreement.[49]

An agreement, effective 1 October 2005, between the US and Japan improves Social Security protection for people who work in both countries. It helps many people who, without the agreement, would not be eligible for monthly retirement, disability or survivors benefits under the Social Security system of one or both countries. It also helps people who would otherwise have to pay Social Security taxes subject to double taxation on the same benefit earnings.

Payment of social security tax is different depending on whether the country has a "totalization" agreement. For example, the Totalization Agreement[50] Social Security Agreements between the US-Japan allows US persons abroad to benefit from Japan's social insurance system equivalent to the US Social Security benefit. A US person will pay Japan's social insurance tax and avoid the US Social Security tax, thus reducing double taxation. In countries with which the US has no such agreement, US persons abroad would be required to pay Social Security taxes in both the US and the country of residence.

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[49] Social Security Administration, *International Agreements*, https://www.ssa.gov/international/agreements_overview.html (last accessed on 31 May 2021).

[50] National Institute for Population and Social Security Research. http://www.ipss.go.jp/site-ad/index_english/publication-e.html (*Jp.*). http://www.ipss.go.jp/s-info/e/pssj/pssj2019.pdf (last accessed on 31 May 2021).

The US-Japan totalization agreement has parallel provisions with each country's social insurance laws, and thus will prevent double coverage. Pursuant to the Coverage and Social Security Taxes section in the agreement, a US person would only have to pay Social Security in the host country.[51]

Social Security Benefits Eligibility

Depending on where a US person has status as a foreign resident, and depending on the bilateral agreement between the US and the foreign country, Social Security benefit eligibility may differ. If a US person has paid Social Security to both countries but "has not accumulated enough coverage to qualify for benefits," the US person may "still qualify for benefits from both countries."[52] If an individual is working in one of the countries with which the US has entered into a bilateral Social Security agreement, the US person's foreign employment is subject to US social security and Medicare taxes.[53]

Suppose Jones is working for an American company in Japan, she only has to pay US Social Security tax, but does not have to pay into the Japanese social insurance program. However, if Jones is assigned to work for five years or less in Japan, Jones will continue to be covered and will be exempt from coverage in Japan.[54]

Pre-tax Average Monthly Salary During Coverage Periods.

$$\begin{array}{l} \text{Lump} - \text{sum Withdrawal Payment } 2,141,100 \text{ yen} \\ \underline{\text{Withholding Income Tax } 437,213 \text{ yen}} \\ \text{Total Payment } 1,703,887 \text{ yen} \end{array}$$

The withholding tax applies only to "employee pensions," so total payout after claiming a tax refund will result in 2,094,045 yen.

Social security schemes in Japan adopt the social insurance system. Five social insurance schemes include public pension, health insurance, long-term insurance, employment insurance, and work-related accident insurance.[55] One of the characteristics of the Japanese Social Security plans is the universal coverage in public pension

[51] Japan Pension Service, https://www.nenkin.go.jp/international/agreement/noteseach/notesus.html (last accessed on 31 May 2021).

[52] 42 USC. § 433, 20 C.F.R. § 404.1918.

[53] Form 2032, Contract Coverage Under Title II of the Social Security Act is used by the US employers to extend social security coverage to US citizens and residents working abroad for foreign affiliates of the American employers.

[54] Duration of the coverage is a major indicator in taxation. From 2021, the lump-sum withdrawal payment has changed to five years of coverage.

[55] Article 1 of the US-Japan Social Security Agreement reflects the five pension systems in Japan: (i) the National Pension; (ii) the Employees' Pension Insurance, (iii) the Mutual Aid Pension for National Public Officials; (iv) the Mutual Aid Pension for Local Public Officials and Personnel of Similar Status (except the pension system for members of local assemblies); and (v) the Mutual Aid Pension for Private School Personnel. *Agreement Between Japan and the United States of America on Social Security*, https://www.mofa.go.jp/region/n-america/us/agree0402.pdf (last accessed on 31 May 2021).

and health insurance.[56] Pursuant to the statuary program, public pension and health insurance schemes are mandatory.[57]

For the US, the agreement covers Social Security taxes including the US Medicare portion and Social Security retirement, disability and survivors insurance benefits. The agreement does not cover benefits under the US Medicare program or the "Supplemental Security Income Program."

For Japan, the agreement covers Social Security taxes which include the Japanese health insurance and Social Security retirement, disability and survivor's benefits. Japanese Social Security taxes do not cover the National Pension Fund and the voluntary-based corporate pension funds under Employees' Pension Fund. The pension system for members of local assemblies, a supplemental pension system for local government workers, is not covered by the agreement. The agreement does not apply to the Old-Age Welfare Pension or other Japanese non-contributory plans.

3.3 Social Security Benefits as Income Taxation

For US persons abroad, identifying tax residency has to be established for Social Security payment and receipt. For a dual resident, a single country of residence has to be established in order to avoid dual coverage.[58] A US person has to determine eligibility for benefits under Article 4 of an International Social Security Treaty that the country has agreement with the US. Also, under the US Internal Revenue Code Sect. 7701(b), an individual's tax residency has to be identified.[59]

Therefore, if a US person is determined to be a resident of one of the countries to the treaty, then the benefits provided under the relevant treaty article dealing with pensions, annuities, government service, or social security payments will be used.

If a US person elects to be a dual resident, then the US person may determine a single country of residence where an individual is a "permanent resident" in a foreign country or have "effectively connected" personal and economic relations in the foreign country.

Eligibility and Social Security Benefits for US Persons Abroad

If a US person claims Social Security benefits before reaching full retirement age, benefits are permanently reduced, but they are collected over a longer period. If claiming is deferred until after full retirement age, monthly benefit amounts are permanently increased, but they are collected over a shorter period. The earliest

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[56] National Institute of Population and Social Security Research, *Population and Social Security in Japan 2019*, Chap. 2, p. 19, https://ipss.go.jp (last accessed on 31 May 2021).

[57] Schemes of Social Security, *See* Appendix.

[58] Social Security Administration, https://www.ssa.gov/international/Agreement_Pamphlets/documents/Japan.pdf (last accessed on 31 May 2021).

[59] IRS Publication 519 includes US Tax Guide for Aliens, for the Green Card Test, and Substantial Presence Test.

possible age to claim retirement benefits is 62. The increase for deferred claiming stops accruing at age 70. Social Security benefits continue as long as a person lives and are inflation-protected through an annual cost-of-living adjustment. An adequate stream of inflation-protected income can guard against poverty in old age.[60]

For a US person abroad to be eligible for retirement benefits, the individual must have at least 40 quarters of coverage to qualify for old-age pension benefits, with certain exceptions and special rules under totalization agreements for those who have at least six quarters of coverage and at least 40 quarters when considering coverage under the US system and those of totalization agreement countries. Benefits are payable at age 66, which will rise to age 67 by 2027. A reduced pension can be paid from age 62 and the pension may be deferred to no later than age 70.[61]

Pensions are payable abroad to non-citizens under totalization agreements and to those residing in other specified countries. Survivor benefits may be payable provided that the deceased was a pensioner or had a quarter of coverage for each year from age 21 up to the year before the year of death. Eligible survivors include widows, orphans younger than age 18, aged 18 to 19 if attending elementary or secondary school full time, no limit if disabled before age 22, and dependent parents aged 62 or older provided that they were at least 50% dependent on the deceased.[62]

If a US person abroad worked less than 40 quarters under Social Security in the US, but also contributed to an equivalent benefit program in another country, they may be able to obtain Social Security retirement benefits. Income thresholds are one element which a US person has to know about, to understand whether the person is subject to taxation on Social Security benefits. Two separate income thresholds depending on the filing status determine the percentage of taxable Social Security benefits. Two bracket percentages are either 50% or 85% of Social Security income (Table 4).

Base amount of benefits that will be taxed if the income plus half the benefits exceeds these adjusted base amounts:

$34,000 if single, head of household or qualifying widow(er).
$34,000 if married, filing separate, and lived apart from spouse for entire year.
$44,000 if married, filing jointly.
$44,000 if married, filing separately and lived with spouse at any time.

The base amount will either be subject to 50% or 85% of the Social Security benefit income. The amount of Social Security benefits that are taxable depend on the income plus half of benefits exceeding base amounts.

Tax subject to 50% of benefit applies to a US person whose income is.

(1) between $25,000 and $34,000, an individual has to pay income tax on up to 50% of benefits,
(2) more than $34,000, up to 85% of benefits may be taxable.

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[60] OECD *Pensions at a Glance 2019: Country Profiles, United States, 2019.*

[61] *Id*.

[62] *Id.*

Table 4 Taxable social security income

Taxable social security income		
Filing status	Provisional income	Amount of social security subject to tax
Single, head of household, qualifying widower, and married filing separately	Below $25,000	All Social Security income is tax free
	$25,000 to $34, 000	Up to 50% of Social Security income may be taxable
	More than $34,000	Up to 85% of Social Security income may be taxable
Married Filing Jointly	Below $32,000	All Social Security income is tax free
	$32,000 to $44,000	Up to 50% of Social Security income may be taxable
	More than $44,000	Up to 85% of Social Security income may be taxable

Provisional Income = Modified Adjusted Gross Income +½ of Social Security Benefits + Tax Exempt Interest Income

In cases of combined joint income, if the individual and the spouse have a combined income[63] that is between $32,000 and $44,000, income tax results at 50% of the benefits. In cases of more than $44,000, up to 85% of benefits may be taxable.

Calculation of taxable Social Security benefits for married and filing separate tax returns:

$$\begin{array}{l}\text{Adjusted gross income}\\ +\text{Nontaxable interest}\\ \underline{+50\%\text{ of Social Security benefits}}\\ =\text{Combined Income}\end{array}$$

The amount that is included in income is the lesser of one-half of the benefits or one-half of the excess of the pensioner's income over a base amount equal to $25,000 for a single filer, and $34,000 for a married couple.[64]

Pensions with income that exceeds the adjusted base amount must include in income the lesser of the sum of 85% of the excess included over the adjusted base amount plus the lesser of the amount that would otherwise be includable if the 85%

[63] Social Security Administration, https://www.ssa.gov/policy/docs/quickfacts/ (last accessed on 31 May 2021).

[64] Form SSA-1099 or SSA-1042S for the previous tax year has to be submitted.
https://www.ssa.gov/benefits/retirement/planner/taxwithold.html
https://www.ssa.gov/benefits/retirement/planner/taxes.html

rule did not apply or $4,500 for a single person and $6,000 for married couple, or 85% social security benefits.

Public pensions are exempt from US state income tax. The state income tax exemption applies to a US person abroad. There are differences in personal income tax structures between states. The state of Michigan provides a tax free allowance of $2,100 for people over 65. If an individual receives both public and private pensions, the amount of income from the public pension is used to offset the $40,920 exemption amount.[65] For instance, all income from a pension is exempt from the Detroit income tax.

3.4 US Persons Abroad and Social Security Windfall Elimination Provision

For US persons abroad, the Windfall Elimination Provision (WEP) is an essential formula that will affect the net Social Security benefit. When a US person receives a foreign pension, the WEP will reduce the amount of an individual's Social Security retirement benefit if the individual received pension funds from employment which did not pay social security taxes.

The WEP affects a US person who earned a pension from a foreign government and who is also eligible for US Social Security benefits. In the case of a US citizen who worked abroad for a foreign employer but also contributed to US Social Security, without the WEP, the employee would receive benefits from both foreign social security and the US social security plans.[66] The net effect of the WEP is to reduce the Social Security payments that an individual is entitled to.[67]

The Congressional Research Service on 4 February 2021 updated the WEP which will affect 1.9 million people.[68] A group of US persons who will be affected include US government employees covered by "alternative staff-retirement systems "as well as US persons abroad who participated in a "non-covered pension" which means that the person did not pay social security taxes. The WEP applies to employees who are entitled to Social Security benefits as well as to pension benefits from employment not covered by Social Security. The intent of the WEP formula is to remove an unintended advantage for workers who collect non-covered pensions from government employment but also did some "covered" work in jobs that paid into Social Security. A "non-covered" pension might have been earned by, for example,

[65] "Very tax friendly" means states that either have no state income tax, no tax on retirement income, or a significant tax deduction on retirement income. The State of Alaska, Florida, Georgia, Mississippi, Nevada, South Dakota, and Wyoming are in the category. https://smartasset.com/retirement (last accessed on 31 May 2021).

[66] US Social Security Administration, https://www.ssa.gov/planners/retire/anyPiaWepjs04.html (last accessed on 31 May 2021).

[67] *Id*.

[68] The Congressional Research Services, *Social Security: The Windfall Elimination*, 2021. https://crsreport.congress.gov (last accessed on 31 May 2021).

Table 5 PIA calculator based on AIME

Factor (%)	Average Indexed Monthly Earnings (AIME)
90	Of first $996 reduced
32	Of AIME over $996–$6,002
15	Of AIME over $6,002

work for a state or local government agency that does not participate in the Federal Insurance Contributions Act (FICA) payroll. If a person has not participated in the FICA and collects Social Security benefits, the WEP could reduce the Social Security benefit.[69]

The WEP eliminates the advantage of the non-covered benefit such as Social Security benefit from a foreign country, and reduces the Social Security retirement benefits from the US.[70] The WEP's effect is proportional. The more years "substantial earnings" from Social Security covered work, the less the provision cuts into benefits.[71]

Primary Insurance Amount (PIA) is the starting point of benefits for all welfare governed by the Social Security Administration. The PIA is a monthly benefit a US person is entitled to at full retirement age.[72] Since the Social Security pension amount is the amount at the time of receiving the benefit, the more money an individual contributes through Social Security taxes, the higher the PIA.

The PIA will then affect the Average Indexed Monthly Earnings (AIME). The PIA applies to a career-average earning by totalizing up to 35 years of covered earnings divided by 35.[73] The employee's initial benefit amount is computed based on the AIME entered into the Social Security benefit formula.

The formula is progressive, replacing a share of career-average earnings for low-paid workers than for high-paid workers. In the AIME benefit formula, three brackets are applied: 90%, 32%, and 15%.[74] (Table 5)

[69] Congressional Research Service, February 2020 Report. About 1.9 million people, or 3% of Social Security beneficiaries, are affected by the provision. From each paycheck, 6.2% gross wage goes to Social Security tax, 1.45% goes to Medicare tax. Each employer matches the percentages for a total of 15.3%.

[70] Social Security Act 42 USC., Sect. 215(a)(7) and (d)(3), Sect. 415 (a) (7) and (d)(3), 20 C.F.R. Section 404, 213, and 404.

[71] "Substantial Earnings" is a term that describes the minimum qualified earnings for a particular past year, for the Windfall Elimination Provision computation.

[72] If an individual is to receive benefits from age 70, "Delayed Retirement Credits" applies. If retirement benefits start after the full retirement age at 66 and 6 months, the benefit increases 8% for each year before age 70. If the benefits begin at age 70, the individual will receive credit for the 42 additional months and the monthly benefit will be 28% higher.

[73] Congressional Research Service, *Social Security: The Windfall Elimination*, (2021). https://crsreport.congress.gov (last accessed on 31 May 2021).

[74] Social Security Administration, Office of the Chief Actuary, *Benefit Formula Ben Points*, https://www.ssa.gov/oact/cola/bendpoints.html (last accessed on 31 May 2021).

Table 6 Social security benefit formula comparison between a regular and WEP formula based on average indexed monthly earnings

Regular formula		WEP formula	
90% of first $996	$896	40% of first $996	$398
32% over $996–$6,002	161	32% over $926–$6,002	161
15% over $6,002	0	15% over $6,002	0
Total	$1,057	Total	$559

Table 7 WEP Calculation of AIME and PIA Based on Cost-of-living Adjustments

AIME	Multiplier (%)	Standard PIA	WEP PIA less than 20 Years of coverage	WEP PIA 25 years of coverage	WEP impact on PIA based on more than 30 years of coverage
Up to $996	90	996	40% first $996	65% first $996	90% of $996
$996-$6,002	32	1,396	1,396	1,396	1,396
Over $6,002	15	0	0	0	0

The WEP reduces the PIA by gradually lowering the 90% factor applied to the first AIME tier in the calculation.[75]

Hypothetical Scenario: PIA for an employee with AIME of $1,500 who becomes eligible in 2021 and has 20 years of "substantial earning coverage" can be computed based on either a regular formula or WEP formula.[76]

In a regular AIME, the 90% bracket would apply; however, if a person has participated in a foreign social security plan which is deemed "not covered," the 90% will reduce to 40%.[77] (Table 6)

Subsequent to the amount of AIME, the PIA is adjusted according to the cost-of-living adjustments (COLA).[78] The PIA is the sum of three amounts from the 90, 32, and 15% brackets. The simulation shows differences between the regular and the WEP formula resulting in the lower $498 under the WEP. The regular benefit formula which is $1,057–559 = $498. The WEP reduction is limited to the first bracket in the AIME formula of 90% or 40%, while the 32 and 15% factors for the second and third brackets are unchanged (Table 7).

Suppose a US person worked for Japanese employers for some years and worked for a US employer for 20 years. The WEP is based on years of coverage. For a US person whose years of Social Security coverage were less than 20, and who becomes

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[75] Congressional Research Service, Social Security: The Windfall Elimination Provision (WEP), 4 February 2021, https://fas.org/sgp/crs/misc/98-35.pdf (last accessed on 31 May 2021).

[76] *Id.*

[77] 42 US Code § 415, Computation of primary insurance amount.

[78] *See*, Table 3.

eligible for benefits in 2020, the WEP reduces the first replacement factor from 90 to 40%. This will result in Social Security benefit reduction of $480:

$$(\$996 \times 90\%) - (\$996 \times 40\%) = \$498$$

The WEP does not apply to workers who have 30 or more years of employment covered under Social Security.[79] Thus, for US persons abroad who have less than 20 years of Social Security coverage, receipt of the Social Security amount will be reduced compared to a US person who has been "covered."

Class Action WEP Litigation Case

The net effect of the WEP is to reduce Social Security payments that an individual is entitled to. Such total reduction in the WEP has been legally challenged in *Greenberg vs. Colven*—the "Greenberg Settlement" which is known as a landmark case in the WEP. The Greenberg case was a class action suit and was eventually settled with the US Social Security Administration. The plaintiffs were individuals receiving pensions from the National Institute of Israel (NII).

The United States District Court for the District of Columbia approved a nationwide class action settlement agreement in *Greenberg vs. Colvin* on 8 April 2015. As a result of the Greenberg settlement, the US Social Security Administration will no longer apply the WEP to receipt of a pension from the National Institute of Israel.[80]

Four issues raised by the plaintiff were: (1) NII Old Age Benefits are based on prior employment earnings; (2) the Social Security Agency's (SSA) policy of applying the WEP to reduce claimants' OASDI Benefits payments based on their receipt of NII Old Age Benefits is unlawful; (3) the members of the proposed Class are entitled to an injunction prohibiting the SSA from continuing this policy; and (4) the members of the proposed Class are entitled to an injunction ordering the SSA to recalculate their past OASDI Benefits payments and to pay those amounts. Accordingly, the Court finds that the commonality requirement is met.[81]

For class members whose Social Security benefits were reduced due to the application of the WEP to the pension from the NII, the SSA ultimately made payments to each eligible Class Member: (1) the full amount of all reductions that the SSA made to the Class Member's benefit payment(s) since 3 September 2004, (2) refund the full amount of any collections, and (3) the attorneys' fees.[82]

The Greenberg settlement showed that a class action is one way to adjudicate the WEP reduction claim. The central issue was whether the SSA was not correct in applying the WEP to beneficiaries who also receive NII Old Age benefits. The SSA admitted the error and settled by paying any SSA benefits owed. Because the class

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[79] Thun Financial, *Social Security for American Expats and Retirement Abroad.* https://thunfinancial.com/PDF/2018-Social-Security-for-American-Expats-and-Retirement-Abroad.pdf, (2018) (last accessed on 31 May 2021).

[80] Fed. R. Civ. P. 23(c)(1)(C).

[81] *Greenberg vs. Colvin*, Civil Action No. 13–1837.

[82] Social Security Administration, www.ssa.gov/greenberg (last accessed on 31 May 2021).

is certified only for settlement, the Court "need not inquire whether the case, if tried, would present intractable management problems."[83]

The Greenberg case opened ways for class action settlements for US persons with the National Institute of Israel (NII) or *Bituach Leumi*.[84] The Greenberg case can also provide reasoning that can be learned and applied to US persons abroad who are subject to WEP reductions due to receiving foreign Social Security benefits.

4 Private Pension Taxation and Income Tax Treaty

4.1 Portability and Private Pension Tax Gap

Social Security Totalization Agreements between countries govern public government retirement plans, whereas private pension taxation is governed by a bilateral Income Tax Treaty between two countries.

Double taxation is a major risk elements for individuals with cross-border private pension plans. For Social Security, under the Social Security Totalization Agreements between the US and UK, or the US and Japan, a US person pays Social Security Tax in only one country. For private pension schemes, transfers or rollovers, income tax treaties between two countries governs pension-related income and taxation.

The US has income tax treaties with 67 countries as of 2021.[85] One of the main purposes of the income tax treaty is to protect taxpayers from double taxation. "Foreign aliens" are exempt from US income tax or are taxed based on US source income. Such exemption is the reflection of a "saving clause," which means if a tax treaty does not address a specific type of income, then no tax exemption or reduction can be applied to that income.

Although the existence of the bilateral income treaties can avoid double taxation on a foreign pension plan, not many foreign pensions are recognized as qualified. The only foreign pension plan that is recognized as qualified is the UK pension plan.

For US persons abroad, cross-border private pension schemes and taxation issues emerge when an individual leaves a defined benefit plan in one country. Cross-border includes portability of occupational and personal pension schemes. Portability issues related to DB schemes bear risks since DB is generally linked to the individual's final salary. Such reasoning applies to DC schemes as individual savings plans.

A foreign pension or annuity distribution is a payment from a pension plan or retirement annuity received from a source outside the US. Foreign pension includes receiving trust established by a foreign employer, foreign government or agencies including a foreign social security pension, foreign insurance company, or foreign trust or other foreign entity designated to pay the annuity.

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[83] Amchem Prods., Inc. vs. Windsor, 521 US 591 (1997), 117 S. Ct. 2231.

[84] Casetext, https://casetext.com/case/greenberg-v-colvin (last accessed on 31 May 2021).

[85] IRS, United States Income Tax Treaties, https://www.irs.gov/businesses/international-businesses/united-states-income-tax-treaties-a-to-z (last accessed on 31 May 2021).

Foreign pension plans commonly encountered by Americans abroad include: the Swiss Pillar Pension System, Canadian RRSPs, Hong Kong Mandatory Provident Fund and Occupational Retirement Schemes Ordinance Singapore Central Provident Fund, Australian Superannuation, French *Caisses de Retraites,* and UK Employer Sponsored Pension Schemes and SIPP.[86]

None of these foreign pension schemes are recognized as a "qualified pension" in the US. They are not eligible for tax deduction or exclusion. The taxable amount is the distribution minus the cost in investment.

$$\text{Taxable Amount} = \text{Gross Distribution} - \text{Cost in Investment}$$

Income received from foreign pensions or annuities will be taxable even if a US person does not receive Form 1099, a form for reporting the amount of the income.

Treaty Benefits for Private Pension Contributions

Most foreign pensions do not have tax favored status. For example, the US does not have tax treaties covering pension contributions in Hong Kong or Singapore. Absent such a comprehensive tax treaty, a US person participating in a foreign pension plan cannot deduct contributions from their US gross income.

However, there are few US treaties which provide benefits for cross-border pension contributions. Benefits may allow a US citizen who is a resident in a foreign country to obtain tax advantages in the foreign country for contributions made to a US pension plan. A US person should refer to the specific treaty to scrutinize what benefits are available.[87]

4.2 *Cross-Border Private Pension Transfer and Income Tax Treaty*

US-UK Income Tax Treaty—Treaty Benefits and the "Saving Clause"

The US-UK have a certain degree of reciprocity for private pension portability between the US and the UK through an Income Tax Treaty, but it is not yet common among different countries to apply portable cross-border pension schemes. Searching for an ideal cross-border pension portability model might be a formidable project. Nonetheless, examining the three procedures in pension taxation can be a good foundation for searching for a cross-border pension transfer model.[88] Three procedures

[86] Thun Financial, *The Foreign Pension Plan Dilemma for American Expats*, https://thunfinancial.com/home/american-expat-financial-advice-research-articles/the-foreign-pension-plan-dilemma-for-american-expats/ (last accessed on 30 May 2021).

[87] IRS, Publication 54, 515, 519.

[88] Robert Holzmann & John Piggot, *The Taxation of Pensions*, CESifo Seminar Series with MIT Press, (2018), Robert Holzmann & Jacques Wels, "The Cross-Border Portability of Social Security Benefits: Status and Progress?" *International Social Security Research*, 73, (2020), pp. 65–97.

include contribution, investment, and distribution stages. Based on three procedures, tax consequences can be predicted when variables related to rollovers or transfers from one country to another are made.

If a US citizen is hired by a UK corporation, the individual is covered by a UK funded pension plan. Under US domestic tax law, that individual is taxed on the annual contributions or accruals in that pension plan to the extent vested. The US and the UK have an income tax treaty that protects the US taxpayers from US taxation on pension or retirement contributions or accruals. However, it is ironic that the bilateral income tax treaties and US worldwide income taxation are not mutually applicable.

The bilateral income tax treaty between the US and the UK includes a specified statement related to pensions and Social Security. The US-UK Income Tax Treaty Article 17 titled "Pensions, Social Security, Annuities, Alimony, and Child Support" deals with the taxation of private pensions, but not government pensions.

Taxation of pensions "derived and beneficially owned by a resident of either country is taxable only in the recipient's country of residence." The treaty also requires "each country not to tax the portion of pension income received from pension schemes in another country to the extent such income would have been exempt if the beneficiary were a resident of the other country."

Due to the US worldwide income principle, the IRC only recognizes US pension plans as US tax qualified. Income from a foreign pension plan for an individual may have US taxable income attributable to participation in the foreign pension plan. One of the risks is at rollovers or transfer of private pension plans in the form of a lump sum. A lump-sum transfer from a UK private pension income to the US will be subject to taxation.

4.3 Establishing a Feasible Private Pension Portability Model

Most income tax treaties exclude taxation of pensions or annuities under the domestic law of the resident country determined by the residence article. For example, some treaties provide that the country of residence may not tax amounts that would not have been taxable by the other country if a US person were a resident of that country. However, in cases of lump-sum distributions, the person will be subject to taxation.

The US-UK Tax Treaty as Exception

Despite seemingly incompatible taxation models on private pensions, the US-UK income tax treaty is one of the few treaties which allow foreign pension plans to be treated as deductions or exemptions. Unlike many tax treaties the US has with foreign countries, the US-UK treaty addresses pensions comprehensively, with rules related to contributions, earnings, and distributions.[89] Article 17 and Article 18 in

[89] IRS, *US-UK Tax Treaty Documents*, https://www.treasury.gov/resource-center/tax-policy/treaties/Documents/uktreaty.pdf (last accessed on 31 May 2021).

the US-UK income tax treaty relate to pension schemes, contributions, earnings, and distributions. The treaty provides that a US person in the UK may exclude or deduct for US tax purposes contributions to a pension scheme established in the UK that would not have been taxable in the US in computing the employee's taxable income, provided such contributions are made during the period a US citizen exercises employment in the UK and expenses related to such employment are borne by a UK employer or UK permanent establishment. Employer contributions to and benefits accrued in the UK pension scheme are not treated as taxable income in the US.[90]

The US-UK Income Tax Treaty Article 18 (5) states.

> …. Where an individual who is a resident of a Contracting State is a member or beneficiary of, or participant in, a pension scheme established in the other Contracting State, income earned by the pension scheme may be taxed as income of that individual only when, and, subject to paragraphs 1 and 2 of Article 17 (Pensions, Social Security, Annuities, Alimony, and Child Support) of this Convention, to the extent that, it is paid to, or for the benefit of, that individual from the pension scheme and not transferred to another pension scheme.[91]

The explanation implies that a taxpayer's country of residence may not tax the earnings and accretions of a pension plan established in the other country until those amounts are distributed to the taxpayer. If a US person is working in the UK and contributing to a UK pension, the person could receive a tax deduction in the US for the contribution to the UK plan. This deduction is only available while the US taxpayer resides in the UK.[92] The deduction applies only to the extent the contributions or benefits qualify for tax relief under the UK tax rule. The amount may not exceed the relief that is allowed in the US under IRS regulations.

Thus, under Article 18(1), the UK may not tax the earnings of a US pension plan with respect to an individual who is a resident of the UK until such amounts are distributed to that individual by a pension scheme established in the UK.

For example, if a US person resides in the UK and does not exceed the tax relief under IRC Sect. 402(g), the US person can contribute, on a pretax basis 401(k), if the individual was enrolled in the US plan prior to entry into the UK. At the same time, employer contributions to the employee's pension do not constitute compensation and are deemed a business expense in computing the employer's profit and loss.[93]

Foreign Employer Contributions: Foreign employer contributions would not be included in the US person's gross income. This applies to contributions made either: (1) before 1963 by the individual's employer for that work, (2) after 1962 by the employer for that work or (3) after 1996 by the employer if the individual were a foreign missionary or licensed minister of a church or a lay person.[94]

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[90] Joint Committee on Taxation, Explanation of Proposed Income Tax Treaty Between the United States and the United Kingdom, 108th Congress (2003).

[91] US-UK Income Tax Treaty, Art. 18 (5).

[92] US Department of Treasury, https://www.treasury.gov/resource-center/tax-policy/treaties/Documents/uktreaty.pdf (last accessed on 1 June 2021).

[93] *Id.* at 94, art. 18, 2 (b).

[94] IRS https://www.irs.gov/businesses/the-taxation-of-foreign-pension-and-annuity-distributions (last accessed on 1 June 2021).

Treaty Benefits for Pensions/Annuities

The income tax treaty between two countries specifies the treaty's definitions of pensions, public pensions, and pensions paid in connection with government service.

If a US person resides in a foreign country and receives a pension/annuity paid by a US payor, the individual can claim an exemption from withholding of US Federal Income Tax under a tax treaty by completing a Certificate of Foreign Status.[95]

If a US person is in the US and receives a pension/annuity paid by a foreign payor, the individual would have to file a withholding exemption as the foreign withholding agent has to honor the treaty claim.

A Foreign Tax Credit can be applied to the US federal individual income tax return for any foreign income tax withheld from the foreign pension or annuity.[96] However, a Foreign Tax Credit would not be permitted for tax withheld that is in excess of the liability under foreign law.

Deduction at the time of contribution is also mentioned in Article 18 of the US-UK Income Tax Treaty. If a US person participates in a UK pension plan and makes contributions to the UK plan during the period of employment in the UK, such contributions are deductible when filing US federal income tax.

At the same time, payments made to the plan by the employer during such period are *not* treated as part of taxable income and are allowed as a deduction in computing the employer's profits in the other country. These rules apply when (1) contributions were made by the individual, or by the individual's employer to the plan before self-employment in the other country, and (2) the competent authority of the other country has agreed to a pension plan recognized for tax purposes by that country.[97]

Article 18 is partly reflection of the US pension schemes eligible for tax deduction. In the IRC, "qualified plans under Sect. 401(a)," individual retirement accounts, individual retirement annuities, Sect. 408(p) accounts and Roth IRAs, Sect. 403(a) qualified annuity plans, and Sect. 403(b) plans are qualified for eligible deduction.

Distributions

The treaty provides that "neither country may tax residents on pension income earned through a pension scheme in the other country until such income is distributed." For purposes of this provision, rollovers to other pension plans are not treated as distributions. When a resident receives a distribution from a pension plan, such distribution is generally subject to residency country taxation.[98]

The Chief Counsel Advice Memorandum by the IRS, reiterated that "a transfer of earnings and accretions from one pension scheme of another pension scheme will not be treated as a distribution."[99] In order for a distribution to be qualified as a tax

[95] Form W-8BEN, Certificate of Foreign Status of Beneficial Owner for United States Tax Withholding and Reporting.

[96] American Association of Retired Persons, *Tax calculator,* https://www.aarp.org/money/taxes/1040_tax_calculator.html (last accessed on 1 June 2021).

[97] *Supra* at 93.

[98] US Model Tax Treaty, Art. 17.

[99] Office of Chief Counsel Internal Revenue Service Memorandum Number: AM2008-009.

deferred rollover, “a transfer would have to satisfy the rollover requirements under the domestic laws of both the transferor pension scheme and the transferee pension scheme.”

Pension distributions in reference to Article 17 of the UK-US Income Tax Treaty provide: “pensions and other similar remuneration beneficially owned by a resident of a Contracting State shall be taxable only in that State.” Article 17 also mentions tax exemption stating, “remuneration paid from a pension scheme established in the other Contracting State that would be exempt from taxation in that other State if the beneficial owner were a resident thereof shall be exempt from taxation in the first-mentioned State.”

The UK-US treaty establishes the general rule of the “saving clause.” The clause means the resident beneficiary “has the exclusive right to tax pensions and other similar remuneration.” When the saving clause is applied to a US person who is a resident of the UK and receives a pension payment, the US person will be subject to US tax.[100] If the UK income taxes apply at graduated rates, the rates would differ from the US federal bracket. This will result in double taxation at the distribution stage.[101]

Lump-Sum Payment or Rollover at Pension Benefit Distribution Stage

The US-UK Income Tax Treaty Article 18 focuses on the pension benefit at the contribution stage and tax deduction at the distribution stage of payment. The term “pension scheme” in the UK-US Income Tax Treaty does not include “lump-sum payments” related to “pensions and other similar remuneration.” The treaty provides specific rules to deal with lump sum payments.

> Notwithstanding the general rule preventing source country taxation of pension schemes, any lump sum payment derived by a resident of one country from a pension scheme established in the other country is subject to tax in the other country.[102]

Thus, a US person who receives a lump-sum payment from a US pension scheme would be subject to withholding tax if resident in the UK at the time of distribution.

On the other hand, the treaty states tax exemption of a “recipient of remuneration from the pension scheme established by resident country, lump-sum payments cases would be subject to taxation. Lump-sum payments are not subject to the general rule of saving clause. Lump-sum payments from a pension plan are taxable in the country where the pension plan is established. The US Treasury’s explanation states, “if the transfer from the US plan to the UK plan was treated as a lump-sum distribution from the US plan to the taxpayer rather than as a tax-free rollover, the distribution would be taxable in the United States.”[103]

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[100] Lydia Vercelli, “Foreign Pension Plans and the US-UK Tax Treaty,” *The Tax Adviser*, 2020.

[101] 2019 Federal Tax Rates Taxable Income Federal Income, Tax Rate Not exceeding $47,630 15.0%, Over $47,630 and not exceeding $95,259 20.5%, Over $95,259 and not exceeding $147,667 26.0%, Over $147,667 and not exceeding $210,371 29.0%, Over $210,371 33.0%.

[102] US-UK Income Tax Treaty, Art. 18.

[103] US-UK Income Tax Treaty, Art. 17, (2).

In an example case in which a US person in the UK made a lump-sum distribution and transferred the funds from a US plan to a UK plan, Article 18(1) does not apply. The transfer counts as a lump-sum distribution and is taxable in the US. The transfer would not satisfy the rollover requirements because the UK pension plan is neither an eligible retirement plan nor a "qualified trust".[104]

The IRC Sect. 402 (b) defines "qualified trust," and eligible rollover distribution related to an annuity contract related to Sect. 403 regulation which is attributable "to payments or distributions from a designated Roth account."

A rollover in a direct transfer from a US pension plan to a UK pension plan cannot be a requirement under Sect. 402.[105] Requirements include being applicable to rollovers from exempt trusts, such as "the distribute transfer of any portion of the property received" to an eligible retirement plan.

Pursuant to Sect. 403, a US person must satisfy the US statutory requirement that the transfer be made to an eligible retirement plan. Without a specific provision in the UK-US treaty that would include a UK pension scheme as an eligible retirement plan under the US statute, the transfer could not meet the eligible retirement plan requirement. A US non-resident can elect to choose a tax-deferred rollover from one US eligible retirement plan to another US eligible retirement plan. Such transfer is not subject to immediate taxation in either the US or the UK.

4.4 Tax Deferred Rollover from UK to US Pension Schemes

Example of Cross-Border Rollover Distribution

Suppose a US person worked in the UK as clergy at a church. The person contributed to qualified pension plans under UK law. In between his employment in the UK, the US person also contributed to a US pension account under IRC Sect. 403 (b) which is a tax-sheltered annuity. If this US person permanently moves back to the US, maintaining UK resident status, the person's rollover from the UK pension scheme to the tax-deferred US retirement plan is impossible.[106]

One reason is Sect. 403(b)(8) only applies to "eligible rollover" under "eligible retirement plan." Sect. 403 (b) further states that in the case of a "distribution of property other than money, the transferred property consists of the property distributed, then the distribution that is transferred will not be included in the employee's gross income for the tax year in which it is paid."[107]

From the UK's regulation, transfers from a UK registered pension scheme to an overseas scheme would only apply to a "recognized transfer" under "a qualifying

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[104] IRC Sect. 402(c)(8)(B).

[105] 26 US Code § 402 - Taxability of beneficiary of employees' trust.

[106] IRC Sect. 403(b).

[107] Office of Chief Counsel Internal Revenue Service Memorandum Number: 201231010, (2012), https://www.irs.gov/pub/irs-wd/1231010.pdf (last accessed on 31 May 2021).

recognized overseas pension scheme."[108] Transfers to an overseas pension scheme that is not recognized are treated as unauthorized payments and are subject to tax charges under the UK Pension Scheme Act 2021.

There are no UK tax restrictions on transfers from an overseas scheme to a UK registered pension scheme. A US person, in this hypothetical case, has to pay US income tax on distributions which are not tax deferred.[109] At the same time, the person has to file a Form 1099-R which is reporting the gross distribution under "Distributions from Pensions, Annuities, Retirement or Profit-Sharing Plans, IRAs, Insurance Contracts," and comply with reporting the gross distribution. A US person who resided in the UK has to comply with IRC Sect. 894 which states the provisions to be applied according to any treaty obligations of the US that apply to the taxpayer.[110]

Portability of private pension schemes between the UK and US can be re-examined by reviewing Article 18 (2) which states that US persons who "continue to contribute to their home country pension plans without having the employer portion of the contribution be considered taxable income in the host country" are tax deductible in the host country. However, for US tax purposes, a UK pension scheme outside of the UK would not be deemed "eligible for rollover distribution" under Sect. 402 (c) (4).[111] At the same time, from the UK's regulation, a US person who contributed to the pension annuity was not "recognized." This example illustrates how cross-border pension schemes are just incommensurable in practice.

4.5 Cases of US Persons in Japan

Tax treatment of pension or retirement income from occupational and personal pension plans are usually taxed separately, not in aggregation with other income. In Japan, similar to US pension income and deductions, there is a pension-related deduction for annuities which applies to private pensions. Once the deduction has been calculated, the remaining income is taxed according to the tax rates ranging from 5 and 45%.

Procedures for calculating the income tax deduction depend on how a US person in Japan pays contributions. "Programmed withdrawals" are usually classified as a kind of private pension income, and lump sums are taxed at the individual's marginal income tax rate.[112] Retirement income upon leaving employment is taxed separately.

The taxation of retirement income is:

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[108] UK Pension Scheme Act (2021), https://www.legislation.gov.uk (last accessed on 1 June 2021).

[109] IRC Sect. 403 (b).

[110] Legal Information Institute, Cornell University, 26 US Code § 894 (last accessed on 31 May 2021).

[111] 26 US Code § 402 - Taxability of beneficiary of employees' trusts, https://www.law.cornell.edu/uscode/text/26/402 (last accessed on 31 May 2021).

[112] OECD, https://www.oecd.org/finance/private-pensions/Financial-Incentives-for-Funded-Pension-Plans-in-OECD-Countries-2019.pdf (last accessed on 31 May 2021).

$$\text{Taxable income} = (\text{retirement income received} - \text{retirement income deduction}) \times 50\%$$

The retirement income deduction is 400,000 yen for each year of service up to 20 years and 700,000 yen for each year of service over 20 years.

Computation of annual pension income.

Suppose a US person works in Japan, the statutory deduction is calculated as

$$(\text{Annual Income} - 500,000 \text{ yen}) \times 25\% + 500\,000 \text{ yen}$$

The statutory deduction for a US person with an annual income between 4,100,000 yen and 7,700,000 yen: (Annual Income – 4,100,000) × 15% +1,400,000.

The statutory deduction for a US person with an annual income above 7,700,000 yen: (Annual Income – 7,700,000) × 5% +1,940,000.

The deduction will be reduced for pensioners with income other than pension exceeding 10 million yen after deductions.

A US person in Japan as a resident will be eligible for a "public-pension deduction" if the person receives the DC benefits as an annuity. If the individual opts for a lump sum payment, the "retirement income deduction" will be available. The cross-border defined contribution pension scheme in Japan can be another example for examining portability. Japan's most recent individual defined contribution pension plan (iDeCo) is a private-pension plan governed by the Defined Contribution Pension Act of Japan.

A US person in Japan with permanent residency status can participate in iDeCo by contributing 10,000 yen per month. The contribution amount is eligible for tax reductions. If the US person in Japan pays 10% income tax and 10% resident tax, that reduces the US person's taxation at 24,000 yen per year. At the distribution stages with iDeCo, a US person can choose to receive either a lump sum or an annuity at the distribution stage no earlier than age 60.

The withholding tax rate is 20.315% for US persons living and working in Japan when any investments are made in financial products. If a US person makes a reinvestment via the Japanese defined contribution iDeCo, the special corporation tax rate at 1.173% per year on cumulative contributions are subject to Japanese income tax. A US person also has an option to transfer the US Defined Contribution pension plan to the Japanese iDeCo via submission of the "Individual Managed Assets Transfer Request Form."[113] However, the reverse, transferring the Japanese iDeCo to a Roth IRA in the US, is not feasible.

[113] iDeCo. Japan, https://www.ideco-koushiki.jp/english/ (last accessed on 1 June 2021).

5 A Model for Comparison: Private Pension Taxation

If an individual pension income contains cross-border pension benefits, national tax rules would have to be complemented by bilateral income tax treaty rules. However, in reality, an individual would face double taxation when cross-border pension income is subject to worldwide income or levied on foreign source income taxed in the source country.

Bilateral income tax treaties are to avoid international double taxation on income, by the OECD Model Tax Convention. The OECD model recommends two avoidance methods: (1) tax exemption in one of the two states, and (2) tax credits in the residence state for income tax payments in the source state. Therefore, bilateral income tax treaties would assign the right to tax income for each type of taxable income and define the avoidance method for each type of income.

The UK-US income taxation bases the fairness of taxation of pension contributions and distributions by focusing on the avoidance of double taxation. Unlike Social Security, which is public pension, private pensions are regulated under domestic private sector law. The bilateral income tax treaties between two countries have treaty clauses related to pension contributions and distributions; nonetheless, plan-to-plan portability of private pension schemes is not feasible. Yet, theoretically, there are models that suggest an ideal form of taxation of cross-border private pension schemes.

From the US tax law, a foreign private pension entity can be either a special-purpose legal entity, such as a trust, or a corporate entity in which "beneficial owners" own and control the pension fund on behalf of the member.[114] Due to each country having its own local laws and policies on private pension plans, there has not been a prospective model which can serve portable cross-border private pension schemes.

One of the major issues about portability is whether a person can make an eligible rollover distribution. A non-US defined contribution plan cannot be similar to the IRC Sect. 401(k) plan in the US portability within the US domestic pension schemes but may be feasible within a similar range of eligible rollover distribution, from one defined contribution plan to another defined contribution plan; however, transfer of foreign pension funds at the time distribution will be subject to taxation. A foreign pension plan cannot be rolled over into a US qualified retirement plan such as a 401 k, IRA, or Roth IRA account.

Enhanced portability options include:

(1) Expanding the definition of an "eligible rollover distribution" and harmonizing the rules for rollovers between different types of tax-favored plans;
(2) Making it easier for participants to roll over their balances from one 401(k) plan to another;
(3) Accelerating vesting for all defined contribution plans. Ideally, all plans would provide immediate vesting for all accounts;

[114] Juan Yermo, *Revised Taxonomy for Pension Plans, Pension Funds & Pension Entities*, OECD (2002).

(4) Setting up a public registry for accounts; and.
(5) Creating a clearinghouse to roll over small accounts and more broadly to facilitate rolling over balances within the system.[115]

Researchers have been exploring ways to establish an ideal portable rollover model which will encompass the comprehensive income taxation of pension savings among different countries. However, in reality, national rules for pension taxation are highly diverse even within a country.

In search of a feasible portability pension plan such as a plan-to-plan that can be transferred from one country to another, a theoretical optimal triplet has been developed by Holzmann and Koettl.[116] Their optimal triplet model can be a reference point for cross-border pension portability.

International tax arbitrage resulting from mismatches between source and residence countries, or mismatches on the timing of taxation of pension funds, can result in unrelieved double taxation or double non-taxation.[117]

Ideal portability of private pension plans will cover all workers or migrants to established acquired rights, establish full eligibility across the two agreements between countries, and establish benefits for migrants in the case of different benefit types between countries, such as a cross-over plan between a residence-based, basic benefit country, like in Australia, and an earnings-related, contribution-based benefit country, like in Germany.[118]

The optimal triplet consists of three notions in three phases of pension schemes. The generic pillar-based taxonomy is useful to establish a model for benefit and pension plan portability, and the state of taxation of cross-border pensions is compared based on the triplet notion: Taxation-Exemption-Exemption (T-E-E), Exemption-Exemption-Taxation (E-E-T), and Exemption-Exemption-taxation at tax rate (E-E-t (small letter 't')).[119]

These are referred to in the order of contributions, investment earnings and withdrawals or distributions; T refers to fully taxed; E is tax exempt; and t refers to concessionary taxation.

These four models are applied at three stages. The three phases of how private pension schemes are levied are (1) pension funds or savings accumulated by contribution, (2) returns on accumulation, and (3) withdrawal of pension funds. Tax treatment of personal pension plans is in accordance with the four models (Table 8).

The table shows how each type can result in final taxation. E-E-T, T-E-E, T-T-E, E-T-T. T-E-E stands for income taxation of pension savings based on the Taxed-Taxed

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[115] US Department of Labor, US *Department of Labor Announces Proposal Related to Asset Auto Portability*, (2018), https://www.dol.gov/newsroom/releases/ebsa/ebsa20181107 (last accessed on 1 June 2021).

[116] Holzmann and Koettl, 2019, pp. 378–80.

[117] Robert Holzmann & Bernd Genser, *The Taxation of Pensions: Issues, Concepts, and International Experiences*, 2019.

[118] Peter Harris & David Oliver, "International Commercial Tax," *Cambridge Tax Law Series*, (2010).

[119] Robert Holzmann & John Piggott (ed.) *The Taxation of Pensions*, MIT Press (2018).

Table 8 Taxation of pension plans in four patterns

	EET	TEE	TTE	ETT
Contribution	100	100	100	100
Tax rate		25	25	
Fund	100	75	75	
Net investment return	61.05	45.79	32.67	43.56
Fund on retirement	161.05	120.79	107.67	143.56
Tax on pension	40.26	n/a	n/a	35.89
Net pension	120.79	120.79	107.67	107.67

Exempt model. Pension taxation in New Zealand for retirement income savings falls under the category of 'T-T-E' referring to taxed contributions, taxed investment income and exempt benefits. In the T-T-E system, savings are made out of taxed income, income earned by the fund is then taxed, but benefits received are exempted.[120]

E-E-T and T-E-E are equivalent to the expenditure tax. In the E-T-T pattern, the tax exemption occurs at the point of contribution, while fund income and benefits are taxable at the distribution stage. The effects of these two systems are the same. However, the post-tax rate of return is below the pre-tax rate of 7.5% rather than $107.67 = 75 \times 1.075$. These systems result in a disincentive to save, because consumption now is worth more than consumption in the future.

Among the four types, T-T-E and E-E-T have two contrasting patterns. There are different forms of pension taxation formulas; however, the two most distinguished patterns are T-T-E or E-T-T.

Comprehensive T-T-E incomes tax and E-E-T Expenditure Tax are two contrasting patterns. The T-T-E pattern indicates that savings are made out of taxed income, but benefits received are exempted. The first stage of income used to contribute to a pension scheme is taxed. At the withdrawal of pension funds, the funds are tax exempt. Pension savings or funds invested are taxed but capital income is taxed when it accrues. When the pension savings plus interest are withdrawn, the taxpayer is exempt from taxation.[121]

Thus, requirements of T-T-E income used to (1) contribute to a pension system is taxed, (2) at the time of pension return is also taxed, and (3) withdrawals of pension savings are tax exempt.[122]

[120] OECD, *The Tax Treatment of Retirement Savings in Private Pension Plans,* 2018, www.oecd.org/pensions/financial-incentives-retirement-savings.hml (last accessed on 31 May 2021).

[121] Bernd Genser & Robert Holzmann, "Pensions in a Globalizing World: How Do (N)DC and (N)DB Schemes Fare and Compare on Portability and Taxation?" *Open Knowledge Repositor*, 2019. https://openknowledge.worldbank.org/handle/10986/31639 (last accessed on 31 May 2021).

[122] TTE is based on Schanz-Haig-Simons theory, and EET is based on Fisher-Kaldor.

Table 9 Three patterns of major tax regimes

Tax Regime	Statutory pension pillar 1 mandatory social security minimum pension	Occupational pension pillar 2 DB savings private occupational schemes mandatory or voluntary	Personal pension pillar 3 voluntary savings, DB DC
TEE	n/a	LVA, POL	AUT, HUN, USA
EET	AUT, BEL, CHE, DEU, FIN, ITA, LUX, POL	CAN, ESP, FIN, DEU, GRC, NLD, USA	CAN, ESP, GRC, NLD, POL, SWE, JPN, USA
EEt[124]	LIE, LVA, PRT, TUR, USA	EST, GBR, IRL, ISL, ROM	GBR, IRL, LUX, POL, ROM

Rearranged table from Genser and Holzmann, 2018, International Bureau of Fiscal Documentation, 2017, OECD 2018.[125]

E-E-T

In contrast to the T-T-E model, E-E-T is similar to an example of an expenditure tax. E-E-T means the amount of pension contribution is exempt from taxation at the first stage, and tax exemption continues at the accruals in pension funds. At the third distribution stage when the person receives pension funds or withdraws pension benefits, the amount will be taxed.[123]

In the US, Defined Benefit or Defined Contribution plans fall under the E-E-T model. Money contributed by employers and employees, as well as investment income and capital gains accrued to the fund, are not taxed at the contribution stages; however, they will be taxed at the distribution stage. Tax exemption of an employer's contribution to a pension fund on behalf of an employee is not deemed as an income tax.

Table 9 shows where the US taxation of pensions stands in comparison with different tax regimes. It focuses on the T-T-E, E-E-T, and E-E-t, patterns according to the pillar-based categorization.

Country specifics are presented in order to compare where US private pensions, as an E-E-T model, stands (Table 10).

The UK and the US share the pattern of E-E-T, meaning pension income tax deduction/exemption at the contribution stage, exempting funds' investment returns and taxation at pension payment. In the US, although the majority of DC plans have an E-E-T pattern, the Roth IRA is unique due to the T-E-E pattern which is taxation at contribution, exempting accumulations and exempting withdrawals.

[123] Helmuth Cremer & Pierre Pestieau, *Taxing Pensions*, Center for Economic Studies, Ludwig-Maximilan University Working Papers, ISSN 2364–1428, (2016).

[124] The small letter "t" refers to tax rate.

[125] Country abbreviation: Australia AUT, Korea KOR, Luxembourg LUX, Belgium BEL Mexico MEX, Canada CAN, Netherlands NLD, Czech Republic CZE, New Zealand NZL, Denmark DNK, Norway NOR, Finland FIN, Poland POL, France FRA, Portugal PRT, Germany DEU, Slovakia SVK, Greece GRC, Spain ESP, Hungary HUN, Sweden SWE, Iceland ISL, Switzerland CHE, Ireland IRL, Turkey TUR, Italy ITA, United Kingdom GBR, Japan JPN, United States USA.

Table 10 Taxation of pension income according to three stages

Country	Contribution	Pension fund	Pension benefit (Distribution)
	Income tax	Fund income	Pension Income Original Value
Australia	T	E	T E
Japan	T	E	T E
Luxembourg	E	E	T T
United Kingdom	E	E	T T
United States	E	E	T T

Reconstructed by author based on OECD data (2016, 2019)

In the E-E-T regime for retirement savings, both contributions and returns on investment are exempted from taxation, whereas benefits are treated as taxable income upon withdrawal. In the US, DC plans can be either T-E-E-taxed or the E-E-T-taxed, while DB plans are in the category of the E-E-T pattern.[126]

In contrast to E-E-T, in Japan, net contributions of pension annuity are taxable at standard rates: 50% of net lump sum over 500,000 yen ($5,000) taxable which results in a T-E-T pattern.[127] A discrepancy between Japan's T-E-T and the E-E-T pattern in the US might result in a risk of double taxation on a US person in Japan at the distribution or withdrawal stage.[128] Taxation at the pension distribution in Japan derives from the predominant annuity policy-based pension schemes.[129]

The private pension schemes in the E-E-T approach can be more tax-favorable for retirement savings than the T-E-T pattern.[130] Japan's approach to the annuity policy is under different tax categories in different aspects: whether the employer is allowed to include the planned contribution expense into the cost before paying out annuity to the employees; whether to allow self-insured pension plan contributions

[126] Congressional Research Services, *Individual Retirement Account Ownership*, 9 December 2020, https://fas.org/sgp/crs/misc/R46635.pdf (last accessed on 1 June 2021).

[127] Ministry of Health, Labor, and Welfare, Japan, *Corporate Pension System*, https://www.mhlw.go.jp/english/org/policy/dl/150407-05.pdf (last accessed on 1 June 2021).

[128] Beshears et al. (2015) commented that the recent introduction of TEE-type incentives in 401 (k) plans on pensioners' behavior are beginning to attract attention. John Beshears, James J. Choi, David Laibson & Brigitte C. Madrian, *Does Front-Loading Taxation Increase Savings? Evidence from Roth 401(k) Introductions?* National Bureau of Economic Research Working Paper 20,738, (2015), https://www.nber.org/papers/w20738 (last accessed on 1 June 2021).

[129] Edward Whitehouse, *The Tax Treatment of Funded Pensions* (1997), https://www.oecd.org/finance/private-pensions/2391559.pdf (last accessed on 1 June 2021).

[130] Peter Diamond, "Taxes and Pensions," *Southeastern Economic Journal* 73. (2009), pp. 2–15. https://doi.org/10.4284/sej.2009.76.1.2 (last accessed on 1 June 2021).

Table 11 Payment options in comparison between DB and DC

Payment options	Defined benefit (DB)	Defined contribution (DC)	Comment
Immediate	Feasible	n/a	The more the DB scheme is redistributive and unsustainable, the greater the difficulty
Deferred	Moderately easy	Relatively easy	Requires to determine tax annuities for DB schemes
Distributed	Difficult	Difficult	If tax rate can be left fixed, otherwise technically very difficult for DB, but less difficult for DC schemes

deducted from taxable income to avoid abuse; and the pension plan to accumulate fund investment income is exempt from income tax.[131]

Genser and Holzmann present another element that can be added to contrasting elements between T-E-E and E-E-T patterns: how T-E-E and E-E-T can influence timing of payment options in DB and DC plans.[132] (Table 11)

Speculation and search for optimal portability for more effective work mobility would be an ongoing project as multiple variables among different payment options in different corporate sponsored private pensions across different countries.

5.1 Foreign Pension Trust as US Private Pension Plan

The optimal triplet in the form of E-E-T and T-E-E provides an incentive for compatibility for optimal portability form.[133] In practice, foreign pension trusts have been recursive private pension schemes for tax advantages via deduction or exemption through the use of foreign tax credit. Foreign pension trust schemes have been one of the choices US persons abroad adopt as a part of private pension plans.

Scholars and experts have been seeking "optimal private pension planning" which is speculating "anticipative retirement asset returns" and rebalancing the portfolio.[134] If no treaty provision exists to qualify a local pension for US tax purposes, optimal

[131] International Monetary Fund. Monetary and Capital Markets Department, *Chapter III Risk Management and the Penson Fund Industry*, https://doi.org/10.5089/9781451939293.082.ch001 (last accessed on 30 May 2021).

[132] Bernd Genser & Robert Holzmann, *Pensions in a Globalizing World: How Do (N)DC and (N)DB Schemes Fare and Compare on Portability and Taxation?* World Bank Discussion Paper, No. 1928, (2019).

[133] Practice N. Gregory Mankiw, Matthew Weinzierl & Danny Yagan, *Optimal Taxation in Theory,* National Bureau of Economic Research Working Paper 15,071, (2009).

[134] *Supra.*

planning would require contributions to the local pension in an amount that results in an equalization of the local tax with no excess foreign tax credits.

The optimal private pension planning in relation to taxation would not easily be feasible since most "qualified retirement plans" refer to plans organized in one's home country. Under the IRS code, foreign retirement plans qualification and exempt status in one's home country is not recognized by the US. The IRC provides that US pension funds meeting qualification standards are exempt from US tax.

Foreign pension trusts under the I. R. C are not recognized in the US tax law. A retirement plan organized in a foreign country will not meet the requirements for tax exemption in the US under Sect. 401(k). A Dutch pension fund case was appealed for US federal tax exemption; however, the case failed.[135] The decision was based on reasoning that the US source interest earned by a foreign employee's trust or foreign corporation will be subject to a 30% withholding tax. Therefore, any foreign income "connected with" the conduct of a US business by the trust is taxed at the US tax rate.

Grantor Trust[136]

US persons abroad have been utilizing foreign trusts as pension investment funds. Despite the 30% withholding tax imposed on foreign trusts, grantor trusts have been used as a scheme for tax advantage purposes.

A pension trust is usually established to provide financial administration of a pension or retirement fund. The concept of a grantor trust is closely related to estate planning. A trust under "the settler" who creates a trust or "grantor" is a beneficiary that can also be called a "grantor trust." In the US tax law, a grantor trust is one under which the settler retains powers of management or control. A settler who creates a trust is equivalent to the owner of the trust property and the income is to be attributed to the settler rather than to the beneficiary.[137]

Grantor trusts are categorized as one of the typical pension plans as a part of estate planning. In grant trusts, the employer and its employees make contributions to an entity that will hold and invest the assets. The beneficial owner of the collective assets invests for the purpose of funding future benefits distributions.

In a grantor trust, the trust creator retains certain powers over the trust, including rights to the trust's assets and income. Trust assets may be included in the trust creator's estate when they pass away. With a non-grantor trust the trust creator has no interest or control over trust assets. Trust assets are generally excluded from the trust creator's estate at their death.

A US person abroad who owns a foreign private retirement plan is taxed on the plan's investment income if the plan is characterized by the US as a grantor trust.

[135] *Stiching Pensioenfonds Voor de Gezondheid v. United States*, 129 F. 3d 195, (D.C. Cir., 1997).

[136] Boris I. Bittker & Lawrence Lokken, *Federal Taxation of Income, Estates & Gifts*, Westlaw (2017).

[137] Mark Reutilinge, *Wills, Trusts, and Estates*, Aspen Law & Business (1998).

Since a grantor trust is contributed to by employees, the employee contribution would be viewed as a defined contribution plan.[138]

Grantor trust is a common pension scheme used by US persons in the UK because US source income of the trust would be taxable to the grantor beneficiary. Also, one of the advantages of a grantor trust plan relates to tax deductions. The deduction amount will be the amount the trust is to distribute in a given year.[139] Foreign grant trusts have been utilized as a part of "optimal pension planning" since grant trusts can be deducted via a Foreign Tax Credit. As one way of seeking one of the optimal taxations in the cross-border pension schemes, definition of what a "pension fund" is can be referred to as the US Model Tax Treaty.

The US Department of the Treasury states that in the US, the term "pension fund" includes: (1) a trust providing pension or retirement benefits under an Internal Revenue Code Sect. 401(a) qualified pension plan which includes a Defined Contribution 401(k) plan, qualified trust in the Internal Revenue Code Sect. 401(a) indicates "a part of stock bonus, pension, or profit-sharing plan of an employer for the exclusive benefit of his employees or their beneficiaries."[140]

(1) a profit sharing or stock bonus plan, deducts contributions to the trust, earnings in the trust are not taxed to the trust, individual is taxed on distributions received from the trust,
(2) a Code Sect. 403(a) qualified annuity plan,
(3) a Code Sect. 403(b) plan, a trust that is an individual retirement account.
(4) a Roth individual retirement account under Code Sect. 408A, Individual Retirement Account includes a trust organized in the US receiving only cash contributions limited in amount. IRC Sect. 408(a).
(5) a simple retirement account under Code Sect. 408(p),
(6) a trust providing pension or retirement benefits under a simplified employee pension plan under Code Sect. 408(k), a trust described in Sect. 457(g).[141]

In qualified pension plans (1) employee rights vest within a certain period of time, (2) distributions are made prior to age for retirement, (3) the amount of contributions to the plan is limited, (4) distributions from the fund begin no later than age 70 and six months, and (5) benefit of the plan does not carry any effects to the trustee.

Theoretically, the pension funds according to IRC regulations can be applied to the treaty provision exempting a pension payment under the US Model Tax Treaty, Article 17, (2) (a) which explains:

> …Where an individual who is a resident of a Contracting State is a member or beneficiary of, or participant in, a pension fund established in the other Contracting State, income earned

[138] Steve K. Yeager & Lawrence J. Chastang, CliftonoLarson Allen LLP, *Foreign Pensions, Retirement Plans and the US Taxpayer*, 32nd Annual International Tax Conference (2014).

[139] Francis Helverston, "Foreign Pension Funds with US Investments: Tax Classification," *International Tax Review* 34 (2015).

[140] IRC Sect. 401(a).

[141] Callahan, Christopher, *US Tax Laws Governing Foreign Pensions,* 169, Tax Notes Federal (2020), pp. 1589–1594.

by the pension fund may not be taxed as income of that individual unless, and then only to the tax that, it is paid to, or for the benefit of, that individual from the pension fund.[142]

In order for US persons abroad to use the Foreign Tax Credit as a pension fund deduction, two requirements have to be met. The FTC only provides a "nonrefundable credit" for foreign taxes.[143] The FTC will not credit foreign taxes that exceed the US level tax rate on the income. The FTC is limited to foreign income taxes.[144]

If a US person resides in a country with income tax rates that are higher than corresponding US rates, excess foreign tax credits are to accrue. If no treaty provision exists to provide a US tax deduction for local foreign pension contributions, contributions will only reduce local country current taxation.

6 Foreign Pension Trust and Utilization of Foreign Earned Income Exclusion

The US and the UK share the identical pension taxation model—E-E-T; nevertheless, due to US source taxation, cross-border transfer or pension-to-pension portability would not be feasible. Instead, foreign pension schemes are not qualified under US tax law, and the use of the Foreign Earned Income Exclusion (FEIE) becomes inevitable.[145] Under the FEIE,[146] double taxation can be avoided. In order to qualify to deduct under the FEIE, the *bona fide* residence of the physical presence test have to be met.[147] The *bona fide* residence test requires the taxpayer must be a US person and establish that the person is a "resident of a foreign country or countries for an uninterrupted period which includes an entire taxable year."[148]

IRC Sect. 911 presents an example on the *bona fide* test.

You arrived with your family in Lisbon, Portugal, on November 1, 2019. Your assignment is indefinite, and you intend to live there with your family until your company sends you to a new post. You immediately established residence there. You spent April of 2020 at a business conference in the United States. Your family stayed in Lisbon. Immediately following the conference, you returned to Lisbon and continued living there. On January 1, 2021, you completed an uninterrupted period of residence for a full tax year (2020), and you meet the bona fide residence test.[149]

Requirements to fulfill the *bona fide* resident test are based on whether a person is a resident of a foreign country based on the length and purpose of stay. Physical

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[142] US Model Tax Treaty, Art. 17, (2) (a), underline by the author.

[143] IRC Sect. 904 (a).

[144] IRC Sect. 901 (b).

[145] Other than FEIE, exclusions include the Foreign Housing Exclusion (FHE), and Foreign Tax Credit (FTC).

[146] IRC Sect. 911.

[147] IRC Sect. 911(d)(1).

[148] IRC Sect. 911(d)(1)(A).

[149] IRS Publication 54, https://www.irs.gov/pub/irs-pdf/p54.pdf, p. 14.

presence test requires that the person be physically present in a foreign country for 330 full days over a 12-month period.[150]

Once the resident test is cleared, a US person can use FEIE in a private pension trust. FEIE will be helpful since a private pension plan in a foreign country will not meet the requirements for tax exemption in the US under IRC Sect. 401(a).[151]

6.1 Comparison of Foreign Earned Income Exclusion and Foreign Tax Credit

UK Private Pension Plan and Use of FEIE and FTC

UK regulations related to pension income provide an exemption for dividends paid to a foreign pension fund. This is in accordance with the 2016 US Model Tax Treaty that "foreign pension funds be generally exempt from income taxation" in the country in which it is established.[152] Income qualifying for FEIE is based on the *bona fide* resident test for 75 days during a calendar-year. For example, in 2020, a US person may exclude $25,000 in foreign earned income (75/365 of the $105,900 maximum exclusion for 2019).

In determining the maximum contribution to the IRA, a US person must add back the $21,760 of excluded foreign earned income to compensation includable in gross income or modified adjusted gross income.[153]

The use of the foreign tax credit (FTC) for a US person abroad when making a Roth IRA contribution is shown in Table 12, the total amount on Form 1040 reflecting foreign exemption and tax credit.[154]

If both FEIE and the FTC are used in taxation of retirement funds, a US person abroad with foreign earned income of $110,000 who contributes the $5,500 to a Roth IRA can deduct $94,500 using FEIE and report $5,500 of earned income. This $5,500 can then be deposited into a Roth IRA. After applying the FTC, no US taxes will be owed.[155] If the foreign tax rate is 30%, and the foreign tax is greater than the tax levied in the US, the FTC is another option. When deferred compensation arrangements are unfunded, the tax liability is postponed until the deferred compensation is paid, unless the deferred compensation is irrevocable and was made prior to the compensation

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[150] *Id.*

[151] IRC Sect. 401(a).

[152] US Model Tax Treaty (2016).

[153] IRS, About Publication 590-A, Contributions to Individual Retirement Arrangements https://www.irs.gov/forms-pubs/about-publication-590-a

[154] William F. Ragel, & Paul G. Scholoemer, "Financial Planning Consideration for Americans Working Abroad," *Journal of Financial Professionals* 72 (2018), pp. 106–112.

[155] *Supra*, 110.

Table 12 Use of foreign earned income and foreign tax credit[156]

	Case 1	Case 2
Foreign earned income	$56,000	$110,000
Foreign tax 30%	16,800	33,000
Roth-IRA contribution	5,500	5,500
US adjusted gross income	56,000	110,000
Standard deduction (single)	12,000	12,000
Taxable income	44,000	66,000
Gross US tax liability (tax rate)	5,620	17,810
Foreign tax credit	5,620	17,810
Carry forward of FTC	11,180	15,190
Total tax due on 1040	0	0

to be deferred was earned. Cases with the unfunded deferred compensation deferral apply regardless of where the US person as an employee resides.[157]

In cases of funded pensions, tax is due from the employee as soon as the employee has a vested right to the amounts accrued under the qualified plan. A US person participating in a foreign funded plan that is not qualified in the US is taxable on the value of the person's vested interest in the plan. Taxable non-qualified funded pension benefits would be used as a foreign tax exclusion if a US person abroad earns less than $110,000, or is in a low tax bracket.

Suppose a 55-year-old US citizen who earns $70,000 abroad and is a qualified pension plan participant with a current accrual worth $10,000. That amount might generate a fully taxable benefit of $2,000 a year, beginning at age 65. If the employer were to use the $10,000 to purchase a single-premium annuity that pays the same benefit or were to contribute it to a funded non-qualified plan, the amount would still be taxable to the employee upon vesting, but would fall within the $101,500 exclusion limit; thus, the $10,000 in pension payments received by the employee would be exempt from tax. If FEIE is applied to the first $107,600 of income in 2020, the use the FTC will reduce tax liability on the income above $107,600.

Taxation of Pension Income for US Resident Aliens and US Non-Resident Aliens

An alien who is a US resident when receiving pension payments faces a particular risk. Suppose a person with permanent residence status in the US lives in Singapore, and would therefore be deemed a US resident alien. If such a person's pension income is earned outside the US, if the person is still a US resident, that person will be subject to US income tax at the time of receipt.

US resident aliens who reside in the US are subject to worldwide income tax without regard to source. The time of vesting becomes the most important point. At the time of distribution or cash transfer at the time of distribution, they will be within

[156] *Supra*, 110.

[157] William F. Ragel, & Paul G. Scholoemer, "Financial Planning Consideration for Americans Working Abroad," *Journal of Financial Professionals* 72 (2018), pp. 106–112.

the category of a non-resident as "effectively connected" to a "US, trade or business" on income that has the US as its source. Non-resident aliens who are not US citizens and reside outside the US are subject to income tax based on "effectively connected" to a US trade or business and on income that has the US as its source.

The cash transfers at the time of distribution based on previously earned interest in the pension fund can be characterized as amounts already reduced to income in years prior to the years of US residency.

Income generated by non-resident aliens in the US will be deemed US-source income that is "effectively connected to the US trade or business." At the same time, income from a foreign pension can be classified as "effectively connected income" which will be taxed at progressive rates.

A non-US person who has never resided in the USbut receives a pension that is funded in the US or through US investments, he/she will owe the 30% tax on earnings If the employer contributions are made to non-resident aliens, they will be considered compensatory payments sourced outside the US. There is an exception to the 30% tax on the earnings element of the deferred compensation. If the nonresident alien receives an annuity from a US qualified plan, no part of the pension is taxable, provided: (1) all the services giving rise to the pension were performed outside the US and (2) 90% of the plan participants are US citizens or residents.

Taxation of pension income for a US alien who has rendered services both inside and outside the US depends upon the alien's residence at the time of receipt. If an alien renders service in the US, compensation for such service is considered effectively connected and taxable at the progressive rates.

If pension distribution can be deferred and the alien is a non-resident at the time of receipt and does not render services in the US during retirement, the deferred compensation payments are not considered effectively connected and are not subject to progressive tax rates. Instead, payments attributable to the US service are taxed as US-source income, like any earnings funded with US investments.

This may be problematic since the tax rate could drop from as high as 50% to 30%. Income that is effectively connected in the year it is earned would retain that characteristic in the year it is received, even if the recipient has no US trade or business that year.

7 Non-US Pensions and Foreign Account Tax Compliance Act

7.1 Impacts of FATCA and US Citizenship Relinquishment

In addition to the foreign pension plans and foreign tax exclusion utilization, rigorous reporting compliance has become another obligation that US persons abroad have to be aware of. The most recent financial compliance act titled Foreign Account

Tax Compliance Act (FATCA)[158] is a crucial factor for US persons abroad who participate in various foreign pension plans. FATCA was enacted in 2010 to enforce the worldwide taxation of US persons as well as to promote transparency of foreign assets held by US taxpayers. Non-compliance with the reporting obligations will result in hefty penalty payments as well as legal risks.

Prior to the FATCA enactment, US persons in foreign pension plans were not fully aware of their reporting requirements until retirement or at the pension investment distribution stage. Under FATCA, all foreign pension plans under any type of investment accounts are to be reported to the IRS.[159]

The initial impact of FATCA on US persons abroad was a great risk due to prior unreported assets of US persons outside of the US. FATCA has also impacted "foreign financial institutions" (FFIs) in order to detect any US persons' assets in non-US financial institutions. The penalties on the institutions are severe to the point that some institutions are considering removing all US taxpayer "customers" from their funds, rather than facing the US penalty of 30% withholding on all US source income. In addition to the new FFIs, there were also new statutory requirements for US persons holding "foreign financial assets" which includes foreign pension plans under IRC Sect. 6038D.[160]

Multinational employers' response to FATCA was at the pension-based US tax liabilities, and to establish new procedures to find US persons in their non-US pension plans. Employers' compliance had to enforce tax disclosure, reporting, withholding and assessment.

There has been an increase in expatriation due to the new FATCA reporting compliance. The IRS has implemented numerous voluntary disclosure programs for the US taxpayers with international tax non-compliance, such as the introduction of its newest program in September 2019, Relief Procedures for Certain Former Citizens (RPCFC). It is designed to benefit taxpayers who were formerly US citizens, have already expatriated, had no US income tax liability in the years preceding expatriation, were not filing US tax or information returns with the IRS before expatriating, did not pay the "exit tax" under Code Sec. 877A, and would not have been subject to the exit tax were it not for their non-willful violations.

"Exit Tax" Under IRS Code Sect. 877A

The impact of FATCA on "accidental citizens" and US citizenship relinquishment has been growing. Relinquishment also means abandoning the US Social Security

[158] Foreign Account Tax Compliance Act is the result of added provisions in Treasury Reg § 1.1471–1474 based on the *Hiring Incentives to Restore Employment Act of 2010.*

[159] Filing form 1040 reporting the wages from the foreign company, disclosing the existence and location of the foreign savings account on Form 1040 Schedule B (Interest and Ordinary dividends), claiming the foreign earned income exclusion on Form 2555, reporting the interest income from the foreign savings account, and filing electronically an annual FinCEN form 114 to notify the IRS about the foreign savings account.

[160] IRC Sect. 6038.

benefits.[161] A US citizen may renounce nationality and upon expatriation incurs a taxation consequence because the former US national ceases to be a US tax person.[162] A former US person, who would no longer be subjected to taxation on worldwide income will, however, be subjected to US source income.[163] Source income includes income "effectively connected" with a US trade or business, including investment portfolio, interest, and capital gains from US stocks and bonds. Source income also includes estate tax on US situs assets and a gift tax on US situs intangible property. Even after the official relinquishment of US citizenship, the former US person is subject to 10 years of additional US compliance.[164]

The FATCA provisions seek to encourage FFIs to provide information to the US tax authority, the IRS, regarding their account holders. Non-compliance with these provisions may result in a 30% withholding tax on certain payments received by the FFI.[165] The critical FATCA concepts of an FFI and an account holder can encompass pension schemes and trustees and their members respectively. These restrictions affect bank accounts, brokerage accounts, and retirement accounts including IRAs and 401(k)s.[166]

With FATCA came increased offshore tax enforcement efforts. However, there are numerous contributing factors in addition to FATCA, such as Enhanced Treasury Department enforcement of existing anti-money laundering regulations and know-your-client rules, evolving interpretation of the 2003 Patriot Act. One subsequent reaction to the FATCA was the new European regulation of cross-border investments which included EU Markets in Financial Instruments II. This new regime in Europe shared "transparency reporting obligations" similar to the FATCA.[167]

Special rules apply for individual accounts held by a foreign pension or retirement savings accounts. The most recent relief procedures do not necessarily exempt US persons from a 30% withholding on all US source-based taxable income.

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[161] IRS, https://www.irs.gov/individuals/international-taxpayers/taxpayers-living-abroad (last accessed on 1 June 2021).

[162] IRC Sect. 877A (2012).

[163] IRC Sect. 7701(b)(6) (2012).

[164] IRC https://www.irs.gov/businesses/the-taxation-of-foreign-pension-and-annuity-distributions (last accessed on 1 June 2021).

[165] LexisNexis, *FATCA in the UK - Pension schemes* https://www.lexisnexis.com/uk/lexispsl/pensions/document/393774/5DS0-2G71-F18D-01YX-00000-00/FATCA-in-the-UK%E2%80%94pension-schemes (last accessed on 1 June 2021).

[166] FATCA imposes significant new compliance burdens on non-US financial institutions with US clients. As a result, many non-US financial institutions refuse to service US persons. Among US financial institutions, account restrictions differ between firms. Some firms are closing all accounts for non-US residents while other firms are only restricting services available to Americans not resident in the US. In other cases, firms require very high minimum account values for non-US residents who wish to remain clients.

[167] Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU, [2014] ('MiFID II'), Martin Brenncke, "The Legal Framework for Financial Advertising: Curbing Behavioral Exploitation," *European Business Organization Law Review* 19 (2018), pp. 853–882.

Table 13 US persons abroad filing obligations under Foreign Account Tax Compliance Act (FATCA) and Foreign Banks and Financial Account (FBAR)

Regulations	FATCA	FBAR
File to	Internal Revenue Services	Dept. of Treasury
Forms	Form 8938: Reporting Statement of Specified Foreign Financial Assets, including foreign pensions, trust funds Forms 8621 for Information Return by a Shareholder of a Passive Foreign Investment Company, and Self-Certification form in Part XV on Form W-8BEN-E or Part XIX on Form W-8IMY[168]	Fin CEN, Form 114, (Report of Foreign Bank and Financial Accounts) Form 3529, 3520-A Report of Foreign Bank and Financial Account (FBAR) Forms 3520 (Annual Return to Report Transactions with Foreign Trusts and Receipt of Certain Foreign Gifts), and Forms 3520-A (Annual Information Return of Foreign Trust
Persons or Entities	US persons, which include US citizens, resident aliens, trusts, estates, and domestic entities that have an interest in foreign financial accounts and meet the reporting threshold	Specified individuals and specified domestic entities that have an interest in specified foreign financial assets and meet the reporting threshold Specified individuals include US citizens, resident aliens, and certain non-resident aliens, Specified domestic entities include domestic corporations, partnerships, and trusts

The FATCA regulations have two reporting requirements: (1) Form 8938 Statement of Specified Foreign Financial Assets including reporting foreign pensions, and (2) Foreign Bank and Financial Account or FinCEN Form 114 which relates to reporting and withholding from the FFIs (Table 13).

FATCA is governed by the IRS applying the US system of global taxation which includes pension plans for US persons abroad.[169] Form 8938 relates to reporting of foreign pensions requirement of the IRS.[170] The IRS Form 8938 is a reporting form that must be submitted by US persons abroad who receive interest or dividends from the foreign pension plan assets because they are deemed taxable.

Another requirement is Financial Crimes Enforcement Network (FinCEN) Form 114 which has to be filed with the Department of the Treasury. US persons abroad must also file the Foreign Bank and Financial Accounts Account by submitting Form 114 directly to the office of the Financial Crimes Enforcement Network, a bureau of

[168] Inter-Government Agreement requires Trustee Documented Trusts to register under "Registered Deemed-Compliant FFI," the Global Identification Number on the Form W-8 or a "FATCA Self Certification Form" for Entities, W-8BEN-E Certificate for Status of Beneficial Owner for United States Tax Withholding and Reporting Entities.

[169] IRC Sect. 2107(b) relates to imposing tax on gains that are exempt from tax for nonresident aliens.

[170] IRS, Comparison of Form 8938 and FBAR Requirements, https://www.irs.gov/businesses/comparison-of-form-8938-and-fbar-requirements (last accessed on 1 June 2021).

the Department of the Treasury. If US persons abroad have investment income from foreign pensions schemes under foreign grantor trusts, Form 3520 and 3520-A have to be filed with the Treasury Department.

For example, take a Japanese citizen who is 67 years old and is sent by the Japanese employer to work in the US and remains as a Japanese employee under the Japanese national pension plan. If the Japanese employee becomes a US resident, the employee will be subject to US federal income tax on the national retirement plan. For the employee, under FATCA, the Japanese employee has reporting obligations as well as paying US income tax.

7.2 FATCA and Non-US Pension Plans–Entity

FATCA regulations and the applicable intergovernmental agreements (IGAs) define a financial institution to include a collective investment vehicle, which includes an investment vehicle established with an investment strategy of investing, reinvesting, or trading in financial assets.[171]

A non-US government administered social security type of pension plan may qualify for FATCA exemption; however, foreign private pension plans that are privately administered by the employer may be responsible for the FATCA status of the pension plan.[172]

A pension fund qualifies as an "exempt beneficial owner" under Reg. §1.1471–6 which provides a list of exempt beneficial owners. Exempt beneficial owners include certain foreign retirement funds that fit within six enumerated exemptions.[173]

Retirement Funds Exempt from FATCA Reporting

(1) Treaty-qualified retirement fund which is a fund established in a country with which the US has an income tax treaty in force and that is operated principally to administer or provide pension or retirement benefits.
(2) Broad participation retirement fund which is a fund established to provide retirement, disability, or death benefits, or any combination thereof, to beneficiaries that are current or former employees of one or more employers in consideration for services rendered, provided that the fund does not have a single beneficiary with a right to more than 5% of the fund's assets.
(3) Narrow participation retirement fund which is a fund established to provide retirement, disability, or death benefits to beneficiaries that are current or former employees of one or more employers in consideration for prior services rendered, provided that the fund has fewer than 50 participants and participants that are not resident of the country in which the fund is established are not entitled to more than 20% of the fund's assets.

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[171] Reg. §1471(d)(5).

[172] Reg. §§ 1.1471–6(f)(6), 1.1471–6(g).

[173] Reg. §1.1471–6(f).

(4) Fund formed pursuant to a plan similar to a Sect. 401(a) plan which is a fund formed pursuant to a pension plan that would satisfy the requirements of Sect. 401(a), other than the requirement that the plan be funded by a trust created or organized in the US.
(5) Investment vehicles exclusively for retirement funds.
(6) Pension fund of an exempt beneficiary owner.

7.3 Reporting Obligation by US Persons

Unless foreign financial institutions with pension funds are exempt from reporting under the six categorization IRS Reg. Sect. 1.1471–6, the FATCA regulation requires that the actual institution running the pension has a reporting obligation. Even if the institution is exempt, the individual must still report and disclose. Alternatively, if the "unrelated financial institution" becomes a participating foreign financial institution, reporting due diligence applies to the retirement accounts.[174]

In a form of foreign Defined Benefit, a non-US employer may contribute assets into a separate entity formed with a separate trustee to administer the "funded" plan. Assets settled on the trust are to the employer and owned by the trustee.

FATCA classification is a trust-level issue. The employer is no longer the relevant entity for FATCA classification purposes, and therefore can be exempted from reporting.[175]

7.4 FATCA Compliance for Japanese Pension Funds

The final regulations simplify the treatment of retirement plans by expanding the categories of exempt beneficial owners. The final regulations eliminated the category of retirement funds treated as deemed-compliant FFIs, and categorized two classes of exempt beneficial owners pension plans: (1) treaty-qualified retirement funds, and (2) broad participation retirement funds.

Although non-US government international organizations and non-US central banks are exempt from FATCA requirements, non-US pension funds can be subject to FATCA. In Japan, an employer implements one of three plans: defined benefit plan, corporate-type defined contribution plan, or a welfare pension insurance fund.[176]

[174] Submission of a copy of the entity's Form W-8BEN-E and verify its global intermediary identification number (GIIN) on the IRS portal.

[175] Reg. §1.1471–1(b)(39), §1.1471–1(b)(100); §7701(a)(1).

[176] In the UK, public pensions and retirement plans are governed by the National Pension Act and the Welfare Pension Insurance Act. Private pensions and retirement plans are governed by the World Pension Alliance according to the Defined Benefits Corporate Pension Act (Act No. 50 of 2001). Steven J. Friedman, Melissa B. Kurtzman, & David M. Weiner, *Pensions and Retirement Plans Law Business Research* (2013), pp. 62–68.

Lump-sum retirement benefits received by employees are treated as retirement income, and half of retirement income during a taxable year, after deductions, is subject to retirement income tax.

- 400,000 yen × years of employment, if the years of service are less than 20 years.
- 700,000 yen × (years of employment − 20) + 8,000,000 yen, if the years of employment are 20 or more, is subject to retirement income tax.[177]

If a US person worked for a Japanese company over 20 years, the retirement benefits and pensions, in addition to being taxed in Japan, would also be subjected to withholding tax under FATCA. If the US employee in Japan's annual contributions are limited to earned income that does not exceed $50,000, then the employee will be exempted from the reporting requirement. However, under Japanese income tax law, a retirement pension received by the employee is treated as "other income" and during a taxable year, after deductions, is subject to aggregate taxation.

Cost of FATCA Non-compliance

Under the FATCA compliance, US persons are required to include both employee and employer contributions in taxable income. Pension fund growth such as 401 k needs to be included and taxed on the return annually, even if not actually received by the individual.[178]

Certain individuals may be able to exclude contributions which include both the employee and the employer. In the US-UK Income Tax Treaty which is more comprehensive than other treaties, a foreign pension may be treated similar to a qualified US pension plan. In such case, taxation is deferred to receipt of funds from pension savings or investment.[179]

Non-compliance with FATCA reporting that will result in penalties under IRC Sect. 6677 for "failing to comply with the reporting obligations of Sect. 6048" will not apply to a qualified individual's failure to report transactions involving, or an ownership interest in, an applicable tax-favored foreign trust.[180] For example, if pension funds have not been reported, penalties go up to $50,000 for noncompliance, and there may be a 40% surtax on underpayment of tax associated with undisclosed assets.

[177] *Id.*

[178] Reg. §1.1471–5(e)(4)(i)(C), Sheppard, Hale E. "IRS Introduces Relief Procedures for Former US Citizens: Path to Avoid the Exit Tax, Income Taxes, and Penalties Despite Past Non-Compliance," *Zeitschrift Fur Individual Psychologie* 98 (2020), p. 31.

[179] Usman Mohammad, "Reporting Foreign Retirement Plans on Required Information Returns," *The CPA Journal* 90, New York (February 2020), pp. 72-74.

[180] Nicholas Bahnsen,"The New Exemption from Required Information Reporting," *The CPA Journal* 90, New York (April 2020), p. 4.

7.5 Foreign Pension Grantor Trust as Passive Foreign Investment Company (PFIC)

The Passive Foreign Investment Company (PFIC) rule is applied to US persons or entities participating in a Foreign Grantor Trust Pension Plan. FATCA compliance requires that the PFIC rule be applied to a US person who owns a foreign individual retirement plan. Investment in any non-US foreign grantor trust pension plans are taxed on the plan's investment income if the plan were characterized by the US as a grantor trust.

The US private pension plans according to the E-E-T format allow employees to defer pre-tax dollars into retirement accounts that then accumulate tax free until retirement. If the pension plan does not meet certain requirements, Form 8621 reporting for PFICs must also be filed to report underlying investments if the pension is classified as a grantor trust.[181] The PFIC rule relates to a type of private pension in the DC form in combination with a profit-sharing plan. For US persons who participate in a grantor trust of foreign pension plans, the plans are within the category of the PFIC. A US person who holds an interest in a foreign mutual fund may be subject to US income tax and reporting requirements under the PFIC.

The US trust classification categorizes a foreign plan either as a non-qualified employees' trust, a corporation, or as a grantor trust. The IRS classification is based on the actual character entity. Therefore, a foreign pension account would qualify as a PFIC if it is like "an entity or a company."[182]

Since a foreign grant trust as pension income derives from a collective investment vehicle, according to the FATCA regulations, the entity is deemed a "presumptive foreign financial institution." The foreign grant trust entity as well as the grantor both have reporting obligation.[183]

In the grant trust, a grantor is the creator of the trust relationship and is usually the owner of the assets contributed to the trust. The grantor establishes in the trust instrument the terms and provisions of the trust relationship between the grantor, the trustee, and the beneficiary.

A grantor trust as a pension trust is in a superior position than other pension trusts due to the grantor having the ability to amend and modify a trust agreement, and the power to designate and select a trustee.[184] Subsequently, the foreign grantor trust as a pension plan has a tax advantage based on the grantor trust rules. Due to the tax advantages, grant trusts have been a practical approach to a part of a pension scheme. For instance, trust income generated is taxed at the grantor's income tax rate rather

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[181] William Skinner & Kris Hatch, "PFIC Testing - Significant New Guidance but Some Unanswered Questions Remain," *International Tax Journal* 47 (2021).

[182] IRS *Foreign Trust Reporting Requirements and Tax Consequences,* https://www.irs.gov/businesses/international-businesses (last accessed on 1 June 2021).

[183] *Id*.

[184] IRS *Abusive Trust Tax Evasion Schemes*, https://www.irs.gov/businesses/small-businesses-self-employed/abusive-trust-tax-evasion-schemes-questions-and-answers (last accessed on 1 June 2021).

than to the trust itself. Moreover, a revocable trust has flexibility, meaning a revocable trust that can be changed and canceled by the owner or grantor. At the same time, a trust cannot be amended or canceled without the permission of the beneficiaries of the trust.

US source dividends and non-portfolio interest earned by a foreign employee's pension trust would be subject to a 30% withholding tax, and any of its income connected with the conduct of a US business by the trust would be taxed at regular US rates. If the entity is a grantor trust, the 30% tax or the tax on effectively connected income would be imposed on the foreign grantor.

A grantor trust is categorized as a defined contribution trust. Private foreign trusts in the defined contribution are one of the very few types of foreign pensions which qualify under IRC 401 for deferred tax treatment. Suppose a US person abroad works in the UK and contributes to a UK grantor trust, then that person's contribution can be deducted from US income tax according to the US-UK tax treaty.

A trust form of pension plan is self-funded if more than 50% of the assets in the plan are attributable to the employee's contributions. In such case, the pension would be reported as a grantor trust.

The IRS has ensured that a foreign pension, especially foreign grantor trust in the UK, qualify as a "passive foreign investment company." As a result, if a US person in the UK has a grantor trust, income from the UK trusts have to be reported.[185]

A grantor is responsible for paying taxes on the income the trust generates, but trust assets are not counted toward the owner's estate. Such assets would apply to a grantor's estate if the individual runs a revocable trust; however, the individual would effectively still own the property held by the trust as if it is an irrevocable trust.[186]

A PFIC has an income test and asset test which will result in taxation. (1) Income Test—75% or more of its gross income comes from passive investments, (2) Asset Test—at least 50% of the average assets held are producing passive income.[187] Based on the two tests, a trust becomes a grantor trust if the creator of the trust has a reversionary interest greater than 5% of trust assets at the time the transfer of assets to the trust is made.

A foreign grantor trust does not have benefits of a qualified exempt trust, and is subject to reporting requirements and compliance costs. There is no tax deferral on the accrual of income within the trust nor deduction of contributions. Thus, the PFIC rules prohibit US persons from deferring US tax on passive investment earned through foreign entities which includes foreign pension trust schemes.

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[185] Christopher Callahan, *US Tax Laws Governing Foreign Pensions*, 169 TAX NOTES FEDERAL, (2020), pp. 1589–1594.

[186] In an irrevocable trust, property is basically transferred out of the grantor's estate and into a trust, which would effectively own that property. Individuals often do this to ensure the property is passed down to family members at the time of death. In this case, a gift tax may be levied on the property's value at the time it's transferred into the trust, but no estate tax is due upon the grantor's death.

[187] IRC Sect. 1291 (a)(1).

7.6 US Tax Consequence of US Shareholder Holding Period of PFIC Stock

Amounts allocable to the current year, and tax years before the company became a PFIC, are taxed at the highest ordinary tax rate in effect for the year to which the income is allocated, without regard to the US shareholders' actual income tax rate, deductions or credits in those years. An interest charge is applied to recoup any US tax deferral benefit.[188]

If a shareholder in a PFIC becomes a non-resident for US tax purposes, the share will be treated as disposed stock in the PFIC on the last day the shareholder is a US person.[189] There is a PFIC penalty on a US person whose pension income interest charge on an excess distribution. For example, a US person abroad in Japan reported $100,000 in PFIC pension income gain; now assume that the individual paid $38,000 in total tax, including $35,000 in tax plus $3,000 in interest charges. But the individual also had an undisclosed Japanese bank account of which the highest aggregate balance was $70,000. Because the highest aggregate balance of the undisclosed account was less than $75,000, the taxpayer qualifies for a reduced penalty rate of 12.5%, resulting in penalties of $8,750.

$$
\begin{array}{l}
\text{PFIC Pension income } \$100,000 \\
\text{Tax Paid } \$38,000\ (35,000 + \text{Interest charge } 3,000) \\
\text{Undisclosed foreign account } \$70,000\ (100,000 \text{ less than } \$75,000) \\
\underline{\text{Reduced penalty } 12.5\%} \\
\text{Penalty } \$\ 8,750
\end{array}
$$

If the PFIC stock were included in the undisclosed assets, a taxpayer would pay a higher rate under the Offshore Voluntary Disclosure Program. The offshore penalty applies to the entire gross value of the account balance. The mark-to-market rules apparently do not apply only when the PFIC assets are included among the undisclosed offshore assets.[190]

The US owner must file Form 3520 and 3520-A annually to report ownership, contributions, and distributions. The IRS has stated that these reporting requirements apply to any foreign pension scheme classified as a trust for US tax purposes.[191]

The tax treatment of PFICs requires disclosure on Form 8621. A Form 8621 applies to any investments that fall under the PFIC definition. This is the case for each investment that meets the definition and does not qualify for an exemption. These

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[188] IRC Sect. 1291 (a)(1) and (c).

[189] A non-resident spouse married to a US citizen or resident may elect to be treated as a US resident for the entire tax year.

[190] F*ramatome Connectors USA Inc. v. Commissioner*, Nos. 03–40,119, 03–40,121 (2d Cir. 2004) I.R.C. Section 1291(a)(2).

[191] Sheppard, Hale E., "Recent Foreign Trust Case Establishes Penalty Limits for Form 3520 and Form 3520-A Violations," *International Tax Journal* (2020), pp. 23–32.

investments have proportional attribution and ownership by the trust beneficiaries. The attribution does not apply to participants in an employees' trust.

US Persons Abroad and Other Reporting Obligations Under FBAR

US persons participating in a foreign pension will be required to submit Form 8938, Foreign Bank Account Report (FBAR or FinCen 114), and Form 3520 relating to US owners of foreign trusts.

The first pillar is often a social security-type program—a welfare program providing defined benefits for old age and disability. This type of plan is not FBAR-reportable. The second pillar is often an employer pension plan, funded by the employer and employee, which falls under the FBAR obligation. The third pillar is an individual or private retirement plan, which is also FBAR-reportable.

One of the most recent FBAR violation cases shows a hefty tax penalty imposed to the defendant. In Garrity, the defendant traveled to Liechtenstein with his three sons, withdrew $100,000 from the foreign trust account, kept $25,000 for himself, and divided the remainder equally among three sons. The issue was whether the defendant willfully violated the report FBAR requirement and it resulted in a civil penalty in the amount of $936,691.[192] The penalty amount was based on $100,000 or 50% of the balance of the account in the year for which the report was due.[193]

Civil penalty $936, 691

Interest $56, 252.78

Late payment penalty $337, 516.72

The total amount $1, 330, 460.50

Legal Issue Related to the Foreign Trust—Form 3520

The defendants "willfully failed to file an FBAR," and a rule related to "a penalty equal to $100,000 or 50% of the balance in the undisclosed account at the time of the violation, or whichever amount is larger" was applied.

Foreign trusts on Form 3520 Schedule B have to be filed when a US person is receiving a distribution from a foreign trust. Form 8939 also has to be filed in compliance with the duty to report "foreign financial asset."

The most recent Revenue Procedure 2020–17 applies to the US persons participating in "tax-favored foreign trusts" or "tax-favored retirement trusts." Revenue Procedure 2020–17 defines a qualified individual as a US person "who is compliant with, or comes into compliance with, all US federal income tax return filing requirements for all open tax periods, and who has, to the extent required, reported as

[192] *United States of America v. Diane M. Garrity, Paul G. Garrity, Jr. and Paul M. Sterczala*, No. 3:15-CV-243(MPS) (D. Conn. Feb. 28, 2019).

[193] The US Civil Penalty pursuant to 31 USC. Section 5321 (a) (5).

income the contributions to, earnings of, or distributions from an applicable tax favored foreign trust."[194]

Penalty Abatement Revenue Procedure 2020–17 provides that "eligible individuals who have been assessed a penalty under IRC Sect. 6677 for failing to comply with the information reporting requirements with respect to an applicable tax-favored foreign trust" may seek relief in the form of an abatement of penalties assessed or a refund of penalties already paid.

IRS Revenue Procedure 2020–17

The IRS published Revenue Procedure 2020–17 on 16 March 2020. The Treasury Department and the IRS have reiterated that the applicable tax-favored foreign trusts are subject to restrictions, such as contribution limitations, conditions for withdrawal, and information reporting. Moreover, US persons may be required under IRS Sect. 6038(D) to separately report information about their interests from the foreign trusts.

Qualified taxpayers can use this exemption to exclude themselves from information reporting requirements under IRC Sect. 6048. It applies to US persons concerning their transactions with, and ownership of, certain tax-favored foreign retirement trusts and certain tax-favored foreign nonretirement savings trusts.

The IRS established procedures for eligible individuals to request abatement of penalties that have been assessed or a refund of penalties that have been paid under Sect. 6677 for the individuals' failure to comply with the information reporting requirements of Sect. 6048 concerning an applicable tax-favored foreign trust. Eligible individuals may request relief following instructions in the revenue procedure. This includes mailing completed Form 843 to the IRS unit that processes Form 3520 & Form 3520-A. Eligible individuals should write the statement "Relief pursuant to Revenue Procedure 2020–17" on Line 7 of the form.[195]

The revenue procedure does not affect any reporting obligations under Sect. 6038D or any other provision of US law. Taxpayers must report on FinCEN Form 114, Report of Foreign Bank and Financial Accounts (FBAR), include on Form 8938 if applicable, and properly report income attributed to the tax-favored foreign retirement trust or non-retirement savings trusts. This includes the preparation of Form 8621 to disclose the ownership of any PFICs owned within the trust and calculate income attributed to such investment during the year.

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[194] IRS, Revenue Procedure 2020–17, https://www.irs.gov/pub/irs-drop/rp-20-17.pdf (last accessed on 1 June 2021).

[195] Line 7 should explain how the eligible individual meets each relevant requirement and how the foreign trust meets each applicable requirement. This revenue procedure is effective as of 16 March 2020, and applies to all prior open taxable years, subject to the statute of limitations.

8 Concluding Notes

From the financial consumers' perspective, "expatriates" or US persons abroad need enhanced "financial literacy" on how the domestic as well as foreign pension schemes will affect their obligation to comply with tax reporting and filing tax returns on their pension incomes from Social Security benefits and other private pension plans.[196] This chapter presented four major themes focusing on US persons abroad and taxation of Social Security benefits and private pension plans.

The first theme focused on the US person's Social Security Taxation and Social Security Totalization and Windfall Exemption Taxation which will affect US persons living and working in foreign countries. The second theme presented a generic pension and benefit pillar-based taxonomy and how they correspond to taxation in the US. The third theme focused on private pension plans. Deduction and deferral options according to the optimal triplet representing three stages of taxation on the private pension schemes for establishing a basis for comparison in cross-border pension transfers. Rollovers and transfer of non-US foreign pensions and fiduciary liability and corresponding risks on the US person were also discussed. The fourth theme related to US persons' tax filing and reporting obligations under the Foreign Account Tax Compliance Act and Foreign Bank and Financial Account regulations.

US persons abroad will face the risk of a lesser amount of Social Security benefits due to the lack of "covered employment" duration. In certain cases, foreign employers may not have a sponsored public pension plan. US persons who have been employed in foreign countries may also face no tax preferred retirement funds, be unable to participate in the Individual Retirement Account, have no opportunities for rollovers from prior employer plans, or be subject to double taxation due to no Social Security totalization agreement with the US.

A US person can be covered by US Social Security only if the individual works for a US employer**.** A US employer includes a corporation fully owned by a US entity, a foreign affiliate of a US employer that has entered into an agreement with the IRC Sect. 3121(l) to pay Social Security taxes for US persons employed by the affiliate, a partnership where at least two-thirds of the partners are US persons, and a trust if all the trustees are US persons.

The Windfall Elimination Provision (WEP) will likely apply to US persons abroad who receive a foreign pension, or a pension from work in the US not covered by Social Security. The WEP means a US person's Social Security benefits may be reduced.

The WEP reduces the individual's Eligibility Year (ELY) benefit amount before it is reduced or increased due to early retirement, delayed retirement credits, or cost-of-living adjustments. The following examples show how the WEP reduction changes when the ELY benefit is affected by other factors.[197]

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[196] Jill E. Fisch, "Annamaria Lusardi & Andrea Hasler, Defined Contribution Plans and the Challenge of Financial Illiteracy," *Cornell Law Review* 105 (2020), pp. 741-796.

[197] Jeffery R. Brown & Scott J. Weisbenner, "The Distributional Effects of the Social Security Windfall Elimination Provision," *Journal of Pension Economics and Finance* 12, (2013), pp. 415–434.

Table 14 WEP guarantee examples: hypothetical workers based on 2013[199]

	US Person A	US Person B	US Person C
Years of contributions	WEP reduction 20 years	WEP reduction 25 years	WEP Not affected 30 years
First PIA	40%	65%	90%
Regular PIA	$1.089	$1,241	$1,393
WEP PIA	$676	$207	$0
Monthly non-covered pension	$800	$600	$400
WEP 1/2 non-covered pension	$400	$300	$200
WEP reduction	$400	$207	$0
Social security benefit	$689	$1,034	$1,393

To calculate the WEP-adjusted benefits, the social security administration will start by calculating the Average Indexed Monthly Earnings (AIME), which is an inflation indexed monthly average of an individual's highest 35 years of earnings. It then uses the AIME to calculate the individual's Primary Insurance Amount (PIA).[198] (Table 14).

Based on the PIA calculator, examples of covered as opposed to non-covered employment will be an additional variable. For example, suppose Joe was employed for 25 years under non-covered employment in Japan. He spent the last 20 years of his work with a covered US employer. Since Joe had only 20 years of covered work, the first $996 of his earnings is multiplied by the WEP-adjusted multiplier of 40%, instead of the 90% used when no WEP adjustment is required.

The IRC only allows a credit to taxpayers who save for retirement in an Individual Retirement Account.[200] Foreign defined contribution plans are not treated as "qualified."[201] US persons participating in defined contribution plans may be taxed on the value of the vested interest in the plan.[202] US source income of the plan will not be eligible for exemption or deferral in the US. A foreign retirement plan will

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198 Erik Meijer, Francisco Perez-Arce, & Maria Prado, "A Framework for Cost–Benefit Analysis of Totalization Agreements," Ann Arbor, MI. *University of Michigan Retirement and Disability Research Center Working Paper*, 2020–410, (2020).

199 US Social Security Administration, https://www.ssa.gov/policy/docs/program-explainers/windfall-elimination-provision.html (last accessed on June 1, 2021).

200 IRC Sect. 86.

201 IRC Sect. 401-409A.

202 R. Holzmann, R. Hinz, H. von Gersdorff, G. Impavido, A. R. Musalem, K. Subbarao, "Old-Age Income Support in the 21st Century: An International Perspective on Pension Systems and Reform," *World Bank Resources* (2005).

be treated as income earned by a foreign entity. The foreign retirement plan may be classified either as a nonqualified employee trust, a corporation, or a grantor trust.

US source dividends and non-portfolio interest earned by a foreign employee trust would be subject to a 30% withholding tax, and any of its income connected with the conduct of a US business by the trust would be taxed at US tax rates. If the foreign entity is a grantor trust, the 30% tax or the tax on "effectively connected income" would be imposed on the foreign grantor.

Tax treatment of foreign pension plans in US tax law has been limited. Foreign pensions are usually not "qualified" under IRC Sect. 401. Only the US-UK Income Tax Treaty allows a foreign pension contributions to be applied as a deduction when filing federal income tax.

The employee's contributions to the plan are deductible by the employee. Contributions to a foreign pension plan are deductible in computing an individual's taxable income in a country, and the individual is subject to tax in that country only in respect of income or gains remitted or received in such a country; then the deductions otherwise allowed for such contributions are reduced to an amount that bears the same proportion to such deduction as the amount remitted bears to the full amount of the individual's income or gains that would be taxable in the country if the individual had not been subject to tax on remitted amounts only.

Employee contributions to 401(k) plans were exempt from income tax up to a yearly ceiling of $19,500 in 2021. The limit to annual defined benefit was $230,000 in 2021. Employer contributions to all defined benefit plans in 2020 were tax-exempt up to a level that allows an annual pension of $230,000.[203]

Other than the status of foreign pension plans in the IRC, private foreign pension plans are not easily portable due to private pension plans requiring vesting periods of years. Tax treatment of foreign private pension plans for US persons are limited. Some foreign private pension plans may not have a matching contribution system from the employer.[204] In addition, there can be a mismatch of taxation on cross-border benefit payments at the distribution stage.

A mismatch derives from different tax regimes. Major different tax regimes related to private pension include the E-E-T model or the T-E-E model. In addition to the different taxation models, existence of "the Saving Clause" in the income tax treaties based on source or residence taxation build on complexity of portability. A worst case scenario would result in double taxation on the same pension scheme for pensioners who are in a residence taxation jurisdiction.[205]

The US private pension taxation is characterized as Exemption at contribution-Exemption at investment of pension funds, and Taxation at distribution pattern.[206]

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[203] IRS 2020–245, October 26, 2020, https://www.irs.gov/newsroom/irs-provides-tax-inflation-adjustments-for-tax-year-2021 (last accessed on June 1, 2021).

[204] OECD, *OECD Project on Financial Incentives and Retirement Savings,* (2018).

[205] Robert Holzmann & Johannes Koettl, "Portability of Pension, Health, and Other Social Benefits: Facts, Concepts, and Issues," *CESifo Economic Studies* 61, (2015), pp. 377–415.

[206] Robert Holzmann, Edward Palmer, Robert Palacios & Stefano Sacchi, *Progress and Challenges of Nonfinancial Defined Contribution Pension Schemes.* MIT Press, (2020).

In the US, an employer's pension contribution is deductible in computing corporate income taxes, and the investment earnings on plan assets are not taxed. The employee is taxed once, and personal income taxation is deferred until the employee receives a distribution from the plan. In comparison, for savings through wage payments, the employee is taxed twice when wages are received and when investment earnings are received on the subsequent savings.[207]

Two aspects of the tax advantage of pensions are pre-tax contributions and the tax-exempt status of pension plan earnings. When income is taxed according to a progressive tax scale, US persons can avoid paying high marginal tax rates on pension contributions during their working years and instead can pay lower tax rates when they receive their pension during retirement.[208]

Holzmann and Koettl's study of the optimal triplet on pension taxation is insightful. Their study provides the possible effects of US pension taxation based on the E-E-T model. The model can also be useful in a feasibility study of cross-border private pension portability between the US and foreign pension plans.[209]

US persons abroad as non-resident require filing a US state tax return. Each state has its own set of rules about whom it considers a "resident" and their own minimum filing requirements. Most states also allow the foreign earned income exclusion in determining taxable income.

US Persons Abroad and De-Risking in Foreign Pension Plans

US persons regardless of their residency must include the amount of vested pension contributions made by the employer and the employee in their gross income under the inter-governmental agreement FATCA. For example, the agreement between the US and Japan within the FATCA framework created a system where two countries disclose financial information of US persons as well as Japanese nationals who have bank accounts that are related to the US.

In addition to FATCA, "Tax Guide for US Citizens and Resident Aliens Abroad in IRS Publication 54," indicates the US persons abroad are to report pension income from grand trusts as PFICs on Form 8621, although foreign trusts need to be disclosed on FBARs in Form 3520 and 3520A, and Form 8938. Foreign pension trusts will be subject to US source income, because foreign trusts are not eligible for exemption or deferral in the US, but rather will be treated as income earned by a foreign entity.

Acquisition of financial literacy is the ultimate defense against pension-related compliance risks since naïve negligence of not knowing cannot be a defense against

[207] *Id.*

[208] Dan McGill & Donald S. Grubbs, Jr., *Fundamentals of Private Pensions*, University of Pennsylvania Press, (1989).

[209] *Supra* at 203, 209. Holzman et al. study specifies that the effects of E-E-T model on both employers and employees' savings within the US worldwide taxation can be compared with other countries based on the nine indicators: (1) wages vs. pensions, (2) deferred wages vs. pensions, (3) the employer-provided health insurance other fringe benefits vs. pensions, (4) Social Security vs. pensions, (5) defined benefit vs. defined contribution plans, (6) individual plans vs. employer-provided plans, (7) self-employment vs. corporate employment, (8) lump-sum benefits vs. annuities, and (9) pension investments vs. other asset investments.

violations. Non-compliance to reporting would result in hefty penalties. The concept of "de-risking" has emerged as another way for pensioners as financial consumers to seek an optimal private pension scheme by selecting a system that would maximize their welfare.[210]

De-risking also includes alternative plans to ultimately build new resources. As for the initial process, US persons abroad can utilize resources from the government agencies. The Consumer Financial Protection Bureau (CFPB) in the US is a government agency to advocate for financial consumers, particularly pensioners.[211] An integrative approach to pension accounting and tax compliance in cross-border public and private pension schemes would be necessary, particularly for US persons abroad.

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[210] Secunda, Paul M. & Maher, Brendan, "Pension De-Risking," *Washington University Law Review* 93, (2016).

[211] Consumer Financial Protection Bureau, *Consumer Advisory: 3 Pension Advance Traps to Avoid,* https://www.consumerfinance.gov/ (last accessed on 1 June 2021).

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Home Equity Monetization Schemes: An Inter-Country Survey

YoonSu Kim, Young-Man Lee, and Man Cho

Abstract The home equity monetizing scheme is defined as a program that enables two conditions for the elderly population—continued residing in the same property and periodic payment out of home equity. And monetizing home equity schemes can be categorized into two general types, i.e., the mortgage type and the equity release type. In the former, the consumer takes a collateralized loan from a lender such that the borrower is periodically paid by the lender a fixed amount of principal, and the lender recovers the total loan amount at the contract termination by liquidating the collateral. Such products are found in the U.S., Korea, Hong Kong, the UK, Canada, and New Zealand. Under the second type, property owners sell home equity either partially or entirely to obtain cash while continuing to live in the same residence. In Singapore, the government purchases home equity and makes a periodic payment to consumers. In contrast, such as Australia and France, either financial institutions or private investors purchase home equity and allow prior home owners to continue to reside in the same properties. This chapter outlines the characteristics of each of the above nine products.

1 Introduction

Population aging is currently a global phenomenon, due in large part to the advancement in medical technologies and the sustained economic growth among developed economies. In countries that experience a rapid increase in aged citizens, it is

Y. Kim (✉)
Korea Housing Finance Corporation, Busan, Korea
e-mail: yskim@hf.go.kr

Y.-M. Lee
HanSung University, Seoul, Korea
e-mail: ymlee@hansung.ac.kr

M. Cho
School of Public Policy and Management, KDI, Yeongi-Gun, Korea
e-mail: mancho@kdischool.ac.kr

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commonly observed that retirees, particularly those living in their own residences, are characterized as “house-rich-cash-poor.” This is generally the case even if a country has the typical three-tier pension system (i.e., tax-based basic pension, contribution-based public pension, contribution-based private pension), with the exception of a small number of countries with a high current income replacement ratio. Hence, monetizing home equity can serve as a viable option to supplement the income stream for retirees in many countries to ensure a healthy and dignified retired life for their citizens.

One way to monetize home equity is downsizing: that is, selling one’s residence and moving to a cheaper house to use the difference in property prices for living expenses. This option, however, forces the elderly to move to a new, and possibly unfamiliar and unwanted location, although many retirees prefer “aging in place,”—i.e., living in the same property and location where they have been living. In contrast, there are alternative options observed in a number of countries, with which they can monetize a part of their home equity while living in the same residence. As such, it can offer an additional (or 4th) tier in a country’s multitier pension system.

In a broad sense, those monetizing schemes are categorized into two general types: the mortgage type and the equity release type (see Fig. 1). In the former (generally referred to as the reverse annuity mortgage, RAM), the consumer takes a collateralized loan from a lender such that the borrower is periodically paid by the lender a fixed amount of principal, and the lender recovers the total loan amount (sum of the periodically paid principals) and interest at the contract termination (usually at the time of death of the borrower or of selling the property) by liquidating the collateral. RAM can be further classified into two types—those with a government guarantee and those without such a guarantee (i.e., private RAM products). Under the first type, the government bears the crossover risk, i.e., the risk that the total principal and interest to be recovered exceeds the liquidation price of the collateral to enable the market for RAM. Such products are found in the United States, Korea, and Hong Kong. On the other hand, private RAM products are traded in countries such as the United Kingdom, Canada, and New Zealand.

Under the second type, the home equity release product, property owners sell home equity either partially or entirely to obtain cash while continuing to live in the same residence. Here, again, the program is run with and without government involvement; that is, in Singapore, it is the government that purchases home equity, in return for which the public agency, the Housing Development Board (HDB), makes a periodic payment to consumers. In contrast, under similar contracts in other countries, such as Australia and France, either financial institutions or private investors purchase home equity and allow prior home owners (usually senior citizens) to continue to reside in the same properties.

In this chapter, we discuss key profiles of each of the above nine products for the purpose of exploring the benefits and costs of utilizing them as a supplement to the conventional public and private pension programs. There is one clear benefit that is already stated, i.e., allowing retirees to live in their prior residences (“aging in place”). As a financial product, the above schemes generally entail a high cashflow risk, which is influenced by three key underlying risk drivers—longevity of consumers

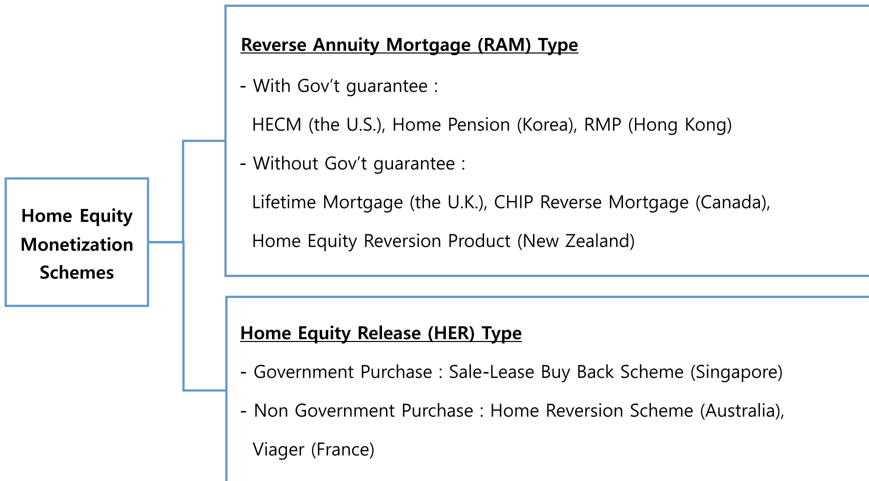

Fig. 1 Home equity monetization schemes observed from nine countries

(i.e., a longer-than-expected life duration), interest rate movements, and home price dynamics. That is why a government is generally an important market maker, as shown by the first group of countries where the products become a low-cost one for private financial institutions (usually commercial banks) to transact. Nonetheless, we also observe RAM products without such public sector guarantees, as shown from the second group. The UK case is particularly interesting in that the product is sold by insurance companies rather than banks. In addition, there are several home equity release (HER) products observed from three countries (the third group), implying that equity monetization can be done in a number of creative ways to meet consumer preferences with or without government involvement. However, the extent of market penetration of the above products is generally low, which appears to be a policy issue to be approached by the international academic community along with policy circles.

2 Reverse Annuity Mortgage (RAM)

2.1 RAM with a Government Guarantee

2.1.1 *Home Equity Conversion Mortgage (HECM) in the US*[1]

Being administered by the federal government ministry of Housing and Urban Development (HUD), the HECM started in 1987 as a pilot project and became a permanent financial product of the Federal Housing Administration (FHA), an agency under the

[1] http://www.hud.gov/program_offices/housing/sfh/hecm.

HUD, in 1989. There was a competing RAM product issued by the Federal National Mortgage Association (FNMA), the Home Keeper Mortgage, which was stopped in 2008. The financing source for the guarantee on the HECM is the mutual mortgage insurance (MMI) fund, to which the US government can contribute additional funding with Congress' consent (under the Federal Credit Reform Act of 1990).

There are two main attributes of the HECM to note. First, the FHA reimburses the credit losses of lenders (private financial institutions). That is, if the sum of a particular loan (i.e., outstanding principal balance paid to consumer) exceeds 98% of the property value, the FHA purchases the loan by paying the full loan amount; hence, the lender does not bear the house price risk while earning the lending fee and interest rate margin. Second, the FHA considered securitization as the funding method for the HECM, and HECM Mortgage Backed Securities (HMBS) were issued by the Government National Mortgage Association (GNMA) in 2007. Third, the origination cost for (or fee charged to) financial consumers is generally high, partly because the operation of the program is delegated to lenders.

The total cumulative issuance of HECM contracts by the end of 2020 amounted to 1,175,584, with an average issuance volume of 52,346 during the last 10 years (2011–2020). In the first 10 years, the average annual origination volume was merely 3,500, which increased rapidly along with the strong home price appreciation, with some years before the financial crisis recording more than 100,000 loan contracts. However, the demand for the HECM quickly declined with the decrease in housing prices after the global financial crisis.

In terms of the product characteristics, the minimum age for the subscription is 62 years old, but there is no restriction in relation to the number of housing units owned and the house price level. However, the maximum house price that is considered in the loan underwriting is $765,600 (Fig. 2).

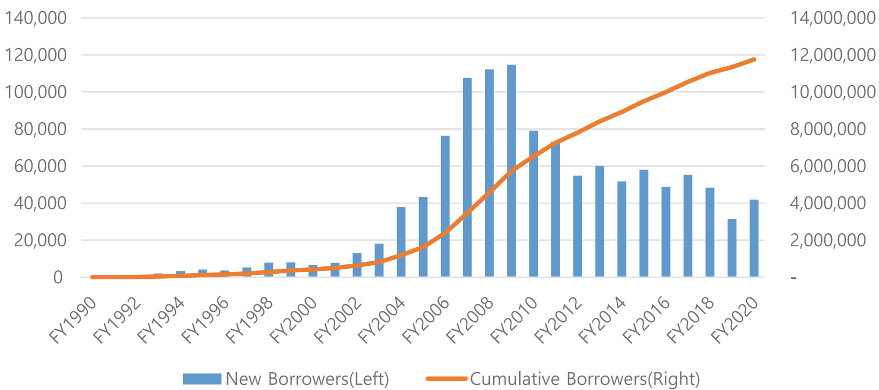

Fig. 2 Number of HECM contracts. *Source* NRMLA (National Reverse Mortgage Lenders Association)

The payment methods (to the borrower) are diverse, including the lifetime payment until death (the Tenure Payment method); the payment during a predetermined finite term (the Term Payment method); the discretional withdrawal with a credit limit (the Line of Credit method); the combined method of the first and third (the Modified Tenure method); the combined method of the second and third (the Modified Term method); and the lump-sum withdrawal by consumer (the Single Disbursement method). The shares of the above methods are shown in the table below, with the Line of Credit method taking over 90% of the total.

One of the key parameters used is the maximum loan amount, which is determined by multiplying the principal limit factor (PLF) by the maximum claim amount (MCA). The MCA is the minimum between the property value and a cap imposed (currently $765,600), and the PLF is a similar variable to Loan to Value (LTV), which sets the total principal amount paid to the consumer as a ratio to the property value.

The guarantee fee takes two forms—the initial fee and the annual fee. Before October 2017, the former was 0.5% of the MCA, and the latter was 1.25% of the outstanding loan balance (OLB); then, they were changed to 2.0% (of the MCA) for the former and 0.5% (of the OLB) for the latter.

The lending interest rate can be either variable or fixed, which is determined by the lender, and the interest rate margin is approximately 2.25–2.75%. For the variable rate RAM, the caps for the rate adjustment are 2.0% per annum and 5.0% for loan life.

There is a mandatory counseling requirement for HECM subscribers, with the entity that is approved by the HUD which issues the Counseling Certificate after that is done. Counseling can be done either in person or by phone with the spouse being required to be present as well, and the fee is generally $125 per case. The certificate is valid for 180 days. Regarding other characteristics, the lender can transfer the loan to the HUD if the outstanding principal balance reaches 98% of the MCA, and the additional payment afterward is made by the contractor designated by the HUD (the HUD contractor) (Table 1).

To reduce the burden of HECM payments (transferred from lenders), the HUD has been issuing HMBS (HECM Mortgage Backed Security) since 2007, with the guarantee by the GNMA for timely payment of principal and interest. The private issue of security acquires HECM loans from lenders with credit enhancement by the GNMA, which takes the guarantee fee reflected in the lending rate.

The HMBS consists of "Participation," a principal payment stream that is created and securitized from one HECM loan. Hence, the HMBS pool includes multiple HECM contracts with the principal payments made at a particular time period, and in this way one borrower (or payments made to the same individual) can be encompassed in multiple HMBS pools. For example, suppose that a loan with $225,000 MCA and $125,000 Net Principal Limit (or maximum loan amount) is issued in January and that $65,000 is paid in the same month. If this monthly payment is included in an HMBS issued in January, then this is referred to as the first Participation; in the next month, the issue charges the guarantee fee and servicing fee, which are added to the total lending amount, and this additional amount can be added to another HMBS as the second Participation. In this way, the securitization of the additional lending

Table 1 HECMs by payment plan option

Fiscal year	Share of Maximum Claim Amount (MCA)					
	HECM payment option					
	Tenure	Tenure and line of credit	Term	Term and line of credit	Line of credit	Single disbursement
2012	1.02	1.92	0.32	3.27	93.47	0.00
2013	1.09	1.74	0.47	3.04	93.66	0.00
2014	1.72	2.09	0.74	3.53	91.90	0.02
2015	1.30	2.17	0.61	3.37	92.03	0.53
2016	1.26	2.06	0.65	3.27	88.08	4.69
2017	1.10	2.11	0.61	3.06	85.77	7.35
2018	0.90	2.00	0.65	2.93	85.90	7.61
2019	0.96	1.72	0.65	2.74	88.43	5.51
2020	0.55	1.27	0.67	2.26	93.48	1.86

Source US Department of HUD/FHA, 2020 FHA Annual Report October 2020

amount continues until the total reaches 98% of the MCA,[2] at which point the lender has to repurchase the lending amount from the security issuer.

The primary loan types for the HMBS pool were mostly the fixed-rate lump-sum disbursement contracts in the beginning, but the share of the adjustable-rate line of credit contracts steadily increased and became the majority from 2017.[3]

The HMBS investors purchase the security at face value and are paid both principal and interest based on the accrual pass-through coupon bond method, and the prepaid principal is paid to them based on a *pro rata* method that is set in the contract. In the process, the FHA provides a credit guarantee (or insurance) to lenders for crossover risk, and the GNMA offers a guarantee to investors on the scheduled payments of principals and interest.

2.1.2 Home Pension in Korea

The old-age population (65 years or older) increased by 4.4% per annum during the last 10 years (or more than 290,000 per year), which represents the fastest phase among the OECD countries. The share of old-age people was 15.7% in 2020, 29th among the 37 OECD countries, but the ratio is predicted to be 37.4% in 2048, which will be first place among them. In addition, the poverty ratio among the old-age population was 43.4% in 2018, which is three times that of the OECD average (14.8%) and 14 times that of France (4.1%).[4]

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[2] HMBS Investor Reporting December 2019.

[3] http://riskspan.com/a-primer-on-hecm-loans/.

[4] KERI (Korea Economic Research Institute), 2021.

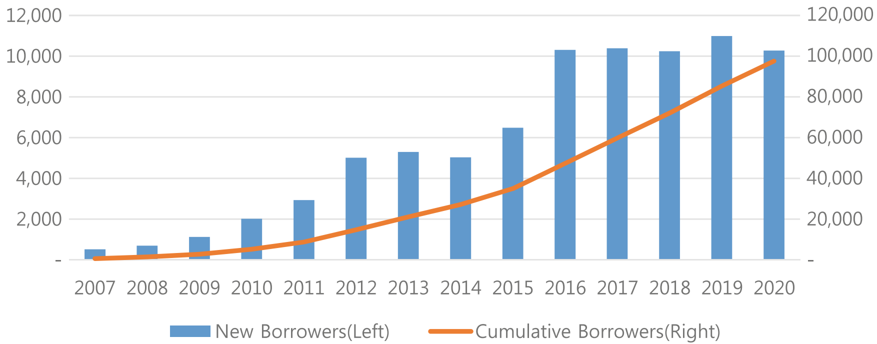

Fig. 3 Number of Home Pension contracts. *Source* Korea Housing Finance Corporation

As one policy instrument to deal with population aging, the Korean government introduced the Home Pension (HP) in 2007, a RAM product with a government credit guarantee, for the purpose of stable housing and income supplementation for old-age consumers. In particular, the Korea Housing Finance Corporation (KHFC), the sole MBS issuer in Korea, provides a direct guarantee for the operational expenditure of lenders for the lending program, which implies that the subscriber does not pay the application fee to lenders at origination.

The number of HP contracts has been steadily increasing since its initiation in 2007, with approximately 10,000 new contracts per year recently and 81,306 cumulative contracts (as of December 2020). The payment method is almost all the lifetime payments (98.8%), with the remainder being the finite term payments (Fig. 3).

The minimum age for subscription is 55 years (any one spouse), and the maximum house price is 900 million Korean won[5] according to the government assessment value (approximately $1,000,000). There is no restriction in terms of the number of units owned, but the sum of all owned properties should have a value less than the maximum house price. The total lending amount should be less than 500 million won (approximately $420,000), the initial guarantee fee is 1.5% (of the property value), and the annual guarantee fee is 0.75% (of the outstanding loan balance). The lending rate is all adjustable rates, for which the subscriber can choose between two options: (1) the six-month adjustable rate with one benchmarking rate (COFIX) plus 0.85% as a spread and (2) the three-month adjustable rate with another benchmarking rate (CD) plus 1.1%. The spread is determined by the guarantor (KHFC), and there is no interest rate cap. There is one mandatory requirement for prospective subscribers, i.e., getting a counseling service from the KHFC free of charge (unlike in the US).

On 9 June 2021, the KHFC released a new Home Pension product, which is "trust-based" and, as such, allows an automatic transfer of the pension reception to the spouse at the time of death of the subscriber. Before this, the subscriber's children had to agree to the transfer because it was "collateral-based" (see the table below for the difference between the two methods). At the contract termination (death

[5] This is as of 31 December 2021. This could be higher in the near future.

Table 2 Collateral method versus trust method

	Collateral method	Trust method
Definition	Setting the first-claim collateral on home to get the guarantee for Home Pension (HP); Property owner under the registry is HP subscriber	Setting a trust on home to the KHFC (trustee and the first beneficiary) to get guarantee for HP; Property owner under the registry changes to the KHFC
Pension transfer to spouse	At the time of death of the subscriber, the spouse requires a consent from children to continue to receive pension payment	At the time of death of the subscriber, the spouse does not require a consent from children to continue to receive pension payment and live in the same property
Post contract termination provision	Remaining portion of property liquidation value after repaying accumulated loan amount being given to heir	Remaining portion of property liquidation value after repaying accumulated loan amount being given to the designated claimer (the subscriber can designate one, or all of children as the designator)

of the subscriber and spouse), the remaining portion of property liquidation value after recovering the accumulated principal, interest, and guarantee fee is paid to the legitimate claimant specified in the contract (usually the heir that can be either one of multiple persons) (Table 2).

2.1.3 Reverse Mortgage Program (RMP) in Hong Kong

Since 2011, the Hong Kong Mortgage Corporation (HKMC) has been issuing a RMP through its affiliated firm, the HKMC Insurance Limited (HKMCI), with a credit guarantee, and the product's overall structure is similar to that of the HECM in the US. Since its inception in July 2011, the accumulated issuance of the RMP was 4,418 as of December 2020, of which 48.5% represents the lifetime payment method and 51.5% is the term payment method (23.8% of the 10 year term, 15.2% of the 15 year term, and 12.6% of the 20-year term) (Fig. 4).

The minimum age for RMP subscription is 55 years old, and the collateral does not have to be a primary residence (and no restriction on number of housing units owned or housing price). However, Principal Limit Factor (PLF) is differentiated from the housing price level, and HK$25 million (either from one or multiple properties) is set as the overall limit that is considered in underwriting. Other product characteristics to note are as follows: no limit on loan amount; the initial guarantee fee of 1.96% of housing price, which paid at 0.28% per annum between the 4th and 7th years of loan life; the annual fee of 1.25% (of outstanding loan balance); both variable interest rate and fixed interest rate being available for consumers' choice, with the latter usually offering higher monthly payment and lump-sum payout (Table 3).

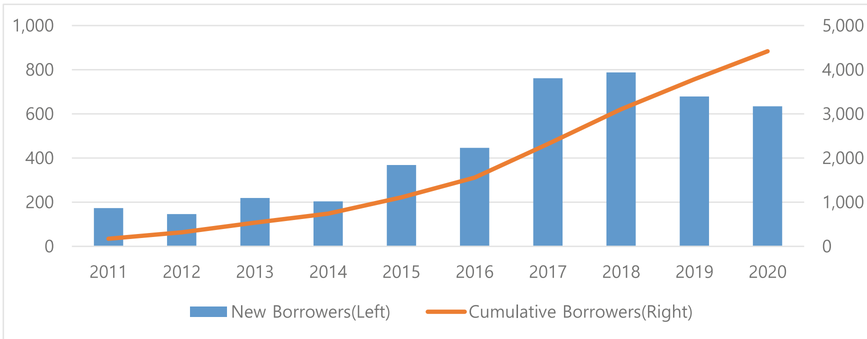

Fig. 4 Number of RMP contracts. *Source* HKMC Reverse Mortgage Program Statistics

Table 3 Maximum amount of specified property value for payout calculation

Appraised property value	Maximum amount of specified property value for payout calculation
HK$8 million or less	100% of appraised property value
Over HK$8 million	Sum of HK$8 million and 50% of portion exceeding HK$8 million (capped at HK$25 million)

Source HKMC Reverse Mortgage Information Pack (July 2021)

One unique characteristic of the RMP that was instituted in 2015 is the feature that allows consumers to use their life insurance contracts (the expected insurance payments to be more specific) as additional collateral, which allows a higher monthly payment. From 2019, the HKMC enhanced this option by releasing the Policy Reverse Mortgage Program (P-RMP) as a separate product, based on which one can subscribe by using the life insurance payment as only collateral. As in the original product, if there is a remaining portion of the insurance payment after recovering accumulated principal and interest (A-P&I), that is given to the heir of the subscriber; if there is a shortfall (i.e., the insurance payment being less than A-P&I), then that is not paid by the heir but is treated as a credit loss borne by the HKMCI. The minimum age for subscribing to P-RMP is 60 years old, and the insurance contract used as collateral should fulfill the following conditions[6]:

- The policyholder and the insured should be the same individual.
- The insurance contract should be with a company (or insurance issuer)-approved by the HK government.
- The insurance payment should be made in US or HK dollars.
- There should be no restriction or deduction attached to the insurance payment.
- There should be no linked provision to investment yield.
- The insurance premiums should be fully paid.

[6] HKMC web site.

- The insurance payment should be transferable to a third party without any restriction.

There is no restriction as to the number of insurance contracts that the subscriber can use, although he or she is supposed to use only one life insurance per contract as collateral, with the maximum total insurance payment being HK$15 million (one needs a special approval process if the amount exceeds HK$15 million). There are three payment methods—the lifetime payment, the term payment (10, 15, and 20 years), and the lump-sum payment, and the lump-sum payment should be used only for specific expenses such as unpaid insurance premiums, home improvement, and hospital costs. The interest rates can be either a variable rate or a fixed rate, the latter of which generates a higher monthly payment (Table 4).

2.2 *Private RAM Programs*

2.2.1 The Lifetime Mortgage in the UK

The share of the population who are 60 years or older in the UK is already 23% (as of 2016), entering into a superaged society, which is expected to rise to 32% after 50 years (in 2066). Accordingly, the need to utilize a monetizing scheme of home equity is also expected to heighten going forward (Table 5).

As in other countries, home equity generally takes the largest share in household wealth in the UK and plays a critical asset for retirees. According to one survey, people in the country perceive investment in housing as the second-safest means for post-retirement lives (following the employer pension scheme).[7]

Unlike other countries, the RAM program in the UK is run by private financial institutions, insurance companies in particular, rather than by government-linked financial intermediaries. The product was first introduced in 1972 by Allied Dunbar Assurance, one of the primary life insurance companies in the UK. It was essentially a lending product, in which a fixed amount of loan up to £30,000 was converted to a lifetime pension. In the early 1990s, product issues had to incur credit losses due to the negative equity situation caused by the steep increase in the interest rate and, at the same time, the decline in housing prices.

In response to the shift in market conditions, four insurance companies initiated the Safe Home Income Plans (SHIP) programs to stabilize the products, which was instituted with the requirement of information provision to financial consumers as well as a nonrecourse provision (i.e., no financial obligation on the part of the consumers in case of positive credit loss—accumulated principal exceeding housing price—and the right for them to reside in the same property even if such a condition arises). Related to the SHIP, the Equity Release Council (ERC) was created as a market-wide self-regulation entity. The market for the Lifetime Mortgage greatly

[7] Office for National Statistics, Early Indicators from the Wealth and Assets Survey, August 2018.

Table 4 Comparison of the RAM Products in the US, Korea, and Hong Kong

		Home Pension (Korea)	HECM (US)	RMP (Hong Kong)
Guarantor		• Korea Housing Finance Corporation	• Federal Housing Administration (FHA)	• Hong Kong Mortgage Corporation (HKMC)
Administration Costs		• Borrowers don't need to pay origination and servicing fee	• Borrowers should pay origination and servicing fee to the private lenders	• Borrowers should pay origination and servicing fee to the private lenders
Introduction		• July 2007	• 1989: Pilot Program • 1998: Regular Program	• July 2011
Eligibility conditions	Age	• Age 55 or older	• Age 62 or older	• Age 55 or older
	Property Ownership	• No limit but should be the aggregate government assessment value 900 million won or less	• No Limit	• No Limit
	Property Price	• The government assessment value 900 million won or less	• No Limit (Capped at US$765,600)	• No Limit (Capped at HK$25 million)
Payment Option		• Tenure or the Modified Tenure • Term or the Modified Term	• Tenure or the Modified Tenure • Term or the Modified Term • Line of Credit • Single Disbursement	• Tenure or the Modified Tenure • Term or the Modified Term (10year/15year/20year)
Maximum Loan Amount		• Min (Property Price × LTV, 500million won)	• Min (Property Price, $765,600) × PLF (Principal Limit Factor)	• No Limit
Mortgage insurance premium	Upfront Premium	[After February 2015] • 1.5% of property value [Before February 2015] • 2.0% of property value	[After October 2017] • 2.0% of property value [Before October 2017] • 0.5% of property value	• 1.96% of property value (payable in seven annual instalments)
	Annual Premium	• 0.5% of outstanding loan balance • 0.75% (Feb 2015) of outstanding loan balance	• 1.25% of outstanding loan balance • 0.5% (Oct 2017) of outstanding loan balance	• 1.25% of outstanding loan balance

(continued)

Table 4 (continued)

		Home Pension (Korea)	HECM (US)	RMP (Hong Kong)
Interest rates	Type	• ARM -COFIX (6 month) or CD (3 month) + margin	• ARM (Month, Year) -CMT (or LIBOR)+Margin • Fixed	• Hong Kong Prime Rate – 2.5%
	Margin	• KHFC's decision -COFIX : 0.85%, CD : 1.1%	• Private Lender's decision (2.25~2.75%)	• HKMC's decision
	Cap	• No Limit	• Yearly 2%, Lifetime 5%	• No Limit -Hong Kong Prime Rate is announced by the HKMC from time to time
Counsellor		• KHFC's counsellor	• Independent counsellor	• Independent counsellor

Table 5 UK Population Projections, 2016 to 2066

	2016	2026	2036	2046	2056	2066
All ages	65,648	69,235	71,814	73,948	75,650	77,043
Aged 60–74	10,023	11,487	12,416	11,933	12,675	12,081
Aged 75 +	5,326	7,078	8,683	10,693	11,338	12,310
% aged 60 +	23%	27%	29%	31%	32%	32%
% aged 75 +	8%	10%	12%	14%	15%	16%

Source Office for National Statistics, 2016-based population estimates, principal population projections

boomed from 2003, thanks in large part to the low market interest rates, with 38,000 annual new issuances on average during the last five years (higher than the 26,000 issuances per annum between 2004 and 2020). The total number of RAM products in the country that consumers can choose increased from 294 in June 2017 to 668 in June 2021, doubling within four years and signaling the recent trend of intensified competition in the market.[8] (Fig. 5).

The minimum age for subscription is 55 years old, and payment can be done by two methods—a lump-sum lifetime mortgage (one-time payment of entire loan amount) and a drawdown lifetime mortgage (drawdowns by consumers at their disposal with a given loan amount), and the shares of the two methods are 35% for the former and

[8] Equity Release Council Autumn 2021 Market Report.

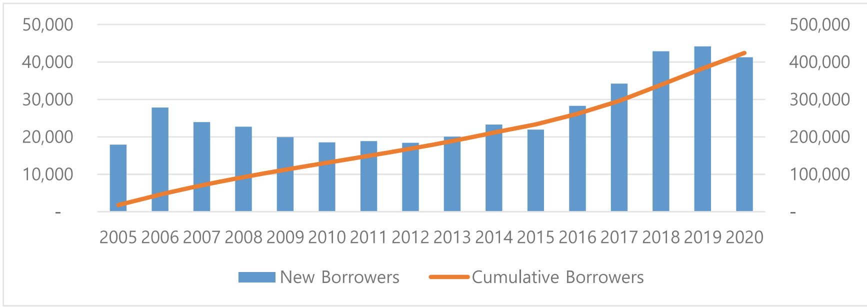

Fig. 5 Number of Lifetime Mortgage contracts. *Source* Financial Conduct Authority (http://www.fca.org.uk)

65% for the latter.[9] The interest rate is either variable or fixed, with the average rate in June 2021 being 4.26%.[10]

2.2.2 *CHIP Reverse Mortgage in Canada*[11]

In Canada, the CHIP Reverse Mortgage (CHIP—Canadian Home Income Plan) is issued by two banks—HomeEquityBank (HEB) throughout the country and Equitable Bank in several major cities. Consumers can subscribe either directly through the above two banks or through mortgage brokers. HEB was established in 1986 and has been supplying CHIP-RMs for the last 30 years.

The minimum age for the subscription is 55 years or older (with Canadian nationality), the collateral should be the primary residence, a spouse should also be over 55 years old, and receipts for property tax payment and subscription of homeowner insurance are needed. The Principal Limit Factor(PLF) is 55% of home equity value. For instance, if the property price is CA$800,000, CA$440,000 is available. Consumers can use this amount either by lump-sum single disbursement or by the combined method of lump-sum withdrawal and fixed monthly payment. In terms of interest rates, the typical interest rate for CHIP-RM is 5–7%, which is about 2–3% higher than that of the conventional (or forward) mortgage loans.

Both Home Equity Bank and Equitable Bank have no-negative-equity guarantees on reverse mortgage products. So, consumers don't have to repay accumulated loan amounts exceeding the housing price.[12] Also, consumers don't need to visit banks for subscription and can subscribe to reverse mortgage products by an online method through a digital online advisory company like "Homewise." If consumers want

[9] The first half of 2018, Equity Release Council Autumn 2018 Market Report.

[10] Equity Release Council Autumn 2021 Market Report.

[11] HomeEquityBank website (www.homeequitybank.ca/products/chip-reverse-mortage/).

[12] https://www.chip.ca/home-ownership-in-canada, Reverse Mortgage Comparison and Rates | Equitable Bank.

the service of Homewise, advisors from Homewise negotiate with banks instead of consumers and help consumers to make the best decision.

In Canada, the number of reverse mortgage contracts has been steadily increasing, and in 2021 the worth of CHIP reverse mortgages exceeded CA$5 billion, the highest ever.[13]

2.2.3 *Equity Protection Option in New Zealand*[14]

In New Zealand, more than 60% of people who are 65 years or older rely on the basic pension (NZ Superannuation), and accordingly, they are financially vulnerable when facing unexpected expenditures. To help address this problem, Heartland Bank and SBS Bank sell a home equity release product (HERP). The product is sold to home owners who are 60 years old or older with no outstanding mortgage loan (they can repay the mortgage by issuing a HERP). Both Heartland Bank and SBS Bank have no-negative-equity guarantees on HERPs and consumers don't need to repay accumulated loan amounts exceeding the housing price. This characteristic could be the one of reasons for its popularity in the market.[15]

The payment methods include a fixed monthly amount, discretionary withdrawal, and lump-sum payment. One feature to note is that subscribers can choose the Equity Protection Option, under which it is possible to leave a certain portion of home equity (up to 50%) to children or for future use regardless of the accumulated principal balance at the time of repayment. However, the maximum loan amount is reduced when choosing this option.[16]

The demand for HERPs has recently increased as the public becomes more aware of the product, and the outstanding loan amount in the case of Heartland Bank amounted to NZ$560 million (as of 30 June 2021). The loan balance for the whole country is expected to reach NZ$1 billion within a few years as more baby boomers start retiring. Although there is no restriction as to where to spend the borrowed funds, approximately half of the borrowers spend them on home improvements and approximately one-third on living expenses.[17]

In the case of Heartland Bank, the minimum property value is NZ$250,000, the PLF is 25% of the housing price when subscribing at 70 years old, and the average lending rate is 7.82% (for the variable rate contracts) with a NZ$1,275 application fee (as of 30 June 2019).

[13] How a reverse mortgage works in Canada, and why you should consider one | Financial Post.

[14] www.consumer.org.nz/articles/reverse-mortgages.

[15] www.stuff.co.nz/business/prosper/advice/300228098/the-pros-and-cons-of-reverse-mortgages.

[16] HeartlandBank website (www.heartland.co.nz/reverse-mortgage/what-is-a-reverse-mortgage).

[17] www.stuff.co.nz/business/300208921/reverse-mortgage-approvals-increase-20-percent-as-retirees-seek-cash.

3 Home Equity Release (HER)

3.1 The Lease Buy-Back Scheme (LBS) in Singapore[18]

Approximately 90% of land in Singapore is under government ownership. Housing in the country is supplied by two sources—the Housing and Development Board (HDB), the government agency that builds and supplies the HDB flats (which takes approximately 80% of housing stock), and the private housing market. The HDB flats are offered as 99-year long-term leases with below-market prices, and the owner occupancy rate in Singapore is 92.3% (as of July 2020) due to the active role played by the HDB.

The LBS product, initiated in 2009, is an instrument of income supplement for senior citizens in such a way that the residents of the HDB can resell some of the remaining lease period to the government after fulfilling the minimum year of residence and, in return for the sale, can receive a fixed amount of payment every month. The money from the sale (to the government) is added to the retirement fund, the Central Provident Fund Retirement Account (CPF RA), which serves as a base for a monthly paying life-time pension for the consumer (or subscribing the CPF-LIFE). The qualifying age for CPF-LIFE is between 55 and 80 years, and there is a requirement of a minimum balance in the retirement account. This product is viewed as an attractive option for retirees, as HDB residents can have periodic pension payments even after selling a portion of their home equity.[19] There was originally a private reverse mortgage market, which disappeared after the introduction of the LBS product.

Since its inception, the LBS product has gone through several revisions to expand its coverage to more elderly citizens. For example, it started with properties with three or fewer rooms in 2009 but extended to those with four rooms in 2015 and further to all HDB properties right now. The qualifying income level was S$3,000 (US$2,216) per month, which was increased to S$14,000 (US$10,343) now. (See Table 6 for the eligibility rules for the LBS product.) The residents can use the remaining portion of home equity for other purposes while subscribing to the product.

3.2 The Home Reversion Scheme in Australia

In Australia, there are two programs with which one can monetize home equity—the Reverse Mortgage Program, a collateralized lending product, and the Home

[18] HDB website (www.hdb.gov.sg).

[19] Deng (2014).

Table 6 Eligibility Rules for the LBS Product

Criteria	Eligibility
Age	All owners must have reached the eligibility age (currently set at age 65) or older
Citizenship	At least one owner must be a Singapore citizen
Income	Gross monthly household income of $14,000 or less
Flat type	All flat types[a]
Property ownership	No concurrent ownership of second property
Minimum occupation Period	All owners have been living in the flat for at least five years
Minimum lease	At least 20 years of lease to sell to the HDB

[a]Excluding short-lease flat, HUDC, and Executive Condominium units
Source www.hdb.gov.sg

Reversion Schemes, a home equity sale product.[20] For the former, there are the pension loans schemes run by the government along with the RAM products offered by private financial institutions; for the latter, there are the Home Sale Proceeds Sharing Scheme (HSPSS) and the Equity Release Agreement Program (ERAP).[21] Another related product is the Downsizer Contributions Program.[22]

The HSPSS, which is also called the Home Reversion Scheme (HRS), is sold by private financial institutions. One unique feature of this product is that the contract is based on the future (and predicted) value of your home. To illustrate, suppose that the current value of a property is $500,000; the subscriber is expected to live 20 more years (according to life expectancy); and the predicted value of the property after 20 years is $800,000, considering the average annual housing price appreciation rate. Given this, the consumer can enter into a contract based on 50% of the expected selling price after 20 years, which will yield a lump-sum payment of $400,000 (its present value) to the consumer. Depending on the discount rate that reflects age and longevity risk, among others, the actual payment is generally between 35 and 65% of the current value of the property.

The consumer can reside in the same property, and at the contract termination (usually the subscriber's death), the heir and the lender divide the selling price of the property 50:50. If the subscriber moves or passes away before 20 years, then the same division rule applies, but there is a rebate to home owner for the early termination of the contract as well as for the portion of the price appreciation that exceeds the originally predicted level. The housing-related taxes are also divided between home owners and financial institutions according to their shares (50:50). The well-known lender for this product is Homesafe, which offers the Homesafe

[20] "Equity release products", ASIC report, Nov. 2005 and the Money Smart home page run by the Australian Securities and Investments Commission (ASIC) (https://moneysmart.gov.au/retirement-income/reverse-mortgage-and-home-equity-release).

[21] Money Smart Home Page of ASIC, https://moneysmart.gov.au.

[22] Money Smart Home Page of ASIC, https://moneysmart.gov.au and the Domacom website, https://domacom.com.au/how-to-invest-with-domacom/senior-equity-release.

Wealth Release product, their HSPSS.[23] Currently, this product is traded only in the two largest cities—Sydney and Melbourne.

> The ERAP is a product in which a consumer sells the property at a predetermined price. In return, the buyer (financial institution) pays either a lump-sum amount of money or a lifetime pension to the consumer. Because a portion of home equity is sold at the time of contract, the resident pays a rent (referred to as the service fee) to the buyer. This, however, does not involve an actual cash outlay from the resident but a periodic sale of additional home equity to the buyer (hence, this product is also called the Sale and Leaseback Scheme). For example, if 20% of home equity with a current value of $500,000 is sold, then the resident will receive either a $100,000 lump-sum payment or an equivalent monthly life-time pension payment. The resident is also charged the rent (or prepaid fee) for living in the property for five years, for which the buyer (financial institution) takes additional home equity that is equivalent to the amount. This transfer of home equity occurs every five years, which sequentially reduces the share of the resident.

The ERAP is offered by such a firm as Domacom, a platform company specialized in asset investment and management, which mobilizes funding from small investors who are willing to purchase home equity through the Equity Release Agreement (often called the Seniors Equity Release program).[24] One notable characteristic of the product is that the money from the equity sale can be put into the Downsizer Contribution Program (with a limit of $300,000), with which a subscriber to the retirement pension program (or Superannuation) can waive all or a part of the capital gains tax when moving to a cheaper property after retirement.[25] This tax benefit applies only when moving to cheaper housing; from August 2020, the process from the ERAP can be allocated to the Self-managed Superannuation Fund as a lump sum.[26]

3.3 Viager in France, an Interpersonal Equity Release Contract[27]

In France, there has been an interpersonal equity release contract called Viager (meaning "life-time") since the Roman Empire, which is based on civil law. Under the contract, the owner sells homes through the media or brokers. If the owner is 60 years old, he or she can use about 50% of home price, if 70 years old, 60% of that, if 80 years old, 70% of that, and if 90 years old, 80% of that respectively.[28]

Normally, the buyer pays approximately 20–30% of the property value (called Bouquet) and promises the rest to be paid (to himself) in the form of a pension

[23] Homesafe website, https://www.homesafe.com.au.

[24] Domacom website, https://domacom.com.au.

[25] Australian Taxation Office Home (https://www.ato.gov.au/Individuals/Super/Growing-your-super/Adding-to-your-super/Downsizing-contributions-into-superannuation/).

[26] Domacom website, https://domacom.com.au.

[27] Kim (2005).

[28] Chou and Chang (2014).

(called Rente) until the resident passes away. In this case, the resident can live in the property even if the ownership is transferred to a third party. After the death of the seller, the property is transferred, and the rent payment is also terminated. Hence, the contract is based on the expected life expectancy of the resident, and the sum of the actual rent payments can be larger or smaller than the initial expected amount at the time of the contract.

There are two variations of the Viager contract—one in which the resident can reside in the same property until death and another in which the seller can reside in another property. Under the former, the buyer defers the right to reside, the Viager Occupe, which represents the typical contract type, while the second type is called the Viager Libre. The Viager Occupe has 97% of the market.[29]

The buyer takes the inflation risk as the monthly payment is variable with the general price level but has the potential benefit from price appreciation of the property. The typical buyer is someone who does not need a residence for a certain time period (e.g., someone who is dispatched to a foreign country or wants to purchase a villa), whereas the usual seller is the one who is a senior citizen with no heir. The contract is generally flexible in terms of transaction details, as it is a private interpersonal agreement. For example, to deal with longevity risk (the resident's living longer than his/her life expectancy), some contracts define finite terms for rent payments. There is a similar product to the Viager in the UK, called the Home Reversion Schemes (HRS); however, under HRS, the buyer is a financial institution, while it is between two individuals in France.

It is generally the case that either government or private financial institutions bear the main risks involved with RAM products (e.g., house price risk, longevity risk, and interest rate risk). However, under the Viager contract, the individual buyer takes all these financial risks. Nonetheless, the individual buyer can monopolize any return from house price appreciation. Protecting the residing right for the individual seller when the individual buyer passes away earlier than the individual seller requires the former to subscribe to life insurance.

4 Key Issues

In general, the RAM and the HER products discussed above are high-risk financial products, and as such, it is challenging for private financial institutions to trade them. Additionally, although several countries sell the products with a government guarantee, the market penetration thereof has not generally been high. As a case in point, the HECM in the US, a product with over 20 years' history, is subscribed to by only 3% of eligible households.

There has been a debate in academia as to the reasons for such a low penetration rate, with a couple of the main arguments being advanced: that is, the complexity of the product that makes it difficult for financial consumers (especially for old-age

[29] Chou and Chang (2014).

individuals) to understand and the uncertainty as to whether or not the price (or total cost) of the product subscription is adequate (in the US, the price of the HECM is generally perceived as too expensive).

As a potential benefit of the HECM, Davidoff (2015) argues that the general feature of the RAM as a nonrecourse product (i.e., borrower's not being responsible for credit loss of lender) enables the subscriber to ruthlessly exercise the put options, from which he can gain financially despite the high product price. That is, because of the nonrecourse nature, the borrower can withdraw the entire amount of the line of credit (set initially) and can terminate the contract, even if the collateral value drops below the limit of the credit line.

However, Lucas (2018) claims that the portion of borrowers who actually exercise the ruthless strategy tends to be small and that her simulation analysis indicates that the cost of HECM is too expensive for borrowers, puts too much financial burden on the government (due to the guarantee program), but generates too much profit for lenders (private financial institutions). That is, although lenders essentially do not bear any credit risk because of the provision that they can sell the loan to the guarantor (FHA) if the outstanding loan amount reaches 98% of the property value, they charge 1–3% risk spread above LIBOR (for the variable rate products) or the benchmarking government bond rate (for the fixed rate products) as well as the $2,500–$6,000 (depending on the property value) upfront origination fee to the borrower. As a remedy, the study proposes a direct sale of the product by the guarantor and an outsourcing of loan servicing to third parties to reduce the cost for consumers and suggests a penalty imposed for a large amount of withdrawal in the same year of property liquidation to disincentivize the ruthless exercise of the put option by the borrower.

Regarding financial literacy, Campbell (2016) argues that consumers in general exhibit a fairly low level, which is difficult to resolve through financial education for them. As such, appropriate financial regulations are warranted, especially for RAM products for which lenders should provide a simpler and more understandable product description to prospective subscribers. He also suggests the lending limit to vary depending on change in the housing price (or value of collateral) such that borrowers are not incentivized to exercise the ruthless put option, as well as the linkage of the product with health expenditure and long-term care, which will increase the incentive to preserve a certain portion of home equity as well as the demand for the product.

As another study to note, Merton and Lai (2017) propose an RAM product with a more tailor-made cashflow feature for retirees. For example, an RAM product can be designed in such a way that the monthly payments are structured to fit demands for those subscribers between 65 and 84 years with the rest of home equity being withdrawn (at the time of contract) to be used as a life-time pension from 85 years old. In that way, the subscribers can receive the amount that they need without the longevity risk. The study also suggests combining RAM with life insurance such that if the subscriber pays the insurance premium, the lender can increase the LTV limit.

In addition to the above issues, the incentive to leave an inheritance to an heir is another obstacle for subscribing to the home equity release product, particularly in

East Asian countries such as Korea and Japan, where there still exists the tradition of intergenerational family support for elderly people (i.e., children's supporting parents, who tend to leave a house as an inheritance).

In countries in which private financial institutions (FIs) sell home equity release products, it appears that protecting financial consumers is one of the key policy issues to be addressed. It is often the case that FIs structure the product such that the financial risks are borne by the consumer, which can destabilize housing consumption. For example, there are those RAM products that have a specific provision on negative home equity (i.e., terminating the contract when the total amount of principal and interest exceeds home equity and liquidating the property to recover the lending amount). If an elderly borrower subscribes to such a product, he or she can be expelled from the property if and when the negative equity condition is realized. Because of this possibility, it is prohibited in Australia to sell the RAM or equity release product with such negative equity provision.

As the other of the coin, guaranteeing the subscriber of the home equity release product to continue to live in their homes can promote self-selection or moral hazard problems, even though doing so enables stable housing consumption and aging-in-place. That is, retirees with a family history of longer-than-life-expectancy lives would more frequently purchase the products, introducing an adverse selection problem, or some of the subscribers would spend less to maintain the properties (a possibility of moral hazard).[30] Hence, designing an appropriate RAM or equity release program for a given country requires a balanced approach to properly reflect those multiple aspects of the risk-return attributes in the contract.

5 Conclusion

The Home Equity Monetizing Scheme is defined as a program that enables two conditions for the elderly population—continued residing in the same property and periodic payment out of home equity. As such, the product is suited to house-rich-income-poor retirees. In that sense, RAM and other products in this vein can work as the fourth layer in a country's usual three-tier pension system.

However, it is generally the case that the products are too risky for the private financial service sector to supply and that the government has to share embedded risks and make sure the products are sold to financial consumers at a reasonable level of cost. Those products in the three jurisdictions—the HECM in the US, the Home Pension in Korea, and the RMP in Hong Kong—are such ones, which can serve as a benchmark for those countries that consider a similar route in establishing this additional layer in the pension system. Some of the notable characteristics of these products include the following: for the Home Pension in Korea, the government takes over the entire cashflow risks or the product and, at the same time, restricts the interest rate margins charged by the lenders to financial consumers; for the HECM

[30] Merton and Lai (2017).

in the US, the funding for the product is done through a wholesale fashion, i.e., via securitization by issuing HMBS; and for the RMP in Hong Kong, the product is combined with the life insurance contract that works as additional collateral and, as such, increases the monthly payment for financial consumers.

The LBS product in Singapore is also a good benchmark for equity reversion programs, with which owner-occupied retirees can put the selling amount in the Central Provident Fund Retirement Account (CPF RA) and can increase their pension payments in that way. A similar case was also found in Australia, where consumers can deposit the fund from selling home equity in the Self-managed Superannuation Fund (SMSF) and can reduce the capital gain tax amounts.

The Lifetime Mortgage in the UK represents an interesting case due to one particular feature—being run by private insurance companies with no government guarantee. We surmise that having insurers, rather than banks, as lenders would be the main reason for the success of the product because they are generally well experienced in dealing with financial products with long maturities in terms of managing the embedded cashflow risks of such products. Hence, those intermediaries (e.g., the insurance companies in the US) would be a good substitute for government guarantees in expanding equity release programs.

Although the products surveyed in this chapter can work as a useful income supplement for retirees, the main challenge that most countries are currently facing is the low subscription rate, caused by factors such as the motivation for inheritance, the lack of linkages to medical and long-term care expenditures, and the complex product structures along with lack of understanding on the part of financial consumers. In this sense, it will be useful to examine the equity protection option in New Zealand (designed to leave a portion of home equity at loan expiration) as well as those RAM products combined with life insurance contracts in some countries. In addition, the importance of consumer education to overcome the complex product features should also be emphasized. Finally, the negative equity provision instituted by some private financial institutions should be properly regulated, as they transfer too much risk to financial consumers and can also destabilize the housing-related welfare of elderly citizens.

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