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Active Ageing Index as an Evidence Base for Developing a Comprehensive Active Ageing Policy in Russia

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Abstract The concept of active ageing shifts the focus of the discussion of the consequences of ageing from negative expectations of a growing burden of public costs to the analysis of opportunities of using the potential of elderly people. This paper is aimed at testing the applicability of international approaches to measure active ageing to the situation in Russia. For this purpose, we use the international Active Ageing Index (AAI), developed by the experts from the European Centre Vienna. The AAI is a multidimensional composite index that consists of 22 indicators and measures the untapped potential of older people in four major areas: (1) employment, (2) participation in society, (3) independent, healthy and secure life, (4) capacity for active ageing. Our empirical estimation of the AAI is based on several Russian and international surveys, which provide relatively high comparability of the AAI results for Russia with EU countries. The results show that the AAI equals 30.9 points, which means about 69 % of unused potential for active ageing of the elderly in Russia, and corresponds to the 18th place in ranking of 29 European countries. Russia performs relatively better in the employment and capacity for active ageing domains. It is in the bottom of the ranking in the independent, healthy and secure life domain.

Keywords Active ageing · Index · Elderly · Public policy · Russia

Introduction

The concept of active ageing introduced by the World Health Organization (WHO)[1] in 1997 and then promoted by other international organizations helps to change the public

[1] http://www.who.int/ageing/active_ageing/en/

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policy discourse in relation to ageing. According to the WHO definition, active ageing means "the process of optimizing opportunities for health, participation and security in order to improve the quality of life as people age" (WHO 2002). In 2002, the Second World Assembly on Ageing adopted the Madrid International Plan of Action on Ageing, aimed at improving the environment for older persons, strengthening their health, income security, and their active participation in society. The action plan calls for a change in policy and practice in relation to older people in the XXI century with the aim of increasing use of the huge potential of this part of the population. The need to move towards a society for all ages, including through actions at the national level and the implementation of comprehensive strategies for active and healthy aging was highlighted at the Vienna Ministerial Declaration of 2012, adopted by the participants of the Ministerial Conference on Ageing, including Russia.

As a multi-dimensional concept, active ageing is difficult to measure and monitor, however. One of the approaches to assessing the progress in using the capabilities of elderly people and increasing their potential at the national or international level is to develop a composite (multi-dimensional) index. The advantage of international indices is the possibility to compare the situation in the country on a number of dimensions in relation to other countries. However, in composite indices based on many indicators such comparability is often achieved at the expense of loss of accuracy in the evaluation of the multidimensional phenomena under study such as active ageing. In addition, the position of the country in the ranking of a particular index is rather arbitrary. It is influenced by the indicators chosen, the data and the weights used in the index.

The aim of the paper is to test the applicability of international approaches to measure active ageing to the situation in Russia. Cross-countries comparisons will shed light on the strengths and weaknesses of active ageing in Russia, a rapidly ageing middle-income Eastern European economy outside the EU that has experienced an extended mortality crisis and the deep deterioration of social and economic conditions. For this purpose, we use the Active Ageing Index (AAI), developed by the experts from the European Centre Vienna in the framework of project managed by the European Commission's Directorate General for Employment, Social Affairs and Inclusion (DG EMPL) and the Population Unit of the United Nations Economic Commission for Europe (UNECE). The AAI is an instrument to produce a robust evidence-base on active ageing by measuring unused potentials of older people, "to monitor overall progress with respect to active ageing" (UNECE / European Commission 2015) in order to inform politicians and policy makers about areas of particular concern, and to provide recommendations for improving the statistical database on the elderly population and ageing.

This paper presents the results of the testing of the AAI in Russia, using various statistical and sociological data. We attempt to answer the following research questions: 1) to what extent can the international approach to measure active ageing be applied to the Russian context and data? 2) To what extent are the results obtained for Russia on the basis of existing data sources comparable with other countries that utilize the AAI? 3) Do indicators used in the AAI methodology adequately measure the potential of active ageing in Russia?

The paper has the following structure. The next, second, section starts with a short discussion of the existing literature on active ageing and its measurement. The third section provides some basic facts about peculiarities of Russia's population ageing that shall be taken into account in the active ageing analysis. In the fourth section we

describe data and our approach to constructing the AAI for Russia. The results and their discussion are in the fifth section. We compare Russia's position in the AAI ranking with EU countries as a whole, and according to various domains. We also discuss an important issue of the sensitivity of the indicators included in the AAI to the source of data and definition used. In conclusion, we describe the main data problems related to applying the AAI methodology in Russia and explain how the AAI can be used as an evidence base for developing an ageing-related policy in Russia.

Literature Review

Active ageing is a relatively new concept that helps to shift the focus of the political discussion of the consequences of ageing from the negative expectations of the growing burden of the elderly to an understanding of the potential of this age group. World Health Organization (WHO), which has introduced this term into the academic and policy discourse, defines active aging as "the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age", which "applies to both individuals and population groups" (WHO 2002).

The WHO definition highlights several important features of active ageing. First, it is a holistic and multidimensional concept, which should not be reduced to healthy lifestyles ("healthy ageing") or economic activities ("productive ageing") (Boudiny 2013; Walker 2014). According to the WHO, "health" includes physical, psychological and social well-being, "participation" – an array of activities in the social, economic, cultural, civil and spiritual life of society in which the elderly participate in addition to the paid labor force. "Security" involves the creation of physically and socially safe and secure environment that guarantees a stable income and, if applicable, rewarding employment (WHO 2002).

Second, in line with the WHO definition, the ultimate purpose of active ageing is to increase older people's wellbeing and their quality of life. The WHO defines quality of life as "an individual's perception of his or her position in life in the context of the culture and value system where they live, and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept, incorporating in a complex way a person's physical health, psychological state, level of independence, social relationships, personal beliefs and relationship to salient features in the environment" (WHO 2002).

Third, by defining active aging as a "process of optimizing opportunities" the WHO places ageing in the framework of the life course paradigm. Previously education and training conducted in young ages, was replaced by work in middle ages, and then followed by retirement (leisure). To the contrary, active ageing provides an "age-integrated paradigm", according to which, education and training, work and leisure may (and actually shall) co-exist during the whole life course (Walker and Maltby 2012).

Fourth, as a process of enhancing opportunities active ageing differs from previously developed concept of successful ageing, which required from older people to keep health status and activity patterns typical of middle age (Walker 2014). To the contrary, active ageing covers the entire population, including the elderly, who, because of their age or particular circumstances, have become ill, disabled, frail and require long-term care (WHO 2002).

There is no general approach to measuring active ageing. Given its multidimensional nature, one of the common approaches is to use composite indicators (or indices). Composite indicator is an aggregated measure (or index) formed by certain individual

indicators and weights used to specify a relative importance of individual indicators (Nardo et al. 2005; Saltelli 2007). Composite indicators are widely used in economics and social sciences; there are numerous international multidimensional indices measuring human development, well-being, quality of life, etc. There are several recent attempts to apply the index method for active ageing estimation.

For instance, in Russia, there is an attempt to measure active ageing for policy-making purposes on the basis of multi-dimensional methodology applied to one data source (Zasimova and Sheluntcova 2014]. The authors conducted empirical research based on the Russian data of the Study of Global Ageing and Adult Health (SAGE) and the WHO concept of active ageing. Later, they extended their analysis to Mexico, India, and China also participated in SAGE. The three dimensions they explored include health, participation and society. Reliance on one data source provides interesting insights on how different dimensions of active ageing are related. It also gives authors an opportunity to classify respondents according to their activity status. However, to our mind, an attempt to relate criteria of active ageing to characteristics of certain people contradicts the all-embracing feature of the active ageing in accordance with the WHO definition. Besides, due to its strong dependence on one data source, empirical definitions of active ageing components in this study are determined by the possibilities of the survey, which does not always provide the best possible definitions. In part because of the data, the study is focused more on the older people health status analysis than on the environmental and social conditions and the potential of elderly people to contribute to the economy and society. In addition, the comparative abilities of this approach are limited to the number of countries participated in SAGE, which are sometimes very different from Russia in terms of their demographic, economic and social situations.

There are also two international composite indices developed by orders of international governmental and non-governmental organizations. The first is the Global AgeWatch Index (GAWI)[2] developed by HelpAge International in 2013 with the aim of measuring older people well-being and quality of life (Help Age International 2013). In 2013 the GAWI covered 91 and in 2014–96 countries out of total of 193 countries, including Russia. The GAWI consists of 13 indicators grouped in four domains, including: (1) income security, (2) health status, (3) employment and education, and (4) enabling environment. The first two domains assess different dimensions of wellbeing and quality of life, the third domain measures older people ability to contribute to the economy, and the last fourth domain estimates to what extent country's environment supports active ageing now and in the future.

The need to expand the GAWI coverage to as many countries of the world as possible leads to the fact that the data used are not always best to capture empirically the definition of active ageing. For instance, income security domain includes GDP per capita indicator, which is certainly available in all countries covered by GAWI, but not the best indicator to describe wellbeing or quality of life, since the relation between country's economic development and older people's wellbeing is not straight. Besides, enabling environment domain includes an indicator of civic freedom that might be sensitive to the data source and question wording and is not directly related to the active ageing concept. Two indicators of life expectancy and healthy life expectancy taken together as integer values with higher weights worsen substantially positions of

[2] http://www.helpage.org/global-agewatch/

countries with high mortality. Currently the GAWI estimations are based on international data sets drawn from the United Nations, the World Bank, WHO, International Labour Organization, UNESCO and the Gallup World Poll.

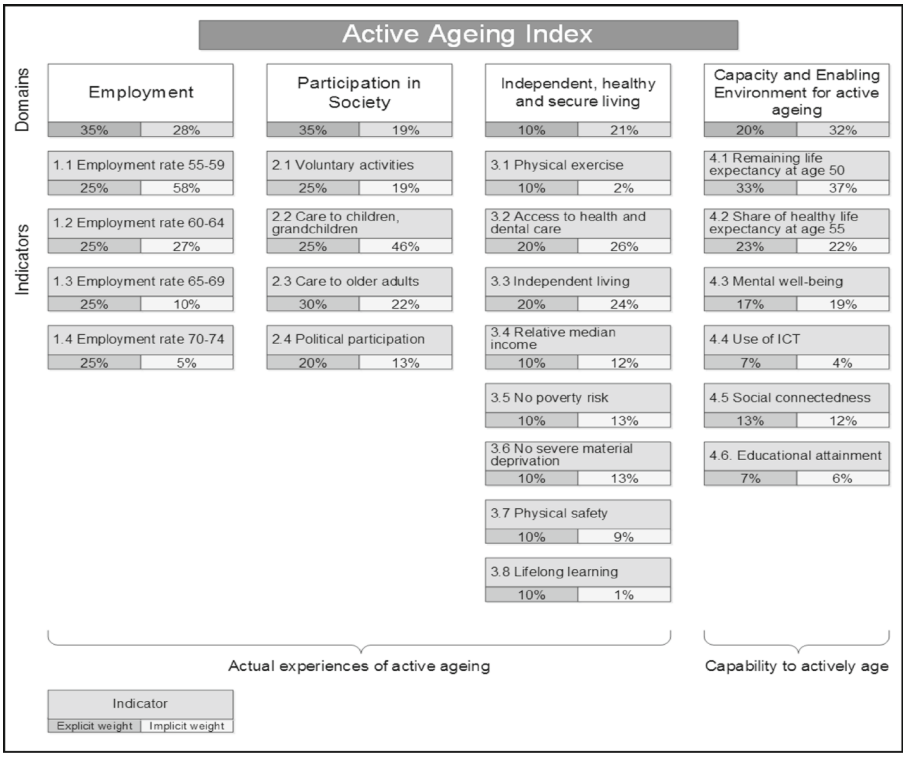
The GAWI methodology is complex; index values are the weighted geometric mean of the four domains, each of which is taken with the same weight. Indicators of pension income coverage, life expectancy, healthy life expectancy and psychological wellbeing have higher weights than the other, taken with the same weights. Besides, individual indicator values are normalized using the minimum-maximum adjustment principle to avoid extreme values.

These methodological peculiarities hamper interpretation of the GAWI results and its dynamic comparisons. Furthermore, not all nuances of the GAWI methodology are published and not all data can be obtained that prevent replication of the results. Our expert analysis of the GAWI data, methodology and results indicates that the results obtained for Russia require additional verification and correction. However, the positive aspects of GAWI should be also noted- firstly, it has a significant informational value, attracting the attention of politicians and the public to the issue of active ageing, and secondly, the data for this indicator is available for a wide range of countries outside EU and the developed countries' group, providing information on different aspects of active ageing across the world.

The second multidimensional composite index is an Active Ageing Index (AAI), initiated by the European Commission's Directorate General for Employment, Social Affairs and Inclusion (DG EMPL) and the Population Unit of the United Nations Economic Commission for Europe (UNECE). Its methodology was developed in 2012 by experts from the European Centre for Social Welfare Policy and Research (Zaidi et al. 2013). To provide data replicability in prospect, the methodology was slightly changed in 2014, some data sources/questions used to calculate individual indicators were replaced (Zaidi 2014).

For the purpose of constructing the AAI experts define active ageing as "the situation where people are able to live healthy, independent and secure lives as they age and thus continue to participate in the formal labour market as well as engage in other unpaid productive activities (such as volunteering and care provision to family members" (Zaidi et al. 2013). The AAI is aimed at measuring the unused potential of elderly people. In contrast to the GAWI, this index was not initially designed to assess the well-being of the elderly or their quality of life.

Hence, the AAI consists of 22 indicators and measures the untapped potential of older people in four major areas: (1) employment, (2) participation in society, (3) independent, healthy and secure living, and (4) capacity and enabling environment for active ageing (UNECE / European Commission 2015). The first three domains measure current situation with active ageing, while the last fourth domain provides an opportunity to evaluate factors that can support or impede active ageing in future. The authors of the AAI underscore the importance and novelty of the fourth domain, which as they write relates to the Sen's capability concept (Zaidi et al. 2013). All single indicators are positive coefficients varying from 0 to 100, where the maximum value corresponds to the best conditions for active ageing. There is a system of implicit and explicit weights applied to each indicator within domains and to domains within the whole index (Fig. 1). The overall value of the AAI is estimated as the weighted arythmetic mean of the four domain values. The strengths of the AAI include the opportunity to use several data sources to better capture the dimensions of active ageing, its comparative and dynamic nature, and a possibility to be used for policy development.



Source: The graph is constructed by the authors on the base of (Zaidi et al. 2013)

Fig. 1 The structure of AAI

Initially, the AAI covered 27 EU countries; later Croatia was included in the ranking. However, the detailed description of its methodology, empirical definitions of all indicators and data sources allows to reproduce the AAI results in the countries outside the EU. Up to now there is only one attempt to apply the AAI methodology to a country outside the EU - in Georgia (UNECE 2012). However, the results obtained for Georgia were not always comparable with the EU countries due to serious data limitations (UNECE 2012).

Russia's Context in Ageing

As many other countries in the European region, Russian population is ageing rapidly. The proportion of population aged 55 years old and over (the borders of calculating the majority of indicators of AAI) will increase, in accordance with the UN World Population Prospects (medium variant), from 25.1 % in 2010 up to 34.8 % in 2050.

The main driver of the ageing is low fertility, while life expectancy of Russian women and particularly men remains very low (76 years at birth for women and merely 65 years for men in 2013 according to Federal State Statistics Service[3]). Excessive mortality of adult population reduces speed of ageing and makes Russian population

[3] http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/population/demography/

younger than population of many European countries. Furthermore, the age structure of the older population is shifted toward the younger ages. According to 2010 Census data, more than ¾ of the population of 55 years old and over is younger than 75 years old; moreover, almost every second person 55+ is younger than 65 years old.

The gender gap in life expectancy remains significant; even at the age of 60 women on average live six years longer than men. Consequently, there are 22.1 million women aged 55 years old and older and only 12.8 million men. The ratio of women to men increases from 1.4 in the age of 55 to 59 years old up to 4.3 for people 85 and above years.

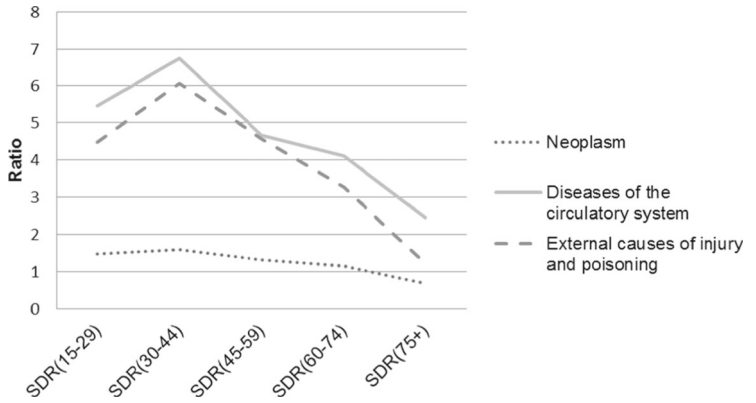
Despite asignificant improvements in reducing mortality achieved in recent years, the situation with morbidity and mortality of Russian population remains dramatic not only in comparison with EU countries but even with non-European countries with comparable level of economic development. Number of deaths at working age is still extremely high in Russia (8.6 per 1000 persons for men and 2.4 for women). In 2014, near half of all deaths in Russia were caused by diseases of the circulatory system, 15.3 % by neoplasms and 9.1 % by external causes. The age-standardized death rates for these reasons are much higher than in the EU; the largest difference is in the middle working ages (Fig. 2). Russian surveys[4] also record significant lag of Russian healthy life expectancy indicator even behind the Central Europe and the Baltics. There are many reasons of the excessive mortality of Russian population (Shkolnikov et al. 2001; Shkolnikov et al. 2004; Shkolnikov et al. 2006; Shkolnikov et al. 2013), and among others is low health care expenditures. Public expenditure on health as a share of GDP is nearly two times lower in Russia, than in EU countries (Fig. 3).

Dramatic situation with health and life expectancy of Russian population is particularly striking taking into account relatively high level of education of the whole population and of the elderly (Shkolnikov et al. 2006; Marmot et al. 1984). According to 2010 census data, 18.9 % of the Russian people aged 55 years old or more have higher education or higher levels of education, 53.6 % - professional education and higher levels of education. For the group of 55–64 years old it is 22.4 % and 66.3 % correspondingly.

Coverage of older people by pension system is almost universal in Russia. Normal pension age is 55 years old for women and 60 years old for men. Insurance old-age pension (labor pension from 2002 to 2014) is paid to people of pension age with at least 6 years of contribution record (5 years from 2002 to 2014; minimum contribution record is increasing up to 15 years from 2024). Moreover, according to 2015 pension reform to be eligible for an insurance old-age pension, a person must have 6.6 special points (calculated from the individual contribution) in 2015 (increasing up to 30 points from 2025). Still, some people can get old-age pension earlier if they are employed in hazardous conditions. In addition to old-age insurance pensions, there are disability and survivors' insurance pensions. Consequently, actual pension age, 54 years for men and 52 years for women, is lower than official (Maleva and Sinyavskaya 2010). Finally, if a person is not eligible for any kind of insurance pension she can get social pension five years later, i.e. women from 60 years old or later and men from 65 years old. Legislation does not require pensioners to retire; there are no limits on incomes of working pensioners.

The average pension benefit declined from 35.7 % of the average monthly wage (gross) in 2010 to 33.1 % in 2014 that is relatively low by international standards. In

[4] http://demoscope.ru/weekly/2011/0463/tema04.php

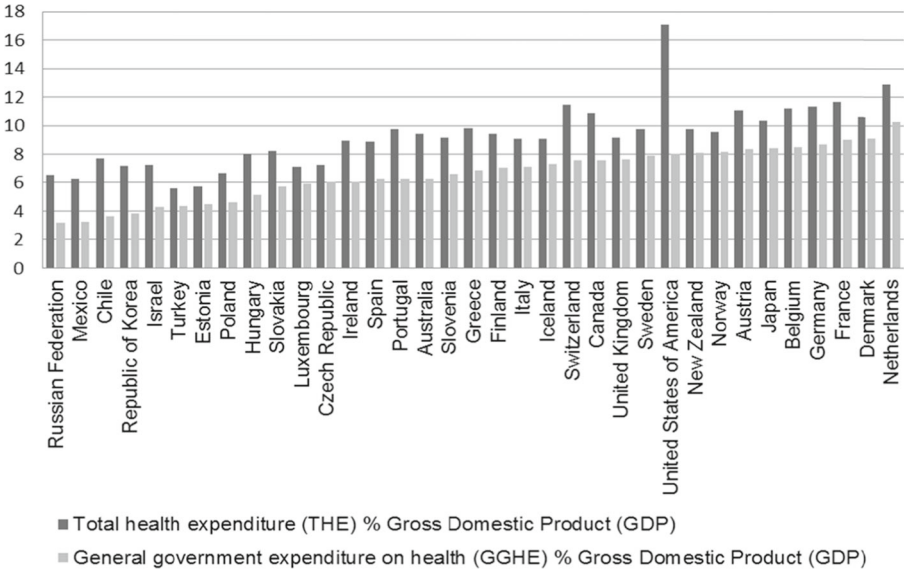


Source: The graph is constrructed by the authors on the base of WHO Moortality Database

Fig. 2 Age-standardized death rates (SDR) by main death causes in Russia comparing to the EU average, times, 2010

relation to Russian official poverty line – subsistence minimum of pensioners – average pension was 1.6 times higher. Furthermore, according to Russian legislation all not working pensioners with pension benefits below regional subsistence minimum shall receive additional payments to increase their monthly incomes to the poverty line. As a result, pensioners in Russia have on average lower risks of absolute poverty comparing to adult population and particularly children (Sinyavskaya 2012).

Although the Russian government expresses concern with the ageing of the population, until recently there was no comprehensive policy framework aimed at this issue (Sidorenko and Zaidi 2012). Sectoral policies are limited mostly to the areas of



Source: Global Health Observatory (GHO) data

Fig. 3 Total health expenditure and general government expenditure as % of GDP, 2013

pensions, employment and social care. Hence, ageing is discussed negatively in the context of social policy. However, in August 2014, the Russian president assigned the Government to develop a joint action strategy for older people in order to identify additional opportunities for an active and fulfilling life after retirement[5,6] On February 5, 2016 the Russian government adopted the Strategy of action for senior citizens in the Russian Federation until 2025. It covers a broad range of areas including education and employment, social protection, social and health care, production of particular goods and services, supporting accessible environment, development of charity for seniors and volunteer work of elderly people, etc. One of the important issues is developing the action plan of the Strategy and monitoring of the results, which includes development of a set of indicators and possibly a composite index of older people wellbeing. This work can rely on the results of the research presented in this paper.

Data and Methodology

Data

Estimations of the AAI for EU members are based on the following data sources: EU Labour Force Survey (EU-LFS, 2010, and 2011) European Quality of Life Survey (EQLS, 2010), EU Survey of Income and Living Conditions (EU-SILC, 2010), European Social Survey (ESS, 2010), Eurostat ICT Survey (2010), European Health and Life Expectancy Information system (EHLEIS, 2010). Russia participated only in ESS.

In order to collect data for the AAI indicators for Russia, we reviewed the available surveys and censuses. We applied the following criteria to evaluate the data source: (1) questionnaire has at least some information necessary to calculate AAI; (2) data are of good quality (we know sampling and fieldwork procedures, sample is representative at the federal level, fieldwork company is reliable); (3) it is a repeated or longitudinal survey so that information can be used for different years to observe dynamics; and (4) it is an international study and the same indicator can be constructed for other countries that participated in the AAI.

The final list of the surveys selected for the AAI estimations includes the following:

(1) Russian Population Census (2010, microdata: 35,869,670 respondents aged 55+);
(2) 3rd wave of Russian Generations and Gender Survey (GGS, 2011: 4276 respondents aged 55+);
(3) "Comprehensive Monitoring of Living Conditions of the Population" (CMLC, 2011: 6872 respondents aged 55+);
(4) two rounds of European Social Survey (ESS, round 5, 2010: 773 respondents aged 55+; round 6, 2012: 750 respondents aged 55+ (after weighting with post-stratification weight including design weight);
(5) Russian Longitudinal Monitoring Survey (RLMS, round 19, 2010: 4539 respondents aged 55+);
(6) Data from Human Mortality Database (HDM), 2010;
(7) Data of the Institute for Health Metrics and Evaluation (IHME), 2010.

[5] http://ria.ru/society/20140805/1018919448.html
[6] http://kremlin.ru/acts/assignments/orders/46594

The comparison of the questions in the surveys used for the European AAI and Russian AAI construction are in Table 6 in the Appendix.

Data and Questions to Construct Indicators

Employment

Since we have no access to the microdata of Russian Labour Force Surveys (RLFS) and Rosstat publications based on RLFS provide only agregated information on the employment rates of peole aged 55–59, 60 to 72 years old, at this stage of our research CMLC (2011) is used instead. Unlike the Russian LFS, CMLC collects information about the employment of people older than 72 years old and microdata are available. The definition of employment in CLMC is the same as the definition used in EU-LFS. There are already two waves of CMLC conducted in 2011 and 2014. Another potential source of information is RLMS conducted annually. However, the definition of employment in RLMS is different from that used in RLFS and CMLC and respectively in EU-LFS.

Results of calculation show that for some reasons CMLC underestimates the levels of employment of older population (Table 1). Despite the difference in definitions the dicrepancy of employment rates of people aged 55–59 years old is lower between RLFS and RLMS than between RLFS and CMLC that use similar definitions. Therefore, for further estimations, we will try to get an access to the detailed information provided by the RLFS data.

Participation in Society

Russia did not participate in EQLS, which was used for estimating indicators of this domain. Hence, voluntary activity can be calculated on the basis of CMLC or ESS-2012. However, the question of CMLC measures the membership in the organizations, not just participation in their activity, which can under-report the real situation. For this reason we use ESS-2012. Nevertheless, while the question in the English version of the ESS questionnaire is very close to that used in the EQLS, its Russian version is slightly different: "*In the past 12 months, how often did you get involved in voluntary socially beneficial activities or work for voluntary or charitable organizations?*". Thus, those involved in informal volunteer activities can also give positive responses that can slightly inflate Russia's results. Table 1 provides comparisons of the results obtained from CMLC and ESS on this issue. Also, later in this paper we discuss the potential biases arisen due to the differences of empirical definitions in EQLS and ESS (Table 3).

It is hard to provide a comparable indicator of the care for children or grandchildren due to the lack of similar questions in available databases. CMLC measures "*everyday care without payment for your own and other people's children*", which significantly underestimates the value of the indicator. Therefore, a complex proxy indicator on the basis of GGS was introduced. It combines questions on help looking after grandchildren and on participation in child care[7] equally or more than the respondent's

[7] The list includes dressing children, putting them to bed, caring for a sick child, organization of children's leisure activities, assistance in preparing lessons, transportation to school, kindergarten, etc.

Table 1 Individual indicators of Russian AAI (in points)

Individual indicator	Data source	Total	Men	Women
1.1 Employment rate 55–59	*CMLC* (2011)	*53.6*	*67.5*	*44.4*
	RLMS (2010)	56.4	65.1	50.4
	RLFS (2010)	58.7	71.8	48.6
1.2 Employment rate 60–64	*CMLC* (2011)	*27.9*	*33.7*	*24.3*
	RLMS (2010)	32.2	37.0	29.4
1.3 Employment rate 65–69	*CMLC* (2011)	*14.4*	*17.2*	*12.9*
	RLMS (2010)	20.7	26.0	17.7
1.4 Employment rate 70–74	*CMLC* (2011)	*4.3*	*6.1*	*3.4*
	RLMS (2010)	9.1	12.6	7.6
2.1 Voluntary activities	CMLC (2011)	2.4	2.1	2.5
	ESS (2012)	*2.1*	*0.6*	*3.0*
2.2 Care to children	*Russian GGS* (2011)	*37.2*	*35.8*	*38.2*
	CMLC (2011)	17.4	11.9	20.3
2.3 Care to older adults	*Russian GGS* (2011)	*8.1*	*4.8*	*10.3*
	CMLC (2011)	7.2	5.9	7.9
2.4 Political participation	*ESS* (2012)	*16.2*	*15.0*	*16.9*
3.1 Physical exercise	*RLMS* (2010)	*4.0*	*4.5*	*3.7*
3.2 Access to health and dental care	CMLC (2011)a	72.3	73.2	71.8
	CMLC (2011)b	*77.8*	*81.8*	*75.7*
3.3 Independent living	*Russian Population Census* (2010)	*52.4*	*60.0*	*49.7*
	RLMS (2010)	54.9	66.7	50.8
3.4 Relative median income	*RLMS* (2010)	*91.4*	*95.0*	*88.7*
3.5 No poverty risk	*RLMS* (2010)	*94.3*	*97.0*	*93.2*
3.6 No severe material deprivation	*Russian GGS* (2011)	*94.9*	*95.2*	*94.7*
3.7 Physical safety	*ESS* (2010)	*60.7*	*67.5*	*56.7*
3.8 Lifelong learning	*RLMS* (2010)	*1.4*	*1.4*	*1.5*
	CMLC (2011)	1.5	1.3	1.6
4.1 Remaining life expectancy at age 55	*HMD (2010)*	*42.2*	*34.5*	*48.3*
4.2 Share of healthy life expectancy at age 55	*IHME* (2010)	*79.1*	*80.4*	*78.0*
4.3 Mental well-being	*ESS* (2012)	*56.7*	*61.4*	*54.8*
4.4 Use of ICT	*CMLC* (2011)	*7.0*	*8.8*	*5.9*
	RLMS (2010)	12.3	14.4	11.1
4.5 Social connectedness	*ESS* (2010)	*41.8*	*41.5*	*41.9*
4.6. Educational attainment	*Russian Population Census* (2010)	*78.2*	*79.0*	*77.7*
	RLMS (2010)	76.3	74.5	77.4

Italic font means the final sources and values of individual indicators used in the AAI for Russia.

Source: authors' calculations

partner. However, GGS does not cover care for children living outside the household or children older than 14 years.

Care for older adults can be also calculated in CMLC or GGS. CMLC does not take into account the existence of kin relationships between the respondent and the object of aid and focuses on daily care, while GGS measures "*regular care provision during last 12 months*". Despite these differences between the surveys, the attained values of the indicator are very close (Table 1). For other criteria listed above, we choose GGS to measure this indicator.

We use ESS to estimate political participation in Russia. The wording of the question is very close to the one used in the original methodology.

Independent, Healthy and Secure Life

The examined surveys, unlike EQLS, do not include the general question about the frequency of physical exercise. Based on RLMS (2010) data, we construct this question by summing up the frequencies of several physical activities (jogging, skiing, swimming, dancing, gym, sport games and others[8]) per month. We consider the elderly as physically active if they participate in any of the physical activities 16 times and more per month (every day or every other day).

None of the examined surveys had questions equal to the AAI on access to health and dental care. So we compared the estimations based on two questions: 1) on the problem of unavailability of public and municipal health care services and 2) the presence of a situation when a person needed a medical treatment or consultation with the doctor, but did not apply to the medical organization. For the final index we chose the second question for estimations.

he indicator of independent living arrangements can be estimated on basis of either Russian Population Census (2010) or RLMS (2010). The full coverage of the population by Census guarantees results that are more accurate.

We use RLMS to estimate relative median income and the level of poverty risk and GGS to estimate material deprivation. The GGS questionnaire includes 8 of 9 items of the indicator of material deprivation except "*to face unexpected expenses*". Instead of this item we use the question: "*Speaking about household income how easily do you make both ends meet?*"

ESS (2010) is used to measure physical safety both in European and Russian AAI.

No study examined had a question about attending educational events within the last four weeks preceding the survey (to measure lifelong learning), so two variants of questions from CMLC and RLMS were used. In CMLC, respondents were asked about visiting courses and other kinds of additional education at the current moment. RLMS includes a question about educational events within the last 12 months. Surprisingly, both sources give almost the same figures (Table 1). Finally, we use the RLMS question covering definite time period.

Capacity for Active Ageing

The indicator of remaining life expectancy at 55 (divided by 50 to calculate the proportion of life expectancy achievement in the target of 105 years of life expectancy) is calculated using the data from the Human Mortality Database (HDM).

[8] See Table 6 for more details.

The share of healthy life years in the remaining life expectancy in Russia at age 55 is estimated using the data of The Institute for Health Metrics and Evaluation (IHME).[9]

Mental well-being is measured on basis of ESS. Five questions concerning ways the respondents might have felt or behaved during the past week were chosen: ["*a) ...you were happy? b) ...you felt calm and peaceful? c) ...you had a lot of energy? d) ...your sleep was restless? e) ...you enjoyed life?*"]. Four possible answers (and one "Don't know") were recorded in the following way: from 0 for "none or almost none of the time" to 3 for "all or almost all of the time", except for the question ["*...your sleep was restless?*"], for which we used a reverse scale. The presence of mental well-being was defined for respondents with an integrated score of 8 and above. The invented methodology was tested on European countries - the average discrepancy with the results obtained according to EQLS was 6.8 percentage points.

The indicator "Use of ICT" is calculated on the base of CMLC. Unlike ICT Survey 2010, which asks about Internet usage in the last 3 months with a frequency of at least once a week, CMLC calculates the share of respondents using the Internet *more* than once a week, but that does not change the results significantly.

Social connectedness was measured in strict correspondence with the original methodology of the AAI on the ESS data.

The educational attainment of older persons can be estimated by using the Russian Population Census (2010) or RLMS (2010) data. The results for elderly population are similar. However, at this stage of the research we prefer to use the Census data because of its better coverage of population.

Results and Discussion

The overall index equals 30.9 points, which means about 69 % of unused potential for active ageing of elderly people in Russia. This value gives Russia the 18th position out of 29 countries. Russia's neighbours at the rating scale are Estonia, Spain, Croatia and Lithuania (Table 2). Russian AAI is higher for men (32.5 points) than for women (30.1 points). However, this difference is lower than the average gender gap for the EU. The comparison of the AAI's gender gap in European countries and Russia is presented on Fig. 4.

Employment

The first two domains that describe economic and social participation of older people have the highest impact on the overall AAI value. Each of them enters the final index with a weight of 35 %.

The value of the 1st domain for Russia is equal to 25.1 points, which corresponds to the 15th place among EU countries. The definition of the indicators of this domain is totally comparable with the definition used for the European AAI estimations. The main contribution to the 1st domain is provided by the level of employment of people aged 55–59. Considering the fact that CMLC underestimates the level of employment of older people, Russian position in this domain could be even higher.

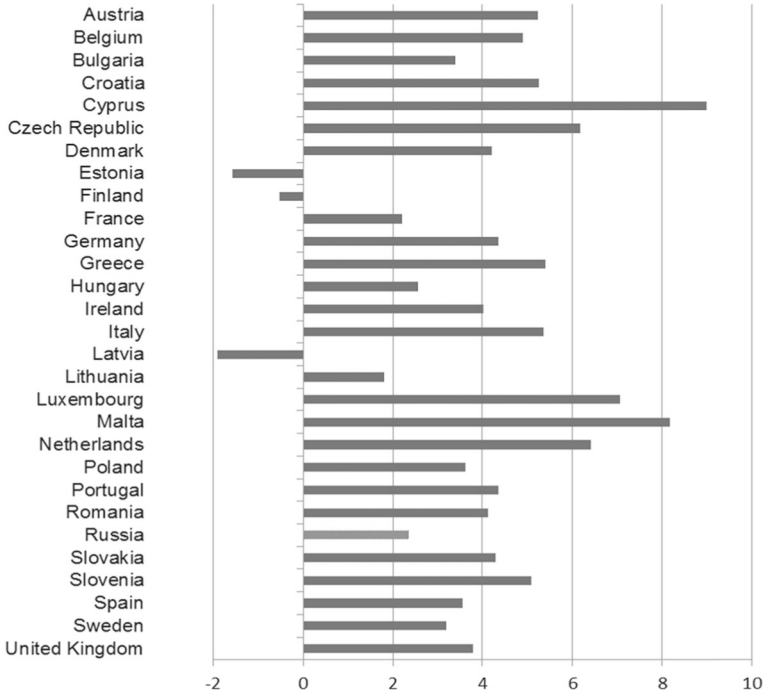
[9] http://www.healthdata.org/research-article/healthy-life-expectancy-187-countries-1990%E2%80%932010-systematic-analysis-global-burden

Table 2 AAI and its domains for Russia and the EU (in points)

Nr.	Country	Employment	Participation in society	Independent healthy and secure living	Capacity and enabling environment for active ageing	AAI	Rank
1	Austria	24.6	18.2	73.2	56.3	33.6	14
2	Belgium	19.8	20.2	73.1	59.6	33.2	15
3	Bulgaria	24.6	12.5	60.4	51.9	29.4	25
4	Croatia	22.3	18.7	64.8	49.8	30.8	19
5	Cyprus	36.1	18.1	66.1	50.6	35.7	7
6	Czech Republic	26.4	18.8	70.8	54.4	33.8	13
7	Denmark	34.0	19.6	78.9	66.7	40.0	2
8	Estonia	34.3	12.8	69.6	47.4	32.9	16
9	Finland	32.0	20.5	78.6	60.5	38.3	6
10	France	20.9	22.8	75.3	57.5	34.3	9
11	Germany	31.2	13.6	74.4	55.8	34.3	10
12	Greece	24.4	13.7	64.4	46.2	29.0	26
13	Hungary	17.8	15.4	68.6	45.3	27.5	28
14	Ireland	31.0	24.1	74.3	59.2	38.5	5
15	Italy	20.9	24.1	69.1	55.9	33.8	12
16	Latvia	28.3	13.8	57.2	45.7	29.6	23
17	Lithuania	27.3	14.7	67.3	46.4	30.7	20
18	Luxembourg	21.1	22.2	74.9	63.0	35.2	8
19	Malta	18.7	17.3	69.4	55.4	30.6	21
20	Netherlands	31.4	22.4	78.5	61.3	38.9	4
21	Poland	19.9	12.1	64.9	47.3	27.1	29
22	Portugal	35.3	14.1	66.4	51.0	34.1	11
23	Romania	31.4	12.7	60.2	39.9	29.4	24
24	Russia	25.1	15.5	60.7	53.3	30.9	18
25	Slovakia	20.1	13.7	66.4	46.0	27.7	27
26	Slovenia	21.6	16.3	74.0	49.0	30.5	22
27	Spain	23.3	17.8	68.9	56.1	32.5	17
28	Sweden	41.6	22.9	78.5	68.6	44.2	1
29	United Kingdom	35.5	21.6	74.3	61.8	39.7	3

Source: (Zaidi 2014); authors' calculations

The major reason of lower employment rates among Russians aged 55–64 is low retirement age (55 years old for women and 60 years old for men). Besides, poor health, which is correlated with education and social status, pushes less-educated people from manual employment into retirement (Levin 2015; Gora et al. 2010; Sinyavskaya 2005). Also it should be noted that given the small level of pension benefits many pensioners keep their employment involuntary to avoid poverty or a sharp reduction in living standard after retirement. Hence, employment is not necessarily related to a positive concept of active ageing.



Source: The graph is constructed by the authors on the base of (Zaidi et al. 2013)

Fig. 4 The AAI's gender gap between male and female (percentage points)

Participation in Society

The total value of the 2nd domain for Russia equals 15.5 points for both sexes (13.5 points for men and 16.8 points for women), which places Russia in the 18th place of the total ranking. In other words, Russia is using the potential of the elderly to participate in public life by 64 % compared to the most successful European experience (Ireland) and by 48 % compared with a hypothetical "ideal state", calculated of indicators' maximum. As in the EU, in Russia caring for children and grandchildren makes the largest (60 %) contribution to the domain value. Participation in voluntary activities provides the smallest contribution (3.4 %). Women are more active in all spheres of the domain, and hence, they are at the 16th place in ranking for the domain, and men are only at the 22^{sd}.

In the methodological section we show that the empirical definitions of all indicators in this domain are different from empirical definitions used for the AAI calculation in EU countries. However, these differences are subtle and to our mind do not significantly change Russian positions.

According to the data used, only 2.1 % of Russians participate in voluntary activities, which is well below the EU-27 average and close to Romania and Poland. This may be associated with the lower prevalence of volunteer organizations in Russia and culturally stronger orientation on the family.[10]

[10] (Sidorenko and Zaidi 2012) discuss this issue in more detail. Also, sociological surveys of 1970s demonstrated that family was a main source of life satisfaction of adult people in the USSR (Golofast 2006).

By the provision of care to their own children or grandchildren, Russian seniors, with 37.2 % respondents involved in childcare at equivalent once a week, are in the first quarter of the ranking. The rate for women is unexpectedly only 2.4 percentage points higher than for men, which may be due to the rather low intensity of care required in the indicator.

The provision of care to older adults is rather low in Russia, 8.1 % according to GGS and 7.2 % according to CMLC, which might reflect the lower prevalence of very old relatives due to earlier mortality of Russian population. By this indicator Russia is at the end of the EU ranking. Women provide care for frail people twice more often than men (10.3 % vs. 4.8 %). The urban population shows results merely two times higher than the rural population, which can be related to the difference in life expectancy in cities and rural areas (for urban areas life expectancy at birth in 2013 was 71.3 years and for rural areas – 69.2[11]).

Surprisingly, political activity of seniors is rather high in Russia (16.2 %). In the European context, the Russian figure is slightly beyond the EU average despite the fact that difference between empirical definitions of political activity in EQLS and ESS is not substantial. However, this result requires further examination, including estimation by alternative sources.

Independent, Healthy and Secure Life

The third domain index value in Russia is 60.7 points (the 26th place), including 64.4 points for men (the 27th place) and 58.9 points for women (the 26th place). It means that Russia leaves behind only Bulgaria, Romania and Latvia in the countries' ranking.

We should also note here that among eight indicators of this domain only four are totally comparable with European AAI. Indicator of physical activity has substantially different definitions. However, the weight of the whole domain in the final index is only 10 %.

Russian seniors' physical activity equals about one quarter of their European counterparts' physical activity (4.0 % in Russia versus 15.6 % in the EU, on average). Men are more physically active than women; the elderly in cities are more physically active than in the countryside. At the same time, if gardening were included in the physical activity, the rate of physical activity would likely to increase and differences between urban and rural areas disappear.

The indicator contributing the most to the domain of independent, healthy and secure living (weight equals 20 %) is access to health and dental care, equal to 77.8 % for both sexes, 81.8 % and 75.7 % for men and women correspondingly. Russia is the fifth from the end in the countries' ranking according to this indicator. This is not surprising given numerous problems in health care in Russia; and some other sources report even worse access to health care (Balabanova et al. 2012).

According to the indicator of the independent living (52.4 %) Russia is in the last place in the countries' ranking. Comparing to the EU countries, Russia has a higher prevalence of multi-generational families, particularly among older women without a partner. Given differences in life expectancy and marital status among older men and women, the gender gap here is high: 60.0 % for men and 49.7 % for women in Russia versus 83.3 % (both men and women) in the EU-28. However, the interpretation of independent living of seniors as an indicator of their autonomy and, thus, an important factor of active ageing (the indicator enters the domain with a weight equals 20 %) is

[11] http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/population/demography/#

controversial. It has deep roots in European tradition of intergenerational relations. In Russia, on one hand, intergenerational relations are closer, and on the other hand, there is a significant shortage of housing, which prevents adult children from leaving their parents' home. Consequently, living in multigenerational households does not necessarily mean a lack of autonomy and independence for seniors.

The indicators of financial security are slightly higher than the EU average values. The relative median income is 91.4 %, which is between Austria and Italy. According to the lack of poverty risk Russia (94.3 %) is close to Denmark, Ireland and Austria. The lack of material deprivation in Russia is higher than the EU average: 94.9 % and 90.1 % correspondingly. Overall, men have better financial security, but differences are insignificant. These results should not mislead. It's true that Russian seniors do have the lowest risks of poverty compared to other social groups due to intensive pension indexation (Sinyavskaya 2012) but the overall standard of living in Russia is lower than in many of European countries, especially in Western and Northern Europe.

The individual indicator of physical safety is 60.7 % for Russia, which is lower the EU average (68.8 %). By this indicator Russia is close to Bulgaria (51.9 %) and Hungary (59.5 %). According to the AAI methodology 2013, the indicator of physical safety was higher for the majority of EU countries (the EU average is 79.0 %) and Russia (80.7 %).

The percentage of Russian seniors engaged in lifelong learning in Russia (1.4 %) is only one-third of the EU average, although the contribution of this indicator for the third domain is not significant (weight is 10 %). This indicator equals to 1.4 % for men and 1.5 % for women.

Capacity for Active Ageing

The value of the fourth domain, that enters the overall index with a weight of 20 %, is 53.3 points for both sexes (16th place in the ranking), which is around the EU average. The untapped potential is 27 % of the hypothetical ideal state, estimated of maximums, and 22 % of the most successful European practice. According to the capacity for active ageing, the potential of Russian men (52.0 points) is slightly lower than that of women (54.6 points), which is due to the lower male life expectancy and less frequent social contacts.

Four of six indicators of this domain have the same empirical definitions in Russian index as in European. Indicators of mental well-being (the indicator weight within the domain is 17 %) and use of ITC (weight is 7 %) are measured slightly differently.

In Russia the remaining life expectancy of both men and women at age 55 equals 21.2 years, which is the lowest value in Europe and corresponds to 42.4 % of the indicator of remaining life expectancy achievement of 50 years at age 55. The peculiarity of Russia is a pronounced gender discrepancy of this indicator, which, nevertheless, has no effect on its place in the rankings by gender. For men the indicator is 34.9 % (35.4 % of untapped potential compared with the best European practice), for women - 48.5 % (24.7 % of untapped potential).

Due to excessive early mortality of the Russian population, the share of healthy life years in the remaining life expectancy at age 55 is 79.1 % for both sexes, 78.0 % for women and 80.4 % for men. It exceeds the values of all EU countries, but should not be misinterpreted because it does not indicate Russia's success in this dimension. If life expectancy in Russia were constantly growing, the share of healthy life expectancy would definitely decline.

According to the estimates, 56.7 % of the Russian population over 55 years meet the criteria of mental well-being, which is below the average level in the EU (64.6 %) and puts Russia slightly below the middle of the ranking. Men have better mental well-being (61.4 %) than women (54.8 %).

The value of the indicator of using of ICT is 7.0 % for both sexes, including 8.8 % for men and 5.9 % for women, which corresponds to end of the ranking.

Only 41.8 % of Russian seniors have active social contact, which is quite low compared with the EU. According to this indicator, Cyprus (38.2 %) and Latvia (38.3 %) have similar results. No significant gender difference is found in Russia (41.9 % for women versus 41.5 % for men).

According to the AAI approach, Russian seniors have an extremely high level of educational attainment (78.2 %), which is partly due to the upper age limit established in the indicator (younger cohorts of older people are better educated). Another possible explanation is a relatively easy access to secondary and higher education in soviet Russia. Compared to women (77.7 %) men (79 %) are better educated. Considering the entire population aged 55 years old or over, the gender difference becomes much more pronounced (74.5 % for men and 68.9 % for women), and the overall educational attainment declines.

Sensitivity of Results to Data Source

During our work on the adaptation of the AAI methodology to Russian data, we observe that the values of the indicators are significantly sensitive to the data sources used to estimate the AAI. In this section we give some examples of the possible variation of the results due to different question wording or alternative data sources. These evidences are important if the AAI is expanded to the countries outside EU.

First, we compare replies to the question about voluntary activities (2.1) based on EQLS-2012 (the European methodology) and ESS-2012 (the Russian methodology)[12] for 20 European countries (Table 3). Due to the fact that several European countries did not participate in ESS (2012) we excluded them from this analysis.

As Table 6 shows the definition of voluntary activity used in ESS for Russia is wider since it includes any socially beneficial activities. Hence, we can assume similar or higher rates of voluntary activity participation according to the ESS data for some other countries. It is true for 11 countries out of 20, though. In 9 countries ESS gives lower rates of voluntary activities involvement than EQSL. Therefore, not only wording of questions is important for the comparability of results, but also the sample and the survey procedure.

Second, the AAI methodology of estimation of two indicators including physical activity (3.1) and physical safety (3.7) has been changed in 2014. Below we provide the comparison of the results according to two approaches.

Table 4 presents the values of the indicator of physical activity based on different sources: the Eurobarometer Survey (2010) and EQLS (2010). According to the Eurobarometer Survey the reply “5 times a week or more” has been

[12] See Table 6 in Appendix for the questions used by both approaches

Table 3 The participation in voluntary activities of the elderly according to EQLS (2010) and ESS (2012)

Country	ESS (2012), row %					EQLS (2010), %
	At least once a year	At least once every six months	At least once every three months	At least once a month	At least once a week	At least every month
Belgium	35,8	28,3	24,2	**20,5**	11,7	16,4
Bulgaria	9,2	**3,3**	2,1	1,2	0,4	3,3
Czech Republic	21,8	**11,2**	7,7	5,2	1,1	12,9
Germany	47,9	37,9	34,9	29,1	**14,8**	18,3
Denmark	38,1	32,1	**27,6**	23,0	13,8	26,8
Estonia	13,8	8,4	**6,9**	5,7	3,0	6,8
Spain	53,4	39,0	30,4	22,8	**6,6**	9,6
France	33,0	27,5	24,8	**21,9**	12,8	23,2
United Kingdom	38,3	30,5	26,2	**21,2**	12,7	21,4
Hungary	17,0	8,2	**4,7**	3,1	1,3	6,1
Italy	39,2	26,8	21,4	**18,1**	7,5	14,9
Lithuania	19,2	**7,1**	3,2	1,5	0,1	6,0
Netherlands	52,0	46,2	42,4	38,0	**27,3**	30,5
Norway	62,5	45,3	37,4	28,3	**9,9**	
Poland	11,8	7,8	**5,8**	3,2	1,9	4,8
Portugal	28,5	16,2	10,6	**6,4**	2,4	7,6
Sweden	38,3	**24,5**	21,2	16,9	6,5	30,7
Slovenia	25,1	21,5	16,9	**12,9**	6,0	10,1
Slovakia	40,2	17,4	9,5	**6,0**	1,6	5,0
Finland	41,7	**26,8**	19,6	13,1	5,3	25,5

The bold lines in the Table 3 indicate the nearest value of the ESS indicator to the EQLS value

Source: authors' calculations

Table 4 The rate of physical activity of the elderly according to the Eurobarometer Survey (2010) and EQLS (2010)

Country	EB-2010, %	EQLS-2012, %	Difference, percentage points	Rank by EB-2010	Rank by EQLS-2012
Sweden	28,9	42,6	13,7	1	2
Ireland	24,4	25,4	1,0	2	3
Finland	19,7	48,9	29,2	3	1
Denmark	18,5	25,2	6,7	4	4
Lithuania	18,4	18,5	0,1	5	10
Malta	18,1	17,0	-1,1	6	11
Belgium	17,5	16,5	-1,0	7	13
Cyprus	15,9	13,9	-2,0	8	15
United Kingdom	14,4	16,9	2,5	9	12
France	13,6	22,5	8,9	10	7
Slovakia	12,8	5,1	-7,7	11	24
Spain	10,0	15,8	5,8	12	14
Luxembourg	9,7	24,2	14,5	13	5
Germany	9,2	12,4	3,2	14	16
Portugal	8,1	5,9	-2,2	15	21
Estonia	7,2	20,0	12,8	16	9
Slovenia	7,0	9,6	2,6	17	18
Latvia	6,8	12,0	5,2	18	17
Romania	6,8	1,3	-5,5	18	26
Poland	6,3	7,0	0,7	20	19
Netherlands	6,0	23,4	17,4	21	6
Czech Republic	5,4	4,9	-0,5	22	25
Hungary	4,1	5,6	1,5	23	22
Austria	2,9	22,2	19,3	24	8
Greece	2,2	6,5	4,3	25	20
Italy	1,6	5,4	3,8	26	23
Bulgaria	1,3	0,7	-0,6	27	27

Source: The table is constructed by the authors on the base of (Zaidi et al. 2013) and (Zaidi 2014)

considered as being physically active. The reply "Every day or almost every day" is applied in EQLS (2010). The difference in the physical activity participation varies from 0.1 percentage point for Lithuania to −7.7 points in Slovakia and 29.2 points in Finland. The average discrepancy equals 6.44 percentage points. In spite of the fact that two years passed between two surveys, and some of the dynamics can be related to this time change, it is important to underscore that change of the survey causes some shifts in the ranking of the countries by this single indicator.

The ESS is used to measure the indicator of physical safety according to the old and revised AAI methodologies. Previously, physical safety was estimated by the answers to the question "*How often, if at all, do you worry about becoming a victim of violent crime?*"

Table 5 The prevalence of physical safety among the elderly population according to ESS (2010)

Country	How often, if at all, do you worry about becoming a victim of violent crime? (OLD), %	How safe do you – or – would you – feel walking alone in this area after dark? (NEW), %	Difference, p.p.	Rank according to the old approach	Rank according to the new approach
Poland	95,1	79,9	-15,2	1	6
Slovenia	95,0	90,9	-4,1	2	1
Denmark	92,1	86,0	-6,1	3	3
Czech Republic	89,8	66,0	-23,8	4	16
Germany	89,0	75,7	-13,3	5	8
Netherlands	88,2	80,3	-7,9	6	5
Hungary	87,4	59,5	-27,9	7	20
Finland	86,5	86,2	-0,3	8	2
United Kingdom	85,5	67,4	-18,1	9	14
Sweden	85,2	81,2	-4,0	10	4
Austria	83,9	68,7	-15,2	11	12
Latvia	83,5	39,9	-43,6	12	24
Cyprus	83,3	71,7	-11,6	13	11
Ireland	81,6	71,9	-9,7	14	10
Russia	80,7	57,1	-23,6	15	21
Belgium	78,2	76,5	-1,7	16	7
Estonia	77,4	64,1	-13,3	17	17
Romania	69,5	63,6	-5,9	18	18
France	65,9	68,1	2,2	19	13
Spain	64,7	74,4	9,7	20	9
Bulgaria	62,7	51,9	-10,8	21	22
Portugal	62,0	66,4	4,4	22	15
Slovakia	56,2	62,2	6,0	23	19
Greece	54,2	46,7	-7,5	24	23

Percentage of respondents aged 55 years old and over who feel very safe or safe is reported in the second and third columns

Source: The table is constructed by the authors on the base of (Zaidi et al. 2013) and (Zaidi 2014)

Since that question is no longer included in the ESS questionnaire, the indicator has been replaced by the following: "*How safe do you – or – would you – feel walking alone in this area after dark?*" We compared the variation in the assessment of physical safety following from the change of the question (Table 5). The difference between answers to these two question varies from −0.3 percentage points in Finland to 9.7 points in Spain and −43.6 points in Latvia. The changes in the countries' ranking are more substantial than the changes in the ranking of physical activity, although we compare the data from same survey conducted in the same year. Hungary has moved from the 7th to the 20th place by this indicator, Latvia – from the 11th to the 23rd, Czech Republic – from the 4th to the 16th, Spain – from the 19th to the 9th and so on.

It is worth to note that the contribution of both indicators of physical activity and physical safety to the overall AAI value is rather small and therefore changes within these indicators will not substantially change countries' positions in the overall AAI ranking. Nevertheless, analysis provided above clearly demonstrates that indicators values depend significantly on the data source and wording of the questions used to estimate the AAI. This fact should be taken into account when researchers replace data sources or questions to estimate the AAI in the dynamics or to extend its coverage to the countries outside the EU. In general researchers should focus on sustainability of data sources inside country to measure the progress of the active ageing situation, while international comparability is slightly less important and valuable.

Conclusion

The numerical exercise of applying the AAI methodology to Russian data presented in this paper shows that in the European context the overall situation with active ageing in Russia is not the worst. It is at the 18th position in the 28 + 1 AAI (2012) countries' ranking. However, it means 30 % of unused potential for active ageing of the seniors compared to best European practice. The gender gap is even lower than on average in the EU.

The results indicate that the domain of capacity and enabling environment for active ageing provides the main contribution (more than 1/3) to the overall AAI. The gender differences are most evident in the 1st domain: 31.1 and 21.3 points for men and women correspondingly. Russia shows the worst results in the 3rd domain, where it has the 26th place in the country ranking.

In the whole, the comparison of the overall Russian AAI and its domains with the EU average and Sweden (the 1st place in the country rankings) allows us to conclude that there is unrealized potential in the first three domains in Russia. These results indicate that the Russian government should focus on (a) improving access to lifelong learning, including Internet, and sport facilities (b) increasing employability of seniors aged 55–64, (c) creating conditions for independent living by improving housing availability, (d) involving seniors in voluntary activities and supporting their involvement in social contacts and (e) improving access to health care and its quality. Increasing employment rates of elderly people aged 55–64 cannot be achieved without changes in the retirement age. According to the AAI methodology and the data used, Russia has a relatively good enabling environment for active ageing. Nevertheless, life expectancy growth, improvement of mental well-being and social connectedness are the main factors for the improvement of elderly well-being. The implementation of all the measures described above, raising the correspond indicators up to the EU average, would allow Russia to rise to the 9th place in the AAI country ranking. However, solutions on how to increase voluntary activity and social connectedness of Russian seniors are not so easy and require additional studies.

Our analysis shows good comparability of the results obtained for Russia on basis of existing data sources. Nevertheless, this research revealed several data problems. First, there is limited sociological and social statistical information on active ageing. There are no regular surveys focused on elderly population or on ageing. Existing data do not always meet the requirements of the AAI. Second, existing sources do not always provide comparable results with other countries. Russia does not participate in many international or European surveys; GGS has been terminated after three waves in 2011. Third, most of the existing surveys in Russia are cross-sectional. Only RLMS is (and GGS was) longitudinal; ESS is a repeated survey. It is unlikely that these or additional longitudinal or repeated surveys can be conducted given the current difficult economic conditions. Rosstat carries out some repeated surveys (LFS, household budget surveys) but only a few of them are published. CLMC is now a repeated survey but it has a 3 years interval between waves.

Our analysis of the robustness of the indicators to the data source and question wording shows that both are an important source of the variation of the results. Therefore, further, more sophisticated research on this issue is needed. We plan to compare the presented results with estimations based on other data sources. Women are now overrepresented compared to men in all age groups, starting from 1,4 ratio for age 55–59 up to 4,3 for 85+ because of the peculiarities of the mortality pattern. In the future an attempt to provide adjustments to correct the difference in average ages of men and women should be made, as it influences abilities for active participation in the society.

Also, this research reveals certain drawbacks in the estimation of the active ageing in relation to the Russian context. Certain indicators (voluntary activity participation, social connectedness, independent living) correspond to the Western European model of the ageing and intergenerational relations assuming relatively weak family relations, widespread nuclear families and external social activities as a source of personal life satisfaction. In Russia intergenerational relations and activities within families play more important role in elderly people life satisfaction. One of the possible approaches to take this dissimilarity into account is to assign different weights to the factors that have different importance in Russia comparing to European countries. Another example is the way how life expectancy and healthy life expectancy are taken into account in the index. The approach proposed in the AAI methodology works well for the countries with relatively high life expectancy. When applied to Russia, it leads to the overestimation of the enabling environment domain. Finally, to our mind new indicators can be included in the AAI to better capture situation with active ageing in countries like Russia. Examples include accessible public transportation and social care that are important for better inclusion of the older people in active life.

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Appendix

Table 6 Individual indicators of Russian AAI

Indicator	Survey question and source (European methodology)[a]	Questions used in the AAI-2012 for Russia
1.1 Employment rate 55–59	Did you do any paid work in the 7 daysending Sunday the [date], either as an employee or as selfemployed? 1. Yes 2. No Even though you were not doing paid work, did you have a job or a business that you were away from in the week days ending Sunday the [date] (and that you expect to return to)? 1. Yes 2. No 3. Waiting to take up a new job/business already obtained EU-LFS (2010)	Did you do any paid work on the previous week (at least one hour during the previous week)? 1. Yes 2. No Did you do any work on the previous week, either in a farm or in a business of your relatives? 1. Yes 2. No Did you have a job or a business that you were away from on the previous week? 1. Yes 2. No CLMC (2011) Let's talk about your main activity now. Tell me, please, do you… 1. Work 2. On maternity leave 3. On any paid holidays 4. On unpaid holidays 5. Don't have work 6. Don't know RLMS (2010) Employment rate[1] RLFS (2010)
1.2 Employment rate 60–64	Same as for indicator 1.1	Same as for indicator 1.1 CLMC (2011) Same as for indicator 1.1 RLMS (2010)
1.3 Employment rate 65–69	Same as for indicator 1.1	Same as for indicator 1.1 CLMC(2011) Same as for indicator 1.1 RLMS (2010)
1.4 Employment rate 70–74	Same as for indicator 1.1	Same as for indicator 1.1 CLMC (2011) Same as for indicator 1.1 RLMS (2010)
2.1 Voluntary activity, 55+	Please look carefully at the list of organizations and tell us, how often did you do unpaid voluntary work through the following organizations in the last 12 months? 1. Community and social services (e.g. organizations helping the elderly, young people, disabled or other people in need). 2. Educational, cultural, sports or professional associations Social movements (for example environmental, human rights)or charities (for example fundraising, campaigning) 3. Other voluntary organizations Scale: 1. Every week 2. Every month 3. Less often/occasionally 4. Not at all	In the past 12 months, how often did you get involved in voluntary socially beneficial activities or work for voluntary or charitable organizations? Scale: 1. At least once a week 2. At least once a month 3. At least once every three months 4. At least once every six months 5. Less often 6. Never ESS (2012) Are you a member of any public, voluntary or charitable organizations (movements)? 1. Yes 2. No CMLC (2011)

Table 6 (continued)

Indicator	Survey question and source (European methodology)[a]	Questions used in the AAI-2012 for Russia
	EQLS (2010)	
2.2 Care to children, grandchildren, 55+	In general, how often are you involved in any of the following activities outside of work? a. Caring for your children, grandchildren 1. Every day; 2. Several days a week 3. Once or twice a week 4. Less often 5. Never EQLS (2010)	Proxy indicator, combining: a. How often do you help take care of your grandchild (any of your grandchildren)? Scale: at least once a week or 52 times in a year or 4 in a month b. I will list various tasks that need to be done when there are children in the household. Please tell me who does this in your household. 1. Dresses the children and takes care of their clothes? 2. Puts the children to bed or sees that they go to bed? 3. Stays at home when the children are ill? 4. Plays with the children, takes part in their leisure and entertainment? 5. Helps the children with their homework? 6. Brings the children to school, kindergarten, to the baby-sitter, or various study groups, and brings them home? 7. Always respondent 8. Usually respondent 9. Equally respondent and partner 10. Usually partner 11. Always partner GGS (2011) Does the range of your daily activities include childcare (for your own or other people children without being paid)? 1. Yes 2. No CMLC (2011)
2.3 Care to older adults, 55+	How often are you involved in any of the following activities outside of paid work? c. Caring for elderly or disabled relatives 1. Every day; 2. Several days a week 3. Once or twice a week 4. Less often 5. Never EQLS (2010)	In the last 12 months, have you provided regular assistance to anyone with eating, getting up, getting dressed, bathing, using the bathroom, etc.? Do not include childcare here. 1. Yes 2. No GGS (2011) Does the range of your daily activities , include carrying for another person, who is in need of special care because of the ageing, , illness or disability? This person (or these persons) can live in your household or elsewhere. 1. Yes 2. No CMLC (2011)
2.4 Political participation, 55+	Over the last 12 months, have you? a. Attended a meeting of a trade union, a political party or political action group b. Attended a protest or demonstration c. Signed a petition, including an e-mail or on-line petition d. Contacted a politician or public official (other than routine contact arising from use of public services) 1. Yes 2. No EQLS (2010)	There are different ways of trying to improve things in Russia or help to prevent things from going wrong. During the last 12 months, have you done any of the following? 1. contacted a politician, government or local government official? 2. worked in a political party or action group? 3. worked in another organization or association? 4. worn or displayed a campaign badge/sticker? 5. signed a petition? 6. taken part in a lawful public demonstration? 7. boycotted certain products? 8. Yes

Table 6 (continued)

Indicator	Survey question and source (European methodology)[a]	Questions used in the AAI-2012 for Russia
		9. No ESS (2012)
3.1 Physical exercise, 55+	Percentage of people aged 55 years and older undertaking physical exercise or sport almost every day Take part in sports or physical exercise / How frequently do you do each of the following? 1. Every day or almost every day 2. At least once a week 3. One to three times a month 4. Less often EQLS (2010)	Which of the following kinds of physical activity did you do during the 12 months preceding survey? If did, how many times in a month? 1. Jogging, skating, skiing 2. Gym 3. Swimming 4. Dancing, aerobics, shaping, yoga 5. Basketball, volleyball, football, hockey 6. Badminton, tennis, table tennis 7. Wrestling, boxing, karate The sum of all kinds of physical activity in a month is 16 times and more RLMS (2010)
3.2 Access to health and dental care, 55+	Percentage of people aged 55 years and older who report no unmet need for medical or dental examination or treatment during the 12 months preceding the survey EU-SILC (2010, 2012)	Do you have problems with unavailability of state and municipal health care services in your local area? 1. Yes 2. No 3. Don't know CLMC (2011)
		Have you ever had this year such a situation when you needed a medical treatment or consultation with the doctor, but did not apply to the medical organization? If yes, why: 1. I do not expect to get effective treatment (there are no necessary specialists, medicines or equipment) 2. Not satisfied with the work of the medical organization (the need for pre-recording, long queues, inattention, poor conditions for patients) 3. I couldn't reach the medical organization without physical assistance 4. It was hard to reach the medical organization 5. I have no information about where I can get necessary medical care 6. There was no time 7. The necessary treatment can be obtained only for a fee 8. I prefer self-treatment 9. Other reasons Have you received the necessary dental care the last time you sought this year? 1. Yes 2. No CLMC (2011)
3.3 Independent living arrangements, 75+	Percentage of people aged 75 years and older who live in a single person household or who live as couple (2 adults with no dependent children) EU-SILC (2010)	Same as in European methodology Russian Population Census (2010) Same as in European methodology RLMS (2010)
3.4 Relative median income, 65+		Household disposable income is established by summing up individual incomes of household members How much money did you receive during the 30 days preceding survey (including salary, pension, premium, profits, benefits, material help, occasional incomes and other monetary incomes, currency incomes in rubles)?

Table 6 (continued)

Indicator	Survey question and source (European methodology)[a]	Questions used in the AAI-2012 for Russia
		The equivalence scale is the same as in European methodology RLMS (2010)
3.5 No poverty risk, 65+	Percentage of people aged 65 years and older who are not at risk of poverty People at risk of poverty are defined as t hose with equalized disposable income after social transfers below the at-risk-of-poverty threshold, which is set at 50 % of the national median equalized disposable income after social transfers EU-SILC (2010, 2012)	Same as in European methodology Household disposable income is the same as for indicator 3.4 RLMS (2010)
3.6 No severe material deprivation, 65+	Percentage of people aged 65 years and older who are not severely materially deprived. Severe material deprivation refers to a state of economic and durable strain, defined as the enforced inability (rather than the choice not to do so) to afford at least four out of the following nine items: 1. To pay their rent, mortgage or utility bills, 2. To keep their home adequately warm; 3. To face unexpected expenses; 4. To eat meat or proteins regularly; 5. To go on holiday; 6. A television set; 7. A washing machine; 8. A car; 9. A telephone. EU-SILC (2010, 2012)	The definition of severe material deprivation is the same as in European methodology Did you have any occasions during the 12 months preceding survey when your household couldn't pay for …? 1. To pay their rent, mortgage or utility bills; Yes/No Could your household afford …? 2. To keep their home adequately warm; Yes/No If we talk about total household income, how easy do you make both ends meet? Very difficult/difficult/slightly difficult/rather easy/easy/very easy Could your household afford …? 1. To go on holiday every year; 2. To eat meat, chicken or fish at least every other day. Yes/No Does your household have – or want to have - the following items in your household? 1. A television set; 2. A washing machine; 3. A domestic or foreign car 4. A mobile telephone Yes, your household has/Your household wants to have but can't afford/Your household doesn't have for other reasons GGS (2011)
3.7 Physical safety, 55+	Percentage of people aged 55 years and older who are feeling very safe or safe to walk after dark in their local area How safe do you – or would you – feel walking alone in this area (Respondent's local area or neighborhood) after dark? Do – or would – you feel 1. Very safe 2. Safe 3. Unsafe 4. very unsafe ESS (2010)	Same as in the EU methodology (ESS-2010)
3.8 Lifelong learning, 55–74	Percentage of people aged 55 to 74 who stated that they received education or training in the four weeks preceding the survey Did you attend any courses, seminars, conferences or received private lessons or instructions within or outside the regular education system within the last 4 weeks? 1. Yes	Did you study – or do you study – on professional courses, training programs or any other courses including language courses, training in the workplace during the 12 months preceding survey? 1. Yes 2. No 3. Don't know RLMS (2010)

Table 6 (continued)

Indicator	Survey question and source (European methodology)[a]	Questions used in the AAI-2012 for Russia
	2. No EU-LFS (2011, 2012)	Do you visit any courses or other kinds of additional education? 1. Yes 2. No CLMC (2011)
4.1 Remaining life expectancy achievement of 50 years at age 55	Remaining life expectancy (RLE) at 55 divided by 50 to calculate the proportion of life expectancy achievement in the target of 105 years of life expectancy (EHLEIS-2010, 2012)	FSS-2010 (data on both sexes on request) HMD-2010
4.2 Share of healthy life years in the remaining life expectancy at age 55	Healthy Life Years (HLY) a measure of disability-free life expectancy that combines information on quality and quantity of life. HLY measures the remaining number of years spent free of activity limitation. (EHLEIS-2010, 2012)	Global Burden of Disease Study 2010, The Institute for Health Metrics and Evaluation
4.3 Mental well-being, 55+	Five survey questions are used to calculate a composite measure of mental health Q45a: I have felt cheerful and in good spirits Q45b: I have felt calm and relaxed Q45c: I have felt active and vigorous Q45d: I woke up feeling fresh and rested Q45e: My daily life has been filled with things that interest me Response categories of each of these five survey questions are: 1. All of the time 2. Most of the time 3. More than half of the time 4. Less than half of the time 5. Some of the time 6. At no time The raw score is calculated by reversing the value order of the variable, and then totaling the figures of the five answers. The raw score converted so as to range from 0 to 25, 0 representing worst possible and 25 representing best possible quality of life. The Major Depression is defined if the raw score is below 13. EQLS(2012)	Five survey questions are used to calculate a composite measure of mental health I will now read out a list of the ways you might have felt or behaved during the past week. a). .you were happy? b). .you felt calm and peaceful? c). .you had a lot of energy? d) …your sleep was restless? e) …you enjoyed life? Response categories of each of these five survey questions are: 1. None or almost none of the time 2. Some of the time 3. Most of the time 4. All or almost all of the time The raw scores were calculated by assigning values to the response options: from 0 for "none or almost none of the time" to 3 for "all or almost all of the time", except for the issue d) "your sleep was restless?", for which we used a reverse scale. The presence of depression was defined for respondents with the integrated score below 8. ESS (2012)
4.4 Use of ICT, 55–74	How often on average have you used internet in the last 3 months? 1. Every day or almost every day 2. At least once a week (but not every day) 3. At least once a month (but not every week) 4. Less than once a month Eurostat, ICT Survey (2010, 2012)	How often do you use Internet access? 1. Permanently (more than once per week) 2. From time to time. 3. Do not use CLMC (2011) Did you use the Internet during the past 12 months? The question was asked only to those who declared the usage of PC) 1. Yes 2. No RLMS (2010)
4.5 Social connected-ness, 55+	How often socially meet with friends, relatives or colleagues?' Answers: 1. never, 2. less than once a month, 3. once a month, 4. several times a month, 5. once a week,	Same (ESS-2010)

Table 6 (continued)

Indicator	Survey question and source (European methodology)[a]	Questions used in the AAI-2012 for Russia
	6. several times a week, 7. every day ESS(2010, 2012)	
4.6 Educational attainment of older persons, 55–74	Highest ISCED level attained? 1. 0 pre-primary, 2. 1 primary, 3. 2 lower secondary, 4. 3 (upper) secondary, 5. 4 post-secondary non tertiary, 6. 5 tertiary LFS (2010, 2012)	Same as in European methodology Russian Population Census (2010) RLMS (2010)

[a] For more details see Detailed Information on Indicators used for the Active Ageing Index 2014.

References

Active Ageing Index (AAI) (2012). http://www1.unece.org/stat/platform/download/attachments/76287849/Methodology-Paper%20Final.pdf?version=1&modificationDate=1393836329990&api=v2

Active Ageing Index (AAI) (2014). http://www1.unece.org/stat/platform/display/AAI/V.+Methodology

Balabanova, D., Roberts, B., Richardson, E., Haerpfer, C., & McKee, M. (2012). Health care reform in the former soviet union: beyond the transition. *Health services research, vol., 47*(2), 840–864.

Boudiny, K. (2013). 'active ageing': from empty rhetoric to effective policy tool. *Ageing and society, vol., 33*(06), 1077–1098.

Comprehensive Monitoring of Living Conditions of the Population (CMLC) (2011). http://www.gks.ru/free_doc/new_site/KOUZ/survey0/index.html

Eurobarometer Survey (2010). http://ec.europa.eu/public_opinion/archives/ebs/ebs_334_en.pdf

European Health and Life Expectancy Information system (EHLEIS) (2010, 2012). http://ec.europa.eu/health/indicators/healthy_life_years/hly_en.htm

European Quality of Life Survey (EQLS) (2010). http://www.eurofound.europa.eu/publications/other/2012/quality-of-life/third-european-quality-of-life-survey-questionnaire

European Social Survey (ESS) (2010,2012). http://www.europeansocialsurvey.org/data/round-index.html

European Union Labour Force Survey (EU-LFS) (2010,2011,2012). http://ec.europa.eu/eurostat/web/microdata/european-union-labour-force-survey

European Union Statistics on Income and Living Conditions (EU-SILC) (2010, 2012). http://ec.europa.eu/eurostat/web/microdata/european-union-statistics-on-income-and-living-conditions

Eurostat ICT Survey (2010). http://ec.europa.eu/eurostat/web/digital-economy-and-society/data/comprehensive-database

Golofast, V. B. (2006). *Sotsiologia Sem'i. Stat'i raznyh let.* [Sociology of Family. Diverse articles], Aleteya, St. Petersburg.

Gora, M., Rohozynsky, O. and Sinyavskaya, O. (2010). Pension Reform Options for Russia and Ukraine: A Critical Analysis of Available Options and Their Expected Outcomes, DIW, *ESCIRRU Working Paper No. 25*, http://www.diw.de/documents/publikationen/73/diw_01.c.353450.de/diw_escirru0025.pdf.

Help Age International (2013). *Global AgeWatch Index 2013: Purpose, methodology and results.* http://www.helpage.org/silo/files/global-agewatch-index-2013-purpose-methodology-and-results.pdf

Human Mortality Database (HDM) (2010). http://www.mortality.org/cgi-bin/hmd/country.php?cntr=RUS&level=1

Institute for Health Metrics and Evaluation (IHME) (2010). Global Burden of Disease Study. http://ghdx.healthdata.org/gbd-data-tool

Levin, V. (2015). *Time to retire: analysis of older Russians' retirement decisions*. World Bank, March: Draft Working Paper http://regconf.hse.ru/uploads/6be1d57cbe03323683e9a9d62c5417b36cb33e5a.pdf.

Maleva, T., & Sinyavskaya, O. (2010). Retirement age rising: pro et contra. *The journal of new economic association, 8*, 117–139.

Marmot, M., Shipley, M. J., & Rose, G. (1984). Inequalities in death – specific explanations of a general pattern. *Lancet, 83*, 1003–1006.

Nardo, M., Saisana, M., Saltelli, A., & Tarantola, S. (2005). *Tools for composite indicators building*. Ispra: European Commission.

Russian Generations and Gender Survey (GGS) (2011). http://www.socpol.ru/gender/3_w.shtml

Russian Longitudinal Monitoring Survey (RLMS) (2010). https://www.hse.ru/en/rlms/downloads

Russian Labour Force Survey (RLFS) (2010). http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1140097038766

Russian Population Census (2010). http://www.gks.ru/free_doc/new_site/perepis2010/croc/perepis_itogi1612.htm

Saltelli, A. (2007). Composite indicators between analysis and advocacy. *Social Indicators Research, vol., 81*(1), 65–77.

Shkolnikov, V. M., Field, M. G., & Andreev, E. M. (2001). Russia: socioeconomic dimensions of the gender gap in mortality. In T. Evans, M. Whitehead, F. Diderichsen, A. Bhuiya, & M. Wirth (Eds.), *Challenging inequalities in health - from ethics to action* (pp. 138–155). Oxford: Oxford University Press.

Shkolnikov, V. M., Andreev, E. M., Leon, D. A., McKee, M., Meslé, F., & Vallin, J. (2004). Mortality reversal in Russia: the story so far. *Hygiea Internationalis, vol., 4*(4), 29–80.

Shkolnikov, V. M., Andreev, E. M., Jasilionis, D., Leinsalu, M., Antonova, O. I., & McKee, M. (2006). The changing relation between education and life expectancy in central and eastern Europe in the 1990s. *Journal of Epidemiology and Community Health, vol., 60*(10), 875–881.

Shkolnikov, V. M., Andreev, E. M., & McKee, M. (2013). Components and possible determinants of decrease in Russian mortality in 2004-2010. *Demographic Research, 28*(32), 917–950.

Sidorenko, A., & Zaidi, A. (2012). Active ageing in CIS countries: semantics, challenges, and responses. *Current Gerontology and Geriatrics Research, 2013*, 15.

Sinyavskaya, O. (2005). Pension reform in Russia: a challenge of low pension age, *PIE Discussion Paper, No*. In *267* (*March*). Project on: Intergenerational Equity, Hitotsubashi University (Japan) http://www.ier.hit-u.ac.jp/pie/English/discussionpaper/dp2005/dp267/index.html.

Sinyavskaya, O. (2012). Pension rising policy of recent years: results and limitations. *SPERO, 16*, 39–58.

UNECE (2012). Results of the pilot study of active ageing index in Georgia.

UNECE / European Commission (2015). Active Ageing Index 2014: Analytical Report.

Walker, A. (2014). *The concept of active ageing*, *Iin A. Walker, Ch. Aspalter (eds.), Active Ageing in Asia*. Taylor and Francis, Kindle Edition: Routledge.

Walker, A., & Maltby, T. (2012). Active ageing: a strategic policy solution to demographic ageing in the European Union. *International Journal of Social Welfare, vol., 21*(s1), S117–S130.

WHO (2002). *Active ageing: a policy framework*. Geneva: World Health Organization.

Zaidi, A. (2014). *Detailed Information on Indicators used for the Active Ageing Index*, 2014.

Zaidi, A., Gasior, K., Hofmarcher, M., Lelkes, O., Marin, B., Rodrigrues, R., Schmidt, A., Vanhuyss, P., Zolyomi, E. (2013). Active Ageing Index 2012. Concept, Methodology and Final Results, Project: Active Ageing Index (AAI) UNECE Grant No: ECE/GC/2012/003.

Zasimova, L., Sheluntcova, M. (2014). Measuring active aging for government policy planning: a case of Russia, basic research program: working paper, series: public administration, WP BRP 11/PA/2014.