Financial Sustainability in Public Administration

Exploring the Concept of Financial Health

Edited by Manuel Pedro Rodríguez Bolívar

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palgrave
macmillan

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ISBN 978-3-319-57961-0 ISBN 978-3-319-57962-7 (eBook)
DOI 10.1007/978-3-319-57962-7

Library of Congress Control Number: 2017943476

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Printed on acid-free paper

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The registered company is Springer International Publishing AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Foreword

In the last two decades, citizens and service recipients have required public administrations to improve economy, efficiency and effectiveness in services delivery, and this has been a cornerstone in financial management. This objective has been part of the New Public Management (NPM) and the principles of good governance, leading to reforms in the public sector around the world. Financial sustainability was of course a fundamental premise to achieve that aim, but during the last decade, and especially with the financial crisis, both governments and citizens have become aware of the need to introduce some measures and tools that support financial sustainability management. It is a prerequisite for governments to continue delivering services at the same levels and quality.

Public administrations have seen the need to increase the public services provided at the same time as they have faced revenue reductions and pressures resulting in financial difficulties. This is not new if we take into account that in the 1980s, some US local governments, such as New York or Cleveland, declared situations of financial distress and some measures were necessary to recover the situation. International organizations, such as the World Bank or the United Nations,

recommend strengthening fiscal and financial sustainability, trying to ensure financial balances of governments. In the European Union, the financial and economic crisis has also had its impact on the deficits and debts of Members States, and fiscal sustainability has become one of the main objectives of the political agenda.

In this framework, the measurement, management and control of financial sustainability is a challenge to public administrations worldwide. In spite of the many definitions of financial sustainability, all of them coincide in the capacity of the entity to provide services at the existing levels and to meet its obligations, present and future. This means that government must be prudent with expenditures and achieve balanced budgets. At the same time, it requires the maintenance of financial and infrastructure capital in the long term. Governments need to introduce long-term financial planning, and their focus cannot be on the short term as it has been until now.

In this situation, all resources, materials and information about financial sustainability are indispensable for all concerned with the financial management of public administrations: politicians, managers, treasurers, accountants, regulators, policymakers, and other practitioners in general. All of them will benefit from this up-to-date analysis of the concept and proposals for its measurement, as well as from the identification of the factors that can influence and determine it. Furthermore, the contents of the book are also an important contribution from the scientific point of view, and can offer interesting perspectives and conclusions for future research.

This book provides an answer to this shortcoming. It consists of 10 chapters from reputable authors that discuss financial sustainability in detail from an inter-organizational and international perspective. The book defines the concept and offers interesting contributions about how to measure the financial sustainability of public administrations, as well as about the determinants and factors that influence it in practice. It takes stock of the initiatives in different contexts and organizations, including Central Government, Local Governments, Higher Education Institutions, and Universities. The international perspective is reflected in chapters that focus on the European Union, England, Germany, the Netherlands or Spain. For each of them, interesting experiences in

managing and monitoring financial sustainability are presented. This can serve as a learning process for other entities and organizations from other countries that need to implement measures and tools to control and improve their financial sustainability.

The initiative of putting all this material together should be applauded, because it results in measures and tools that can support the control and management of financial sustainability of governments. The book offers timely and relevant information for politicians, managers, accountants, regulatory bodies, policy makers, academics and researchers.

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Preface

The latest global recession has had strong impacts on global economic activity and financial sustainability of public administrations. The financial problems to keep public services running have made scholars and international organizations to focus on the link between financial sustainability and accountability. Nonetheless, the financial sustainability concept is a fuzzy concept based on the intergenerational equity term but difficult to operationalize. Thus, there has been many problems to set a measure to evaluate financial sustainability in public administrations and, nowadays, this issue remains as an unsolved question. This is why I focused my efforts in editing a book on financial sustainability with the aim at helping public managers, policymakers, and citizenry in managing and evaluating financial sustainability of public administrations.

The authors of the chapters in this publication have contributed to the success of our work by the inclusion of their respective studies. This book, consisting of 10 chapters, is divided into three parts: Prior research in the management of public finances, theoretical underpinnings and methods used to calculate financial sustainability in governments, and comparing international experiences in managing and

monitoring financial sustainability in governments. Also, a chapter for introducing the book and a conclusion chapter have been written with the aim at highlighting the relevance of the book.

In the introduction chapter, the authors explain the relevance of analyzing financial sustainability in public administrations and the gap of the research, opening the relevance in focusing on this issue in the book. Later, the first part of this book has sought to analyze prior research regarding methods used to manage public finances. Fiscal distress and financial positions have been traditionally two concepts linked to the financial health of governments, but are these measures good for financial sustainability of governments?

This way, the authors of Chap. 1 perform a literature review to understand the problem of financial condition and financial sustainability in public administration. Concretely, they try to summarize not only the evolution of the definition and measurement of the public finances toward the financial sustainability but also the internal and external factors that could jeopardize it following prior research and international organizations.

Having thus analyzed prior research about financial health in governments, the second part of the book has been aimed at providing a theoretical framework for calculating financial sustainability in governments. This way, authors have analyzed some of the key theoretical and practical elements to describe the financial conditions and distress of public sector entities, like universities (Chap. 2), while also clarifying the distinctive features of financial sustainability. In addition, the next chapter has also presented factors that could affect financial sustainability, highlighting possible future lines of research (Chap. 3).

In this regard, the European Union have pointed out that demographic variables could be the relevant factors to achieve financial sustainability. This issue has been verified in a research included in Chap. 4 of the book, which confirms that some demographics variables could act like main drivers or risks for financial sustainability in public administrations.

Finally, this part of the book has also included two Chaps. (5 and 6) which are addressed to analyze the role of accounting and integrated reporting in representing the financial sustainability of governments. This way, Chap. 5 aims at analyzing how specific accounting tools and

techniques can assist in the control of a local government's financial sustainability based on the governance setting adopted for service delivery, whereas Chap. 6 aims at presenting two conceptual models -financial sustainability and integrated reporting-, and at overlapping the constituent elements in a matrix, allowing the analysis of delineation matches, as well as the characteristics of forward-looking capital allocation.

Part III of the book analyzes the compared experiences in managing and monitoring financial sustainability in governments all over the world. The objective of this part of the book is to learn from experience and to identify best practices in managing financial sustainability in governments. This way, Chap. 7 explores the link between sovereign debt capacity and financial sustainability in central government, whereas Chap. 8 investigates how local government's financial sustainability is influenced by the regulatory framework comparing, from a constitutional approach, the regulatory regimes on local finances in England, Germany, and the Netherlands. Then, Chap. 9 is focused on Spanish public universities and their duty regarding the accomplishment of objectives of financial sustainability and net debt capacity.

Finally, in the conclusions and future research section, the book includes one chapter summarizing the findings of the contributions published in the earlier parts of the book in order to obtain interesting conclusions for theoretical contributions and future strategies in the financial sustainability area.

Therefore, the chapters included in this book incorporate both theoretical and practical aspects, and serve as baseline information for future research through which significant developments in financial sustainability can be expected. This book will be of great interest to the public managers, practitioners, policymakers, citizens, and research scientists working in the area of financial sustainability in public administrations.

With great pleasure, we extend our sincere thanks to all our well-qualified and internationally renowned contributors from different countries for providing the important, authoritative, and cutting-edge scientific information to make this book a reality. All chapters are well supported with appropriately placed tables and figures and enriched with up-to-date information. We are also thankful to the reviewers who carefully read and timely reviewed the manuscript.

We are extremely thankful to Palgrave for the great efforts undertaken by their book publishing team, especially Natasha Denby, Alexandra Morton, and Jemima McMillan, the Editorial Assistants, in responding to all queries very promptly. I express my sincere thanks to my family for all the support they provided, and regret the neglect and loss they suffered during the preparation of this book.

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Part I

Introduction

1

Financial Sustainability in Governments. A New Concept and Measure for Meeting New Information Needs

María Deseada López Subires and Manuel Pedro Rodríguez Bolívar

1 The Importance of Public Finances in the Public Management

According to the World Bank—WB—(1988), public sector plays an essential role in the development and in the economy of a country because public sector supplies the necessary technical and technological infrastructures to facilitate the development of a country (WB 1988). Indeed, the economic development could not be carried out without the public sector's effort, since governments directly invest in the different sector of the economy (such as industry, agriculture or commerce) in order to encourage the economic growth (Gupta 2013).

Also, public administrations provide a wide range of public services with a twofold objective: covering the social services that the private

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M.P. Rodríguez Bolívar (ed.), *Financial Sustainability in Public Administration*,
DOI 10.1007/978-3-319-57962-7_1

sector could not bear and making the social services affordable for every citizen. Nevertheless, the high volume of debt and deficit and the last years provoked by the economic and financial crisis has endangered the public service delivery, since public administrations have been involved in a context of a decrease of public revenues and in the introduction of policies of public expenditure cuts (Bailey et al. 2014; Lee and Wilkins 2011; Checherita-Westphal et al. 2014; IMF 2014). Also, the decentralization process followed by public administrations has caused great territorial differences (Martinez-Vazquez et al. 2015; Ruiz-Huerta et al. 2012) and even a duplication on the public services delivery (Ruiz-Huerta et al. 2012).

This situation has undermined the public administrations' capacity of continuing to provide public services to society without reducing their quality and amount, and citizens have shown some concerns regarding this issue, demanding more relevant information about financial sustainability in governments (Dumay et al. 2010; Guthrie et al. 2010).

Under this framework, international organizations (IFAC 2013; CICA 1997; EU 2012a) and prior research (Groves and Valente 2003; Cabaleiro et al. 2013) have focused on the analysis of the public finances to encourage public administrations to achieve financial health and ensure intergenerational equity. It has caused an increase of the demand on a higher quality and transparency of the financial information (Pina et al. 2010) in order to detect financial distress (Zafra-Gómez et al. 2009) and to achieve a sustainable financial balance (Burritt and Schaltegger 2010). Therefore, the achievement of the financial sustainability in public entities has been considered as a prerequisite to get the financial health.

Following World Commission on Environment and Development (Brundtland (WCED) 1987) and international organizations (IFAC 2013; GASB 2011; LGA 2012), financial sustainability can be defined as the ability to continue current policy without changes in public services and taxation and without causing a continuously rising debt. This concept has been told to collect three interrelated dimensions: service, revenue and debt (IFAC 2013). So, the analysis of these three dimensions has become relevant to meet not only financial objectives but also the rest of public ones. This book is driven to set interesting insights regarding this issue with the aim at contributing for making sustainable public administrations.

2 The Evolution in the Management of Public Finances

In the last years, accountability has become a relevant issue in public administrations. Although accountability can be defined with a multi-propose objective and different perspectives have been highlighted (Bovens et al. 2014), financial problems to keep public services running have made scholars (Rodríguez et al. 2014; Navarro-Galera et al. 2016; Dollery and Crase 2006) and international organizations (IFAC 2012; EU 2012a; NAO 2014) to focus on the link between financial sustainability and accountability. This way, there has been a call for research regarding useful financial information to monitor the accomplishment of intergenerational equity, which has become a crucial point regarding the management of public entities (GASB 2013).

This way, prior research focused on several fundamental aspects of public administrations such as financial condition and fiscal distress, among others. Firstly, the analysis of public finances was concentrated on the information about fiscal condition which was centred on solvency (Wang et al. 2007; Groves et al. 1981; Nollenberger 2003). Concretely, solvency was analysed using some financial indicators in order to represent the level of sustainability, flexibility and vulnerability. These indicators tried to examine the financial capacity of public administrations to meet their financial duties with providers (Cabaleiro et al. 2013). However, the usefulness of the information that these indicators provides is limited because they cannot capture the wide range of financial dimensions of public entities and are not able to evaluate the capacity of public administrations to keep running public services and activities (Rivenbark et al. 2010). Although sustainability is an element included in the financial condition, the concept of financial sustainability goes further. Financial sustainability is a new concept of public finances which tries to represent a measure with a clear impact on future projections of public affairs so as to improve the public management (Fig. 1).

Therefore, the necessity to find an indicator which allow to measure public finances and to predict when a public entity might be facing financial difficulties led prior research to make new efforts with

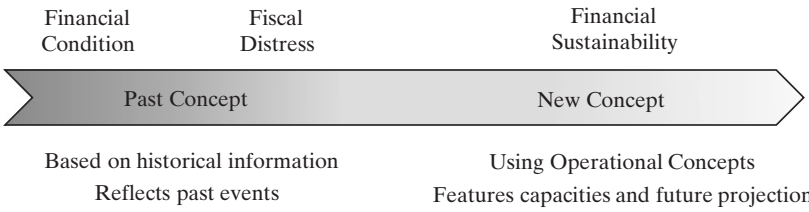

Fig. 1 Evolution of the concepts

different indicators such as fiscal distress focused mainly on budgetary information (Carmeli 2008; Kloha et al. 2005b; Kloha et al. 2005a). Nevertheless, some authors have found different difficulties regarding the use of fiscal distress measures (Kloha et al. 2005a; Woodbury et al. 2003; Dollery and Crase 2006). In this regard, these indicators seem to use a huge number of variables, to exclude some of the key variables or to have an ambiguous interpretation among others limitations (Kloha et al. 2005a, b). Indeed, following international organizations such as EU (Eurostat 2015), taking into account external information such as that provided through the demographics or economic factors, which were not included as key variables, could help public managers and other stakeholders to reach the financial sustainability and make future financial projections of financial conditions of public administrations. So, these indicators are not well-fitted to be used for evaluating the providing of public services over time.

In fact, the financial and economic crisis has revealed that the information provided by the prior indicators was not enough since they could not predict the financial problems of public administrations. This way, both financial condition and fiscal distress base their indicators in historical financial information. So, these approaches measure past events and could describe the present financial situation of an entity, but are unable to have impact on the future, which is linked to the concept of financial sustainability. Therefore, nowadays, international organizations and prior research are adulating the use of a more complex and multidimensional concept which is centred on the future instead of the past: financial sustainability.

Financial sustainability is a broader concept than financial condition or fiscal distress because it covers three dimensions: debt, revenues, and services (Rodríguez et al. 2016b; IFAC 2013). In addition, its importance derives from its link to the concept of inter-period equity or intergenerational equity. That means, financial sustainability should provide public managers with useful information not only to anticipate and solve the potential risks but also to take advantage of the opportunities with the aim at keeping providing future generations with the same quality and amount of public services. Thus, the quality of an indicator of the financial sustainability depends on the capacity to represent this intergenerational equity from the point of view of making decisions (about its three dimensions) without compromising future generations (Rodríguez et al. 2014).

Therefore, the aim of the financial sustainability puts more emphasis on having information available about the coming financial years than on explaining the reasons for the current figures of a public administration. So, to achieve financial sustainability, a public entity must to be able to meet its financial commitments and service delivery with the same quantity and quality, without causing the debt to rise continuously and without compromising future generations (IFAC 2013; EC 2011; EU 2012b).

This new measure comes to meet the new demands of citizens that require accountable and sustainable public administrations. This way, financial sustainability of public entities has become in a key concept for public administration even more important than the others dimensions of the sustainability (environmental or social) or of the public sector management (Afonso and Jalles 2015). Nonetheless, this is a new concept that requires attention from researchers because it needs to be built. A call for research about financial sustainability in public administrations is, therefore, necessary to advance in healthy and sustainable public entities.

3 Some Notes About the Measurement of the Financial Sustainability

As noted previously, the financial sustainability is determined by the ability of the government to manage expected financial risks and shocks over the long-term financial planning period, without necessity to

introduce substantial or disruptive revenue (and expenditure) adjustments (CICA 2009; CSIS 2010; USAID 2011; EC 2011; EU 2012a, b; IFAC 2012; IFAC 2014). According to IFAC (2013), long-term financial sustainability should include information about its three interrelated dimensions: revenues, services and debt (IFAC 2013). Regarding the revenues dimension, it focuses attention on the capacity of an entity to vary or introduce revenue sources (for example, taxes). In addition, the service dimension pays special attention to the capacity of an entity to maintain or vary the volume and quality of services that it provides or the entitlement programs it delivers. Finally, the debt dimension attends to the capacity of the entity to meet its financial commitments as they come due or to refinance or increase debt as necessary.

These three dimensions are linked to intergenerational equity (WCED 1987), or 'inter-period equity' (Pezzy and Toman 2002; IFAC 2014), concept which focused its efforts on the need to provide public services balancing the financial resources obtained with the consumption of resources (the cost of services).

However, although nowadays it is admitted that the concept of sustainability should consider the intergenerational equity, its measurement taking into account the intergenerational equity has had different attempts. First of all, Hicks (1945) suggested that economic sustainability should include the concept of 'income'. That means, the maximum amount that a person can consume during a period maintain the economic well-being. Following this idea, Stavins et al. (2003) suggested a broad approach of the sustainability based on a growth that combines dynamic efficiency—measured on the basis of the difference between revenues and expenses—with future maintenance. Padilla (2002) and Pezzey and Toman (2002) have warned that in the analysis of sustainability not only it should be focused on the assessment of efficiency but also on the intergenerational analysis because an understanding of the rights of future generations is vital.

Following this new idea about the sustainability linked to the intergenerational equity, numerous international organizations and prior research have taken part in the analysis of financial sustainability, but not all of them have provided a concrete measurement. This body of literature can be divided into two groups. The first one has been focused

on analysing financial sustainability as compendium of financial indicators to be achieved by public administrations. In this regard, the FSRB (2005) has proposed four indicators to assess the financial sustainability: net financial liabilities, operating surplus or deficit. In addition, Gold (2008) on account of the PwC's report about sustainability (PwC 2006) has pointed out five KPI to assess financial sustainability: operating surplus/deficit, rates coverage, sustainability ratio, current ratio and interest coverage. Finally, with the aim at analysing the financial sustainability and following the statements of the CICA (1997), Cabaleiro et al. (2013) use three indicators: long-term debt/total budgetary revenues, long-term debt/net budgetary revenues from nonfinancial operations and long-term debt/net budgetary revenues from current operations. However, all these indicators are based on historical information, so the potential future projections that they can provide are limited.

Indeed, international organizations have currently highlighted the importance of financial statements for assessing financial sustainability, considering them vital to achieving an understanding of the present situation of public finances (EC 2011; IFAC 2013), specifically, the income statement (IFAC 2013). This way, the second group of definitions of financial sustainability has focused on the income statement as a good approach to measure financial sustainability in public administrations.

The importance of this financial statement is that the income statement uses an accrual basis of accounting which makes the income statement the most closely concept linked to the intergenerational equity (GASB 1990; IFAC 2012: Navarro-Galera et al. 2016). On the other hand, the budget statement is primarily cash-based or follows a mixed cash-accrual basis in determining the budget results, which could be distanced from the intergenerational equity (GASB 1990; IFAC 2012; Navarro-Galera et al. 2016). Indeed, the income statement includes several items that are not incorporated in the budget statement such as the consumption of capital investments, estimates of future costs and expenses incurred but pending allocation to the budget, among others (Navarro-Galera et al. 2016). These concepts effectively represent the organization's capacity to maintain its financial well-being in the future. Therefore, considering the income statement, financial sustainability

Concept	Amount
Income statement for the financial year obtained by applying the current IPSAS	(1)
+ Negative entries for extraordinary activities	(2)
– Positive entries for extraordinary activities	(3)
Corrected income statement for the financial year (intergenerational equity for financial sustain ability)	(1) + (2) –(3)

Fig. 2 Financial sustainability: Adjusted Income Statement *Source* Rodriguez et al. (2014, 2016) and Navarro-Galera et al (2016)

can be measured from a much more comprehensive standpoint than that of budget information (Navarro-Galera et al. 2016).

Moreover, according to the IFAC (2013), this statement would reflect a direct approach to two of the three dimensions included into the fiscal sustainability. So, income statement directly includes the value of the public revenues (revenues dimension) and expenditures (which are considered as the economic measurement of the services dimensions) on accrual basis. So, both public revenues and expenditures are linked to the intergenerational equity. In addition, the income statement is indirectly associated with the debt dimensions since the debt is related to the volume of services provided and this statement includes the interests of the debt (IFAC 2013).

So, this income statement approach which includes the three dimensions and is based on accrual basis is linked to the new concept of the financial sustainability which is focused on featuring a financial statement which reflects future aspects and projections of public administrations and not only the past events.

Under this framework, Navarro-Galera et al. (2016) and Rodríguez Bolívar et al. (2016a, b) have proposed a financial sustainability indicator based on accrual information call "adjusted income statement" (see Fig. 2). This indicator uses the income statement but the revenues or expenditures derived from the extraordinary activities which are not expected to be repeated in the future are deleted. This adjustment could make a more reasonable measure of the intergenerational equity, and more suitable for the concept of financial sustainability given that the extraordinary activities lack any future scope.

The use of this measure in local governments have allowed to identify drivers and limiting factors to achieve sustainable public entities (Rodríguez et al. 2016b; Navarro-Galera et al. 2016). The knowledge of

these factors is relevant for public managers to take decisions. So, in the next section, we refer to the most relevant identified drivers and risk factors for financial sustainability.

4 Internal and External Factors for Financial Sustainability

Similarly to international organizations (NAO 2014; PwC 2006; Local Government Association 2011; IFAC 2013), prior research has put the emphases on the analysis of financial sustainability in local governments (Rodríguez et al. 2016b; Rodríguez et al. 2014; Navarro-Galera et al. 2016; Andrews 2015; Dollery and Crase 2006; Dollery and Grant 2011; Mahdavi and Westerlund 2011; Gold 2008), because they are the public level closest to citizen, so they are well placed to be aware of citizens' information needs (Watt 2004). This characteristic of the local government linked to the economic and financial crisis caused high volume of accumulated deficit and debt at local level (Muñoz-Cañavate and Hípola 2011) which has increased the necessity to analyse the financial sustainability at local level.

This context has grown the concern about the management of public finances focused on financial sustainability. In this regard, financial sustainability management of a public entity depends on two types of variables: internal and external factors (see Fig. 3).

The internal variables could be represented by a "local management approach" (Kimhi 2008) and they are focused on the political and financial management of a municipality (Zeedan et al. 2014). So, the analysis of these internal factors tries to identify how the variables which represent the past management of a political group can influence on the financial sustainability and thus, on the intergenerational equity in the future. In this regard, an interesting research question that should be analysed is whether these historical and internal variables (such as the budget, the solvency, the financial independence or debt) could have relation with a future impact on the financial sustainability.

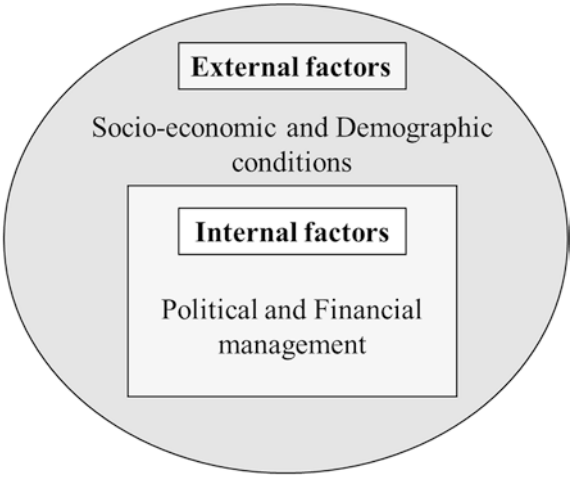

Fig. 3 Internal and External factors

Thus, having analysed 116 Spanish municipalities, Rodríguez et al. (2014) identified the budget result as an internal variable that could influence positively on the financial sustainability. On the other hand, they were unable to identity the current liabilities as a negative internal factor due to its slight influence. Finally, they discovered that the short-term solvency and the financial independence have no influence on it.

Moreover, Navarro-Galera et al. (2016) considering a wider sample (130 municipalities from 2006 to 2011) have carried out a deeper analysis which shows that the origin (external or internal) and the destination (operating or capital) of the revenues could be specific financial sustainability drivers. By contrast, they demonstrated that the long-term debt, the financial expenditures, the wages and the operating expenditures could be risk factors for financial sustainability.

On the other hand, the external factors are those which are uncontrollable by a public entity. The UE considers that analysing the current demographics changes is essential in order to establish adequate social and financial policies. So, demographic factors could be considered uncontrollable potential and influential factors for financial sustainability which likely become even more important in the future (Eurostat 2015). Moreover, prior research has identified as external factors de

socio-economic ones (Zeedan et al. 2014; Rodriguez et al. 2016b). Indeed, the UE classifies the municipalities taking into account their economic and demographic characteristics, so the most studied external factors could be considered the socio-economic and demographic ones.

In this regard, the analysis of financial sustainability and its factors at local level can help public managers and politicians to monitor and to keep sustainability of public services over time. Specially, it should be considered the external factors since useful information about them could help public managers to take decisions to strengthen the factors that favour the financial sustainability (drivers) and to reduce the negative effects of risk factors (EU 2012a, b; IFAC 2013; NAO 2014).

Based on previous comments, researchers have carried out different studies in order to figure out a good indicator to measure the financial sustainability at local level (Navarro-Galera et al. 2016) and the drivers and risk factor (external ones) that could influence on it (Rodríguez et al. 2016a, b; Andrews 2015). Some prior studies have only analysed factors that separately affect the previously mentioned three dimensions of financial sustainability regarding local governments' public finances: expenditures (Choi et al. 2010), revenues (Benito et al. 2010; Gupta 2007) or public debt (Feld and Kirchgässner 1999). Nonetheless, it is much interesting to focus on those that have analysed drivers and risk factors in financial sustainability as defined by the IFAC (2013) and GASB (2011) in order to identify which external factors could have an effect concretely on the financial sustainability.

In this regard, as mentioned before, prior studies have been focused on the influence of the demographic and socio-economic variables in financial sustainability because they have been told to be of huge current importance to achieve the financial sustainability (EC 2011; EU 2012a, b; GASB 2011; IFAC 2013).

Thus, previous studies have pointed out that the population size, the dependent population under 16, the foreign population and the unemployment rate are external variables that are expected to be risk factor for the financial sustainability of local government (Rodríguez et al. 2016a, b). In addition, in a further analysis, Rodriguez et al. (2016a) have found that the specific unemployment rates that have a stronger influence on financial sustainability are the agricultural, building and

services sector unemployment rates. By contrast, it has been considered that the population density (Andrews 2015) and the educational level of the population (Rodríguez et al. 2016a, b) could be drivers of the financial sustainability.

As noted previously, all studies undertaken by prior research have chosen the local administration context as the focus of the study. In fact, there is a lack of studies which analyse the financial sustainability and its factors in other levels of the administration such as regional or state level even on other types of public entities such as Universities. So, future research should focus on the financial sustainability and its influential factors at other levels of the public administrations in order to provide public managers with useful information which allow them to take appropriated public policies to reach financial sustainability in all types of public entities.

5 Conclusions

The sharp drop of public revenues together with the maintenance or increase of public expenditure had led to budgetary gaps and to increase in debt. Therefore, central governments have been forced to adopt strong measures against the crisis such as budget cuts, public funding reductions or lowering transfers among other levels of government. These measures have had an impact on all levels of government, even on other types of public entities such as Universities.

At international level, organizations and prior research are working on the concept of the financial sustainability since it has been considered as a key aspect in public management (IFAC 2013; EU 2012a; EC 2016; FSRB 2005; Local Government Association 2011; Andrews 2015; Navarro-Galera et al. 2016). Financial sustainability should have a predictive capacity (Dollery and Crase 2006) which help public managers and other stakeholders to make appropriated decisions regarding public finances. So, financial sustainability should provide useful information to assess the government's ability to maintain or to adjust the volume and/or quality of services provided, and to predict vulnerability problems caused by uncontrollable factors such as demographic

trends or standards issued by other levels of governments (IFAC 2014; Navarro-Galera et al. 2016). However, the lack of agreement on the measurement of the financial sustainability jointly with its huge and current importance for public administrations make the study of this concept particularly timely and relevant in all levels of the public sector. Moreover, the study of the financial sustainability is increasingly important because its obtainment and maintenance are as a prerequisite to aim the public entities' objectives.

Therefore, it is necessary to undertake research in the field of public sector management with the aim at keeping financial sustainability safe, assuring the provision of public services for future generations. It means to focus efforts in defining and measuring financial sustainability and in the identification of drivers and risks factors to make available financial systems capable of providing relevant information to take good financial decisions.

Acknowledgements This research was carried out with financial support from the Regional Government of Andalusia (Spain), Department of Innovation, Science and Enterprise (Research project number P11-SEJ-7700) and the Spanish Ministry of Education, Culture and Sports under Grant (FPU13/05949).

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Part II

Prior Research in the Management of Public Finances.

2

Financial Conditions and Financial Sustainability in Higher Education: A Literature Review

Giovanna Lucianelli and Francesca Citro

1 Introduction

Many countries have recently launched several incisive reforms in the higher education (HE) sector, aimed at improving its performance through the introduction of "business-like" management practices into public organizations (Bogt and Scapens 2012). The main objectives of these reforms include enhancing institutional autonomy, while also stressing quality assurance and accountability (Neave 1988; Eurydice 2000; OECD 2003; Eurydice 2008), thus resulting in several relevant effects, such as a different relationship between central government and each state university, the decentralization of responsibilities as well as increased attention being given to financial budgeting. Central governments are

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M.P. Rodríguez Bolívar (ed.), *Financial Sustainability in Public Administration*,
DOI 10.1007/978-3-319-57962-7_2

reducing their financial support to universities (as well as local government entities), declaring that the future assigning of funds is going to be allocated on performance assessments.

In addition, an analysis of financial sustainability in public universities will become a key issue in the next decade; only those institutions that have sound financial structures and stable income flows will be able to fulfill their multiple missions and respond to the current challenges in an increasingly complex and global environment.

Consequently, a dominant and recurring theme in current literature is the increased use of performance information in the public sector. In general, even if there are conflicting opinions on the effectiveness of performance-based accountability structures, scholars have pointed out that these performance-based mechanisms could support, in some ways, both the reform of state budgets as well as the change in service delivery (Hunt 2008; Kelly et al. 2010). While these ideas have spread internationally and many countries have introduced reforms associated with them, it is worth considering a number of criticisms. Applying private sector management techniques to the public sector could be risky (Flynn 2002). Many academic scholars such as Pollitt (1990) and Armstrong (1998) argued that most public service and administration areas have distinct political, ethical, constitutional and social dimensions and these factors make the public sector different from the private sector (Pollit and Bouckaert 2004; Mongkol 2008).

This topic, although it should refer to all public sector entities, is assuming increasing importance in HE, where efforts are being made to directly link performance to funding (Zumeta 2001; Burke 2002).

The reform movement aims to reduce the bureaucratic regulations of universities. Inspired by the new public management (NPM) theoretical approach (Lapsley 2009; Pollit and Summa 1997), this reform has emphasized, among other relevant aspects, the potential autonomy of public sector entities, along with the importance of the link between performance and funding. However, this is easier said than done since continued economic fluctuations have made it difficult for governments to provide incentives and subsidies that are capable of encouraging private investment in research and development (Jongbloed et al. 2008). Current progressive budgetary restrictions imposed by national

governments have obstructed the ability to respond to societal demands in serving the stakeholders' needs and development.

Several studies have investigated the effectiveness of these performance-based reforms through both case studies (Banta et al. 1996) as well as comprehensive and detailed analyses of public colleges and universities (Rabovsky 2012).

Considering the studies relating to the aforementioned link between performances and funding as a basis, this study aims to contribute to current literature by clarifying the financial conditions and distress of public universities, whereas previous literature has mainly focused on local government entities (Carmeli 2003; Carmeli 2008; Jones and Walker 2007). It is worth noting that there are relatively few studies that develop models to analyze the financial conditions and distress of public universities, albeit with some remarkable exceptions (Bisogno et al. 2014). Furthermore, there is currently no extensive literature on financial sustainability; thus this study tries to contribute in developing the role of accounting in the assessment of the financial sustainability of universities, like other studies have for local governments (Rodríguez-Bolívar et al. 2014).

The chapter is organized as follows: The next section describes some of the key theoretical and practical elements so as to present the financial conditions and distress of public universities, while also clarifying the conditions of financial sustainability. The last section presents a number of considerations on this topic as well as several conclusions and indications for future developments.

2 The Development of the Concept of Financial Sustainability in the HE Sector

According to the Global Reporting Initiative (GRI) and the International Federation of Accountants (IFAC), the development of the concept of sustainability is threefold: environmental, social, and economic. In the past decade, the global recession highlighted the increasing importance for public organizations to manage the economic

and financial dimensions. The difficulty for governments to provide appropriate funds for HE sector needs have encouraged performance-based governmental funding policies. Taking into account that public universities are prevalently financed by the central government and are sensitive to the funding policy of each country, analysis of the financial conditions has become more relevant than in the past.

According to the classification of Massaro et al. (2016), this chapter adopts a narrative literature review approach, with the main aim being to investigate the key theoretical elements and methods used to analyze the financial health of state universities. In this way, avoiding the recurrent risk of each literature review, namely to list a summary of the findings, conclusions, and unanswered research paths (Petticrew and Roberts 2008), the following sections are structured in order to offer a critique of both financial distress and sustainability.

More specifically, Sect. 2.1 will analyze the concept of financial distress, in order to investigate the main approaches suggested by previous literature, while at the same time highlighting both the methodology used and the variables included in the proposed models. Building on the main findings of these studies, the subsequent Sect. 2.2 will focus on the concept of financial sustainability, whose relevance is progressively increasing in current times, with the main aim being to clarify its distinctive features.

2.1 Financial Distress and Financial Conditions

The analysis of financial distress in the public sector has been long debated, along with the concept of its financial conditions. When discussing and describing financial distress, government agencies have tried to outline a set of definite events to be considered as warning signals of financial distress (Schipper 1977).

Current international literature commonly focuses on local government entities, whose distress is investigated by referring to the following:

- the *inability to provide services at pre-existing levels* to citizens, essentially referring to the provision of the local infrastructure (Jones and Walker 2007);
- the effects on the financial distress of *structural or fixed factors* include the size of the local authorities, residents socioeconomic status, and government resource allocation; *organizational factors* include performance evaluation, transparency, and the role of the local government's management, while the *hybrid factors* include the relationship between the central and local governments (Carmeli 2008).

Further studies refer to the internal causes (such as internal fiscal mismanagement, political mismanagement, internal lack of structural leadership, and culture of inefficiency) and external causes (demographic changes, structural recessions, tax revolt, structural service demand, political pressure from creditors, interest group demand, judgment awards, and abrupt economic changes) of municipal bankruptcy (Park 2004).

Public organizations in many countries (Israel, USA, Spain, Australia and UK) evaluate their financial conditions through financial performance (Honaldle 2003; Dollery et al. 2006; Audit Commission 2007; Carmeli 2008; Zafra-Gómez et al. 2009). The focus is generally on two aspects: (1) the availability of the resources required to maintain and/or improve the services provided to the citizens (Kloha 2005; Audit Commission 2007; Coe 2008); (2) the development of systems capable of assessing and detecting financial crises (Kloha 2005; Coe 2008).

This means that the financial conditions of a public organization should be expressed through a set of well-known *indicators* by the private sector concerning (Greenberg and Hiller 1995; CICA 1997; Nollenberger et al. 2003):

- *short-term solvency*, (e.g., cash solvency), which refers to the relationships between cash inflows and outflows, expressing the ability of a public sector organization, or a public university, to generate enough liquidity to pay its short-term debts;
- *budget solvency*, which refers to the ability of a public sector organization, or a public university, to raise sufficient revenues to cover

its legally required expenditures without entering into deficit (Inman 1995);
- *long-term solvency*, which refers to the ability of public sector organizations, or a public university, to respond in an adequate manner to all its long-term obligations;
- *service-level solvency*, which refers to the ability to provide and sustain essential services that stakeholders require and desire (e.g., citizens or students in the case of a public university).

It is worth noting that most of these indicators come from the private sector and are consistent with full accrual accounting; they have been introduced in the public sector under the banner of NPM (Guthrie et al. 1999; Broadbent and Guthrie 2008). In recent years, a growing body of literature has attempted to adopt these perspectives in order to explore accounting changes (Bergevärn et al. 1995; Carpenter and Feroz 2001; Covaleski and Dirsmith 1988; Dillard et al. 2004; DiMaggio and Powell 1983; Timoshenko and Adhikari 2010).

These studies have striven to portray the change as a symbol of legitimacy, trying to demonstrate that legitimacy can be gained through three mechanisms: coercive, mimetic, and normative (Adhikari et al. 2012).

The points expressed above have implications for the ongoing debate in budgeting and accrual accounting literature, concerning how they can be understood by the users, what they imply, whether such models should be implemented in the public sector, etc.

In order to define the financial conditions of a public sector entity, the *environmental factors* also need to be taken into account. It is worth considering that the services provided by a public sector entity depend on the necessities and socioeconomic characteristics of the population, which in turn provide resources, affecting the financial condition of the entity itself (Petersen 1977; Berne and Schramm 1986; Berne 1992; Boyne 1996).

On this subject, Capalbo and Grossi (2014) argued that the main causes of financial distress could be grouped into two approaches, the social economic decline approach and the local management approach. The *social economic decline approach* assumes that the causes of financial

distress are external to the local authorities and that they are beyond the control of local government officials (e.g., contraction of economic growth, movement of city dwellers to outskirts of the major cities, demographic changes such as increase in population, reduction in local business activity, unemployment and tax base erosion, bureaucracy and poor legislation). On the contrary, the *local management approach* identifies the real explicators of financial decline in the internal local management and political environment (e.g., incorrect managerial practices such as poor accounting and budgeting methods, incompetence and corruption among local officials, division of local governments in terms of political size and procedures and vulnerability of special interest groups). In conclusion, it is argued that financial distress is due to a mix of both external and internal factors (Capalbo and Grossi 2014).

In the specific case of public universities, the relationship between the financial conditions and *external factors* (e.g., the socioeconomic characteristics of the students as main stakeholders) is not easy to define and, consequently, to operationalize in an evaluation model.

During the 1970s and the 1990s, several studies dealing with the financial analysis of colleges, universities, and community colleges (Lupton et al. 1976; Collier and Patrick 1979; Dickmeyer and Hughes 1982; Dickmeyer 1983; Chabotar 1989; Roden 1991; Everett 1995; Cirtin and Lightfoot 1996) highlighted that financial ratio analysis, which had been used for many years by financial analysts in the business, could serve to evaluate efficiency, effectiveness, and accountability in HE.

A good analysis of the financial conditions could help to identify how and in what ways the situation is changing: an indicator whose trend indicates whether the conditions are getting better or worse alerts the institution to the possibility of future financial distress (Collier and Patrick 1979; Chabotar 1989). Consequently, financial ratio analysis is useful to guide policy decisions to manage HE institutions affairs (Everett 1995).

Furthermore, it has been noted that since 1960, national associations (e.g., National Association of College and University Business Officers, NACUBO) have attempted to create a set of indicators to assess financial health specifically for higher learning institutions, in order to

improve reporting and comparative analyses. Several reasons have been proposed for measuring the comparative financial condition of colleges and universities: (a) the natural concern about the effectiveness of other institutions competing for the same students, faculty, and resources, as each institution strives for better management and a competitive edge in HE; (b) the need for measurement criteria to gauge the effects of proposed public policies on HE institutions; and (c) the need for objective measurement criteria to gauge financial crisis and patterns to ensure institutional survival (Updegrove 1982). Efforts to create objective measurement criteria reflect a desire to monitor and measure changes in financial conditions as well as to maintain financial strength through the effective use of available resources. Moreover, there is a clear need to monitor changes in financial strength caused by changes in the internal and external factors.

Some scholars (Lupton et al. 1976) used a panel of experts, as well as discriminate analysis, to rank the health (e.g., healthy, relatively healthy, neutral, relatively unhealthy and unhealthy) of public and private institutions, using 16 discriminating indicators of the financial conditions. The indicators include institutional control, enrolment trends, trends in education and general expenditures, current fund revenues to expenditures, academic expenditures to education and general expenditures, freshman full-time equivalents (FTEs) to total undergraduate FTEs, as well as tuition and fees to student aid revenues.

Focusing on applied research, Wormley (1978) used three trends from previous studies, which allow institutions to cope with "current" economic circumstances. The factors included historical trends of financial surpluses or deficits, full-time equivalent enrolment, and revenues supporting a percentage of the education and general operating budgets. Wormley found that management, mission, leadership, and historical "accident" enabled the sample institutions to cope with financial distress.

Collier and Patrick (1979) carried out a theory-based research and developed a set of dimensions that describe financial conditions. These dimensions included financial independence, revenue drawing power, financial risk, revenue stability, and reserve strength. They identified some key ratios (e.g., the ability of the institution to attract and

retain students, indicators of potential financial problems, the ability to respond to financial problems, factors to monitor when dealing with financial problems) for financial flexibility e.g., total unrestricted revenues per total revenues, total fixed expenses per total expenditures, cash per total assets.

In a meta-analysis of 40 studies, Brubaker (1979) categorized the purposes for developing financial indicators. He included research and theoretical frameworks, financial accounting, policy analysis at state and federal levels, evaluation research, institutional analysis, credit analysis, and applied research. The study pointed out that scholars have proposed several hundred indicators, highlighting disagreement over the definitions of financial conditions and indicator selection; accordingly, current literature reveals that there is no single summative indicator of the financial condition.

Other studies discussing the self-assessment of the financial conditions of colleges highlight how it is possible to monitor institutional financial conditions in order to guide policy decisions but confirmed that no single measure captures the "financial health" of an institution (Dickmeyer 1980; Taylor 1984; Woelfel 1987).

Dickmeyer (1980) pointed out that the indicators of financial health focus on the inputs (tuition, financial aid, other revenues, students, staff, and faculty recruitment), which contribute to the financial and non-financial resources and outflows (expenses, dropouts, transfers, graduates, salaries). Fittingly, institutions will generate more inflows than outflows to enhance their stock of resources; this proposal should mitigate the demands of the economic environment and the potential of distress. In his work, he recommends the following five indicators of changes: *institutional distress potential* (for independent institutions only); *institutional financial resources*; *academic emphasis*; *extent of academic opportunity*; *need for more financial resources*.

The key indicator in his paper is the *institutional distress potential* designed to measure financial resources in the short, medium, and long terms. This indicator also measures the institution's capacity to deal with economic pressures as well as its ability to add academic programs according to the market needs.

According to other scholars (Dickmeyer and Hughes 1982), pressures that may affect a HE institution adversely are inflation, increasing regulatory requirements, declining enrolment, increasing tenure ratios, and changing student academic interests. Therefore, they point out that HE institutions must use their capacity to adjust their resources to meet these pressures. To be financially healthy, a HE institution should have the financial flexibility to respond to changes in the political, social, and economic environments in which it operates.

Taylor (1984) claimed that ratios are excellent tools for facilitating the communication, analysis, and understanding of complicated and detailed information. However, the interpretation of a financial indicator rests on an assumption of what constitutes a "sound" financial condition, with no single ratio or set of financial ratios ever being able to provide all the answers to all the questions. It is not necessary that financial ratios be completely comprehensive and perfectly predictive in order to be useful; no single financial ratio can reflect financial conditions perfectly.

Thus, a related way to view stable financial condition is to highlight several forms of distress affecting the ability of a HE institution to provide high-quality instruction, research or public service (Taylor 1984). In summary, forms of distress include the following:

1. "Working capital distress," the institution is unable to finance daily operating expenses (liquidity);
2. "Demand-related revenue distress," this is a result of a lowered demand for the institution's services;
3. "Non-sales-related revenue distress," the institution cannot realize its historical levels of gifts and endowment income;
4. "Financial flexibility distress," the institution's resources are so restricted that it has no flexibility in their use.

These forms of distress aid in determining the financial strength of HE institutions.

Pagano and Moore (1985) defined financial distress as the inability of a public sector entity to balance its budget and, in a broader sense, as

the inability of a public entity to provide services and meet both current as well as future obligations.

Woelfel (1987) underlined some possible areas of concern that may indicate financial distress of a HE institution: (a) financial problems such as illiquidity, funds shortage, continuing operating deficits, debt default, and others; and (b) operating problems such as unclear vision of mission, inadequate control over operations, competition, and lack of product market demand.

Woelfel (1987) split the financial ratios into four categories: balance sheet, operating, contribution, and allocation. He felt that ratio analysis reflects the fundamental relationships that exist in an institution and provides the basis for a comprehensive and integrated study of HE institutions (although financial ratio analysis aids in isolating financial problems, non-quantitative data and information have to be gathered to isolate operating problems).

During the last decades, there has been a consistent increase in the use of non-financial indicators to obtain more information on trends of strategic importance. For instance, Taylor and Massy (1996) included important non-financial indicators that report on physical capital—plant, land, and equipment; information capital—library and computer resources; and human capital—staff, student persistence, and demographic data on the students and faculty. These non-financial indicators have been later considered as predictive of financial indicators (Lee 2009).

Another element of the financial indicators literature to be discussed is the Composite Financial Index (CFI), as a method for determining the degree of financial distress within private colleges (KPMG 1999). According to some scholars, the CFI is the most useful financial indicator in HE since it is relatively easy to understand (Hudack et al. 2003) and provides the best standardized snapshot of an institution's overall financial health (Lee 2009; Townsley 2009). An important purpose of the CFI is to quantify the status, sources, and uses of resources as well as the institution's ability to repay current and future debts.

Martin and Samels (2009) in a study of the major factors that help institutions to assess financial risks described a model of financial assessment indicators for small, private institutions using their experience

in HE, while also proposing a model to assess institutional stress via a checklist of 20 indicators. They point out that institutions become stressed when they are overly dependent on state appropriations and tuition, too small, their brand is not easily recognizable, and enrolment, endowment and gifts are flat, declining or negligible. Accordingly, drivers of financial stress on HE campuses include the following: presidential turnover, diminishing state appropriations, the rising costs of technology, consumer demands, tenured faculty, and the commodification of HE.

Finally, there are relatively few studies that discuss an operation model for evaluating the *financial viability* in the specific case of public universities (Bisogno et al. 2014).

The authors focus on developing analysis models of the financial conditions and distress of HE institutions, by adapting the model suggested by Carmeli (2008) to Italian public universities, whose legislation has been recently modified with the aim of improving their autonomy as well as defining new rules about the future assigning of funds by the central government.

Accordingly, distress can be investigated in a broad comprehensive perspective, considering a state university in good financial conditions when it meets its debts and in turn provides high-quality outputs and outcomes, relating to both research and teaching activities, as well as the so-called "third mission" activities (Bisogno et al. 2014).

Specifically, their model includes the following:

- *Structural factors*, which refer to the size—expressed in terms of a natural logarithm of the number of students—and quality in structures (by taking into account the global performance of each university, as measured by the "*Centro Studi Investimenti Sociali"* (Centre for Social Investment Studies), an Italian research foundation that annually publishes a report on the performance of all the Italian universities, assigning them a composite score based on the quality of the services provided to students); grants assigned to students; quality of structures; efficiency and effectiveness of websites; and degree of internationalization;

- *Organizational factors*, which refer to the performance evaluation of the strategic areas of interest of universities: research, teaching activities, and the so-called third mission;
- *Hybrid factors*, which refer to the financial relationship between the central government and each university and can be expressed by analyzing the Ordinary Financing Fund—the most important funding provided by the Ministry of Education and Research which represents the main revenue of Italian universities.

Through this model, the authors evaluated the financial viability of Italian universities and found that the financial health is mainly affected by the hybrid factors. These findings are consistent with previous studies, where other scholars (Radin 2000; Long and Franklin 2004; Gilmour and Lewis 2006) have found only limited evidence that performance information significantly affects budget decisions, particularly at state and federal levels of government. This means that central governments are forced to pay greater attention to financial factors, disregarding the fundamental structural and organizational elements of the strategic mission of universities.

All these findings are consistent with the logic of trying to understand how can the long-term conditions of financial sustainability for the HE sector be theoretically defined and practically ensured.

2.2 Financial Sustainability and Financial Viability (or Autonomy)

The concept of financial sustainability for universities and other public institutions is essential in the light of the increasing importance of the public sector contribution to economic growth. Despite this important role, during recent years, the public funding of the HE sector in most countries has not increased, or at least not increased sufficiently, to finance new investments. This seems strange but is comprehensible when considering that HE and research have to compete with other priorities in public budgets (security, health, etc.). Budgetary restrictions have been imposed by national governments as well as the aspiration

of policy makers to introduce more "rational" management (Bogt and Scapens 2012), with the main objective of improving efficiency, effectiveness, and accountability.

The most significant effects of these policies across Europe, and elsewhere, are that the costs in universities will rapidly increase in years to come and this perspective can only compromise firstly their short-term solvency and secondly their long-term solvency. This is because the increasing level of new debts to finance investments or activities (that in the past were financed by central governments) determines more interest costs to pay to credit institutions: that can compromise their financial conditions and bring about financial distress. This implies that only those organizations that are aware of the incoming costs of their activities can judge whether they are operating on a financially sustainable basis.

Financial sustainability requires long-term and systems thinking for a set of very different resources such as natural, human, social, manufactured, and financial capital (Porrit 2005).

In order to define in greater detail what financial sustainability in HE really means, it is necessary to understand whether there is a link with the concept of financial viability (or autonomy), that is currently at the center of the international debate, where both scholars and international institutions in the field have identified a sound policy trend in increasing the accountability of organizations (EUA 2008). Current literature takes into account the concept of "autonomy," as an essential pre-requisite considering that universities are organizations that have to operate in an economical, efficient and effective way. In fact, an increase in autonomy implies that direct state control is substituted by a stronger regulation and universities have to deal with greater accountability requests. Nowadays, universities have to reach goals, demonstrate quality, and show the state and other stakeholders how they have used public funding, just like those universities that survive on private funding (that must show how the money has been spent).

Rymanov (2010) associated financial sustainability with an organization's solvency, representing it as a system of financial and economic relationships, which create, allocate, and use funds, providing solvency in the long term. Benderskaya and Chizhova (2012) underlined that

financial sustainability provides an organization with innovation-based reproduction on an expanded scale, creditability, competitive ability, and investment attractiveness.

In terms of financial sustainability, it is possible to understand more by observing the experience of the UK, that has achieved a very successful HE sector across all key areas of activity, due to the system being transparent in the use of public funding to ensure the long-term financial sustainability of the sector. The "Financial Sustainability Strategy Group" (FSSG) and the "Transparent Approach to Costing (TRAC) Development Group" have carried out research in a number of areas and produced a range of important policy documents and good-practice resources.

In the late 1990s, the introduction of the TRAC Development Group was a significant development toward considering the financial sustainability of research, allowing all universities and other institutions of the HE sector to understand what their various activities cost and what income they receive for them. There are a number of things that HE institutions should be doing to ensure that they are financially sustainable.

The FSSG (2008) described a number of factors that are driving costs in the HE system on the teaching side and potential tensions and threats to sustainability. These include the challenges of a more diverse and consumer minded student population; raised employer expectations; new government social and economic agendas, and international competition against the context of tight public funding. Pressures on costs include pension deficits and operating costs rising much faster than funding.

There are relatively few studies on the problem of ensuring the financial sustainability of a HE institution worldwide.

According to Salmi (2009), there is a broad consensus in some Organisation for Economic Co-operation and Development (OECD) countries that the expansion of HE systems has led to its underfunding. However, it should be underlined that there is no objective benchmark in this respect. While more money certainly means better resources, it does not automatically imply a better quality of services or cost-effectiveness. Nobody knows what the optimal level of HE funding

ought to be. However, it is worth noting that there are some relevant changes across OECD countries (OECD 2009).

These changes are taking the following forms: changes in the legal and funding relationships of public education institutions and public authorities that encourage raising more private funds and acting in a more entrepreneurial way, changes in the perception of the sector, which is increasingly seen as a regular economic sector. Despite these changes, the HE sector can hardly be conceived as a "regular" marketplace. Some ways of reasoning about it (e.g., the inclusion of tertiary education in the General Agreement on Trade in Services, or the competition for students or funding) are transforming the perception (and to a large extent self-perception) of HE, from a public service into a service industry, even in countries which are not directly involved with these changes. In most countries, these changes are defined by globalization, either directly or indirectly.

Taking into account all these factors, the concept of financial sustainability is strictly connected to the concept of financial autonomy. It has been defined as "the ability to allocate and manage financial resources freely, to establish partnerships and raise income from the private sector" (EUA 2008; Estermann and Nokkala 2009; Estemann and Bennetot 2011), in order to ensure a long-term financial health of universities.

More specifically, it is possible to refer to a financially sustainable organization looking at the definition in the TRAC guidance, and adopted in the Research Councils of Universities in the UK: "An institution is being managed on a sustainable basis if, taking one year with another, it is recovering its full economic costs across its activities as a whole, and is investing in its infrastructure (physical, human, and intellectual) at a rate adequate to maintain its future productive capacity appropriate to the needs of its strategic plan and students, sponsors and other customers' requirements." (RCUK/UUK 2010). There are some doubts on the possibility to apply this definition of financial sustainability to public institutions since we consider that this is a strong requirement also for profit organizations.

Financial viability (or autonomy) is a crucial condition as well as, in some cases, a precondition for implementing financial sustainability.

This is because the degree of autonomy makes a difference to the income and cost structure of universities. In fact, financial autonomy allows universities to react quickly in a constantly changing environment and makes them able to obtain good financial conditions.

This view is consistent with the "European Commission's Modernisation Agenda" adopted in May 2006, directed at nine areas for helping universities in the process of modernization. One of these areas states the need to "reduce the funding gap and make funding work more effectively in education and research," and suggests that governments spend at least 2% of the GDP (including both private and public funding) on HE. This means universities should assume the responsibility for their financial sustainability, including proactive diversification of funding. In the logic of implementing this project, the European Union has also set the frame for its "2020 strategy," which is following the Lisbon Strategy. At the same time, almost all European countries have implemented new policies and measures associated with HE funding and focused their attention, in some form, on the issue of financial sustainability.

According to EUA (2008), the process toward financial sustainability requires, firstly, the identification of the full costs of all the university activities and projects (with reference to research, teaching and the so-called "third-mission"). After that, universities need to focus on how to diversify their income sources (Eurydice 2008; Estermann and Nokkala 2009; Estemann and Bennetot 2011) since they may receive funding from many different sources (National public funding, National private funds, International public or private funds).

Reaching these goals and comparing these practices across the world means overcoming some obstacles related to national legislative differences, firstly across Europe, affecting costing and accounting practices and terminology. In fact, different forms of depreciation, diverse terms in financial statements, dissimilar rules for property insurance in the public sector and the use of similar terms with different meanings make the standardization process of terminology and comparison among universities extremely difficult.

For the time being, the European University Association (EUA) suggests adopting the term "full costing" for the ability to identify and

calculate all the direct and indirect costs of a university's activities, including projects, in order to leave the necessary room for diversity in approaches (EUA 2008). In fact, some terms are also used in different ways across the world, while different concepts are discussed using the same terms. In the EUA's project, the terminology has been clarified on page 18. The EUA project, funded by the European Commission, Directorate-General for Education and Culture, has highlighted how financial autonomy is related to full costing and that "full costing itself is the appropriate tool to recognize the costs of the institutions" activities and projects (EUA 2008). This analysis has been based on 18 case studies (some of them are listed below as an example of best practices).

The survey covered funding, structure costs and level of autonomy (along with legal status, size, profile, ownership of property and governance). The exploration of funding across the survey group revealed that there is not always a clear connection between funds received for each activity and the actual costs of it.

It is worth considering that the usefulness of this project has been in describing through case studies what universities have to do in each phase of the process in order to implement the full costing method. Universities must define their objectives in terms of benefits, analyze their status (i.e., identifying existing costing and accounting procedures, check availability of data and their profile), scan the environment, set up the project management, define the costing methodology settings, and manage the data.

Considering the 18 case studies described in the project, there are different examples on the steps of the full costing process, as a way to understand the costs of all the activities. They are as follows:

1. Identify the average cost per student, e.g., *NUI Galway (Ireland)*.
2. Identify the costs, income and results per activity (including allocation of indirect costs), e.g., *University of Liverpool (UK), University of Coimbra (Portugal), Twente University (The Netherlands).*
3. Forecast the full costs at project level including a prognosis of the time needed for the project, e.g., *Universities in the UK.*
4. Estimate the cost of a study place, taking into account the real objectives and criteria of study programs, e.g., *University of Tartu (Estonia)*.

5. Calculate the full costs for a number of projects financed by different funding agencies in order to raise awareness of the level of indirect costs, e.g., *Uppsala University (Sweden).*

The EUA project recognized various benefits for universities that introduce a full costing methodology; they can be divided into *internal* institutional benefits and *external* institutional benefits.

It is worth noting that the most important internal benefits have been (a) greater understanding of the financial implications of investment decisions and (b) up-to-date and consistent information for management decisions. However, for the financial external benefits, the ability to identify full costs represents a credible basis for evaluating to negotiate funds with both public and private partners, along with higher cost recovery and more efficient resource allocation.

The EUA is now coordinating a project called "European Universities Implementing their Modernisation Agenda" (EUIMA) which addresses two main elements of the modernization agenda for European Universities:

- The sustainability of university funding, financial management, and development of full costing (EUIMA-Full Costing);
- The transparency and appropriateness of measurement tools for the assessment of university-based research reflecting the diversity of university missions (EUIMA-Collaborative Research).

The concept of financial sustainability as the provision of maintaining solvency to an education institution or its ability to cover its current liabilities (Sazonov et al. 2015) is consequently evaluated in accordance with the analysis of the HE institutions' balance sheets as occurs for profit organizations.

In this view, the financial stability of a HE institution is related to its financial condition, which includes analyzing the condition of its funds, their allocation, and use, which provides the performance of its main activity. Therefore, the development of a HE institution depends on capital growth using both budgetary and extra-budgetary funds, while maintaining solvency under the acceptable level of risk (Baitov and Grin 2014).

Gašpar (2014) highlighted the importance of increasing the activities of development and implementation of appropriate key performance indicators (KPIs) at universities, in order to create preconditions for improving the strategic and financial management of these institutions.

The latest report by the TRAC Development Group (2015) in the UK is along the same lines, with it claiming that "sustainability is not about surviving or standing still, which allows competitors to overtake and students to become disenchanted. A sustainable sector will need agile and responsive leadership and management who are comfortable working with a more commercial, higher-risk, and higher-investment model of the university, while still respecting core academic values." This requires creativity and innovation, and probably some rethinking of the ways that HE has been delivered in the past. An example of this is the Strategic Financial Analysis approach in the seventh edition of the Ratio Analysis in HE (KPMG 2010). Financial analysis has been applied to public and private institutions to identify, measure, and monitor any financial operating risks. The use of the CFI expressed as a ratio that comprises four weighted components differently is considered important since it represents a combination of a composite score (Wallace 2008) that classifies universities as either financially weak, strong, or somewhere in between. Each ratio is calculated to measure the strength of the score and the importance of the combination of the composite score. This process results in one score for each component ratio, which are then added together to comprise the CFI. The four measures or ratios include the following:

1. Resource sufficiency (primary reserve ratio, weight 35%), as a measure of the level of financial flexibility.
2. Debt management (viability ratio, weight 35%), as a measure of the organization's ability to cover debt with available resources.
3. Asset performance and management (return on net assets ratio, weight 20%), as a measure of overall asset return and performance.
4. Operating results (net operating revenue ratio, weight 10%), as a measure of the operating performance.

This strategic financial analysis is designed to gauge institutional performance and focus planning activities on those steps necessary to improve the institution's financial profile in relation to its mission (KPMG 2010).

In agreement with Dumestre (2016), who proposes different models of how colleges can become financially sustainable in cost cutting, online education, international student recruiting, etc., it is believed that universities that want to become financially sustainable have to transform themselves and introduce a strategic financial approach.

3 Closing Remarks

This chapter proposes a set of claims about some of the characteristics of healthy financial conditions in HE Institutions, along with several definitions of financial distress.

A review of current literature has been useful in order to understand the relevant issues for analyzing financial conditions of public organizations, but there is no extensive literature with reference to the analysis models of healthy financial conditions and distress of public universities.

It has discussed several approaches to introducing financial key indicators and suggested adapting models of analysis that public organizations have experienced in other sectors (e.g., local entities) as well as in specific countries (e.g., UK).

There are some limitations to this work as in any attempt to draw logical connections between the concept of healthy financial conditions and financial sustainability in HE institutions. Currently, there are still relatively few studies on the problem of ensuring financial sustainability to HE institutions worldwide.

Adapting the model proposed by Carmeli (2008) for local governments to the HE sector, the major determinants of financial sustainability can be classified into four groups summarized (with their source) in Table 1.

Table 1 Determinants of financial sustainability

Determinants	Sources
Structural factors	
Institution size and population density	Petersen (1977) Berne and Schramm (1986) Berne (1992) Boyne (1996) Rodríguez-Bolívar et al. (2016)
Dependency ratio	Kloha et al. (2005) Zafra-Gómez et al. (2009) Rodríguez-Bolívar et al. (2016)
Education level	Rodríguez-Bolívar et al. (2016)
Quality of life	Jones and Walker (2007)
Economic factors	
Availability of resources required to maintain and/or improve the services	Kloha (2005) Audit Commission (2007) Coe (2008)
Solvency	Wormley (1978) Greenberg and Hiller (1995) CICA (1997) Nollenberger et al. (2003) Rymanov (2010)
Capability to recover full costs	EUA (2008) RCUK/UUK (2010)
Budget balance	Pagano and Moore (1985) Inman (1995) Baitov (2014) Rodriguez-Bolivar et al. (2016)
Managerial factors	
Human capital	Taylor and Massy (1996)
Structure, organization and systems	Porrit (2005) Kloha (2005); Coe (2008) Benderskaya (2012) Bisogno et al. (2014)
Financial ratio analysis	Lupton et al. (1976) Brubaker (1979) Collier and Patrick (1979) Updegrove (1982) Woelfel (1987); Taylor (1984) Chabotar (1989) Everett (1995); KPMG (1999) Hudack et al. (2003) Wallace (2008) Lee (2009); Townsley (2009) Martin and Samels (2009)

(continued)

Table 1 (continued)

Determinants	Sources
Diversification	Eurydice (2008) Estermann and Nokkala (2009) Estemann and Bennetot Pruvot (2011)
Political factors	
Internal: management of resources External: relationship central government/university (public funding system)	Capalbo and Grossi (2014) Dickmeyer (1980) Dickmeyer and Hughes (1982) Radin (2000) Long and Franklin (2004) Gilmour and Lewis (2006) Carmeli (2008) Bisogno et al. (2014)

The four groups can be described as follows:

- *Structural factors*, consisting of HE institution size, the socio-economic status of students and educational level;
- *Economic factors*, consisting of resources required to maintain and/or improve the services, related to the level of solvency of the HE institution and the capability of recovering full costs;
- *Managerial factors*, essentially based on the HE ability to manage available resources and analyze the results of the activities;
- *Political (or hybrid) factors*, essentially based on the relationship between central government and HE institutions and the national public funding policy.

It is therefore worth observing that it is quite difficult to develop a single measure for financial sustainability at an institutional level given the diversity of different missions and the complexity of the system of funding for each university in different countries.

In addition, applying reported best practices to a full costing approach requires additional efforts on the part of public universities, like the process of income diversification.

It is also necessary to increase the understanding of the wider institutional and political landscape of each country (the "independent

variables") in order to develop shared key indicators to measure financial sustainability.

It is worth noting how universities have to be well managed financially, with clear and transparent annual reporting and accountability arrangements (as in the UK HE sector). Subsequently, they can obtain greater confidence from their stakeholders. This is vital for the sector since it helps to keep borrowing costs low and leads to other sources of financing, both increasingly important for ensuring sustainability.

Universities that have an effective management and good governance could be financially healthy in the short term. Nevertheless, they also have to ensure and take the responsibility of their economic and financial sustainability in the long term. Most of them, that are public organizations, have to adapt their culture and behavior to the demands of a more commercial and competitive environment, as well as face new challenges in doing so because they may adopt financial strategies and behaviors that are not consistent with those of private for-profit sector organizations.

It is probably too early to know all the implications, since there are constantly new financial risks, with universities having to acquire more knowledge on how "business-like" management practices can really work for the HE sector.

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Part III

Theoretical Underpinnings and Methods Used to Calculate Financial Sustainability in Governments

3

Financial Sustainability in Local Governments: Definition, Measurement and Determinants

Marco Bisogno, Beatriz Cuadrado-Ballesteros and Isabel María García-Sánchez

1 Introduction

Nowadays, the international financial crisis and several financial problems suffered by many governments around the world have again intensified the interest on the concept of financial health, financial condition or more specifically on financial sustainability. Financial condition or financial health is the ability of the governments to provide public services while being able to satisfy their present and future obligations (GASB 1987; CICA 1997). It is a difficult concept to be represented because it is not directly observable. As a matter of fact, there is extensive

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M.P. Rodríguez Bolívar (ed.), *Financial Sustainability in Public Administration*,
DOI 10.1007/978-3-319-57962-7_3

literature on determining the appropriate and suitable financial condition indicators. One of the most relevant and used measurement refers to the level of sustainability, flexibility and vulnerability of the entity (CICA 1997, 2009). Sustainability was defined as the ability of an entity to preserve the social welfare of citizens with the available resources; flexibility was defined as the capacity to adapt to the economic and financial changes; and the degree of vulnerability is defined with reference to the capacity to be independent of external financing resources.

These three features have been used previously by researches and public advisors to represent the financial condition of governments (e.g. Ammar et al. 2005; Zafra-Gómez et al. 2009a, b, c; Kioko 2013; López-Hernández et al. 2012; García-Sánchez et al. 2012, 2014; Cuadrado-Ballesteros et al. 2014; Clark 2015). But in the last years, among these three components, sustainability has adopted the most relevant status, because of the current global climate characterized by governments' financial problems and high level of public indebtedness. In fact, the International Public Sector Accounting Standards Board (IPSASB) has recently published a recommended practice guideline entitled "Reporting on the Long-Term Sustainability of an Entity's Finances", which provides information on the impact of governmental decisions on the future long-term financial sustainability. Control agencies have also highlighted the role of sustainability; for instance, the Office of the Auditor General of Canada has reported on financial condition for over 20 years, but from 2012 they have highlighted the relevance of sustainability indicators.

There is extensive literature on financial condition/health but that focuses specifically on financial sustainability and is more limited, and most of the previous studies are focused on the definition and measurement of that concept. This topic has been more developed by international authorities, such as the European Commission, the International Federation of Accountants (IFAC), the National Accounting Office (NAO), the Canadian Institute of Chartered Accountants (CICA) and the International Public Sector Accounting Standards Board (IPSASB), among others. In general, international authorities focus on aiming recommendations or practical guidelines (e.g. IPSASB 2013), reporting of information on specific indicators related to financial

sustainability (e.g. CICA 2009), or discussing the topic of fiscal sustainability proposing indicators (e.g. EU 2012, 2015). Among the empirical studies focused on financial sustainability, it could be highlighted that Rodríguez-Bolívar et al. (2016), who analyse the drivers and risk factors that affect the financial sustainability. There are other previous studies that refer to financial sustainability, but they really study another similar concept namely financial health or financial condition, using financial ratios (e.g. Drew and Dollery 2014; Andrews 2015), cost-revenue analysis (e.g. Lohri et al. 2014) or other drivers such as the cost of restoring infrastructure assets to a satisfactory condition (Jones and Walker 2007).

This chapter will contribute to financial condition literature, especially focusing on sustainability. Firstly, most of the previous studies address financial condition/health as a wide and complete concept, without taking into account the specific relevance of sustainability. Secondly, among the literature that refers to financial sustainability, it can be argued that there is a confusion regarding both the concepts. It therefore seems necessary to highlight the most suitable definition and measurement of financial sustainability. Faced with this gap in literature, the aim of this chapter is to debate the definitions of financial sustainability in public administrations, as well as discuss the empirical findings characterized by different methodological approaches. This work also presents factors that could affect financial sustainability, such as socio-economic, organizational or structural factors (Carmeli 2008; Bisogno et al. 2014). Concretely, this contribution focuses on a local level, since this concept is especially relevant at local governments because they are closer to the citizens and have to provide a wide range of public services (Rodríguez-Bolivar et al. 2014).

The rest of the chapter is structured as follows: Sects. 2 and 3 approaches definition and measurement of financial sustainability, respectively; Sect. 4 summarizes the possible determinants of financial sustainability, based on previous literature focused on that topic or other similar concepts such as financial condition or financial health; Sect. 5 concludes, engaging directions for future lines of research.

2 Definition of Financial Sustainability

There is no universal definition of financial sustainability. It has been usually considered as a component of financial condition or financial health. Generally speaking, financial condition is the capacity of an entity to comply with financial obligations using the available resources (Lorig 1941). Adapting this definition to the public sector context, financial condition could be defined as the ability of governments to provide public services while it can satisfy their present and future obligations (GASB 1987; CICA 2009).

It is a difficult concept to be represented because it is not directly observable, so it is usually determined by several measurable indicators, such as financial and fiscal ratios. Initially, Groves et al. (1981) used four magnitudes related to the solvency, with it referring to the capacity to fulfil financial obligations with the available resources; concretely, these authors refer to cash solvency, budgetary solvency, long-run solvency and service-level solvency. Later, Greenberg and Hiller (1995) proposed three indicators for measuring the financial condition, which represent the level of sustainability, flexibility and vulnerability of the entity. More recently, Zafra-Gómez et al. (2009a) connected the solvency view of Groves et al. (1981) and features of Greenberg and Hiller (1995) to represent the level of the financial condition of local governments. Zafra, López-Hernández and Hernández-Bastida (2009a) measure the financial condition, through financial ratios that represent the short-run solvency,[1] the service-level solvency[2] and the budgetary solvency,[3] which is represented by the level of sustainability, flexibility and vulnerability of the government (see Zafra-Gómez et al. 2009a).

Among these components, sustainability has adopted the most relevant status in the last years, because of the current global climate characterized by governments' financial problems and the high level of public indebtedness. Financial sustainability is related to financial condition or financial health, but they are not the exact synonyms. In general, sustainability is considered as a component of financial condition, which is a wider concept. Sustainability is more concrete, and it refers to preservation of social welfare through public policies and public

services delivery—i.e. it is the ability to maintain the existing public services and cover obligations to creditors, without increasing indebtedness and taxation levels. Therefore, focusing on public services could suggest investigating financial sustainability considering how effective a public administration should be in providing services to the citizens, rather than focusing only on its efficiency. From a theoretical perspective, this would implicitly mean looking at the public service-dominant approach (Osborne et al. 2012, 2014).

Financial sustainability has been especially addressed by standard setters and regulators. For instance, EU (2012, 2015) refers to fiscal instead of financial sustainability, as the ability of an entity to continue current public policies and public services delivery without changing taxation and indebtedness level. In a wider definition, sustainability refers to the solvency in terms of inter-temporal budget constraints, considering the ability to meet the costs now and in the future through revenues. In other words, an entity could be considered "sustainable" when it can maintain fiscal policy without changing public spending, taxation and the level of indebtedness (EU 2015).

IPSASB (2013), in the recommended practice guideline entitled "Reporting on the Long-Term Sustainability of an Entity's Finances", refers to the long-term fiscal sustainability as "the ability of an entity to meet its service delivery and financial commitments both now and in the future" (IPSASB 2013: 5). According to this guideline, financial sustainability links the public services delivery with the current level of taxation and debt limits—i.e. if an entity can cover demands for public services without increasing taxes or using debt, it will be considered as "sustainable" entity; however, if it needs to increase taxes or the level of indebtedness to carry out the current services delivery, it will be considered as "unsustainable" entity. The IPSASB (2013) definition takes into account three inter-related dimensions of long-term fiscal sustainability, namely services, revenues and debt, which are defined in Table 1. For each dimension, two aspects are considered: the capacity of the entity to manage the dimension, and the level of dependency of external factors that the entity itself cannot control (vulnerability).

Table 1 IPSASB (2013) financial sustainability dimensions

Dimension	Definition	Capacity	Vulnerability
Service	Public services that the entity can deliver, in terms of quantity and quality, given the current level of taxation and debt limits	To maintain or increase quantity and/or quality of public services	To the external factors that are detrimental for the capacity to maintain or increase quantity and/or quality of public services (e.g. if the level of public services is determined by other level of government)
Revenue	Taxation levels, given debt limits and policy intentions in terms of public services delivery	To maintain or increase taxation levels, or introduce new revenue sources	To the willingness of taxpayers to accept the taxation levels, and the dependence of external sources
Debt	Debt levels, given taxation levels and policy intentions in terms of public services delivery	To meet financial commitments or increase debt	To the market confidence and interest rate risk

Source The authors based on IPSASB (2013)

Although there are different ways to define financial sustainability, in general, features highlighted by the IPSASB (2013) and the EU (2012, 2015) have been taken into account by several scholars (e.g. Rodríguez-Bolivar et al. 2014, 2016; Lohri et al. 2014; Drew and Dollery 2014):

- *Public services delivery*: sustainability refers to the ability to maintain or increase social welfare by public services delivery. A reduction in the quality/quantity of public services provided by local governments, could affect citizens' well-being, since the most important welfare needs are usually related to public services (Cuadrado-Ballesteros et al. 2014).
- *Cost-efficiency*: sustainability has been typically viewed as the optimal scale for the cost-efficient public services delivery (Lohri et al. 2014)—i.e. the ability to provide the best public services in terms of quantity and quality with the lowest level of taxation.
- *Debt*: this feature is closely related to efficiency; the goal of providing the best public services with the lowest level of taxation could lead governments to indefinitely accumulate debt. Even there could be situations where debt and interest would be paid by issuing new debt (EU 2015). Thus, sustainability does not only refer to the revenues–expenses trade off, but also to the level of indebtedness as a mean of financing.
- *Intergenerational equity*: sustainability requires meeting current needs without compromising the ability of future generations to meet their needs (Dollery and Grant 2011). A sustainable entity can manage public finances now by ensuring that the future generations of taxpayers do not face the services provided to the current generations.

In sum, financial sustainability could be defined as the ability of the government to maintain or increase the social welfare by providing the best public services in quantity and quality with the lowest level of taxation, but without compromising the ability of future generations to meet their needs due to the continuous increase of public debt.

3 Measurement of Financial Sustainability

Debate on definition is extensive to the way of measuring financial sustainability. Without being exhaustive, Table 2 shows some indicators used for representing financial sustainability until now.

Although there is no consensus, spending, revenues and debt features are present in every definitions of financial sustainability. Thus, income statement plays a fundamental role in assessing financial sustainability, because it reports necessary resources to fulfil public services delivery (Rodríguez-Bolívar et al. 2016). Rodríguez-Bolívar et al. (2014) suggested changes for income statements to measure financial sustainability more effectively; concretely they use adjusted income by removing extraordinary items and those revenues and expenses that are unlikely to be repeated in the future.

Obviously, this accounting figure presumes that the investigated local governments adopt an accrual-based accounting system; moreover, the interpretation of the adjusted income as well as of financial ratio values and their desirable magnitude would take into account intrinsic characteristics of public sector entities (Cohen et al. 2012).

Debt dimension is also taken into consideration in measuring financial sustainability (EU 2012). For instance, as sustainability indicators the Office of Auditor General of Canada (2012) proposes measures on how a government balances its commitments and debts. Concretely, they use indicators of debt position (long-term debt and net debt), together with indicators of results of operations (annual surplus/deficit), and other additional indicators such as the debt servicing costs, the accumulated surpluses/deficits and expenses by department. IPSASB (2013) also encourages reporting information on total debt, net debt, worth and financial worth. Rodríguez-Bolívar et al. (2014) use net debt to name the second dimension of financial sustainability.

EU (2012, 2015) suggests three complex indicators to represent fiscal sustainability in the short-, medium- and long-term, namely S0, S1 and S2, respectively. On the one hand, S0 refers to sustainability challenges in the shorter term; it is a whole set of 28 fiscal and financial-competitiveness variables; for instance: primary balance, gross debt, short-term debt, gross

Table 2 Financial sustainability measures

Measures	Source
• *Non-financial budgetary results index*: current budgetary payables plus non-financial capital budgetary payables divided by the sum of non-financial current budgetary receivables and non-financial capital budgetary receivables	Zafra-Gómez et al. (2009a, b, c) Cuadrado-Ballesteros et al. (2014)
• *Adjusted income*: Income for the financial year by applying IPSAS minus extraordinary revenues plus extraordinary expenses	Rodríguez-Bolívar et al. (2014) Rodríguez-Bolívar et al. (2016)
• Net debt: total liabilities minus financial assets	
• *Long-term debt*	Office of Auditor General of Canada (2012)
• *Net debt*: financial assets less financial liabilities	
- Net debt per capita	
- Net debt as percentage of total revenues	
- Net debt as percentage of GDP.	
• Annual surplus/deficit	
• *Debt servicing costs as percentage of total revenues*: current revenues that are required to service past borrowing decisions, which in turn are not available for future services	
• Accumulated surplus/deficit as percentage of GDP	
• Expenses by department (community services, education, health, debt servicing costs and others) as percentage of total expenses	
• *Total debt:* total liabilities	IPSASB (2013)
• *Net debt:* total liabilities minus financial assets	
• *Net financial worth*: financial assets minus outstanding liabilities	
• *Net worth*: total assets minus outstanding liabilities	
• *Overall balance*: revenue plus grants less expenditure less lending minus repayments	
• *Primary balance*: overall balance, excluding interest payments	

(continued)

Table 2 (continued)

• *Short-term sustainability indicator (S0)*: a whole of 28 fiscal and financial-competitiveness variables that represent the extent to which there could be a risk for fiscal stress in over one year horizon (e.g. GDP, balance, gross debt, net debt, short-term debt, interest rate growth, old-age dependency ratio, private sector leverage, private sector credit flow, etc.) • *Medium-term sustainability indicator (S1)*: gap to the debt-stabilizing primary balance in 2020 through a steady gradual adjustment plus additional adjustment required to reach a debt target of 60% GDP in 2030 plus additional adjustment required to finance some increase in public expenditure due to ageing population up to 2030 • *Long-term sustainability indicator (S2)*: gap to the debt-stabilizing primary balance plus additional adjustment required to finance some increase in public expenditure due to ageing population over an infinite horizon	EU (2012) EU (2015)

financing need, interest rate growth, old-age dependency ratio, net savings of households, private sector debt and credit flow, financial corporations leverage, added value by construction sector, net international investment position, etc. This indicator has been useful for detecting situations of fiscal stress, by estimating risks in the short term through fiscal and macro-financial variables (EU 2012).

On the other hand, S1 and S2 refer to fiscal gaps in gross debt, primary balance and costs arising from ageing population. The former shows the adjustment effort required in terms of primary balance to be introduced until 2020, the adjustment effort required for reaching debt ratios under 60% of GDP in 2030 and the adjustment effort required for covering additional spending due to ageing population until 2030. The second indicator is very similar, but it refers to long term—i.e. S2 shows the adjustment effort required in terms of primary balance and

for covering additional spending due to ageing population over an infinite horizon. The problem is that S2 could be understandable since infinite horizon is unintuitive; thus, EU (2012) also refers to the intertemporal net worth indicator, obtained as the current net worth (i.e. total assets minus total liabilities) together with the sum of discounted future primary balances.

4 Determinants of Financial Sustainability

Previous sections have highlighted that the definition of financial sustainability is a controversial issue; therefore, there is a risk of overlapping between financial sustainability and financial condition. Furthermore, several measures of this concept have been provided, focusing on indicators such as adjusted income, long-term debt, non-financial budgetary results and so forth.

The aim of this section is to investigate what factors could be considered as determinants of financial sustainability, affecting it or providing a risk for a public sector entity to become "unsustainable". This issue is particularly relevant: if managers and politicians of public sector entities have a proper knowledge of determinants (driver and risk factors) affecting financial sustainability, they would improve their decision-making process. More specifically, managers and politicians would assume decisions that could contribute to supervise as well as retain financial sustainability, namely the ability of the entity to meet its service delivery and financial commitments (IPSASB 2013: 5). Therefore, they would both enhance the role of drivers that positively affect financial sustainability and limit risky factors that have a negative incidence on financial sustainability.

Previous studies have mainly dealt with financial health, while only a few were focused on financial sustainability. As a consequence—and in order to provide a wide picture—the ongoing analysis concerning financial sustainability determinants will take into account both kinds of research. According to Wällstedt et al. (2014), the comprehension of financial sustainability solutions and determinants requires the comprehension of financial distress reasons as well. Therefore, literature on

financial distress and its determinants should also provide an overview on viable solutions for financial sustainability. Accordingly, it begins with a discussion on the models concerning distress phenomenon. A good starting point can be the study of Carmeli (2008), whose model classifies the major sources of financial distress into three groups:

- *Structural factors*, which consists of local government size, socio-economic status of citizens and governmental resource allocation;
- *Organizational factors*, which consists of performance evaluation, transparency and the role of the local government's management; *and*
- *Hybrid factors*, essentially based on the relationship between the central government and the local government.

Figure 1 shows the model (where ovals represent latent variables, boxes represent their indicators).

Building on this model, it is worth observing that while some factors are under the control of managers (as well as politicians) of a local government, others do not.

Therefore, according to Cahill and James (1992), it is important to discern external factors from internal factors, with the former being more difficult than the latter for the local government to control. Examples of external factors are demographic and socio-economic conditions of the community, inflation and unemployment rate, which can negatively affect the finances of local governments. Examples of internal factors can be inefficient and ineffective management of budgeting and accounting procedures, a wasteful and excessive bureaucracy, a low transparency and/or corruption phenomenon, and so forth.

Even though some of the above-mentioned factors are not easy to operationalize, several studies have investigated both internal and external factors that are expected to influence fiscal distress (Khola et al. 2005, Zafra-Gómez et al. 2009a) and public debt (Pirtea et al. 2013), at the same time emphasizing the role of both political and socio-economic factors (Guillamón et al. 2011a). From a theoretical point of view, resource-based theory can be considered as a useful tool in investigating both internal (organizational and human resources; capabilities; objectives) and external factors (Barney 1991; Grant 1991). According

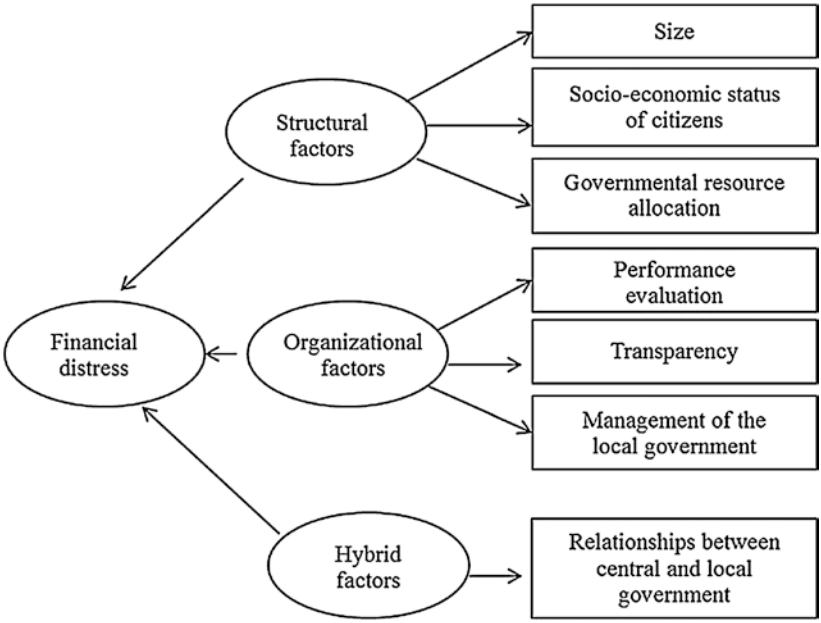

Fig. 1 Structural, organizational and hybrid factors affecting financial distress of LGs

to Wällstedt et al. (2014), "the interplay of these factors determines the municipalities' pattern of handling their resource management"; along the same lines, Knutsson et al. (2008) observe that the key for financial sustainability derives from a broad resource perspective together with a daily attention on financial issues. Moreover, the public service-dominant approach (Osborne et al. 2012; Osborne et al. 2014) could stimulate a reflection not only on the efficiency but also on the effectiveness of services provided to the citizens, while investigating the internal and external factors as determinants of financial distress.

Focusing on financial sustainability, it is worth observing that the above-mentioned factors have been also classified in accordance with their *demographic*, *socio-economic* or *political* nature. This classification

aims to take into account both the capacity and the vulnerability of the three dimensions of financial sustainability (service, revenue, debt; see Sect. 2), assuming that those groups of factors affect both the citizens' need and demand of public services as well as tax revenues, productive costs and indebtedness (Boyne et al. 2001).

The first group (*demographic factors*) consists of several variables such as: population size, population density, dependency ratio and immigration. While some of these variables are expected to affect financial sustainability positively, others represent risky factors, providing a negative effect on financial sustainability. More specifically:

- *Population size*. Previous literature found a negative effect of this variable on public debt (Guillamón et al. 2011b) as well as on public spending (Choi et al. 2010). Additionally, the recent study of Rodríguez-Bolívar et al. (2016) has found a negative effect of population size on financial sustainability as well; therefore, this variable is a risk factor for financial sustainability.
- *Population density*. Several studies argued that the higher the population density, the worst the financial condition of a public sector entity. Accordingly, this variable would have a negative impact on both public spending (Choi et al. 2010) and public debt (Guillamón et al. 2011b); in the same wavelength, it should affect financial sustainability negatively, it being a risky factor. However, results of Benito et al. (2010) as well as those of Rodríguez-Bolívar et al. (2016) were not statistically significant; therefore, the role of this factor is not so evident as one could expect.
- *Dependency ratio*. This variable tries to measure the relationship between financial sustainability and the so-called dependent population, namely population aged under or over defined thresholds (i.e. under 16 or 18 years and over 65 or 70 years). Generally, this variable should have a negative incidence on financial condition—i.e. the higher the dependency ratio, the larger the negative effect on financial condition (Khola et al. 2005; Rodríguez-Bolívar et al. 2016). However, findings of some studies (i.e. Zafra-Gómez et al. 2009b) show that this variable is not statistically significant.

- *Immigration*. This variable is expected to produce negative effects as well, since high migration flows would increase social spending and the level of indebtedness, at the same time having a negative influence on the financial performance of a local government. However, this variable has not been proved to have a significant impact on financial sustainability, with findings of previous studies being contradictory (Rodríguez-Bolívar et al. 2016).

The second group of variables (*economic factors*) consists of: budget results, gross domestic product, level of unemployment and firm's concentration. More specifically:

- *Budget results*. According to the Fiscal Sustainability Report (EU 2012), budget results (surplus/deficit) would have a great incidence on long-term sustainability and several studies have empirically demonstrated this influence. Findings from Rodríguez-Bolívar et al. (2016) show a positive relationship between financial sustainability (expressed by adjusted income) and budget surplus, while those from Brusca et al. (2015) emphasize the role of variables such as capital and personal expenditures as well as financial independence of the local government. However, findings from Guillamón et al. (2011a) did not show a statistically significant relation between financial transparency and budget results.
- *Gross domestic product (GDP)*. This variable is considered as one of the main factors that would affect financial sustainability, due to its direct relationship with tax revenues, public debt and more generally fiscal transparency (Easterly and Rebelo 1993; Andreula et al. 2009). Accordingly, several studies have found a statistically significant effect of GDP on financial sustainability.
- *Level of unemployment*. This variable has been largely used in previous studies concerning financial distress and sustainability, especially in the current context of global crisis. A negative link has been previously found, since a high level of unemployment would imply both a reduction of tax revenues a local government could collect as well as an increase in social expenditures (Zafra-Gómez et al. 2009a; Benito

et al. 2010; Brusca et al. 2015; Rodríguez-Bolívar et al. 2016), which could damage financial sustainability.
- *Firm concentration*. This variable is strictly related with both the unemployment rate and the local GDP and it has been considered as a driver for financial sustainability (Rodríguez-Bolívar et al. 2016).

The third group of variables (*social factors*) consists of:

- *Education level*. The level of education of citizens is perceived as a relevant social variable, since it would affect the demand for information, therefore improving transparency and encouraging the adoption of a more sustainable behaviour (Rodríguez-Bolívar et al. 2016).
- *Citizens' quality of life*. Cuadrado-Ballesteros et al. (2014) provide interesting findings concerning the relationship between the quality of life and the financial health of a local government, demonstrating that such a (positive) relationship does exist.

Finally, previous studies have also considered a fourth group of factors (*political factors*), which should affect the financial condition of a local government, especially focusing on the following:

- *Partisan and budget cycles*. This would express the effect on financial distress and sustainability of political decisions assumed during the pre-election year, the election years and the post-election year. Findings from Benito et al. (2012) as well as Vicente et al. (2013) have largely investigated these factors. García-Sánchez et al. (2014) empirically found that electoral proximity damages the financial health of local governments, especially in terms of sustainability. Other scholars have also studied the effect of political sign of the local governments. For instance, Kiewiet and Szalky (1996) provided evidence that conservative parties have a lower level of debt, and similarly García-Sánchez et al. (2014) evidenced that left-wing parties are usually under worse financial health than others. However, Vicente et al. (2013) did not find a relationship between political ideologies and the level of debt.

Obviously, the above-mentioned factors should not be considered as an exhaustive list; as a matter of fact, scholars have also used other (related) factors, such as population growth rate, percentage change in both the

Table 3 Determinants of financial sustainability

Determinants	Sources
Demographic factors	
• Population size (*risk factor*)	Choi et al. (2010) (+ effect on public spending) Guillamón et al. (2011b) (+ effect on public debt) Rodríguez-Bolívar et al. (2016) (– effect on adjusted income)
• Population density	Benito et al. (2010) Choi et al. (2010) (+ on public spending) Guillamón et al. (2011b) (+ effect on public debt) Rodríguez-Bolívar et al. (2016)
• Dependency ratio	Khola et al. (2005) (– effect on government revenue and expenditure) Zafra-Gómez et al. (2009b) Rodríguez-Bolívar et al. (2016)
• Immigration	Benito et al. (2010) (+ effect on tax burden) Rodríguez-Bolívar et al. (2016)
Economic factors	
• Budget results	Guillamón et al. (2011a) Brusca, Manes Rossi and Aversano (2015) Rodríguez-Bolivar et al. (2016)
• GDP	Easterly and Rebelo (1993) Andreula et al. (2009) Rodríguez-Bolívar et al. (2016)
• Level of unemployment	Benito et al. (2010) (+ effect on tax burden) Rodríguez-Bolívar et al. (2016) (– effect on adjusted income and net debt)
• Firm concentration	Rodríguez-Bolívar et al. (2016) (+ effect on adjusted income)
Social factors	
• Education level	Rodríguez-Bolívar et al. (2016)
• Quality of life	Cuadrado-Ballesteros et al. (2014)
Political factors	
• Partisan and budget cycles	Vicente et al. (2013) Benito et al. (2012) García-Sánchez et al. (2014)

employment and personal income (Wang et al. 2007) or the balance between the fiscal structure and the environment as well as characteristics of the fiscal structure of institutions (Hendrick 2004). Accordingly, without being exhaustive, Table 3 summarizes the driver/risky factors mainly used by scholars in investigating the determinants of financial sustainability.

All the above-mentioned factors are strictly inter-related with each other; in order to achieve a more complete and systemic view (Carmeli and Cohen 2001; Knutsson et al. 2008), scholars largely support a multi-dimensional perspective (Park 2004; Watson et al. 2005), aiming at taking into account the combined (positive and negative) effect of all the variables on financial sustainability of a local government.

5 Conclusions and Directions for Future Research

As previously indicated, financial sustainability could be understood as a component of a wider concept, namely financial health or financial condition (CICA 1997; Zafra-Gómez et al. 2009a, b, c; Cuadrado-Ballesteros et al. 2014), which refers to the ability of governments to provide public services while it can satisfy financial obligations (Lorig 1941; GASB 1987; CICA 2009). Although there is no universal definition, in general, they tend to take into account some core elements: the optimal scale for the cost-efficient public services delivery—that is covering citizens' demands with the lowest level of taxation and indebtedness for preserving intergenerational equity.

This definition takes into account the three dimensions proposed by the IPSASB (2013), namely service, revenue and debt. Thus, measures of financial sustainability should be led to represent these three dimensions, since debate on definition is currently extensive to measure financial sustainability. Financial sustainability is closely related to incomes (EU 2012; IPSASB 2013), so income statement has been traditionally used to represent this concept; since it shows items of revenues and expenses based on the accrual basis, it refers to the capacity of the

government to provide public services with available resources without the need to incur debt. Accordingly, previous studies use the income statement adjusted for extraordinary items to represent financial sustainability (Rodríguez-Bolívar et al. 2014, 2016).

Recently, using a sample of Spanish local governments, Rodríguez-Bolívar et al. (2016) have evidenced that income statement is a good approach for financial sustainability, representing the three dimensions proposed by the IPSASB (2013). However, further international evidence is necessary to finally determine the appropriateness of this measure. For instance, it could be interesting to incorporate a measure of debt, such as the net debt or total debt per capita, along with an indicator of fiscal balance (e.g. primary or overall balance), following suggestions of the IPSASB (2013). In addition, a more complex financial sustainability indicator should take into account some competitiveness variables, such as those the EU (2012, 2015) suggested, especially variables related to socio-economic issues (GDP, ageing population, credit flow, savings of households, etc.). It would also be particularly interesting if scholars continued to contribute to this line of research, thus improving the definition and measurement of financial sustainability.

In addition, this chapter has highlighted the main determinants for financial sustainability, illustrating both the drivers and the risky factors mainly used in previous studies. Several considerations to take note of emerge. Firstly, a large part of the variables adopted in investigating financial sustainability has been used in analysing financial health as well. Even though these two concepts are strictly related to each other, financial health is considered to be wider than financial sustainability. Accordingly, factors affecting the former could not have a significant incidence on the latter. For example, some variables (i.e. population density) while affecting financial condition (Choi et al. 2010; Guillamón et al. 2011b), do not seem to be relevant for financial sustainability (i.e. Rodríguez-Bolívar et al. 2016) or vice versa—i.e. budget results, which have been found relevant for financial sustainability (Rodríguez-Bolívar et al. 2016) but it was not significant for financial transparency (Guillamón et al. 2011a).

Accordingly, future lines of research, even if they are expected to take into account both the relationships and the conceptual differences between financial sustainability and financial condition or health, should provide more insightful theoretical considerations supporting the selection of drivers and risky factors. More specifically, the choice of these variables would be supported both by empirical findings of previous studies and by specific and coherent theoretical lens through which financial sustainability has been (and could be) investigated. For example, Wällstedt et al. (2014) explicitly refer to the resource-based view, arguing that it may be useful for explaining the financial sustainability and the overall function of local governments (see also Carmeli and Cohen 2001, who refer to this theoretical approach in investigating financial crisis of local authorities).

In this way, the selection of determinants would take into account their nature (demographic, economic, social and political factors) as well as the external/internal dichotomy, as clarified in the previous section. This, in turn, would suggest considering the potential incidence on financial sustainability of several variables such as organizational routines, skills of employees, attitude to collaborate within the entity and with other organizations, objectives of the entity and so forth. Old institutional economics, coupled with new institutional sociology, would represent strong theoretical (as well as methodological) lens through which these variables should be investigated (Scapens 1994; Burns and Scapens 2000; Scapens and Varoutsa 2010). Additionally, it is worth recalling again the potentialities offered by the arising public service-dominant approach. Osborne et al. (2012: 149) argue that the four propositions they provided[4] could "recognize and respond to the external, inter-organizational reality" of the New Public Governance, representing an approach through which "genuinely sustainable models of public services delivery can be understood, developed and facilitated for the future".

Coherently, a related implication for future researches would concern the methodological approach to be used in investigating determinants for financial sustainability. While quantitative approaches, which have been largely used in previous studies since they shed light on the role

played by several factors (classified according to their nature), are very beneficial, further knowledge could derive from qualitative approaches. Understanding the specific organizational conditions of a given local government, coupled with the knowledge of external variables, would improve the comprehension of financial sustainability. Managers and politicians, while having a very limited control on demographic, economic and social conditions of the local community, can steer internal factors, superintending organizational routines, motivating and stimulating employees in achieving objectives at the same time improving efficiency and effectiveness. This would have a positive incidence on the service provided to the citizens, which is one of the financial sustainability pillars.

In sum, having a systemic view of the financial sustainability determinants (Carmeli and Cohen 2001; Knutsson et al. 2008; Park 2004; Watson et al. 2005), means improving the decision-making process of managers and politicians, supporting better the ability of an entity to meet its service delivery and financial commitments (IPSASB 2013: 5), which in turn means having a positive effect on the welfare of the state, citizens' quality of life, well-being, accountability and so forth.

Since a "sustainable" government can maintain public services delivery without changing fiscal policy, in terms of spending, taxation and public debt, citizens' demands will be covered without jeopardizing present and future fiscal situation. Sustainable local governments will be able to efficiently deliver social services, housing, transport, health, education, culture and leisure, security services and so on, that are closely related to welfare factors (Cuadrado-Ballesteros et al. 2014; González et al. 2011). Additionally, financial sustainability is intrinsically related to accountability, because accountability is essential for managing public resources efficiently and effectively, which requires strong fiscal discipline (Schaltegger and Torgler 2007).

Because of the link between financial sustainability and these relevant issues (welfare, accountability, quality of life, etc.), this is a very valuable concept to be deeply studied in the future. Scholars may contribute by creating an alert system to avoid governments incur in unsustainable situations that may damage the well-being of citizens. In addition, future studies could be focused on how efficiently and effectively

public services provide without changing fiscal policies (spending, revenues and debt). For instance, functional decentralization, externalization and other reforms based on New Public Governance model may help regarding how financial resources are managed by governments, searching not only for efficiency, but especially for effectiveness, quality, accountability and good governance.

Notes

1. Short-run solvency: the capacity to generate enough cash to fulfil financial obligations in the short run.
2. Service-level solvency: the capacity to provide the level of public services necessary to maintain the social well-being of the citizens.
3. Budgetary solvency: the ability to generate enough income to pay for expenses and not incur a deficit.
4. These four prepositions concern: Strategic orientation; Marketing public services; Coproduction; and Operations management.

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4

The EU's Concern About the Influence of Demographic Factors on Financial Sustainability

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1 Introduction

The European Union financial and economic crisis that started in 2008 (European Commission—EC 2016) caused a sharp drop in public revenues, together with an increase in public expenditures that provoked a large public budget gaps and an increase of public debt levels (Pérez-López et al. 2015; EC 2016). It has made the discussions in the

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M.P. Rodríguez Bolívar (ed.), *Financial Sustainability in Public Administration*,
DOI 10.1007/978-3-319-57962-7_4

assessment of the sustainability of public finances to become a relevant issue in (EC 2016), especially in local governments, since they play a critical role in the economic recovery by maintaining the level of public investments and launching new projects (Council of Europe 2011).

In this context, although the concept of sustainability covers three dimensions (environmental, social and economic) (Global Reporting Initiative—GRI 2012), the financial sustainability becomes the main dimension for managing public administrations (Afonso and Jalles 2015; Rodríguez et al. 2014). This financial dimension could help support an efficient process of making appropriate decisions in order to help the economic recovery and to maintain the capacity of governments to continue providing public services in the future (Chapman 2008). So, the implementation of sustainable policies are necessary (Canadian Institute of Chartered Accountants—CICA 2009; EC 2011; EU 2012a; International Federation of Accountants—IFAC 2012) in order to achieve the financial health and ensure the intergenerational equity defined by Governmental Accounting Standards Board—GASB (1990) (Cabaleiro et al. 2013; Honadle 2003).

In this line, international organizations (EU 2012a, b; IFAC 2012, 2013; National Audit Office—NAO 2013) and previous studies (Rodríguez et al. 2014; Navarro-Galera et al. 2016) have recognized the usefulness of government financial statements for reporting on the public financial sustainability. In particular, the income statement has been considered as a key tool, which can be useful to policymakers and public managers for planning short- and long-term public finances strongly linked to the intergenerational equity concept (EU 2012a, b; IFAC 2012, 2014) and financial sustainability (IFAC 2014; Navarro-Galera et al. 2016; Rodríguez et al. 2014).

Indeed, the analysis of financial sustainability can help politics, managers and other stakeholders to assess the impact of its funding decisions as well as to manage financial risk and opportunities (IFAC 2013; NAO 2013). In this line, EU (2012), IFAC (2013) and EC (2011) have indicated that the demographic variables can influence on the achievement of financial sustainability in governments, which may be of overriding importance, even more at the local level.

Therefore, the policymakers and public managers should also know which factors could influence on the financial sustainability in order

to manage it. Thus, having information about the behaviour of these influential factors could assess their risk and opportunities, making appropriated decisions on financial sustainability. Indeed, international organizations have recognized the demographic variables as the principal influential factors of public sustainability (EC 2011; EU 2012a, b; IFAC 2013).

Concretely, the UE considers that the current demographics changes are new challenges for social policy which likely become even more important in the future (Eurostat 2015). Furthermore, the UE classifies the municipalities taking into account their economic and demographic characteristics and typologies. The different typology of the nuts (small regions of UE studies) such as urban, intermediate and rural regions (Eurostat 2016) or metropolitan areas could also influence on the financial sustainability of the municipalities.

Nonetheless, although demographic variables have been considered relevant for financial sustainability (EC 2011, 2016; EU 2012a, b; IFAC 2013), scarce research has been prefunded regarding this item in EU. Therefore, this work seeks to analyse the influence of demographic changes and nut typologies on financial sustainability, since identifying the demographic factors which affect it could help public leaders to design public policies with the aim at managing and maintaining the financial sustainability over time.

To achieve these goals, our study follows a data panel of the large municipalities of Spain during a 9-year period which covers the period before, during and after the crisis, showing the timely and relevancy of this study. Therefore, our findings have been able to suggest that variables such as the dependent population and employment rate affect negatively in financial sustainability, meanwhile the immigrant population, the typology and metropolitan areas influence positively on it. This work has the following structure. The next section deals with the financial sustainability and demographic variables. In the third section is explained the research design, the sample, the dependent and independent variables and the analysis of our results. Finally, the last section reports the conclusions and discussions.

2 Financial Sustainability and Demographic Variables. Hypotheses Formulation

Although there is no consensus about the definitions of financial sustainability of local government, the main international organizations understand the financial sustainability as the ability to meet service delivery and financial commitments, applying current policies and maintaining them in the future without causing the debt to rise continuously (IFAC 2012, 2013; EU 2012a, b; EC 2006, 2011; CICA 2009).

According to this definition, one of the crucial issues of the sustainability is the intergenerational equity (World Commission on Environmental and Development—WCED 1987; EC 2006), or "inter-period equity" (IFAC 2011; Pezzy and Toman 2002). The EU (EC 2006) has pointed out that, although there are some indicators regarding sustainability taking into account the budgetary balance or debt, they do not assess the intergenerational equity. Therefore, to measure the financial sustainability, it is necessary to use a concept closely linked to the intergenerational equity such as the income statement (IFAC 2011, 2012; GASB 1990). In fact, based on the concept of inter-period equity, the income statement is a representative indicator of financial sustainability of government policy and it can include its three dimensions (services, revenues and debt) (IFAC 2014; Navarro-Galera et al. 2016).

So, this financial statement, which refers to all items of revenue and expenditures based on the accrual basis (IFAC 2012), plays a fundamental role in assessing financial sustainability because it reflects the three dimensions which compose the financial sustainability (revenues, services and debt) (IFAC 2013). The income statement reflects a direct approach to the revenue and service dimensions of the financial sustainability and, indirectly, to the debt dimension, due to its link with the volume of expenditure. Thus, this statement it useful to provide a two-fold information: (a) the capacity of the entity to continue providing at least the same volume of goods and services; (b) the level of resources that will be needed in the future to continue to fulfil its public services delivery obligation (IFAC 2012; Rodríguez et al. 2014).

Therefore, according to international organizations (IFAC 2011, 2012; GASB 1990) and some authors (Navarro-Galera et al. 2016; Rodríguez et al. 2014), we understand the income statement adjusted as the more comprehensive standpoint to measurement the financial sustainability.

Nonetheless, international organizations have indicated that long-term fiscal sustainability information should be broader than information derived from the financial statements (IFAC 2013; EC 2006; Eurostat 2015; Williams et al. 2010). In fact, the organizations of the European Union (EC 2006, 2011, 2016; EU 2012b; Eurostat 2015) and other international organizations such as the IFAC (2013) have focused on the influence of the demographic changes on public finances, becoming essential to analyse the effect of the demographic factors on financial sustainability. Accordingly to the EU and international organizations, the main demographic factors that are considered in public finances are dependent population over 65, the birth rate, the immigration and the level of unemployment (Eurostat 2015; IFAC 2012).

The dependent population over 65 is the main factor which worries international organizations (EC 2006; Eurostat 2015; IFAC 2012). This population is expected to have a significant impact upon future revenues and expenditures of public administrations, since the elderly population is growing faster than the rest, and thus could influence public financial sustainability (Eurostat 2015; IFAC 2012; EC 2016). Moreover, previous studies have demonstrated the negative influence of this population on public finances because of its effect on the financial capacity of local authorities (Zafra-Gómez et al. 2009; Carr and Karuppusamy 2009) and the per capita spending and taxation, and therefore the budget balance (Choi et al. 2010; Gonçalves Veiga and Veiga 2007). So, it seems interesting to determine whether the dependent population could affect financial sustainability of local governments. In this regard, we propose this hypothesis:

H.1 The dependent population over 65 could affect the financial sustainabilityFinancial Sustainability.

Considering the above mentioned, the EU points out the importance of the birth rate, since due to the low birth rate and the increase

of the life expectancy, the EU's population is growing elder (Eurostat 2015; EC 2016). This demographic context, which is characterized by a lowering proportion of the working-age population combined with the increasing number of retirees, adding pressure on public finances (Eurostat 2015). Therefore, the demographic changes are new challenges for public administration in order to establish sustainable policies (Eurostat 2015; EC 2016). In this regard, the increase of the birth rate could help cover, in the future, the cost of the population ageing, becoming a driver for financial sustainability, although it could also cause more expenditures to bear the public services demand.

H.2 The birth rate could influence on financial sustainability

Moreover, the EU has considered as another influential variable on public finances the immigration, since, in some countries on account of the rising elder people and the low birth rate, they are the most important factor for population growth. The EU explains that the immigrant population could contribute to the economy through their work and taxes (Eurostat 2015). So, the immigrant population could soften the negative effect of the great increase of elderly population, helping to maintain the sustainability of pension system and having a positive effect on public finances (Eurostat 2015; EC 2016). However, prior research has explained theoretically and empirically that migration flows tend to raise the level of accumulated debt (Guillamón et al. 2011; Schultz and Sjostrom 2004) and public expenditures (Chapman 2008; Choi et al. 2010) and have a negative influence on financial performance of public administrations (Zafra-Gómez et al. 2009). Therefore, it seems interesting to analyse the influence of this variable on the financial sustainability of local governments and, therefore, we propose the following hypothesis:

H.3 The immigration population could have repercussions on financial sustainability

On the other hand, the level of unemployment is another significant aspect studied in public finances, especially in the context of international crisis. The EU has highlight that a high and persistent

unemployment can provoke slow economic growth (Eurostat 2015) and has a negative influence on the country's productivity and on the revenues of the social security system (EU 2012a). Moreover, prior research has discovered that it does not only provoke an increase of social spending and changes in employment patterns (Zafra-Gómez et al. 2009; Rodríguez et al. 2014; Benito et al. 2010) and debt (Guillamón et al. 2011), but also a decrease of the revenues available to the public treasury. So, the unemployment rate could be included as a possible risk factor for financial sustainability. Therefore, we propose this hypothesis:

H.4 The unemployment rate has an impact on financial sustainability

In addition, it could be interesting to analyse whether the typology of the municipality and the metropolitan areas (Eurostat 2016) could affect financial sustainability, since prior research have discovered that public organizations in urban areas could be more efficient (Grosskopf and Yaisawarng 1990; Andrews 2015). The urban municipalities could reap scale economies by offering multiple services from the same site and could reduce cost, sharing computing facilities and central administrative staff (Grosskopf and Yaisawarng 1990; Andrews 2015). In this regard, the EU classifies the most desegregated level of the European region (nuts 3), considering the population and the population density, in urban regions, intermediate regions and rural regions (Eurostat 2016) and points out their metropolitan areas. So, taking into account the previous mentioned studies the metropolitan and urban region could be a driver for the financial sustainability and the following hypotheses are proposed:

H.5 The typology of the municipality could affect financial sustainability.

H.6 The metropolitan areas could influence on financial sustainability.

In brief, it is of great current importance using accounting methods to measure sustainability jointly with the identification of the influential demographic factors, since politicians and managers can be provided with the necessary information for perceiving, reacting and preventing situations of imbalance in the financial sustainability of public administrations, making the most appropriated decisions.

Table 1 Main studies with dependent variables, independent variables and results achieved

Independent variables	Authors	Dependent variables	Results	Expected influence on FS
Dependent population (H.1)	EC (2006), Eurostat (2015), IFAC (2012)	Public finances	– influence	–
	Choi et al. (2010), Gonçalves Veiga and Veiga (2007)	Public expenditure	Public finances	
	Carr and Karuppusamy (2009), Zafra et al. (2009)	Financial condition	– influence	
Birth rate (H.2)	EU (Eurostat 2015)	Public finances	Public finances	+
Immigrant population (H.3)	EU (Eurostat 2015)	Public finances	+ influence	?
	Schultz and Sjöström (2004), Guillamón et al. (2011)	Debt	+ influence	
	Zafra-Gómez et al. (2009)	Financial performance	– influence	
	Choi et al. (2010), Chapman (2008)	Public expenditure	+ influence	
Unemployment rate (H.4)	Zafra-Gómez et al. (2009), Benito et al. (2010)	Financial performance	– influence	–
	Eurostat (2015), EU (2012b)	Public finances	– influence	
	Guillamón et al. (2011)	Debt	+ influence	
Typology and metropolitan areas (H.5 and H.6)	EU (Eurostat 2016) Grosskopf and Yaisawamg (1990), Andrew (2015)	The UE identifies different typologies of municipalities Urban areas could be more efficient		+

Source Own elaboration

A summary of the authors who have examined these demographic variables and their influence on public finances are reported in Table 1, where the expectation of its influence on financial sustainability appears for each variable.

3 Empirical Research

3.1 Sample

As noted previously, the current crisis has provoked the deterioration of a government's financial position and a sharp increase of debt (EU 2012b), making financial sustainability a key issue in the future of public sector organizations. So, studying the financial sustainability is particularly timely and relevant to the public sector in countries like Spain, whose sustainability gap indicator is above the European Union average, in the short, medium and long term (EU 2012b). Indeed, its public income and expenditure had increased very significantly, as a result of the increasing functions undertaken, duplication in the delivery of services by local and regional governments and the expanding role of the public sector in economic activity (Bank of Spain 2014).

In addition, the present study focuses on the financial sustainability of local governments because they are considered as key agent in the adoption and implementation of sustainable development policies (Hawkins 2011) and they play a key role in the economic recovery by maintaining the level of public investments and launching new projects (Council of Europe 2011). On the one hand, local government in this country is well placed to be aware of citizens' information needs (Watt 2004) due to legislative reforms of administrative structures carried out in the 1990s (Gallego and Barzelay 2010) and the managerial devolution process implemented in Spain (Bastida and Benito 2006). Moreover, local governments manage very large budgets and provide a wide variety of services (Sáiz 2011). And finally, the accumulated deficit and debt in large municipalities in Spain, mainly provoked by the 'property bubble' (Bastida et al. 2014), had have very significant effects on the public sector (Muñoz-Cañavate and Hípola 2011).

According to numerous previous studies about local public finance (Zafra-Gómez et al. 2009; Bastida and Benito 2010; Guillamón et al. 2011; Rodríguez et al. 2014), we decide to analyse exclusively municipalities with relatively large populations (over 50,000 habitant) for several reasons. Firstly, they account for more than 50% of the Spanish population (*Fundación La Caixa* 2013), and therefore a broader range of stakeholders are involved (EU 2012a, b). Secondly, their available resources and public services provided are greater than in smaller ones, so sustainability analyses have greater scope and impact. Thirdly, the accounting model used by local governments with large populations is considerably more complete and detailed than the simplified version used by small municipalities, which is expected to be more useful for measuring sustainability. And, finally, the professional training of managers in large municipalities is usually more complete than that available in municipalities with smaller populations (Rodríguez et al. 2014), which could favour the implementation of local economic development programmes (Morgan 2010) and the innovation regarding the relevance of financial statements for measuring sustainability.

However, although the whole sample of our study considers in total 148 Spanish large municipalities, we have been unable to get the data of all of these municipalities. So, we only have been able to analyse 138 municipalities which have the most of the date of the period studied (2006–2014) (1242 observations).

3.2 Methodology

To achieve the aim of our study we collected, from national organizations (The Court of Auditors, Spanish Institute of Statistics—INE—and the Spanish Public Employment Service—SEPE) and international organizations (Eurostat), the dependent and independent variables for 138 local governments over 9 years period (2006–2014), which over the period before, during and after the boom and burst in the housing

market (Benito et al. 2015), to analyse the influence of the demographic explanatory variables on the financial sustainability.

Considering the measurement of the financial sustainability (dependent variable), firstly we have to distinguish between the concepts of budget expenditures and revenues (they contribute to the annual budget) and financial expenditures and revenues (they fall within the area of financial accounting). The differences between these concepts arise, on the one hand, from their content, and on the other, from the criteria applied for their allocation. Thus, following the accounting system defined by IFAC (2014) some items are defined as budget expenditures or revenues and are not considered financial expenditures or revenues.

Furthermore, in Spain, based on this accounting system, while expenses and income are allocated to the income statement in accordance with the accrual basis of financial accounting, the allocation of budget expenditure and revenue is primarily cash-based or follows a mixed cash-accrual criterion in determining the budget results. Therefore, according to international organizations (IFAC 2012; GASB 1990) and prior research (Navarro-Galera et al. 2016; Rodríguez et al. 2014), we use the income statement to measure the financial sustainability since the criteria which is closely linked to the intergeneration equity is the accrual basis.

Once chosen the income statement, it is necessary to make some adjustments, because this financial statement includes the extraordinary activities which are not expected to be repeated in the foreseeable future. Consequently, we have adjusted the annual income statements avoiding the effect of revenues and expenditures deriving from extraordinary activities in order to maximize their utility of the income statement for assessing financial sustainability (Navarro-Galera et al. 2016; Rodríguez et al. 2014). Thus, the dependent variable is represented by the total amount of the adjusted income statement, as shown in Table 2.

Table 3 shows the definition and the calculation method for the dependent and each independent variable (demographic variables).

Table 2 Adjusted income statement

Concept	Amount
Income statement for the financial year obtained by applying the current IPSAS	(1)
+ Negative entries for extraordinary activities	(2)
− Positive entries for extraordinary activities	(3)
Corrected income statement for the financial year (intergenerational equity for financial sustainability)	(1) + (2) − (3)

Source Rodriguez et al. 2014

Accordingly the above mentioned, we propose the following equation model to test:

$$\mathrm{FS}_{it} = \alpha + \beta_1 \mathrm{DP65}_{it} + \beta_2 \mathrm{BR}_{it} + \beta_3 \mathrm{IP}_{it} + \beta_4 \mathrm{UR}_{it} + \beta_5 \mathrm{TYPE}_{it} + \beta_6 \mathrm{METRO}_{it} + e_i,$$

where "i" is the ith transversal unit (State Government) and "t" is the time (year), and the error (u_{it}) is composed by e_{it} (the error term) and α_i (unobservable heterogeneity designed to measure unobservable characteristics of the local governments).

To test this model, we use a panel data technique which is the most used statistical technique by the latest research in the public finances (Zhu 2013) because it reduces multicollinearity and improves the efficiency of the model (Wooldridge 2009).

To determinate the specific model to follow, we consider the possible existence of endogeneity, so we estimate our model by the two-step System-Generalized Method of Moment (GMM) (Arellano and Bover 1995; Blundell and Bond 1998), which is the most powerful tool to control the possible endogeneity between the variables and the error term (Baltagi 2008; Wooldridge 2009; Prillaman and Meier 2014). This technique uses the lagged levels of the endogenous regressors as instrumental variables although we applied the collapse option in order to reduce the instruments (Roodman 2009).

Furthermore, we perform the Arellano–Bond test (m) to check the inexistence of second serial correlation ($p = 0.700$) and the Hasen test to verify the adequacy of the instruments utilized ($p = 0.522$) (Arellano and Bond 1991) (Table 4). Therefore, we have obtained robust results that allow us to properly support the findings related to the purpose of the paper, controlling any type of endogeneity and multicollinearity that may exist between the variables.

Table 3 Summary of the variables

Variables	Acronym	Description	Source	Calculation
Financial Sustainability	FS	Adjusted results per capita 2006–2014 (Euros)	Local government financial statement (Court of Auditors)[1]	Corrected income statement for the financial year per capita
Dependent population over 65 years	DP65	Population aged over 65 years residing in the municipality	INE[2]	Population aged over 65 years/labour force
Birth rate	BR		INE[2]	
Immigrant population	IP	Immigrant population residing in the municipality	INE[2]	% Immigrant population
Unemployment rate	UR	Unemployment rate in the municipality	Public Employment Service (SEPE)[3]	Unemployed population/labour force
Typology region	TYPE	Typology of the nuts	Eurostat	0 = rural region; 1 = intermediate region; 2 = Urban region
Metropolitan area	METRO	Metropolitan area	Eurostat	0 = no metropolitan area; 1 = metropolitan area

Source Own elaboration
Notes [a]www.rendiciondecuentas.es and the web page of each municipality
[b]www.ine.es
[c]www.sepe.es

Table 4 Tests

Test			
Hansen test	Test $chi^2(86)$	82.34	$Pr > chi^2 = 0.592$
Arrellano–Bond test	Ar(1)	$z = -2.80$	$Pr > z = 0.005$
	Ar(2)	$z = -0.34$	$Pr > z = 0.733$
Sample	N = 1242	$n = 138$	$T = 9$
Instruments	101		

Source Stata 12

3.3 Results Analysis

We can observe in Table 5 that the demographic variables, which have experimented a greater heterogeneous change over time (within standard deviation), are the immigrants, the unemployment rate and the dependent population over 65, the two most critical concerns for UE (EU 2012b; EC 2016; Eurostat 2015). However, the only variable that has a more heterogeneous behaviour over time than among municipalities is the financial sustainability. Thus, the behaviour of the demographic variables was more homogeneous between each local government over this period (within) than among local governments (between). This means that regarding financial sustainability, there was a common turning point similar to all local governments, and this suggests that the negative effects of the crisis have been generalized.

Regarding the financial sustainability, the mean of this variable is 112.34, so considering the whole sample, the mean of the financial sustainability of the local governments is positive. However, the standard deviation of the variable "financial sustainability" is the highest, so the mean score of the financial sustainability could be the result of the joint effect of the negative sign of financial sustainability of local governments during the crisis and the positive sign of the financial sustainability before and after the crisis. In this regard, the mean of this indicator suffered a sharp drop when the crisis started although it was positively maintained (from 105.93 in 2006 to 84.51 in 2008), and currently, thanks to the normative reforms such as the law 27/2013 about the rationalization and sustainability of the Local Administration, it can be observed a recovery since the mean of this indicator was 145.59 in 2014.

Table 5 Statistical analyses

		Mean						
Variable		2006	2008	2014	Overall	Std. dev.	Min	Max
Financial sustainability	Overall	105.9381	84.5128	145.5976	112.3424	217.1185	−1040.953	2517.888
	Between					113.8477	−258.4299	625.4617
	Within					187.5232	−869.6793	2004.769
Dependent population over 65	Overall	20.2213	20.3874	24.4317	21.8223	6.5546	5.2089	43.1236
	Between					6.3509	6.0774	36.7379
	Within					1.6998	15.5009	29.0517
Birth rate	Overall	11.6443	12.0351	9.5102	10.8005	2.2691	5.4763	21.003
	Between					1.9817	6.8862	18.3559
	Within					1.1167	6.9184	14.6053
Immigrant population	Overall	10.8885	13.0175	12.225	12.8916	9.52	0.9416	53.5426
	Between					9.4573	1.2198	51.6375
	Within					1.3294	4.9366	16.6982
Unemployment rate	Overall	7.641703	7.8036	16.6433	12.3887	4.9826	3.1201	27.3782
	Between					3.1237	5.0018	21.1375
	Within					3.8899	3.34	20.2759
Type area	Overall	1.4927	1.4927	1.4927	1.4928	0.6513	0	2
	Between					0.6534	0	2
	Within					0	1.4928	1.4928
Metropolitan area	Overall	0.1376	0.1376	0.1376	0.1377	0.3447	0	1
	Between					0.3458	0	1
	Within					0	0.1377	0.1377

Source Own elaboration based on STATA12
Note $N = 1242$, $n = 138$, $T = 9$

Turning to the demographic variables, Table 5 shows that the dependent population over 65 represents the 21.82% of the labour force. However, the dependency ratio over 65 has been increasing from 20.22 (mean in 2006) to 24.43 (mean in 2014), so the EU's concern about the increase of the ageing cost is justified, since the increase of this ratio means an increase in the burden of the labour force to support the dependent population.

Furthermore, the birth rate and the immigrant population are decreasing since the economic and financial crisis, so the cost of the elder population cannot be borne by them. The birth rate increased from 2006 to 2008 (11.64–12.03), but due to the economic crisis it decreased to 9.51 in 2014. The immigrant rate increased from 2006 to 2010 (10.88–13.82%), and since 2010 the crisis provoked that this variable decreased to 12.22% in 2014. Therefore, currently, due to the effect of the economic and financial crisis on these two variables, the burden of the elder population that this population could support is reduced.

The unemployment rate has had a similar behaviour. It was around 7.6 from 2006 to 2008, but although a slight recovery can be appreciated in 2013 (16.89), from 2009 to 2014 this variable has been increasing to 16.65. Therefore, the public revenues from the income taxes could be less and the public expenditure from the public services provided to the unemployed could increase.

Finally, in Table 5 we can see that the majority of the local governments studied are considered as urban regions (80/138 municipalities), followed by the intermediate regions (46/138 municipalities). Furthermore, from 80 urban municipalities of our study, 19 are considered as a metropolitan area.

On the other hand, our empirical results (Table 6) led us to identify two types of influences on the evolution of financial sustainability. First, we identified a positive influence of the immigrant population (0.089), the typology of the municipality (0.024) and the metropolitan areas (0.020). By contrast, we identified as possible risk factors the dependent over 65 (0.039) and the unemployment rate (0.000) because of their negative influence on the behaviour of financial sustainability. However,

Table 6 GMM regression analyses of explanations for financial sustainability

Variable	Coefficient	
L1. Financial sustainability	0.3975247	***
Dependent population over 65	−2.072368	**
Birth rate	−4.864193	
Unemployment rate	−5.735319	***
Immigrant population	1.085588	*
Typology	21.27854	**
Metro region	83.88982	**
_cons	209.6458	***

Source Own elaboration based on the test performed in STATA12
Significant at 1%*** Significant at 5%**; significant at 10% level*
Fixed effect of time considered
All variables are treated as endogenous, except for the year dummies

our findings do not show empirical evidence to support an influence of the birth rate on financial sustainability.

Moreover, our empirical research has demonstrated that the financial sustainability of the previous year could influence on the financial sustainability of the current year. Therefore, local governments which achieved a positive financial sustainability try to maintain and improve it in the current year. However, a negative financial sustainability could be maintained over time when it was provoked by the implemented policies.

Regarding the dependent population over 65, following our results, it influences negatively on financial sustainability. Therefore, H.1 is supported and must be accepted. So, the EU's concern about the negative influence of the ageing population on financial sustainability is justified. Moreover, our results are in the same line with that of prior research which establish a negative influence of the dependent population on the financial capacity (Zafra-Gómez et al. 2009; Carr and Karuppusamy 2009) and the public expenditure and revenues (Choi et al. 2010; Gonçalves Veiga and Veiga 2007). This finding goes further than prior research, since we have found the influence of the population over 65 on financial sustainability, not on specific dimensions.

However, results have not identified a significant influence of the birth rate (H.2 must be refused) on local governments' financial sustainability in Spain, and this finding which could be due to the effect

of the birth rate could be compensated with the increase of the rate of ageing population, since the rate of ageing population has been increasing from 2006 (107.39) to 2014 (112.24); meanwhile, the birth rate has been decreasing from 2006 (10.84) to 2014 (9.17). So, we cannot ratify that an increase of the birth rate could help maintain the financial sustainability of local governments, although this variable could help cover the future ageing population cost and maintain the sustainability of the pensions system (Eurostat 2015; EC 2016). Therefore, this result does not allow us to determine whether the negative effects of this variable (higher public expenditure due to the demand of public services) can compensate the positive effect in the financial sustainability.

On the other hand, we can verify that there is a slight positively influence of the immigrant population (H.3 must be accepted) on financial sustainability. So, we can ratify that the immigrant population could weaken the negative effect of the ageing population on financial suitability, as the EU points out (EC 2016; Eurostat 2015). Hence, this result extends the prior research because, taking into account the studied period, this variable is positively significant for the financial suitability, although prior research has established that this variable could increase the public expenditures (Chapman 2008; Choi et al. 2010) and debt (Guillamón et al. 2011; Schultz and Sjostrom 2004) or decrease the financial performance of public administrations (Zafra-Gómez et al. 2009). So, these results indicate that the increase of the immigrant population could favour the financial sustainability inasmuch as their contribution to generate revenues exceeds the increase of its social expenditure.

Accordingly to EU (Eurostat 2015), we can affirm that the unemployment influence negatively on financial suitability (H.4 must be accepted) since it could increase public expenditure (Zafra-Gómez et al. 2009; Benito et al. 2010) and decrease the public revenues. This result goes further than prior research, since it shows the specific influence on the financial suitability which includes the services, revenues and debt dimensions.

Considering the typology of the municipalities and the metropolitan areas (H.5 and H.6 must be accepted) our results go further than the studies of Grosskopf and Yaisawamg (1990) and Andrews (2015), who

determined that the urban areas are more efficient thanks to the scope economies, because we can confirm that the urban and metropolitan areas are more likely to achieve and maintain the financial sustainability.

4 Discussion and Conclusions

Due to the economic and financial crisis, the international organizations, especially the EU, have pointed out the necessity of studying government financial sustainability focusing on the demographic changes. Indeed, based on an analysis of the Spanish local governments during a 9-year period, we have been able to empirically justify the EU's concern regarding demographic changes.

Our findings show that the dependent population is a risk factor for financial sustainability. The dependent population over 65 could be considered as free riders, that is, they benefits from public resources but they do not pay for them and thus could provoke an increase of expenditures (Choi et al. 2010; Gonçalves Veiga and Veiga 2007) or change the structure of services. At the same time, they generate less revenues for the government than the working-age population, so that, they could damage the financial capacity of local authorities (Zafra-Gómez et al. 2009; Carr and Karuppusamy 2009) and financial sustainability. In addition, we can justify the international organizations' concern about the cost of ageing population (EC 2016; Eurostat 2015; IFAC 2014). So, all levels of government should establish sustainable policies with the aim at facing the problem regarding the adequate and sustainable pensions system.

In this regard, the EU explains that there are two variables that could help soften the negative influence of the elder population on financial sustainability: the birth rate and the immigrant population. However, we have been unable to find a significant relationship between the birth ratio and the financial sustainability, and the influence of the immigrant population, although it is positive, is a weak influence. This slight influence on the immigrant population on the financial sustainability could be explained by the behaviour of the migrant population during the crisis. In 2013, Spain reported the highest number of emigrants (532.3 thousand) and was one of the European countries with more emigration

than immigration (Eurostat 2015). Therefore, the immigrant population that could weaken the effect of the elder population could be compensated by the emigrant working-age population who left Spain. Indeed, following the data from Eurostat (2016), while the immigrant population of Spain had a variation change of −66.61% from 2006 to 2013, the variation change of the emigrant population was 274.1%.

Therefore, considering these findings, as the EU suggests, the public administrations should establish new policies with the aim at increasing the participation of older workers in the labour market in order to maintain a sustainable pensions system (Eurostat 2015), helping to achieve the financial sustainability in all public administration levels.

Moreover, analysing the unemployment rate, our finding confirms that not only a high and persistent unemployment can provoke slows economic growth (Eurostat 2015) and a decrease of the country's productivity and of the revenues of the social security system (EU 2012b), but also jeopardize the financial sustainability, that is, the unemployment is a risk factor for financial sustainability. So, we can affirm that the increase of unemployment affects public revenues, due to the decrease on the collection of income taxes and public expenditures, which tend to rise (Zafra-Gómez et al. 2009; Benito et al. 2010) because of the increase of the amount of money used for unemployment benefits and debt (Guillamón et al. 2011), since there is a disproportionate growth between revenues and expenditure that have to be covered. Therefore, the Spanish public administration should concentrate in establish new sustainable policies with the aim at creating employment, which could help achieve and maintain the financial sustainability of local governments.

These findings allow us to suggest that the usage of management tools, which combine accounting and demographic information, is necessary to handle financial sustainability in order to provide useful information to policymakers and managers for making appropriate decisions about financial sustainability. They could identify the drivers and risk factors improving their management of the opportunities and risks and implementing appropriate policies to maintain financial sustainability.

Acknowledgements This research was carried out with the financial support from the Regional Government of Andalusia (Spain), Department of Innovation,

Science and Enterprise (Research project number P11-SEJ-7700) and the Spanish Ministry of Education, Culture and Sports under Grant (FPU13/05949).

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5

Accounting for Financial Sustainability. Different Local Governments Choices in Different Governance Settings

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1 Introduction

Starting in the 1980s, the so-called "New Public Management" (NPM) (Hood 1991) has heralded a new era for the public sector, but its rationale has rapidly been criticized for its lack of multi-organizational focus (Rhodes 2000). As response to the increasingly complex and plural nature of public policy implementation and service delivery, a New Public Governance (NPG) idea has emerged (Osborne 2009, p. 7), emphasizing the relationship with the external environment and the inter-organizational (between governments and, especially for the provision of services, between

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M.P. Rodríguez Bolívar (ed.), *Financial Sustainability in Public Administration*,
DOI 10.1007/978-3-319-57962-7_5

public- and private-sector organizations) relationships, called governance of networks (Kickert 1993; Considine 1999).

At the same time, some scholars (Guthrie et al. 1999, 2005) have concentrated their attention on "the technical lifeblood of NPM organizational structures" (Guthrie et al. 1999, p. 211), such as accounting techniques, financial management, and different tools that could be implemented to support managerial reform agendas, called New Public Financial Management (NPFM). Special attention has been paid to financial sustainability (FS), given the fact that no services will be properly delivered if governments do not have appropriate resources or if their accounting systems fail to play the central role of supporting decision-making processes.

One key point in the study of FS is the need to consider the blurring boundaries of public sector organizations and their relationships with other entities that are involved in policy implementation and service delivery. Nonetheless, nowadays most public organizations, especially local governments (LGs) still experiment difficulties in playing the game of networking, and appear more as stand-alone organizations. It seems to worth noting that some scholars have identified and characterized different institutional settings or governance models (Considine and Lewis 2003; Considine 1999, 2001) in this respect.

Although there is a wide literature discussing FS in the public domain (Brusca et al. 2015; Cohen et al. 2012; Navarro-Galera et al. 2016; Padovani and Scorsone 2011; Rodriguez-Bolivar et al. 2014, 2016; Zafra-Gomez et al. 2009) and studies have highlighted the connection between financial condition and service delivery (Jones and Walker 2007; Andersen and Mortesen 2010), there is a gap in the literature concerning the link between FS and the governance setting for service delivery adopted by LGs (Osborne et al. 2010). The chapter aims to fill this gap analyzing how specific accounting tools and techniques can assist in the control of an LG's FS based on the governance setting adopted for service delivery. More precisely, a standard accounting tool or technique (e.g., a set of indicators, a standard source of accounting information), to detect fiscal distress, would not be effective for all LGs. In contrast with previous literature, which has discussed FS measurement systems in LGs as an all-compassing tool, we stress the idea that measuring and promoting FS should be considered in the context of the

governance setting in use. Each governance setting requires the monitoring of different aspects, and therefore the collection of different types of accounting information, in order to keep FS under control, and at the same time to assure service delivery, at the required standards. To this end, the Italian setting represents an interesting condition, given that the Italian law offers the same accounting methodology for all LGs regardless of the chosen governance model. The aim of the research is to grasp a lesson to learn by some illuminating observations drawn from few cases suggesting highly useful conclusions about some important issues in controlling FS that can be suitable for a wide variety of municipalities. To this end, the chapter unfolds as follow: after this introduction, an overview of the literature concerning FS in local governments is presented, highlighting the extent to which accounting might be of help in the assessment and control of FS conditions. The discussion is connected to the consideration of the different governance settings for service delivery adopted in local governments, as they are categorized in literature. After having clarified the methodology (Sect. 3), five cases are presented (Sect. 4). Section 5 provides a discussion of the case studies by linking evidence to previous literature about accounting tools and techniques to face the different FS management problems, coordination, cooperation, and conflict, in the different governance models identified. Findings give evidence that a local government needs to avail itself of specific FS measurement systems and accounting tools and techniques that are consonant with the governance model it has adopted. Section 6 draws some conclusions and discusses possible consequences of the research for managers and legislators.

2 Accounting, Financial Sustainability, and Governance Settings in Local Governments: The Missing Link

The study of FS is a relevant topic nowadays: standard setter and professional bodies are providing several guidelines and documents in the aim of supporting public administration in gaining FS. In this sense, the IPSASB (the International Public Sector Accounting Standards Board founded

by the IFAC—International Federation of Accountants) has issued the Recommended Practices Guideline n.1 (RPG) in which three intertwined dimensions of long-term FS are settled: *service dimension* (including the volume and quality of services to recipients and beneficiaries), *revenue dimension* (including taxation levels and other revenue sources), and *debt dimension* (which consider the debt levels in a certain period, including the ability to meet financial commitments) (IPSASB 2013).

Also professional bodies contribute to develop some guidelines to monitor financial condition: the ICMA (International City/Country Management Association) published the Handbook for local government (2003), as well as the Canadian Institute for Chartered Accountant issued in 2009 a Statement of Recommended Practices (SORP) 4: Indicators of Financial Condition. Meanwhile, the main challenge is to determine how to measure FS.

Literature highlights problems related with a bad FS, focusing on "financial health," "fiscal distress," "financial risk," "fiscal crisis," or "fiscal strain." Although external forces, mostly socio-economic, could heavily affect an LG's financial equilibrium (Falconer 1991), we consider more useful to refer to the ability of a single entity to keep a financial equilibrium; to this end, in line with the IPSASB's point of view, we define FH more narrowly as *the condition in which an LG is regularly able to meet its payroll, pay its current liabilities, meet its debt service* (Downing 1991, p. 323), *and undertake service obligations as demanded by constituents* (Falconer 1991, p. 812; Krueathep 2010, p. 224).

Some authors have focused their research on LGs' credit ratings and solvency assessment (Manes Rossi 2011), others have concentrated their attention on the possible influential factors: thus, some have emphasized short-term solvency, represented by an LG's ability to meet its payroll and generally make payments in a timely manner, while others have focused on the long term, where the point of view is more on the trends in an LG's tax base relative to its expenditures and commitments (Brusca et al. 2015; Navarro-Galera et al. 2016; Rodríguez-Bolívar et al. 2014, 2016). The possibility to measure FS by using a set of indicators ranges from a limited number (Brown 1993) to a larger one (Ammar et al. 2001), almost focusing on financial aspects, even sometimes including socio-economic variables (Andersen and

Mortesen 2010; Cohen et al. 2012). They are all tightly intertwined with accounting data, meaning that the measure of FS depends on accounting information availability. These measures range from basic approaches such as accounting information and financial reporting analyses (e.g., Dothan and Thompson 2009) to qualitative analyses contained in audit reports. LGs often employ more sophisticated statistical modeling approaches (e.g., Murray and Dollery 2005). An important aspect of all the approaches is the proxy used in order to discriminate financially unhealthy LGs from the healthy ones. Several variables have been proposed for this purpose such as ratio indicators (ICMA 2003), the incidence of mergers or amalgamations, the quantity or quality of service delivery, and the cost of restoring infrastructure assets to satisfactory condition (Jones and Walker 2007; Zafra-Gómez et al. 2009). This wide array of options has determined a diversity of approaches to LGs' FS assessment by audit bodies throughout the world (Padovani and Scorsone 2011).

Moreover, since the late 1980s there has been growing pressure to implement accrual accounting, replacing or adding to the traditional budgetary cash-based or modified accrual accounting (Guthrie et al. 2005) to feed the need of measuring and monitoring economic quantities. Accrual accounting has been considered by IPSASB as the system more suitable to assure decision-makers with an accurate picture of the actual consumption of wealth and resources, and the real financial situation, which—in turn—would provide politicians and managers with a better support for monitoring FS (Pina et al. 2009; Padovani et al. 2010).

At the local level, fiscal autonomy has acted as the ultimate affecting driver, since the object of control has moved from the "correct use of governmental grants" to the "efficient and effective use of local citizens' taxes" (Caperchione and Mussari 2000). In this context, accounting systems have been more focused on managers' goals rather than on total outcomes, as well as on the possibility for compliance with standards rather than with stakeholders needs (Gray and Jenkins 1993; Cepiku et al. 2016).

During the last 20 years, a new trend in public service provision has emerged, the externalization of public services through corporatization, contracting out, public–private partnership, and privatization (Torres and

Pina 2002; Boivard 2004; Grossi 2007; Reichard 2002). The transformation of the public service system took place at all governmental levels even if the result of the institutional transformation is most visible at local level, as can be seen in Italy and Germany (Grossi and Reichard 2008). LGs have set up new organizational structures with public and private partners (Kettl 1993; Rhodes 2000; Osborne and Brown 2005), putting in place different governance settings that reflect their unique social, economic, and political interdependencies (Kooiman 2001, p. 72).

One result of these movements is the identification of six ideal-type structures for service provisions adopted by LGs (Grossi and Reichard 2008), namely (a) direct provision through an LG's organizational unit (direct provision); (b) the use of an autonomous entity belonging to the same local authority or to one or several other jurisdictions (corporatization); (c) collaboration of several public authorities like a consortium of municipalities (public–public collaboration); (d) partnerships with public and private entities (public–private partnerships); (e) outsourcing to a private for-profit company (contracting out); and (f) devolution to a private nonprofit (devolution).

This process of transferring the delivery of local public services to third parties (private and public) implies on the one hand a loss of involvement in the direct service provision, even if the overall responsibility for quality level of service delivery still remains on the LG (Kettl 1993). On the other hand, it implies the introduction of different kinds of players, where LGs need to coordinate concurrent activities delegated, balancing various interests that may conflict with the LGs' interests. There is a variety of institutional arrangements used to supply public services with external providers, ranging from intergovernmental agreements to franchises. The institutional landscape for service provision and delivery may vary within OECD countries (Considine 2001; Hodge and Greve 2005; OECD 2005). As a result, it seems clear that not all "not in-house" arrangements can be considered as outsourcing, i.e., those settings where the producer differs from the original arranger (the actor who assigns the producer to the consumer or vice versa). In countries, such as Italy, where new autonomous public sector organizations have been established at the LG level, that there is a "corporate governance model." Corporations, authorities, and agencies owned by

a municipality form the so-called "municipal group," in which the producer of service is a legally distinct jurisdiction, but still controlled by the same municipal government (Grossi and Mussari 2008).

At the local level a public service can be delivered by an LG department, by an autonomous entity belonging to the LG or to one or more other jurisdictions, by a collaboration between public entities or between public and private partners, or by contracting out the service to a private company. Lastly, a public service can be completely privatized, with the complete exclusion of public responsibility. All those variants for public service provision and delivery can apply in mixed forms, so that an LG has a considerable choice among all these institutional arrangements or governance settings.

Considine (2001) offers a systemization of conceptualizations concerning governance models of public services where the public retains some kind of managerial responsibility (Hutt and Walcott 1990; Pierre 1999; English et al. 2005). Each of the Considine's four models (procedural, corporate, market, and network) has a distinct source of rationality, form of control, primary virtue, and service delivery focus.

Considine's first three types of governance—procedural (PG), corporate (CG), and market (MG)—correspond to phases in the development of public governance in OECD countries, from its emergence to its periods of transformation in the 1990s. The fourth type, network governance (NG), is identified in a post-bureaucratic era (Considine 1996; Osborne and Gaebler 1992), and it is evident to some degree in specific policy fields such as city management (Considine and Lewis 2003, p. 133). NG functions even when there is no government to provide public services (Denters and Rose 2005); it is less frequent in unitary and regulatory countries, and more present in plural and pluralist ones (Osborne 2010).

Core attributes of PG are adherence to rules and protocols, high reliance on supervision, and an expectation that tasks and decisions will be well scripted, including information technology systems used in the organization. In this kind of institutional setting, a system of financial indicators (mainly on input and output, as well as on efficiency) can support the assessment and control of FS. Indeed, in PG, accounting systems support the possibility to provide standardized services at the lowest per-unit cost (Farneti et al. 2009, p. 256).

As Hood (1990) points out, in the 1980s a new CG model emerged in several countries, viewing public organizations as "corporations" run by business managers, with a perception that the PG did not fit with a variety of administrative requirements for outsourcing, mainly the need to maintain greater control over public expenditures (Pallot 1992; Pierre and Peters 2000). In addition, the PG model was not able to deal with the increasing complexity of government (Lapsley 1988), and the need to target some services for a subset of the population. In the CG model, planning, budgeting, and reporting have a considerable importance, and a public administration using it concentrates on outputs instead of inputs, focusing on specific groups of citizens who are receiving services. Great emphasis is on the shift from following rules to achieving results, and, consequently the accounting system has to produce data and information useful to monitor the condition of FS while politicians and managers are planning how to manage public service delivery. Management accounting data, standard costs, and other reporting tools, including consolidate accounts, have to be coordinated in order to support decision making in a FS approach, since the availability of appropriate information will facilitate the efficient allocation of resources (Coy et al. 2001).

In the market governance (MG) model, contracting out, competitive tenders, and principal–agent separation are employed to respond to financial signals and competitive pressures. In this model, competition among potential vendors is encouraged, and the LG develops contracts that stress quality as well as cost. Considerable emphasis is placed on meeting citizen needs (Pierre and Peters 2000) and defining relationships (English et al. 2005). To that end there is a need for arrangements with commercial companies, public authorities, and/or nonprofit organization (Pollitt 2003), whilst in other cases public institutions use their corporate habitus for directly running their business activities, or they sell relevant assets to external entities (Broadbent and Guthrie 2008). Since market dynamism and increased autonomy help to assure accountable managerial behavior, the MG model requires an appropriate set of reporting and feedback relationships to help assure that aim (Osborne and Gaebler 1992). Moreover, in many public entities, developing the requisite management control system runs contrary to their long-standing, input-based, managerial cultures, and therefore

is a difficult transition to make (Padovani and Young 2008; Padovani et al. 2014). Accounting figures have to sustain make-or-buy decisions, as well as assist with cost control and the quality of outsourced services. More specifically, to preserve FS, the accounting system has to focus on the LG's ability to maintain a certain level of public services in accordance with available resources and costs related to contracts already in place. The use (and not only the availability) of proper indicators, provided continuously, not only at the end of the year, becomes a key aspect of monitoring FS.

In the network governance (NG) model, a government continues to rely on outside agencies, but in the form of a strong strategic partnership. Competition and confidentiality of contracts is supplanted by joint action. This model aims to increase competition so as to help contain costs, and its contracts generally focus on just one service. It is inappropriate when some outsourced services need to be coordinated with others. The NG model is designed to achieve this coordination. With NG, LGs are interested in building trust, and clients, suppliers, and producers are linked together as co-producers. Instead of fixed organizational boundaries and roles, the system promotes a new rationality based on the creation of a shared organizational culture. In order to achieve FS, in this kind of governance model, consolidated budgeting and reporting have to be added to the tools already described: if one partner has a financial problem, it would necessarily affect the LG's financial condition. As a result, FS must be considered at network level (Grossi and Mussari 2009; Heald and Georgiou 2011).

In discussing governance of outsourcing, some authors (Farneti et al. 2009) have stressed the idea that a public entity should not be attempting to move from PG to NG for service delivery deliberately. Instead, Considine's framework is a contingent tool that helps to consider which model is appropriate to the nature of the service delivery being outsourced. Similarly, it seems clear that when a given model prevails, there are consequences for the FS measures that are used to detect financial conditions, and on accounting tools and techniques adopted to report on such FS measures.

In Table 1, each Considine's model (procedural, corporate, market, and network) and its features in terms of source of rationality, form of control, primary virtue, and service delivery focus, are matched with Grossi and Reichard's structures for service provision (2008, p. 600). The latter is defined in terms of kind of structures for service provision (LG's direct service provision, corporatization, contracting out, devolution, public–public collaboration, public–private partnership) and subjects involved, internal (a LG), external (corporation, private company or non-profit organization, other jurisdictions, other public entities), or both.

Even if the chapter is under a municipal's FS perspective, the discussion of the different case studies took place considering the interaction with other actors within the network, as suggested by Caglio and Ditillo (2008). When an LG participates in a network, it is because its own purposes are based on perceived financial costs and benefits. The municipality takes part in a network as long as it feels that network participation can serve its interests, even if participants can be driven by external motivation.

3 Methodology

The methodology adopted entailed the selection of several cases in connection with an evaluation of literature. In particular, we chose one case for each organizational structure for service provision as provided by Grossi and Reichard (2008) discussed above. The cases were selected because they addressed emblematic situations of FS mismanagement that compromise in the long-term FS due to the lack of specific accounting tools and techniques. The aim of the research is to draw some useful conclusions from illustrative cases which can suggest some important issues in controlling FS. Indeed, if the information obtained from the research can lead to some concepts that "resonate" with municipality managers, as we believe will be the case, then the conclusions have validity for improving FS control in a wide variety of municipalities.

Data were collected through on-line, publicly available resources. More specifically, financial statements for the year 2014, with all related documents, have been collected, and information about the

Table1 Governance models and structure for service provision

Models		Procedural governance (PG)	Corporate governance (CG)	Market governance (MG)		Network governance (NG)	
Features of governance models Considine 2001	Source of rationality	Law	Management	Competition		Relationships	
	Form of control	Rules	Plans	Contracts		Co-production	
	Primary virtue	Reliability	Goal-driven	Cost-driven		Flexibility	
	Service delivery focus	Universal treatments	Targets	Prices		Brokerage	
Structures for service provision Grossi and Reichard (2008)	Kind of structures for service provision	LG's direct service provision	Corporatization	Contracting out	Devolution	Public–public collaboration (PPC)	Public–private partnership (PPP)
	Entities involved in service provision	Internal: LG	Internal and external: LG and corporation (direct corporatization), eventually through other jurisdictions (indirect corporatization)	External: Private company	External: Nonprofit organization	Internal and external: LG and other public entities	Internal and external: LG and private partners

Source Elaborated from Considine (2001) and Grossi and Reichard (2008)

organizational structure, contracts, and partnership have been taken into account. Moreover, to better understand the dynamics underpinning the relationship with the different partners, for the same year the minutes of the city council meeting have been examined.

The five cases cover corporate, market, and network Considine's governance models, organized into Grossi and Reichard's division in corporatization (for corporate governance model), contracting out and devolution (for market governance model), and public–public partnership and public–private partnership (for NG model). We do not investigate cases about procedural governance (direct provision in Grossi and Reichard's terms), because in that model the structure of service provision, the FS problem, as well as the accounting tools and techniques used, depend on the LG itself and not on other subjects. In the PG model, the issue of controlling FS is a matter of internal control accounting tools and technique "package" (Malmi and Brown 2008) widely discussed in the literature.

The attention has been focused on Italian municipalities as in Italy there is a need to reframe the LG control systems to ensure FS, which has worsened considerably in the last years. In the early 1990s, the pressures stemming from public deficit and debt (large as annual GDP), the NPM ideas and the EU reform of structural funds, helped introduce new ideas about financial management, planning, and evaluation (Bouckaert and Pollitt 2005, pp. 264–269). With the reform process, municipalities were given greater financial and organizational autonomy, ensured by allowing municipalities to self-regulate within specific national rules and principles. One consequence of this organizational autonomy and the parallel impulse towards "liberalization" and "privatization" caused the increasing proliferation of outsourcing and the birth of new autonomous public organizations under the form of agencies, corporations, and authorities owned in majority or in total by LGs.

This latter pervasive phenomenon gave rise to the shift from direct service provision to direct and indirect corporatization, contracting out, devolution to nonprofit, public–public collaboration, and public–private partnerships. A recent study made by the Italian Audit Court (Corte dei Conti 2015) on the situation of corporations and companies, another kind of public–private partnership reveals that these kinds of

organizations have reached approximately 5000 units, totaling €6915 billion of current expenditures.

4 The Governance Setting Cases

The accounting tools and techniques for the governing of FS adopted in the five cases do not fit with Considine's governance models of service delivery. Instead, the municipalities considered in the present study adopted accounting tools and techniques that fit well with an idea of direct service provision or a PG model. Each case offers an example of different service provision settings where financial problems could have been better controlled if specific accounting tools and techniques had been implemented. The following cases help us to identify the broad accounting tools and techniques needed for each service delivery setting.

4.1 Municipality A: A Corporate Governance Case

Municipality A owned the totality of the shares of seven agencies through one wholly owned corporation, which acts as a holding corporation. These seven agencies are separate jurisdictions and are involved in several projects for new infrastructures for the town; each is devoted to specific areas and aims: exhibition center development, housing, university buildings and services, new subway, central station renewal, development of industrial areas, and arts and crafts centers. While these agencies were created to avoid limits on financial outflows established by the central government under the "internal stability pact" rules (Ministero dell'Economia e delle Finanze 2009), the holding corporation was created in 2009 with the specific aim to improve the financial management of the municipality's seven different corporations. The holding company prepares its own consolidated financial report but the municipality does not, so the net financial results of this sub-group of agencies are known but the financial situation of the overall municipal group is not.

Since its inception, the holding corporation was considered by the minority of the municipal council as a place where decisions were made without political debate and with an increasing opacity in terms of financial management. Only investments with a value of more than 500,000 Euros required a specific authorization by the municipality. In 2010, Standard & Poor provided its first rating assessment of the holding corporation. Even though debts were very high (the long-term debt/asset ratio was about 1), it received a moderately good rating assessment (BBB). This was mainly caused by letters of patronage that the municipality signed to guarantee creditors, so it was considered quite likely that the municipality would have supported the sub-group in case of financial difficulties.

During 2011, financial difficulties caused by increased debt worsened the financial status of the seven corporations, especially for two of them. First, the one responsible for the central station renewal, which was subject to a foreclosure for unpaid bills. Second, the agency responsible for the development of industrial areas and arts and crafts centers, which went through a negotiation with creditors. This compromised financial situation required the municipality to find resources, worsening its own FS, which had always been on an average level when compared to other municipalities of the same size. Consequently, on one hand, the municipality worsens its global financial situation, and on the other hand, it hampered its ability to fulfill its infrastructure-related goals.

4.2 Municipality B: A Contracting Out Case

Municipality B outsourced revenue management to a private firm. The activity outsourced is a pivotal municipal function of several towns and cities, especially in view of the need to increase the FS through the improvement of tax assessment, tax verification, and the effective management of other municipal revenues.

While the vendors' market is subject to a strict regulatory framework, there is no explicit specification about the pricing method for the revenue management activity. Italian municipalities are encouraged by the system of rules and by their accounting system to increase the amount

of receivables instead of the amount of cash inflows. In fact, budgetary accounting aims to balance, under the commitment-based logic, revenues and expenditures accounted when the obligations occur, instead of balancing cash inflows and outflows. Furthermore, the "internal stability pact" pushes municipalities to increase receivables, which may take some time to turn into cash inflows. This may have persuaded Municipality B to provide a pricing mechanism in the contract where the price it agreed to pay, and thus translated to cash outflows, was a percentage of the amount of receivables levied instead of cash inflows received. While this incentive system may have persuaded the vendor to improve its activity of municipal tax and fees verification, and thus to improve some of the financial indicators, this mechanism could be extremely risky in terms of long-term balancing of cash flows. Municipality B had a very high percentage of receivables not collected (within the lowest 0.15 percentile of municipalities of the same size). Therefore, it is very likely that the vendor would emphasize the increase of receivables, and place minimal attention on collecting activities. This would turn into two negative effects: the increase of financial outflows for the payment of the vendor, not covered by financial inflows; and the increase of expenditures that is possible by the increase of receivables, but without cash coverage. The municipality would have then the possibility to terminate the contract to limit negative effects, penalty for unilateral withdrawal included.

4.3 Municipal Consortium C: A Devolution Case

Municipal Consortium C is aimed at providing social services to its local communities, three nearby municipalities. It has been in operation since 1997.

In 2010, in conjunction with the need to make a general and thorough audit for the transformation of the legal status of the consortium following the new regional rules, the newly appointed audit body found out off-balance outlays and other accounting errors and misrepresentations for a total amount of nearly 9 million Euros. A board of inquiry was appointed by the municipal council of the majority shareholder (52%) to further clarify the work done by the new audit body, and to understand

the reasons underlying the deficit. It turned out that there were several issues not captured by audit reports, like unsupported account receivables, off-balance outlays, and payables shifting from one year to the next.

The most important part of this multi-million deficit resulted from off-balance outlays. According to the audit reports, this is due by several "open agreements" with nonprofit organizations providing more than 90% of the services (e.g., elderly care, in-home assistance, retirement homes, afterschool care for handicapped) on behalf of the consortium through contracts. The nonprofits had delivered the services properly but had not controlled costs and prevented expenditure overruns. In this setting, all nonprofit organizations had provided the services to users, at the same time had accumulated credits with the consortium. Even with periodical coverage of expenditure overruns, the result was not fully satisfactory. This constant overspending resulted in severe off-balance outlays for two reasons: (1) the increase of social expenditure due to financial crisis and (2) the related difficulty of the governments belonging to the consortiums to allocate further resources to finance the deficits.

4.4 Municipality D: A Public–Public Collaboration Case

Municipality D is one of the towns that managed social services through the Municipal Consortium C above. Municipality D had a share of 1% in this consortium, which gave it the least decision-making influence and no power to appoint any audit body member.

The board of inquiry (see Municipal Consortium C) found out that roughly 78% of the deficit was due by activities for which the majority shareholder's citizens were the beneficiaries. For this reason, while some council's members of the minority argued that 52%—the shareholding rate—was the right rate, 78% of the deficit has been taken on by the majority shareholder. For Municipality D, this unexpected deficit was fixed to a total of 45,000 Euros (0.5% of total deficit) in place of the regular rule of deficit covering based on the amount of shares owned, i.e., 1% or 90,000.

4.5 Municipal Consortium E: A Public–Private Partnership Case

The Municipal Consortium E represents a case where a "complex" public–private partnership occurred. It promoted, in conjunction with another nearby municipality, a new infrastructure project with the involvement of a private corporation.

The project was a 4-km tunnel designed to connect quickly and safely two towns separated by a mountain, but belonging to the same industrial district, and thus having several commuters and commercial relationships. The idea to build the tunnel originated in the late nineteenth century by local public officials. It finally became a project in 1988, and in 1989 a consortium between the two towns was created. This consortium used the project financing setting to build and operate the tunnel through a private contractor who was selected through a competitive bidding. According to the project financing contract, the winner of the competition would have had been required to build and operate the tunnel for 35 years and the right to collect user fees during the same time. The aim of such behavior was not to spend public money, other than what was already spent for the project and administrative expenses for the consortium. Therefore, the budgets of the two municipalities would have been untouched.

While the first plan demonstrated the financial feasibility of the arrangement, it subsequently turned out that the tunnel was not a profitable business for the contractor. The increasing construction costs, from an initial €53 million to €82 million (55%), and the overly optimistic assessment of users' willingness to pay fees were at the basis of the failure. The contractor resigned and left the business after only 9 years (instead of 35) of operation, asking the consortium to pay an amount of €17 million. This amount was paid in 2007 by a new consortium among the two municipalities and the provincial government. Only a political agreement between the two municipal governments and the province avoided requiring the two municipalities to pay for their failures of not having correctly computed the financial inflows and outflows. In 2008, the consortium was transformed into a wholly owned provincial corporation.

5 Dealing with Coordination, Cooperation, or Conflict?

From the consideration of the five governance settings settled above, it is possible to identify three main problems, a *coordination* problem in corporation settings, a *conflict* problem in market settings (contracting out and devolution) and a *cooperation* problem in network settings (public–public collaboration and public–private partnership). In this section, these three main problems are discussed, identifying the key factors that cause each of them. Then, starting from the evidence given by the five settings analyzed, some accounting mechanisms that would support FS are identified.

5.1 The Coordination Problem in Corporate Governance Settings

In the corporate governance setting, a coordination problem arises. It depends on the distribution of power and competencies, the structure of decision making (internal control), and the kind of relationships that each corporation establishes with other entities operating in the same environment (external control) (Grossi and Reichard 2008). Organizational theory suggests that several variables may influence the coordination problems, all of which are related to component complexity, due to the number of parties involved in the relationship, the number of activities carried out, and the level of interconnection among them (Grandori 1997; Ditillo 2004). When the number of transactions to coordinate becomes high, the control mechanisms are affected. This is because a high level of transactions requires that the information exchange is codified and formalized, and that the tasks are regulated by rules and procedures to ensure timing and interfaces among the respective entities (Grandori 1997). Another variable is related to the cognitional complexity which is a situation in which contributions (input) and outcome (outputs) are unmeasurable or unobservable. The control of this relationship must be based on social peer-based mechanisms, rather than on rules (Grandori 1997).

FS problems occurred in Municipality A (the corporate governance case) because of a lack of knowledge about the impacts on the overall municipal group's financial situation of the decisions made within a sub-group of municipal corporations and agencies. While the information about the substantial financial difficulties of the sub-group was evident from reading the Standard & Poor's reports, the lack of an overall financial (consolidated) report hindered the municipality council to fully understand the magnitude of the problem.

5.2 The Conflict Problem in Market Governance Settings

The conflict problem between profitability (in the case of for-profit organizations) or specific-related goals (in the case of nonprofits) of the external entity and the social goals of the LG arises under two perspectives. The first is the legal issues in the phase of preparing an appropriate contract, and the second is the measurement and reporting issues associated with monitoring the vendor's performance (Osborne and Gaebler 1992). The latter is not only a systematic procedure to monitor the performance of the contractor and compare it to that specified in the contract, but should also consider the possibility that some vendors engage in quality shading, attempting to save costs. Authors have highlighted that, due to a wide variety of arrangements, it is not possible to develop a single model that will serve all of a municipality's relations with its vendors equally well (Kettl 1993). Indeed, a municipality needs a risk assessment, which has three dimensions, citizen sensitivity, supplier market, and switching costs, the combination of which dictates an appropriate governance strategy (Padovani and Young 2008).

From the financial perspective, the conflict problem between the municipality and the third party is regulated by the contract and by other site mechanisms, such as meetings and joint commissions to agree on the amount of contractual penalties (Padovani and Young 2008). The price the municipality agrees to pay to the vendor might be predetermined in several ways. There are two basic situations (although a mix of the two is also possible): (a) a fixed amount to be paid for a specific

interval (e.g., one year of service delivery), or (b) a variable amount depending on the volume of service purchased from the vendor. Both possibilities have advantages and disadvantages. In a fixed-amount contract setting, the municipality pays but it needs to make sure that an appropriate volume of service is provided. In a variable-amount contract setting, the municipality pays only for the service received on a per-unit basis but it needs to keep under control of the total volume of service to avoid expenditures overruns (Padovani and Young 2011).

It is evident that two key accounting tools and techniques are needed for market governance settings. On one hand, cost behavior (fixed versus variable) may be useful to control the municipal financial situation in relation to variations in volume of service. On the other, performance measurement basics in the public sector may be useful to drive the selection of those performance indicators that best fit the performance-related payments to external providers.

In both the contracting out and devolution cases described (Municipality B and Municipal Consortium C), there was mismanagement concerning either the decision of the unit of volume used (contracting out case) or the lack of control of cost increases due to output units used by the contract to compute the contractual amount (devolution case). This hampered the municipality's ability to control the financial outcomes of these arrangements.

5.3 The Cooperation Problem in Network Governance Settings

The cooperation problem differs from coordination one since the entities involved in a corporate governance setting have the same goals as opposed to different goals in the network setting. The principal–agent theory suggests that the various autonomous entities may have incentives to cheat and free-ride in order to attain their own specific goals at the expense of the objective of the collective undertaking. There thus is a need for mechanisms to align their objectives, and the partners need to safeguard themselves against the others' opportunistic behavior. Consequently, the interdependencies resulting from this kind of

interaction require some form of harmonization, and the resulting joint action should be aligned across organizational boundaries to guarantee a match between partners' interface (Caglio and Ditillo 2008).

This cooperation problem depends and increases with growing asset specificity, uncertainty (level of trust, type of network, and level of interdependencies), and frequency of exchange (Williamson 1985; Park and Russo 1996; Zenger and Hesterly 1997). The organizational theory perspective suggests that the variables that play a role in controlling cooperation problems are referred to influence the level of interdependencies among entities (Tomkins 2001), and the type of network (Kajuter and Kulmala 2005). On the other hand, the management accounting literature has drawn on these theoretical domains to deal with the roles that control mechanisms can play in achieving cooperation (Dekker 2004; Cooper and Slagmulder 2004), focusing on control solutions. Dekker (2004) highlights some variables that are key in explaining control configurations. For example, in high asset specificity, the steam of control suggests the use of alternate models of control. They are based on trust (Langfield-Smith and Smith 2003), or on the use of formal behavioral and output control only mediated by trust (Dekker 2004). On accounting and cost controls perspectives, there is a focus on the use of inter-organizational accounting techniques, and the consideration of trust as a contextual factor of the relational environment (Cooper and Slagmulder 2004).

With reference to the use of management accounting practices, a common topic is the need of "accounting openness" between the parties. This translates into the use of open-book accounting practices in supplier–buyer relationships that demand transparency on cost information, including data that would traditionally be considered proprietary (Lamming 1993). Others suggest the use of target costing principles (Carr and Ng 1995) which again raises the idea of open-book of accounting. Nonetheless, existing evidence of the use of open-book accounting is rather sparse, and little is known on how to make it work (Kajuter and Kulmala 2005). Lastly, it should be considered that, paradoxically, openness could conceal opportunistic behaviors, and this might lead to the related issue of the need to standardize inter-firm cost accounting systems or at least to audit them (Kulmala 2002).

The two cases on network governance (Municipality D and Municipal Consortium E) present circumstances where the availability of financial and nonfinancial information (i.e., volume of service delivered, under the open-book accounting principle during the operation of the services) would have prevented or at least minimized the negative financial effects. In the public–public collaboration, the number of hours of service provided to users by the three different communities would have clearly identified that one municipality (the majority shareholder) was paying less for the services received than its counterparts. In the public–private partnership, the cost for infrastructure building, operation costs, and revenues information through open accounting practices would have improved the knowledge of the financial situation faced by the two municipal governments so they could address the financial unbalance problem before the contractor resigned. Thus would have given them the opportunity to anticipate the strategic decisions then made by the consortium.

Table 2 provides a synopsis of the accounting tools and techniques that would fit with each specific governance model.

6 Conclusion

FS assessment and control is a crucial topic for LGs. So far, while delivery settings have changed rapidly in several economies in the last few years, research has given limited importance to the accounting tools and techniques needed to keep FS under control in more complex service delivery situations than in direct provision. Previous literature has discussed FS measurement systems in local governments as an all-compassing tool. Instead, the analysis of the cases above stresses the idea that measuring and controlling FS cannot be done in the same way regardless of the governance setting. In other words, the traditional internal control package of accounting tools and techniques (budget, financial measurement systems, nonfinancial measurement systems, hybrid measurement systems) is not enough when the prevailing model of governance differs from direct provision. Out of the traditional set of financial indicators, which have been emphasized in literature, municipal

Table 2 Different accounting tools and techniques for different governance models

	Procedural governance (PG)	Corporate governance (CG)	Market governance (MG)	Network governance (NG)
Financial sustainability type of governance	Internal Control	Coordination	Conflict	Cooperation
Kind of structures for service provision	LG's direct service provision	Corporatization	Contracting out, Devolution	Public–public collaboration (PPC), Public–private partnership (PPP)
Accounting tools	Internal Control Package: Budget, Financial Measurement Systems, Nonfinancial Measurement Systems, Hybrid Measurement Systems	Consolidated Financial Statements	Management Accounting (Sensitivity analysis, Cost behavior) and Performance Measurement	Open-book of Accounting, extended to Nonfinancial Information (input, processes, output)

governments need to assess their FS based on different accounting tools. The accounting tools depend on the type of governance model used in service delivery: consolidated financial statements are needed to foster coordination among the different accounting systems in corporate governance models, so as to give an overall, coordinated view of the FS. Sensitivity analysis, cost behavior analysis, and performance measurement fit with the necessity to manage the potential conflict of interests in market governance settings. Open-book accounting extended to non-financial information is crucial in network governance service delivery since it supports cooperation among the network's members.

The main contribution of the present study is to show the extent to which FS control is not a one-size-fits-all exercise as it has been done so far by several central governments when requiring compulsory FS control tools and fiscal distress determination from their LGs in order to assess their FS. Instead, it requires a thorough examination of the prevailing governance model adopted so as to use the most suitable set of accounting instruments. Consequently, LG managers need to identify the directions in which investments in accounting information improvements must be made, in order to be attuned to the governance model in use for service delivery. This conclusion can be beneficial also for legislators, especially in those countries—like Italy—where "regulative forces play a fundamental role in shaping public sector organizations' structures, systems and behaviors" (Liguori and Steccolini 2011, p. 34). Accounting changes take place progressively and need to be consistent with the governance model adopted by each local government and be supportive for achieving FS condition.

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6

Enabling Financial Sustainability Through Integrated Reporting

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1 Sustainability—A Tool Connected with Integrated Reporting: Theoretical Framework

New Public Management offers a significant paradigm change in how the public sector is to be governed (Lane 2000), in performance conditions. Applying performance measurement practices in the public sector is required by the complexity of the public sector environment and its

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M.P. Rodríguez Bolívar (ed.), *Financial Sustainability in Public Administration*,
DOI 10.1007/978-3-319-57962-7_6

latest development (e.g., Bevir et al. 2003; Herawaty and Hoque 2007). Since the gap between resources and needs is continuously widening, there is a clear need to improve performance in scope to remain viable in today's competitive and global operating environment (Appleby 2013). Moreover, in this context, there is more emphasis on the issue of the public sector sustainability. The term "sustainability" is perceived as "*the development that meets the needs of the present without compromising the ability of future generations to meet their own needs*" (World Commission on Environment and Development 1987: 8).

The reporting research and practice has evolved to meet the before mentioned needs over time, from traditional financial reporting complemented by additional social, environmental, sustainability information, or separate reports, in a joint report often published alongside traditional financial reports (Hahn and Kühnen 2013).

This evolution justifies the tendency towards multidimensional reporting currently generating the development of integrated reporting concept, which incorporates sustainability information together with traditional financial information in a single report (KPMG 2011).

In this context, integrated reporting promises to address some of the concerns about previous reporting innovations. Thus, it can provide an overview of a company's strategy and performance, revealing the relationships between financial and non-financial performance. It can also deliver external market benefits by satisfying stakeholders' expectations and enhancing the company's reputation and brand, and it can help manage regulatory risks (Eccles and Armbrester 2011). Consequently, most of these outcomes are similar to the benefits and incentives associated with environmental reporting, corporate social responsibility reporting, and sustainability reporting (Solomon and Lewis 2002).

Analyzing the current state of literature, we can notice that three dimensions are dedicated to sustainability and integrated reporting (also known as The Triple Bottom Line): ecological (environmental), social (equity), and financial (economic)—which must be simultaneously settled (Savitz and Weber 2006; Kolk and Pinkse 2010). However, most of the economic literature appears to accept that governments either disregards or underestimates the efforts to take account of the distributive aspects of macroeconomic policy across generations (Kotlikoff and

Burns 2004). In this context, financial sustainability refers to the ability to maintain financial capacity over time (Bowman 2011).

The public sector financial sustainability encompasses capacity to keep some degree in evolution (e.g., economic growth), namely to stabilize it and protect against the influence of various factors (e.g., sustainable professional practices) (OAG 2013).

The sustainability prerequisite has gained a lot of traction in new reporting trends and is embedded, in various forms, in the core structure of these reports. We bring into analysis the latest of new and restructured systems, respectively integrated reporting (<IR>) (Eccles and Saltzman 2011; Krzus 2011; Cheng et al. 2014). As defined by the Conceptual Framework (in paragraph 1.1), "*an integrated report is a concise communication about how an organization's strategy, governance*, performance and prospects, in the context of its external environment, lead to the creation of value over the short, medium and long term" (IIRC 2013: p. 7). In other words, integrated reporting is seen as an opportunity for the summation of (reporting) parts to be included in a holistic construct, disclosing information about the *web of interactions and implications of financial, social, environmental, and governance-related organizational activities for stakeholders* (Abeysekera 2013).

Through the efforts of the International Integrated Reporting Council (IIRC)—as the primary governing body—and other organizations, integrated reporting aims to become an efficient instrument that contributes to the development of better organizational strategies, the improvement of internal processes, the enhancement of disclosure levels, and even a better management of capitals (in order to maximize benefits). This idea is embedded in the long-term vision of the Integrated Reporting Framework itself, as the governing body considers "*that the cycle of integrated thinking and reporting, resulting in efficient and productive capital allocation, will act as a force for financial stability and sustainability*" (IIRC 2013: p. 2).

The integrated reporting framework will aim to bring together the disparate disclosure requirements of regulators, markets, and civil society into a coherent, unified whole, thereby seeking to reduce the reporting burden (GRI 2012). Moreover, not only does it incorporates traditional financial reporting, but it also emphasizes the

interdependencies between strategy, governance, and social/environmental performance.

The entire model of integrated reporting is based on two fundamental concepts: a six-tier capital structure (financial, manufactured, human, intellectual, social relationship, and natural) and the process of value creation. Nevertheless, the entire construct is based on the 'triple bottom line' (social, environmental, and economic elements) (Elkington 1997) and all the information disclosed reveal the dynamics that take place on each of the layers. The main difference is that there is an even more detailed breakdown of the layers. Moreover, the sustainability attribute is embedded in integrated reporting through the "strategic focus and future orientation" principle. This offers the prerequisite of developing sustainable planning for the reporting entity (regarding public spending drivers) and emphasizing the (expected) impact on each of the capitals (which, as we previously emphasized, represent an extension of the pillars of sustainability).

Throughout the study, we emphasize the correlation between the academic and professional organizations' approaches, looking through the lens of both interest groups. This research creates added value to the international literature and practice by outlining a conceptual model in which establishing financial sustainability is viewed as a dynamic and continual process (Sontag-Padilla et al. 2012), with an element of novelty to the approach based on integrated reporting.

Our aim is to conduct a breakdown of the two sets of conceptual models (financial sustainability versus integrated reporting) and to overlap the constituent elements, pinpointing the instances of sustainability which are subject to matches in delineations between the models.

To achieve this outcome, we employ content analysis on a series of official documents (frameworks; reporting guidelines; background papers issued by professional organizations) and synthesize the core constituent elements of the two sets of models (by replicating an existing and accepted structure).

Our study shows a touch of originality through the approach on the relationship between financial sustainability and integrated reporting. Theoretically, in connection with the official documents issued by regulators, we filter the acquired information through the academic

literature, thus offering a valuable scientific attribute to the pragmatic approach. Afterward, the overlapping between the two conceptual models (financial sustainability versus integrated reporting) implies a strong professional judgment, which can be validated through the pros and cons synthesized from the literature. Our main findings show that there are indeed elements of financial sustainability which are embedded—through various forms and links—in the integrated reporting model.

First of all, we present the research design (Sect. 2) of our theoretical investigation mainly based on content and benchmarking analyses of sampled regulatory documents (e.g., frameworks and guidelines). Afterward, we briefly present the two conceptual models: financial sustainability versus integrated reporting (Sect. 3). We then overlap the constituent elements of these models to emphasize the instances of financial sustainability which are taken into account by (and can be tracked through) the integrated reporting system (Sect. 4). Ultimately, we provide our conclusions and limitations.

2 Research Design

Aiming to achieve our goal, we use research methodologies, such as literature reviews, content, and benchmarking analyses on a series of official documents, to break down the two conceptual models (financial sustainability and integrated reporting) and to overlap their constituent elements, thus allowing us to emphasize conceptual similarities and delineation matches between instances of financial sustainability and integrated reporting. Thus, the content analysis method (Krippendorff 2004) used in this research is a conceptual analysis, which involves choosing certain concepts for examination and then quantifying and tallying their presence in the selected texts.

Traditionally, content analysis has been used in prior literature to assess the extent of disclosure of various items in annual reports (Beattie et al. 2004; Dumay and Cai 2014). However, in recent times, several initiatives were coming for both researchers (Yongvanich and Guthrie 2006; Adams and Guthrie 2005) and professional bodies (ICAEW 2004) that tried to review and compare various frameworks such as

those of measurement and reporting in performance management, environmental, or social accounting.

Prior studies conducted on the sustainability research topic (Beck et al. 2010; Parker 2005) applied to a large degree the mechanistic stream called "form oriented" content analysis, based on a word count approach (Steenkamp and Northcott 2007). In contrast, our study used the interpretative side of the method—the "meaning-oriented" one, aiming to gain a greater understanding of the frameworks and guidelines analyzed (Smith and Taffler 2000). Thus, by choosing this approach, we added value to the research literature by being more concerned with quality and richness of texts' interpretation and their underlying themes, rather than attempting to focus on volumetric or frequency capture involving routine counting of words.

Therefore, the research strategy applied in this study is a theoretical investigation, based on a content analysis as a primary research tool involving the use of certain concepts applied to various documents on the topic of inquiry (sustainability frameworks). It also encompasses as much as possible of the existing <IR> framework for getting "*the panoramic view of the landscape*" (Denscombe 2003). This is an often-employed research design in the literature and the most appropriate strategy to meet the purpose of this study. Accordingly, for analyzing the frameworks and guidelines selected by investigating if certain concepts are present within them, we followed Miles and Huberman's (1994) framework by noting various patterns and themes within their content, dawning links with prior literature and identifying notable contributions to existing knowledge.

Thus, we conduct a review of the main conceptual models of financial sustainability and identified the key dimensions and delineations. Afterward, we select the most comprehensive models (IPSASB's reporting on the long-term sustainability of an entity's finances and OAG's public sector financial sustainability model). This selection is based on how well their pillars encompass the core essence of financial sustainability, as well as the purpose of the issuing organization (whether professional accounting organization or standard setter).

We synthesize these models into an overlapping matrix, where we placed the pillars from each selected model on the header, and the

principles, fundamental concepts, and content elements of integrated reporting on the side, and we perform a detailed benchmarking analysis. Ultimately, we take each delineation and outline a pattern (through specific markers, while analyzing the phrasing for each delineation) on the financial sustainability models versus the <IR> construct and provided explanations for each conceptual match.

To increase the effectiveness of the content analysis performed, we intend to comply with certain technical requirements (Guthrie et al. 2004; Guthrie and Abeysekera 2006) by explicitly defining the unit of analysis and systematically capturing data, an item either belonging or not belong to a particular category. Moreover, to ensure the reliability and validity of the content analysis performed, we do not only establish a coding instrument with well-specified units of study, but we also use multiple coders to minimize any discrepancies between them, assuring the trustworthiness of the coded dataset.

3 Conceptual Models for Financial Sustainability and Integrated Reporting

Regarding financial sustainability or integrated reporting, the dynamic of research was intensified by theoretical or empirical approaches published in valuable studies, but in particular by the growing interest of professional bodies or organizations in designing models design to maximize impact with limited resources (Renz et al. 2010).

This latter aspect has raised a significant number of reporting models for financial sustainability, drawn up by the professional bodies or national/international organizations, applicable on different units. For an overview, we synthesized the most important documents (as we can observe in Table 1).

International, regional, and national organizations are interested in the sustainability of public finance from different points of view and created different guidelines for reporting, tools to monitor and for analysis, as well as indicators. Within this first tier of financial sustainability guidelines, we can observe different views from organizations, with

Table 1 Financial sustainability reporting models (selection)

Professional bodies/Organization	Model
Level—International, regional, and national organizations	
European Commission (EC)	Long-term sustainability of public finances in the European Union (2006)
World Bank (WBG)	The Fiscal Sustainability Analysis and Fiscal Sustainability Tool (2006)
European Commission (EC)	Specifications on the implementation of the Stability and Growth Pact and Guidelines on the format and content of Stability and Convergence Programs (2012)
International Public Sector Accounting Standards Board (IPSASB)	Reporting on the Long-term Sustainability of an Entity's Finances (2013)
Organization for Economic Co-operation and Development (OECD)	Fiscal sustainability (2013)
European Commission (EC)	Fiscal sustainability report (2015)
Local Government Association of South Australia (LGASA)	Financial Sustainability (2015)
International Monetary Fund (IMF)	Fiscal Monitor (2009)
Level—General auditor's office	
Office of the Auditor-General, New Zeeland (OAG)	Public sector financial sustainability (2013)
Auditor-General of British Columbia	Monitoring fiscal sustainability (2015)
Level—Governments	
Germany, Ministry of Finance	Report on Sustainability of Public Finance (2014)
Office for Budget Responsibility, United Kingdom	Fiscal sustainability report (2015)
Office of The Parliamentary Budget Officer, Ottawa, Canada	Fiscal Sustainability Report (2015)
Congressional Budget Office, US	The long-term budget (2015)
Public Finances in Switzerland Federal Department of Finance	Long-term Sustainability (2016)

Source authors' own projection

various structures of the conceptual model. For instance, the European Commission proposes a three-pillar financial sustainability model, consisting of policy strategy, long-term budgetary prospects including the implications of aging populations, and contingent liabilities.

On the other hand, the OECD chooses to focus on a country-oriented model and—although it does not specifically delineate a pillar-based model—it proposes a fiscal sustainability model where the paramount elements are "*governments' engagement in continual strategic forecasting of future revenues and liabilities, environmental factors and socio-economic trends in order to adapt financial planning accordingly*" (OECD 2013), as well as debt management within accepted limits. Another model based mainly on monitoring and measurement is the one proposed by the IMF, which consists of indicators of public debt and deficits and medium-term fiscal projections (which are encompassed on a country-oriented framework). In a similar manner, the working papers and documents published by the World Bank focus on indicators, but with a much more extensive presentation from a methodological point of view (regarding calculations and indicators' formulas).

The third tier of financial sustainability guidelines are rather country-specific (being issued by governmental institutions) and are focused mostly on national strategies and policies. These financial sustainability models usually have long timeframes and take into consideration the demographic dynamics. After all, many countries have published reports presenting the sustainability of fiscal policies and finances based on long-run projections of a country's or an entity's public finances. Their reports disclose the "*government's capacity to finance its activities and debt obligations in the future without imposing an unfair burden on future generations*" (OAG 2013). A specific interest in fiscal/financial sustainability of public finance is manifested by supreme audit institutions, especially in countries where a legislation concerning the mandatory status of this reports exists.

For our aim, we eliminate from this group not only structures related to measurement (based on numeric and percentage indicators) and analysis tools, but also items related to reports about sustainability at country level. Thus, we restrain our research only the most comprehensive models (which can be applied to all types of public sector entities, at all levels), connected directly to the concept of sustainability/financial sustainability in the public sector. Therefore, according to our objective, we focus our study on two models, respectively: OAG (2013) and IPSASB (2013). We choose these two models to have an intake

on public sector financial sustainability from both the standard setters (IPSAS Board)—the ones who issue guidelines, as well as the professional organizations' view (the Office of Auditor-General in NZ)—the ones who enact and monitor the compliance with these guidelines.

This approach, performed on an international level, based on the combination of views between a professional body and an independent standard-setting board focuses exclusively on the characteristics of the public sector and captures very well the directions of sustainability concept.

We briefly present, in this respect, the two models of sustainability along Integrated Reporting Framework, which are benchmarks for our study (OAG 2013; IPSASB 2013; IIRC 2013)

Public sector financial sustainability—discussion paper issued in 2013 by Office of the Auditor-General, NZ, and presented to the House of Representatives. (***OAG Model***)

The OAG research (2013) identifies the main elements of public sector financial sustainability as liquidity, resilience, service and fiscal responsibility, and the capacity to maintain public confidence (OAG 2013). The same document supports our opinion that public sector financial sustainability is an often-used term that is synonymous with fiscal sustainability. This is the reason why we use in this paper the term financial instead of fiscal, concerning the public sector. Basing on the premises that public sector financial sustainability means much more than "spending less than you earn" (OAG 2013), special attention should be paid to the relationship between social, environmental, and economic drivers of public expenditure, and the connections between them (OECD 2010; OAG 2013). The main coordinates of public sector financial sustainability in OAG vision are *liquidity, resilience, service and fiscal responsibility, and maintaining public confidence*. While the OAG—as an organization—has been subject to scrutiny (see Neale and Pallot 2001; Newberry 2002), we consider that the piece on financial sustainability developed by this organization encompasses well the elements required for ensuring a public sector organization's long-term financial sustainability (mainly because it refers to monetary capabilities—through liquidity and resilience, as well as the medium and long-term outlook on debt management, commitments and tax collection—through service and fiscal responsibility, as well as public

confidence). Different extensions of this presentation of financial sustainability by the OAG are also embedded or subject to measurement in other models (mostly regarding financial obligations' fulfillment and debt restraints). These pillars are presented in a more detailed manner in the following section.

IPSASB RPG1—Reporting on the Long-Term Sustainability of an Entity's Finances (IPSASB Model)

More recently, in addition to developing accrual IPSASs, the IPSASB has dedicated considerable time to developing Recommended Practice Guidelines (RPGs) that represent good practices that public sector entities are encouraged to follow. RPG 1 provides guidance on reporting on the long-term sustainability of a public sector entity's finances over a specified time horizon following stated assumptions on policy and demographic and economic variables. The main coordinates of long-term sustainability reporting are debt capacity, service capacity, and revenue vulnerability. In this context, long-term fiscal sustainability is considered to be the ability of an entity to meet service delivery and financial commitments both now and in the future.

The Integrated Reporting Framework—A New Holistic Construct in Organizational Reporting **(<IR>** Model**)**

While the two financial sustainability models encompass a conceptual outline that constitutes the prerequisite for stability and prospective planning for the use of finances, the integrated reporting construct is a bit more complex, and it has an actual output: the report itself. This is a key attribute because having an instrument used for encompassing an organization's activity in its entirety (with emphasis on performance and accomplishments, strategic outlook, and degree of fulfillment for each objective) is of paramount importance in assessing whether the organization itself is sustainable over the long term. Hence, integrated reporting represents a tool which is intended for the *improvement of the quality of information available to providers of financial capital to enable a more efficient and productive allocation of capital* (IIRC 2013).

Furthermore, the drafting process of an integrated report is undertaken by a series of principles, encompasses two major fundamental concepts (value creation and the six capitals) and has particular constituent content elements (see Fig. 1).

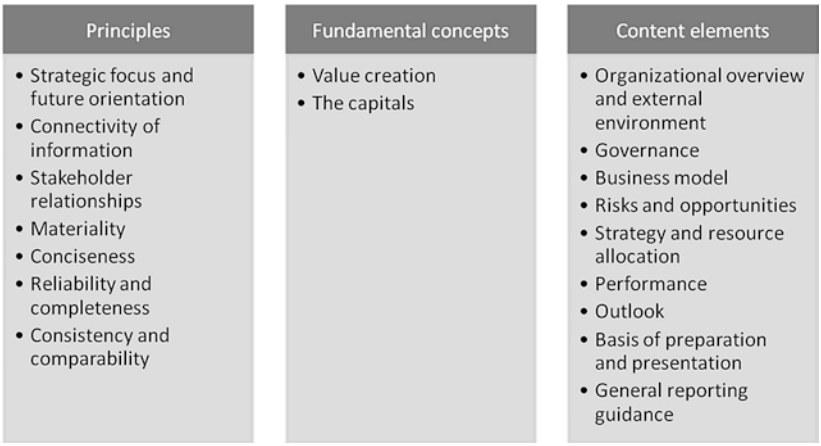

Fig. 1 The conceptual model of integrated reporting

The <IR> principles are the outliers of the entire construct and represent conventional boundaries which give the reporting model its main direction. Besides the fact that it relies on several common reporting principles (such as materiality, reliability, or comparability), the specificity of <IR> is that it is oriented toward the future (through the "*strategic focus and future orientation*" principle), it creates the frame for efficient communication (the "conciseness" principle) and it creates a complex web of interconnections (through the "*connectivity of information*" and "*stakeholder relationships*" principles).

Also, the two fundamental concepts are the core essence and are embedded in most constituent elements. The creation of value over time "*manifests itself in increases, decreases or transformations of the capitals caused by the organization's business activities and outputs,*" whereas the capitals represent the "*actual stocks of value that are subject to increase, decrease or transformations through the activities and outputs of the organization*" (IIRC 2013). The value creation process is perceived as a dynamic presentation of the efficient use of resources and achievement of economic benefits, and it has two dimensions, respectively: value created for the organization itself and value created for stakeholders. In the case of the capitals, this is a rather static representation of the use of resources and achievement of economic benefits, and it has six

dimensions: financial, manufactured, human, intellectual, social relationship, and natural.

Ultimately, the content elements are the most practical constituents of the integrated reporting model. These are (expected to be) found in the actual output and provide distinct elements of disclosure in line with the principles (forward-looking and encompassing a vast range of interactions) and the fundamental concepts (descriptively emphasizing each layer of an organization's activity model, as well as the evolution over time).

4 Overlapping the Models: Crossing the Integrated Reporting Construct Versus the Pillars of Financial Sustainability

Leaving from the assumption that these models have a series of elements in common, we conduct a breakdown on pillars (for the two financial sustainability models) and constituent elements (for the <IR> construct). Consequently, we create an overlapping matrix with the financial sustainability pillars in the header and the <IR> model on the side. By crossing each element of the <IR> model with each pillar of financial sustainability from the header, we attempt to identify whether or not there are occurrences of similarity in delineations. If there is such an occurrence, we place a marker on the matrix and afterward, we provide further insights on each match in delineations.

From the overlapping matrix (see Table 2), we can pinpoint some interesting observations as we can notice that many elements are matched between the financial sustainability model and the <IR> model. Overall, we have 30 matches between components from outlier models, many of them being linked on a conceptual level.

In the case of the OAG financial sustainability model, we can pinpoint matching markers for each one of the four pillars of sustainability. First of all, liquidity (defined by the OAG as *the ability to meet financial obligations when they fall due*) has a resonance in both a fundamental concept (the capitals) and a content element of <IR> (performance).

Table 2 Overlapping matrix between the financial sustainability models and the < **IR**> construct

<IR> Conceptual model		OAG model			IPSASB model			
		Liquidity	Resilience	Service and fiscal responsibility	Maintaining public confidence	Debt capacity	Service capacity	Revenue vulnerability
Guiding principles	Strategic focus and future orientation			(C1)	(D1)	(E1)	(F1)	(G1)
	Connectivity of information							
	Stakeholder relationships				(D2)	(E2)	(F2)	(G2)
	Materiality							
	Conciseness							
	Reliability and completeness							
	Consistency and comparability							
Concepts	Value creation			(C2)			(F3)	
	The capitals	(A1)	(B1)		(D3)		(F4)	(G3)

(continued)

Table 2 (continued)

<IR> Conceptual model		OAG model				IPSASB model		
		Liquidity	Resilience	Service and fiscal responsibility	Maintaining public confidence	Debt capacity	Service capacity	Revenue vulnerability
Content elements	Organizational overview and external environment		(B2)					(G4)
	Governance		(B3)					(G5)
	Business model							
	Risks and opportunities		(B4)					
	Strategy and resource allocation			(C3)		(E3)	(F5)	(G6)
	Performance	(A2)		(C4)	(D4)			
	Outlook			(C5)	(D5)			
	Basis of preparation and presentation							
	General reporting guidance							

Source authors' own projection

An organization which takes into consideration a sound financial capital (or stocks of value) management (emphasized by marker A1) would be in contention to achieve the "financial obligations" goal in a timely manner. This is also a way to empower performance (marker A2) in the case of public sector entities, as they are not necessarily profit-oriented, but pursuing specific targets (mainly materializing the efficient use of resources).

The second pillar of the OAG model—resilience—is delineated as the *financial capacity to withstand shocks, whether internal or external* (OAG 2013). In the same manner as the first pillar, the "financial" trait of this sustainability pillar is linked with the dynamics of the financial capital (revealed by the B1 marker). Also, it shows the way in which the organization can manage the debt and equity to ensure the former mentioned capacity to resist and overcome potentially difficult situations.

Furthermore, the public sector organizations are parts of an economic environment, in a particular context. The impacts (or—in this case—the so-called "shocks") always have a point of origin, whether from inside the organizations or from outside. The integrated reporting system compels the reporting entities to take into consideration and provides information on the circumstances under which they operate (marker B2), thus identifying how these impacts occur. Nevertheless, a fair assessment of this financial capacity is only ensured by having the appropriate governance structure (marker B3), whose responsibility is to prevent disruptions caused by these shocks through careful prevention strategies. This can be addressed by developing a "shock" predictability system through sound risk management strategies (marker B4), which represent a basic content element of <IR>.

The concept of service and fiscal responsibility refers to the process of "*maintaining service, debt, and commitments at reasonable levels relative to both national expectations and likely future income*" (OAG 2013). From this definition, we can observe that this sustainability model places emphasis on prospective information (by referring to "commitments," "expectations," and "future income"). This forward-looking approach places this pillar of sustainability in line with the strategic focus and future orientation principle (marker C1). Also, by assessing the dynamics of the stocks of value (such as service or debt) in time and

in comparison to expectations or targets, the model inherently creates a frame for value preservation ("*maintaining […] at reasonable level*")—as this is a minimal requirement—or even value creation (marker C2).

Regarding <IR> content elements, service and fiscal responsibility should be analyzed through the lens of the strategies of the organizations and the resource allocation process (marker C3). In this respect, the management should take into consideration where the organization wants to go (what are the expectations—from both internal and external points of view) and how does it intend to get there (by what means and how the existing resources should be handled). In this model, performance (marker C4) is also forward-looking, developing a set of target indicators which would serve as a benchmark for organizational effect measurement (with clear reference to "*expectations*" and "*likely future income*"). Furthermore, this enables the organization to have an extensive outlook over a prospective timeframe (marker C5), which is a well-defined view on (potential) future performance and the implications on its organizational model.

Last, but not least, the OAG model considers that public confidence (as "*the ultimate guarantor that enough revenue can be collected to meet tomorrow's obligations*") is of paramount importance. This only consolidates the connection to the <IR> principle of strategic focus and future orientation from the previously presented pillar (marker D1), as it makes reference to how an organization will achieve its future (financial) goals. Inherently, this can only be done by creating a general sentiment of confidence and stakeholder engagement (marker D2).

As public sector entities are prone to develop relationships with a broader range of interested parties, confidence is a major factor in effectively managing all the interactions and reducing the gap between expectations and results. Also, this will lead to an efficient financial capital management (marker D3) in the holistic context of the organization's activity and, implicitly, to future performance (marker D4)—the prerequisite for target achievement ("[…] *meet tomorrow's obligations*"). By referring to prospective performance information as the key strategic elements in financial management and sustainability, the organizational outlook (marker D5) sets the context for successful implementation of

strategies and empowers the organization to continuously improve the way in which it outlines the short, medium, and long-term vision.

The second financial sustainability model (developed by IPSAS Board in 2013) has a rather distinct structure and proposes only three pillars for financial sustainability:

- debt capacity—defined by the IPSAS Board as "*the ability of the entity over the period of the projections to meet its financial commitments as they come due or to raise debt as necessary, based on current policy assumptions for service delivery to recipients and entitlements for beneficiaries, and for raising revenue from taxation and other sources*";
- service capacity—perceived, in IPSAS Board's view, as "*the ability of the entity over the period of the projections to maintain the volume and quality of services provided to recipients and meet obligations related to entitlement programs for beneficiaries, based on current policy assumptions for raising revenue from taxation and other sources, while remaining within debt constraints*";
- revenue vulnerability delineated by the IPSAS Board with two dimensions, respectively: (a) "*the entity's dependency upon funding sources outside its control*" and (b) "*the ability of the entity to vary existing taxation levels or other revenue sources or to introduce new revenue sources, over the period of the projections, to finance current policy assumptions for service delivery to recipients and entitlements for beneficiaries, while remaining within debt constraints*."

From the start, we can notice that all three pillars of sustainability are forward-looking (as they take "projections" into consideration) and are directly linked with the <IR> principle of strategic focus and future orientation (markers E1, F1, and G1). Also, by referring to the main stakeholders, from an outgoing point of view (service recipients and entitlement beneficiaries), all three pillars of the model address the stakeholder engagement principle (markers E2, F2, and G2) and place these interested parties at the core of their organizational strategic focus.

The financial capital management is also a key focus for two of the three pillars (markers F4 and G3) as they emphasize the importance of "*revenue from taxation and other sources*," "*financing current policy*

assumptions" and "*remaining within debt constraints*." Also, service capacity—through the lens of volume and quality of service provided—creates the setting for assessing value preservation or creation (marker F3), in a sustainable manner for the stakeholders. The three pillars also have an emphasized concern for strategy and resource allocation (markers E3, F5, G6), considering that they need (and are entitled) to adjust taxation and financing policies (to modulate revenues and debt levels so that the performance targets are achieved).

On the other side, revenue vulnerability—through its first dimension—links the organization with its external environment (marker G4) regarding (outsourced) financial capital and addressed the fact that the organization is directly dependent to all that takes place in the context of its external environment factors. Otherwise said, this means that through this dependence relationship, the organization is prone to have a more pronounced reaction to anything that affects its providers of financial capital. Also, the capacity to manage and introduce new revenue sources is clearly anchored in the responsibilities of the governance structures (marker G5), enabling them to address any hindrances that might affect performance targets achievement.

Overall, it is natural to assume that the two financial sustainability models have a pronounced focus on the future (to ensure the intergenerational use of financial resources). Moreover, from our overlapping matrix, we reveal that a forward-looking reporting model (such as integrated reporting) has many similarities regarding conceptualization with the pillars of financial sustainability (whether three or four). The model would enable a reshaping process in organizational overview so that its orientation would shift towards prospective information, ensuring the sustainability of its finances.

Our evidence shows that the delineations of financial sustainability from both selected models can be tracked and pinpointed within the principles, fundamental concepts, and content elements of <IR>. This can be observed because each pillar (from both models) has a resonance in at least one constituting element of the integrated reporting model.

Integrated reporting is, first and foremost, a reporting output and a tool for strategic planning. It encompasses many interactions with or between resources (or capitals), including the financial one. By having

pinpointed the resonance of the instances of financial sustainability (or the pillars of each model) in the constituent elements of integrated reporting, we have a good insight on how the former concept is addressed within the latter reporting system. The markers from our study show that financial sustainability is encompassed—in terms of delineation—in various concepts provided by the <IR> framework, which inherently means that <IR>, as a model, takes account of a sustainable development process of an organization's activity from the financial point of view (also keeping in mind the prevalence of the financial capital over the five other tiers).

Ultimately, the report itself—as a strategic planning tool—would allow the reporting organization to monitor its own level of financial sustainability (by addressing the links emphasized by our markers) and address potential challenges in due time (as they are highlighted in advance).

5 Conclusions

This paper comes as a response to the need of confirming the role and impact of forward-looking capital allocation imposed by the <IR> as an instance of financial sustainability. In this regard, it provides an original approach to the relationship between the two concepts, its main contribution being given by the research methodology applied. Thus, we carried out a conceptual investigation of various official documents, combining both content and benchmarking analyses aiming to break down the two conceptual models (financial sustainability versus integrated reporting) and to overlap their constituent elements. We added value to our research by using the interpretative side of the method, the "meaning-oriented" one, thus focusing on the quality and richness of the frameworks analyzed.

Our main findings show that there are 30 occurrences of financial sustainability elements which are embedded in the integrated reporting model (pinpointed within the principles, fundamental concepts, and content elements of <IR>). Inherently, the core delineations of the pillars of financial sustainability from the model we have selected

from the literature are a match—on a conceptual level (either in their original form or through various proxies)—to a high number of constituent elements of the integrated reporting model. This is mainly because the core essence of the models is the forward-looking approach (as integrated reporting is seen, among other thing, as a strategic planning tool) and the orientation of public sector entities towards performance targets. At least one of the two fundamental concepts is also present in almost all conceptualizations of the pillars of financial sustainability (except debt capacity), mainly since the static and dynamic presentation of (financial) capital management and creation of economic benefits enable a sustainable outlook on public sector entities. Ultimately, <IR> could be a tracking tool for the level of financial sustainability and could be a mean to overcome potential challenges regarding the management of financial resources in an organization.

Nevertheless, we face several limitations in our research. First of all, we notice the scarcity of data regarding integrated reports in the public sector (giving the fact that this system is currently under development and the pioneer network is still being set up). Second of all, we confront with a conceptual divergence regarding the conceptualization of "financial sustainability" (because there are multiple definitions and interpretations issued by various professional organizations), ultimately leading to the need for a unifying approach. The main perspective in terms of extending our study from a conceptual (or methodological) approach to a practical application is to analyze the emerging integrated reports issued by the participants to the Integrated Reporting Public Sector Pioneer Network and verify whether the content elements validate our overlapping model postulate.

Acknowledgements This work was supported by a grant of the Romanian National Authority for Scientific Research and Innovation, CNCS—UEFISCDI, project number PN-II-RU-TE-2014-4-0265.

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Part IV

Comparing International Experiences in Managing and Monitoring Financial Sustainability in Governments

7

Financial Sustainability and Public Debt Management in Central Government

Yuri Biondi and Marion Boisseau-Sierra

1 Introduction

This chapter aims to elaborate on the concept of financial sustainability in the specific context of central government. In particular, it explores the link between sovereign debt capacity and financial sustainability in central government, disentangling financial sustainability mechanisms that are specific to the public sector. These mechanisms relate to the connection between public debt management and the monetary base, as well as to general interest missions performed by governments to assure collective obligations and guarantees over time and circumstances. In this context, some evergreen issues may be raised again, such as: Can public debt sustainability be examined on the same basis as private debt sustainability?

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M.P. Rodríguez Bolívar (ed.), *Financial Sustainability in Public Administration*,
DOI 10.1007/978-3-319-57962-7_7

Are sustainability and funding linked? Shall governments fully repay their debt one day? By responding to these questions, our analysis provides an original contribution on debt capacity and financial sustainability of central government. Accordingly, public debt capacity is featured by some specificity that makes it different from private debt. Two illustrative examples of this specific context provided by the public sector are investigated in the following. On the one hand, this context makes financial sustainability of assured obligations disconnected from funding and related reinvestment in financial market returns; on the other hand, it makes public debt generally issued to be refinanced (rolled over) through time.

In recent decades, there has been a trend toward convergence between private and public modes of accounting and finance, including related criteria to examine financial sustainability. Financial sustainability of central government was then allegedly aligned with that of business firms. At the same time, policy-advisors, policy-makers and the media have increasingly stigmatized the level and growth of governmental debt, raising the question of its supervision, its limitation and eventually its reduction, either in absolute terms or relative to the size of the national economy (Biondi 2016c). Accordingly, countries have introduced various ways to supervise financial sustainability of public policies. The United States introduced federal debt level limits, while the European Union introduced debt and deficit supervisory ruling over the Member States.

Our analysis argues that some financial mechanisms that lay at the core of financial sustainability of public administration are specific and pertain to the public sector. This specificity points to (i) public debt management and its refinancing process, which transforms sovereign debt in quasi-money; (ii) the taxing power, and (iii) assurance of collective obligations and guarantees such as unfunded 'pay-as-you-go' pension schemes. This specificity relates to general interest missions performed by government in view to achieve intergenerational solidarity and redistribution purposes.

The rest of the chapter is organized in two sections. The first section addresses recent experiences with financial sustainability supervision, including the debt measurement issue and the introduction of financial reporting based upon balance sheet accounting approach. The second section addresses the public sector specificity that needs to be

considered when public debt capacity and its sustainability are examined, especially the public debt refinancing process and the assurance of pension obligations over time.

2 Governing Financial Sustainability of Central Government: Accounting and Ruling

2.1 The Convergence Trend Between Private and Public Sector

In recent decades, there has been a trend toward convergence between private sector and public sector modes of accounting and finance, including related financial sustainability criteria. This trend was conducive of the same financial market-based view that has been applied to both fiscal supervisory policies in developed countries and sovereign debt restructurations (SDR) in developing countries. This view has been also driving the 'new public management' movement and ongoing reforms of national and international public sector accounting standards (McCulloch and Ball 1992; Stewart 2002; Stewart 1999). This view assumes alleged identities between: private and public debts; management of private and public finances; and accounting and reporting for the respective financial performances and positions. A market basis would then be suitable to understand and regulate both public and private debt capacities.

According to Humphrey et al. (1993), the "appeal of enterprise" constitutes one of the principal features of this recent transnational trend in accounting and governance of public administration (Ellwood 2002, 2003; Broadbent and Laughlin 2003). Private sector accounting and management are then considered to constitute the benchmarking reference for all socio-economic organizations that perform various collective activities. Financial market accountability becomes the key focus for governmental accounting, while private sector financial accounting and reporting are allegedly considered to provide its most appropriate framework for representation and control (Mack and Ryan 2006; GASB 2006).

2.2 Financial Reporting and the Balance Sheet Accounting Approach for Deficit Spending and Debt Position

This convergence trend has fostered financial reporting introduction for governmental entities based upon a set of international public sector accounting standards (IPSAS) which replicate the international private sector accounting standards (IAS-IFRS). Both sets of accounting standards adopt an accrual basis of accounting which draws upon a balance sheet accounting approach (stock method). According to Oulasvirta (2014), this latter approach contrasts with another accrual basis of accounting which draws upon an income statement accounting approach (flow method). This introduction is illustrative of the "recent emphasis on the importance of financial reporting as a vehicle for promoting greater transparency and accountability in government" (Chan and Zhang 2013).

This introduction has raised again the measurement conundrum regarding what is deficit and debt, and which debt measurement criterion should be taken into account for financial sustainability supervision. This conundrum is well-known to financial accountants, national statisticians and socioeconomists (Blejer and Cheasty 1991; Daffin and Hobbs 2011; Mink and Rodríguez 2004; Fourcade 2016). On the one hand (see specificity (i) above), the refinancing mechanism enables issuing fresh debt to roll over debt obligations that become due, instead of repaying them from tax revenues. On the other hand (see specificity (iii) above), collective assurances such as pension obligations may eventually become future payments in due course, but governmental entities are not yet liable for them today. Moreover, 'pay-as-you-go' pension schemes are generally unfunded and do not need refinancing (and related interest charges) on their financial position. The same analysis applies to collective guarantees and contingencies that may presently exist as potential (but not yet actual) governmental obligations. Pension and other collective obligations are assured by governments as general interest missions, in view to achieve intergenerational solidarity and redistribution purposes.

Financial reporting introduction shows another specificity of public sector financial sustainability through its measurement of net

assets—that is, the cumulated balance of revenues and expenses, assets and liabilities over time, on an accrual basis of accounting. Generally speaking, this accrual-based (cumulated) balance is materially negative and increasing over time for central governments all around the world. This fact has surely been the case throughout the twentieth century, showing that modern states employ debt issuance and refinancing to cover for both investment and operational expenses (Table 1). This deficit spending policy implies material and steady (or steadily increasing) negative net assets over time.

Through this refinancing mechanism, the governmental entity can sustain a virtually permanent negative balance, as long as lenders go on subscribing its refinancing issuances over time and circumstances. A corollary for this specific financial working is that public debt outstanding cannot and is not expected to be refunded through present and future tax revenues alone.

2.3 Ruling Financial Sustainability of Central Governments: The European Union Experience

In line with the convergence trend with the private sector and the financial market view on public debt management, the European Union has been attaching considerable importance to public debt and deficit surveillance mechanisms since the nineties (Biondi 2016a). The Maastricht Treaty (adopted in 1992), the Stability and Growth Pact (SGP 1998) and the Excessive Debt Procedure (EDP 1998 and related implementations: in 1999 for the preventive rules, and in 2005 for the corrective rules) have introduced several rules to supervise debt and deficit incurred by the Member States. These rules are based upon quantitative indicators of debt and deficit levels relative to national Gross Domestic Products (GDP).

The EDP was reinforced in the aftermath of the European sovereign debt crisis of 2010–2011 that followed the global financial crisis of 2007–2008. In this occasion, a critical assessment of debt figures was jointly prepared by the Court of Accounts and by Eurostat, the power of which was strengthened by the EU regulation n°679/2010 of the

Table 1 Scenarios concerning alternative ways to represent public deficit spending policies

	Scenario A	Scenario B	Scenario C
Outstanding Public Debt	Cumulated balance (debt) is zero in average	Cumulated balance (debt) is stably negative in steady state	Cumulated balance is stably negative and increasing in steady state
Accrual-based balance (surplus or deficit)	Accrual-based balance between taxation and expense is expected to cover for all charges, including depreciation of investments. It is moving around zero, alternating surpluses and deficits	Accrual-based balance covers only operational and interest charges, while refinanced debt is employed to fund investments that are not recovered by taxation. Accrual-based balance is increasing as long as new investments occur	Accrual-based balance covers only operational expense at most, while refinanced debt is employed to fund interest and investment flows that are not recovered by taxation. Accrual-based balance is then ever increasing over time
Financial capital maintenance (absorption)	No structural debt is issued. Financial capital is then expected to remain around zero or become positive. Negative financial capital is admitted only temporarily	Structural debt is issued to cover for investments. Financial capital is then expected to be stably negative at the level of these investments	Structural debt is issued to cover public expenditure. Financial capital is then expected to be stably or increasingly negative over time

Source Biondi (2013)

26 July 2010 (European Commission 2010). The SGP has evolved significantly after the crisis with the "Six Pack" in 2012, as well as the "Two Pack" and the Fiscal Compact in 2014.

Fiscal dimension was considered important by key personalities of the European Union such as Junker et al. (2015). Titled "Completing Europe's Economic and Monetary Union," their report argues that "responsible national fiscal policies are therefore essential. They must perform a double function: guaranteeing that public debt is sustainable and ensuring that fiscal automatic stabilizers can operate to cushion country-specific economic shocks." They further add that "a governance framework provides for ample ex ante coordination of annual budgets of euro area Member States and enhances the surveillance of those experiencing financial difficulties."

Responding to the European Stability Pact included in the "Maastricht Treaty" that established the European Union, signed in Maastricht on 7 February 1992, other countries had introduced fiscal policy supervision criteria. For instance, the UK had introduced the following two budgetary rules (Treasury 2010b, 2.4.1, p. 6), whose application has been nevertheless suspended since the global financial crisis:

- The « Golden Rule » requiring that, relative to economic conditions, public administration shall not borrow but to finance investment, not current spending;
- The « Sustainable Investment Rule » requiring that borrowing to finance investment is limited, in order to keep net public debt around a stable and prudent level fixed in proportion of GDP.

Concerning the US, in the aftermath of the global financial crisis, the market-based view has been accompanied by austerity policies and rules that purport to limit public debt further expansion. Based upon budgetary measurements, these policies are inconsistent with long-standing practice of public debt issuance and refinancing. They have therefore generated a debate that is still vivid, including dissenting opinions by leading economists (Arrow et al. 2011; Krugman 2013).

Accordingly, imposing a balanced budget requirement adds an arbitrary cap on federal expenditures that may mandate perverse policy actions, especially throughout recessions (Arrow et al. 2011).

Numerical fiscal rules have proven to create incentives for creative accounting (Buti et al. 2007; Koen and Van den Noord 2005) and a misleading compass (Balassone et al. 2006). The European debate on these quantitative indicators to supervise fiscal policies has been asking whether these indicators should better accommodate the variety of public investment spending with the structural budget balance, in view to facilitate growth objectives along with stability objectives. In 2015, the debate concerned the flexibility allowed by the 'Stability Growth Pact,' pointing to the relationship between structural reforms, investment, and fiscal responsibility (European Commission 2015). One major concern has been the EU focus on gross debt along with the ESA B.9 definition of net borrowing (which differs from deficit) to implement EU financial supervision (especially EDP). On this measurement basis, when an investment expenditure occurs, it is added entirely and immediately to the net borrowing of the period, with no consideration for its time pattern and no specific treatment for its investment function. In this context, some experts argued against criteria that are based exclusively on debt and deficit levels—inspired by the "golden rule" enshrined in the German constitutional law. Accordingly, the British and French local governments' practice of "golden rules"—which distinguish between investment and operational expenses—would provide a better ruling than those deficit and debt level criteria which were eventually enforced by the Maastricht Treaty and the Excessive Debt Procedure.

Arthur Okun, quoted by Le Mestric (2005), argues that an important weakness of these debt-focused criteria is that they do not allow disentangling between "the influence of the budget on the economy and the economy on the budget". "Indeed, despite restrictive fiscal policies by states, the deficit may increase due to weak growth [arithmetically as the denominator of the ratio deficit to GDP decreases]" (Le Mestric 2005). Moreover, Blanchard and Giavazzi (2004) advise that "excluding net public investment from the definition of the budget that is relevant for the Pact would also help in the short run,

by inducing countries to shift the composition of domestic demand, rather than to reduce its level."

Debt-focused sustainability criteria may involve myopic management by financial indicators, dampening longer-term financial sustainability by their very implementation. From this perspective, budgetary discipline may result inconsistent with financial sustainability over time and circumstances. Considering the debt level as the only focus may incentivize policy-makers to spend less in order to reduce the debt level as it outstands. However, this strategy may lead to leave as heritage a lower productive economy, incapable of growth due to the lack of investment and demand. According to Jacques Delors, quoted by Le Mestric (2005), "public spending on investment has been disproportionately reduced in Europe since the early 90s although it is perfectly healthy to finance it through borrowing facilities that would benefit future generations."

In this context, along with the Mundell triangle (arguing for the impossibility to jointly achieve fixed exchange rate, independent monetary policy, and free movement of financial capitals), Buti (2014) argues that the European sovereign crisis resolution efforts have led discovering another triangle, showing the impossibility to achieve inflation close to zero, sustainability of private and public debts, and competitive gains (involving unbalanced trade balances). To be sure, inflation rate is of great importance in the debate of public debt sustainability especially when the ratio of debt to nominal GDP is considered as target. Let us define the yearly deficit as yearly change in debt level. Accordingly, whenever the deficit growth rate (as weighted by previous debt level) is lower that the nominal GDP growth rate, then, arithmetically, the debt-to-nominal GDP ratio decreases. Moreover, as the nominal GDP is the real GDP multiplied by the inflation index, whenever the inflation index increases *ceteris paribus*, the nominal GDP does increase. Thereby, the debt-to-GDP ratio decreases when inflation increases.[1]

This debate on European criteria for public debt sustainability provides a summary of internal critique concerning public debt definition and measurement. Further critique of these debt-focused sustainability criteria may be raised by considering the specificity of public debt capacity that relates to the refinancing process and the assurance of

collective obligations over time and circumstances. The next section will analyze the specificity of fiscal sustainability for central government by delving into two illustrative examples: the nexus between public debt management and the monetary base, and the assurance of pension obligations.

3 The Specificity of Financial Sustainability for Central Government

3.1 How Does Public Debt Management Work?

In a first approximation, the question of governmental debt capacity points to the willingness of lenders to lend to the government which issues debt. In turn, this willingness is related both to lenders' uses of this debt, and to the capacity of government to sustain it over time. Therefore, governmental debt capacity is further related to the financial sustainability of government, that is, its capacity (and willingness) to fulfill its financial obligations when they are due in time and amount, while pursuing its ongoing general interest missions. From this perspective, financial sustainability depends on the specific contributions that are expected from the borrowing entity, as well as the willingness and capacity to lend by potential debt-holders. It comprises the two dimensions of general interest mission and financial commitment, with debt being managed – that is, issued, met, refinanced, and even increased – to achieve both of them.

The financial working of governmental entity as a going concern is based upon sources and uses of funds (Fig. 1). For sake of simplicity, we distinguish here two specific sources: taxing and refinancing. These sources enable to spend for current operations, investments, and assurance of collective obligations and guarantees.

The rest of the section addresses especially the refinancing process and the collective assurance of pension obligations over time. The first mechanism constitutes a cash-based instrument that enables sustainability of deficit spending through time and circumstances. The second

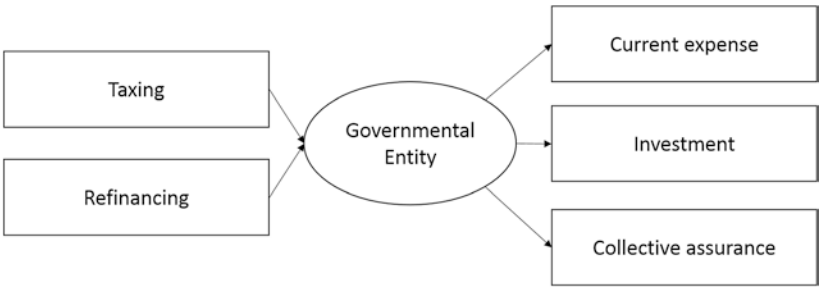

Fig. 1 A heuristic classification of sources and uses of funds by the governmental entity as a going concern *Source* Our elaboration

mechanism constitutes a non-cash instrument that enables achieving intergenerational solidarity and redistribution. Both instruments show the specificity of financial sustainability for central government.

3.2 Refinancing: Financial Sustainability and the Monetary Base

Refinancing points to the unique connection between public debt and the monetary base, since refinancing transforms public debt in quasi-money through time.

It is generally accepted that central banking assures liquidity of governmental debt (Andolfatto and Li 2013; Bell 2001; Ize 2006; Paul and Yuemei 2013; Duchaussoy and Monnet 2014). Open market operations and other monetary policies operated through central banking do monetize governmental debt, at least temporarily (Beard and McMillin 1986; Salsman 2012; Buiter 2007; Mishkin 2009). Singh and Stella (2013) include into "money-like assets" both central bank deposits (reserves) and every collateral that can be converted into central bank deposits without haircut, such as governmental debt securities. Moreover, whenever central banks do issue *ex nihilo* paper money (legal tender), they generally buy back governmental debt securities against this creation. In this context, accounting consolidation of central banks within central government accounts clears all doubts concerning

sterilization of governmental debt held by the central bank itself, for both interest charges and capital repayments (see Biondi (2015) for the UK case and Turner (2015, Exhibit 1B)). Concerning national statistics, major frameworks diverge on this consolidation: the IMF includes central banking under its notion of public sector, while the Eurosystem (ESA) excludes it from its notion of general government.

Recent macroeconomic contributions point to this link between treasures and central banks in case of money-financed fiscal stimulus (DeLong and Summers 2012). Through a belligerant methaphor, Buiter (2014) argues that, facing aggregate nominal demand gap, governments, and central banks together never 'run out of ammunition', while Turner's (2015) monetary finance scheme explicitly comprises central bank continued rolling-over of sovereign debt positions, including governmental securities (option 3). Gali (2014) develops a formal model to investigate money- or debt-financed fiscal stimulus under both Classical and New Keynesian assumptions. In fact, this debate seems to somehow neglect that this link has been already organized and practiced throughout ongoing monetary base management that includes governmental securities refinancing.

The proximity between the state and the central bank is seen as facilitating financial sustainability and then improving the credit worthiness score by rating agencies, relative to states submitted to monetary unions (S&P 2013, 35). In this context, markets for public debt have been organized to assure its quasi-monetary dimension, accompanying and reinforcing its interdependence with monetary policies run by central banks under regime of fiat money and bank money creation (McLeay et al. 2014a, b). Under this regulatory architecture, the monetary base is endogenously created by central banking in interaction with monetary financial institutions, in a way which accommodates issuance and refinancing of public debt over time.

In turn, this special status of public debt has enabled two complementary specificities of the working of public administration (Biondi 2016a, c): (a) its use of public borrowing for redistributive purposes; and (b) its public debt management based upon issuance and progressive refinancing over time. Both specificities have been accepted so far by private investors and monetary financial institutions, as confirmed

by large and stable liquidity generally generated by public debt market-trading at low (risk-free) interest rates since the Second World War at least.

Governmental debt refinancing involves a sort of public–private partnership between government and banking to manage the monetary base. This partnership has assumed various forms in historical time. Constitutional political choices are then involved in granting some debt securities with the privilege to be refinanced through central banking. For instance, shifting this privilege from governmental securities to private securities will shift control on the purchasing *power* from the public sphere of government to the private sphere of those security issuers, while reducing overall refinancing size may deleverage the whole economy, with effects on both spheres.

One historical example of this public–private partnership was the French Treasury Circuit studied by Benjamin Lemoine (2013, 2015). It corresponds to an institutional regime which was in place in France since 1945 until the middle of the 60s, in view to foster private and public financial institutions to subscribe public debt issuances (including refinancing). This Circuit enabled the French State to finance its deficit spending while limiting its recourse to either the financial market or the advances made by the French Central Bank (the latter advances being submitted to Parliamentary authorization).

In sum, based upon lending by final debt-holders and monetary base administration, governmental borrowing enables a 'soft' redistribution of financial fortunes, which complements 'hard' redistribution accomplished through taxation on revenues and fortunes. Among others, this redistribution may play an important societal function in compensating inequality in allocation of income and wealth achieved in other spheres of economy and society. From the viewpoint of individual holders, public debt is to be remunerated by interest charges and repaid by capital installments at its nominal value; however, at the aggregate level, public borrowing enables transferring these borrowed funds in view to redistribute them across stakeholders. This mechanism is made possible by continued refinancing of that debt at every capital installment, which makes this debt, once again, an essentially monetary phenomenon (Perroux 1949, 96–97).

Governmental borrowing is ultimately justified by its specific function of 'soft' redistribution that is accomplished through its refinancing. This public funding practice, together with overarching institutions for treasury management and central banking, did not change radically in recent times, although recent claims and reform projects do apparently neglect this specific economic organization, looking for sustainability of public borrowing in terms of both tax revenues, and net assets (and net worth) as accounted for by governmental balance sheets.

A similar neglect has occurred for pension obligations, which have been progressively displaced from the public sphere of intergenerational solidarity and redistribution, to be included in the private sphere of individual saving and financial market investment.

3.3 Pension Obligations: A General Interest Mission Linked to Intergenerational Solidarity and Redistribution

Recent reforms of pension management have been promoting convergence between public and private sectors based upon an actuarial representation, involving a stock method of accounting and control. Accordingly, pension benefits are understood and governed as if they were individual saving and financial market investment made by—or on behalf of—pension beneficiaries. This view encourages immediate funding of accrued pension claims, in order to invest this funded reserve in financial markets (Wehlau and Sommer 2004). Accordingly, pension liabilities should be included in outstanding debt measurements, in order to encourage their funding. Moreover, unfunded mandatory pension schemes are considered as large hidden governmental debt with serious implications for the intertemporal budget constraint (Holzmann et al. 2004; Rauh 2016).

However, existing practice shows pension management modes that are inconsistent with this actuarial representation and the related dichotomy between Defined Contribution (DC) and Defined Benefit (DB) schemes. In this context, financial sustainability of pension obligations held by sponsors depends on the management mode under

consideration, while funding and sustainability are not necessarily linked.

In particular, according to Biondi and Boisseau (2017a, b), 'pay-as-you-go' pension schemes can be sustainable over time and then controlled without having recourse to an actuarial representation of their ongoing management process. Since the 'pay-as-you-go' pension scheme is collective, its functional process is expected to balance current payments (outflows) against current contributions (inflows), period through period. More sophisticated balancing mechanisms may be designed while maintaining a flow basis of accounting and control. Since this scheme is based upon flow compensation over time, an actuarial representation misunderstands its working and does not provide meaningful and useful figures to represent and control it.

In this context, notwithstanding discredit that has been claimed against them, unfunded 'pay-as-you-go' schemes can be sustainable as long as current and future contributions from constituencies (including sponsors and future beneficiaries) go on matching current payments that become due to incumbent beneficiaries over time and circumstances. Moreover, an actuarial representation of pension obligations can hide significant issues and hazard concerning ongoing pension protection. Last but not least, inclusion of pension obligations in public debt measurement may be inappropriate. Collective assurances such as pension obligations may eventually become future payments in due course, but governmental entities are not yet liable for them today. Furthermore, 'pay-as-you-go' pension schemes are generally unfunded and do not involve refinancing needs (and related interest charges) on their current financial position. These needs may start when previously uncovered pension payments become due.

Financial sustainability acquires a different meaning for funded DC schemes and for 'pay-as-you-go' pension schemes. Concerning the former, financial return from outstanding financial investment portfolio is a key factor to cover for pension obligations through time. Concerning the latter, the demographic and economic evolution of membership is quite critical. To be sure, it does not relate only to demography, but also to the financial and economic capacity to maintain intergenerational solidarity among members through time. Taking an economic

perspective, Barr (2002, 8) deconstructs the myth that funding resolves adverse demographics, arguing that 'demographic change is not a strong argument for a shift towards funding,' while 'the difference between pay-as-you-go and funding is second order.'

Case studies further show that funded schemes do not necessarily guarantee better provision and security of pensions, as showed by scandals such as, in the UK, in 1992, the Maxwell scandal; in 2000, the insurance company Equitable Life; and in 2007, the pension fund of Allied Steel and Wire. In US, an illustrative example was offered in 2002 by the Enron bankruptcy and related scandal. In France, the additional pension fund for civil servants named CREF ('Complémentaire de Retraite des Enseignants et Fonctionnaires'), which was partly funded, incurred financial distress and was transferred in 2002 to the COREM ('COmplementaire Retraite Mutualiste') under the supervision of the State (Pouzin 2014).

Concerning sustainability of funded pension schemes, there is a further need to carefully analyze dedicated asset portfolio management. The inclusion of governmental debt in this portfolio becomes critical in this case. For instance, according to Greenwood and Vayanos (2010), the UK "Pensions Act of 2004 [, which] instituted fines for underfunded pension plans, provid[es] strong incentives to buy more long-term government bonds." If circularity with government funding occurs, funded schemes provide little advantage (if any) relative to a 'pays-as-you-go' pension schemes (Ponds et al. 2014), since their asset portfolio is mainly composed of national public debt—as Sauviat (2014) shows for Chile. Moreover, the current context of low or negative interest rates may become a threat on sustainability for funded pension schemes, since they make it dependent on financial returns.

Since unfunded 'pay-as-you-go' pension schemes can be sustainable, while (partially) funded, financial return-based pension plans can be unsustainable, we do confidently conclude that funding and sustainability are not necessary linked. This conclusion is also supported by Augusztinovics (2002, 26): "Contrary to the new pension orthodoxy's major arguments, there is ample conceptual evidence in the literature to demonstrate that the method of finance and the type of management are no panacea."

From our perspective, the overarching accounting and management purpose concerns the protection of pension promises through time and circumstances. Accountability for pension management involves being accountable for the main purpose of that management, i.e., timely and continued provision of pension payments as they become due at their previously committed levels. In this context, sustainability and funding are not necessarily linked, while several viable management modes exist and must be accounted for in a consistent way.

In particular, 'pay-as-you-go' pension schemes point to the specific working of public administration that assures collective solidarity and redistribution across citizens and generations. In times where the IMF (Dabla-Norris et al. 2015; Lagarde 2015) is preoccupied by the raising of inequalities, it appears to be of utmost importance to consider pensions as a means to achieve intergenerational solidarity and redistribution purposes, which differs from a view of them as individual saving accounts and financial market investments. These purposes generally pertain to the public administration and point to those social and political communities that are threatened by transnational fiscal competition and legal–financial structuring strategies to avoid personal and corporate tax payments (CONVIVIUM 2017). As well as pensions, taxation can here be linked to solidarity and redistribution across citizens and generations (Rosa 2013).

4 Concluding Remarks

This chapter elaborated on the concept of financial sustainability in the specific context of central government. The second section reviewed some positions concerning fiscal supervisory policies through debt and deficit ceilings. The third section investigated the specificity of this fiscal sustainability through the illustrative cases of management of public debt refinancing and pension obligations.

In conclusion, absolute or relative debt levels are not sufficient to examine financial sustainability of governments. The well-known article "Growth in a Time of Debt" by Reinhart and Rogoff (2010)—which argues for an empirically detected threshold of excessive debt level—has

been recently challenged by academics, practitioners, and policy-makers (Balassone et al. 2006; Buti et al. 2007; Krugman 2013; Koen and Van den Noord 2005). As a matter of fact, Japan constitutes a relevant and longstanding counter-example of high level of sovereign debt—in both absolute terms and in relative terms over GDP—which has been mainly held and refinanced by resident debt-holders and the central Bank of Japan at low interest rates without disruption of currency exchange rates and transactions. Moreover, the sustainability assessment cannot be reduced to a comparison between the interest rate and the growth rate of the economy, as it would be the case in a general equilibrium model where debt is supposed to be fully covered by tax revenues.

This insufficiency of debt level measurements to define public debt capacity and supervise its financial sustainability implies considering public debt capacity in its socio-economic and institutional contexts. Our analysis situates public debt capacity within two specificities of the public administration: the refinancing process and the assurance of collective obligations such as pensions. These specificities show the link between the fiscal system (taxing power), the monetary base (involving the quasi-money nature of sovereign debt), and the welfare policies (such as pensions). This link is then relevant when examining financial sustainability of fiscal policies. According to Christian de Saint-Etienne (2007), the link between monetary and budgetary policies characterizes economic "government," whereas economic "governance" would merely constitute a set of constraining rules. Economic government requires discretion and a comprehensive view to be capable coping with financial sustainability through time and circumstances; it is then better than economic governance based on rules and indicators which abstract away from them.

Public debt management does not involve only the capacity to sustain its burden of interest charges and capital installments through tax revenues, but also the capacity to both monetize[2] this burden for sake of monetary base management, and place it with resident and foreign debt-holders, as well as with other governmental entities. Among others, this complementary capacity does depend on ongoing conditions that occur on national and international monetary and financial systems, including the respective costs of funding.

This specific definition of debt capacity involves a specific definition of its financial sustainability. However, it does not imply that sovereign debt cannot become unsustainable under some circumstances. The recent European sovereign debt crisis proves the contrary in developed countries, as do debt restructuration episodes in developing countries such as Argentina (Ishikawa 2014). When default occurs, existing debt restructuration mechanisms have been criticized to take a side with the "lender" but not the "borrower" (Lienau 2014; Stiglitz and Heymann 2014). In this context, the specific definitions of public debt capacity and financial sustainability invite considering the default situation with a view to intergenerational solidarity and redistribution. Default shows that lenders and borrowers are linked in bad times as they were in good ones, when the governmental debt capacity was yet capable to issue and refinance its debt outstanding (Biondi 2016b). Debt restructuration terms and conditions may then be addressed in the same spirit, taking into account the specificity of public debt management and its deployment for general interest missions achieved by government on behalf of social and political communities.

Notes

1. This numerical analysis assumes that inflation change (as measured by price level increase) can be separated by real GDP change, as if money were a veil. It further assumes that debt and deficit levels are not affected by inflation change. We do not address here the relationship between real and monetary dimensions of the economic process.
2. The monetization is the process through which the government issues debt to finance its spending and the central bank purchases the debt, leaving the system with an increased supply of base money (Mishkin 2009).

Acknowledgements Yuri Biondi is tenured senior research fellow of the Cnrs, France (IRISSO, University Paris Dauphine PSL), and research director at the Financial Regulation Research Lab (Labex ReFi), Paris, France. Authors thank Sotirios Karatzimas, Ioanna Malkogianni, Iris Rauskala, Alexandre Makaronidis, Andreas Bergmann, Giovanna Dabbicco, and Sandra Cohen for

their comments and suggestions. This chapter was presented at the EGPA PSG XII Spring Workshop (Malta University, 4–5 May 2017); the International Atlantic Economic Conference (IAES, Berlin, 22–25 March 2017); and the 16th Biennial CIGAR Conference (University of Porto, 7–9 June 2017). Usual disclaimer applies.

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8

The Sustainability of Local Government Finances in England, Germany, and the Netherlands: The Impact of Intergovernmental Regulatory Regimes

Dennis de Widt

1 Introduction

Since the Great Recession of 2008–2009, local governments (LGs) across Europe have experienced increased financial stress. The impact of cuts in funding from higher government levels, combined with increased local expenditure especially in the social welfare domain, has led to growing concerns over the sustainability of local government (LG) finances (e.g., Cohen et al. 2012). It can be expected that the regulatory framework in which LGs operate, such as the accounting rules in place and their monitoring in practice, affect the financial sustainability of LGs and that of the public sector more widely. However, little is known about how regulatory regimes influence the financial sustainability of LGs. There are several reasons for this lack of understanding.

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M.P. Rodríguez Bolívar (ed.), *Financial Sustainability in Public Administration*,
DOI 10.1007/978-3-319-57962-7_8

First, there is limited scholarly work about the financial regulation of LG finances. Available studies on European systems tend to be outdated (e.g., Dafflon 2002), not the least because of the large-scale reforms many intergovernmental regulatory regimes went through in the last decade. Most available studies are US based (e.g., Jacob and Hendrick 2013) and apply specifically to the US constitutional structure, limiting the relevance of these studies for the understanding of local-level financial sustainability in the European context. The diverging US framework is particularly reflected in the presence of municipal bankruptcy legislation, which is absent in most European systems. Second, few studies investigate the relationship between regulatory regimes and LG financial sustainability from an empirical approach. The dominant scholarly focus tends to be on formal regulation, excluding its implementation in practice (Ter-Minassian 2007). A third reason follows from the narrow focus of empirical studies available. In particular, the lack of country comparisons, and the dominance of short time frames, omits the evolutionary nature of regulatory regimes and fails to recognize their interaction with wider financial and institutional trends.

To improve understanding of how regulatory regimes affect financial sustainability of LGs, this chapter investigates the following question: *What effects do intergovernmental regulatory regimes have on the financial sustainability of local government (LG)?*

The question is investigated by analyzing regulatory regimes in different intergovernmental contexts, especially by focusing on the impact of the regimes on deficit and debt-making by LGs. A regulatory regime is defined as the combination of fiscal rules and the monitoring structures that are in place to impose their implementation. A country comparative research design is most appropriate to this aim, given the fact that in most systems the regulatory frameworks on local finances are managed at the macro level. Prior to the selection of cases, the comparative method requires the researcher to choose a research design that uses either the most similar or most different cases (Mill 1843/1872).

In a most similar systems research design (MSSD), cases show large similarity with respect to their explanatory variables, but differ regarding their dependent variable. A most different systems design (MDSD) instead consists of highly heterogeneous cases, all of which

have the same dependent variable in common (Anckar 2008). A major difference between the MSSD and MDSD is that whereas the former is concerned with the independent variable, the latter focuses on the dependent variable. Although some scholars argue that a MDSD requires a constant dependent variable (Landman 2008), this is a controversial issue in the literature as a constant variable only allows the researcher to identify the necessary conditions of a phenomenon (King et al. 1994). A further relevant feature of the MDSD is its specific research design, which can be more deductively or inductively orientated. In case a deductive strategy is pursued, the aim of the MDSD is to study if the independent variable is present in all cases, whereas a more inductive strategy is aimed at identifying the determinant of the dependent variable with an open mind, without an a priori notion of the relevant explanatory variable (Anckar 2008).

Given the aim of this chapter to identify the impact of regulatory regimes on the financial sustainability of LGs, a research design is needed that maximizes the variation on the institutional dimension, the independent variable in this research. Hence, the MDSD is most suitable for this purpose, with LG debt and deficit indicators used as comparable dependent variables. In order to have a high degree of variation on the institutional dimension, the chapter analyzes the regulatory frameworks on local finances in three divergent constitutional systems: the UK, Germany, and the Netherlands. In the UK's case, the analysis is limited to England, which reflects the UK's traditionally highly centralized government structure. In line with Germany's federal structure, the regulation of LG finances is a state-level responsibility and hence differs among the German *Länder*. Research pertaining to Germany concentrates on North Rhine-Westphalia (NRW). As Germany's largest state, both in terms of inhabitants and the size of its economy, NRW provides a relevant illustration of the intergovernmental regulation of LG finances in Germany. The Netherlands is selected as the representative of a unitary-decentralized system (Hendriks 2001). Although the absolute size of LG debt differs across the three systems, the dependent variable contains a strong similarity with LG debt demonstrating a strong increase in all three systems in recent years (see Sect. 2). The chapter findings demonstrate that despite their

high degree of institutional heterogeneity, all three regulatory systems demonstrate flaws in practice that decrease financial sustainability of local government.

The rest of this chapter is structured as follows. First, the chapter explains the relevance of regulatory regimes and explains why deficit and debt are relevant indicators for analyzing LG financial sustainability. Section 3 provides a comparative overview of the fiscal rules in place on local finances in the Dutch, English, and German/NRW systems. The monitoring of the fiscal rules is discussed in Sect. 4, followed in Sect. 5 by an analysis of the special institutional arrangements in place to respond to LG financial emergency situations. Section 6 concludes.

2 On the Relevance of the External Regulation of LG Debt and Deficit Making

In each of the three systems, the primary responsibility for LG finances rests with local politicians. There are several reasons to complement scrutiny of the local budget by local politicians with external regulation. First, LGs receive none, or only very limited pressures from private market institutions to restrain their borrowing, leading to limited protection for residents against inefficient LG spending. A large part of LG borrowing in the three systems occurs via specialized LG lenders, such as the Public Works Loan Board (PWLB) in the UK, the Bank of Dutch Municipalities (BNG) in the Netherlands, and the NRW. Bank in NRW. These lenders, which are wholly or partly part of the public sector, set interest rates at a uniform level across LGs. This means that the specific credit position of a LG does not have any impact upon its borrowing costs, leading to a situation where no penalty costs are inflicted by private market actors on LGs that mismanage their finances.

A second reason for external regulation is shortcomings in monitoring by local politicians. As many public goods provided by LGs are characterized by non-excludability and therefore suffer from a free-rider problem (Stiglitz 1986), the relationship between local voters and those who profit from local public goods is suboptimal and

hence provides less correction capacity compared to, for example, the private sector relationship between board and shareholders. Another risk of local political scrutiny is that with voters being both consumers and funders of LG services, local political systems provide incentives for building political interest groups that externalize costs to others, including future generations in the form of borrowing (Glöckner and Mühlenkamp 2009).

LGs in England, Germany/NRW, and the Netherlands face significant financial pressures but the different financial arrangements and cutbacks through burden-shifting by higher government levels make it difficult to collate comparative statistics on LG financial conditions. One useful indicator, however, is provided by the evolution of debt. In the public finance literature, debt, rather than other financial indicators, is used as a primary indicator to evaluate the financial position of government entities (Musgrave and Musgrave 1980). Debt is an important determinant of what has been referred to as the 'fiscal health' of government entities (e.g., Levine et al. 2013). Examples are the fiscal abilities or 'solvencies' of a government, such as its budgetary, long-run, and service-level solvency, or different elements of financial condition, including financial sustainability, flexibility, and vulnerability (Jacob and Hendrick 2013). Previous studies indicate that the maturity of debt, the source of borrowing, and the overall debt capacity may critically affect fiscal health indicators and, in a worst-case scenario, put the very independence of a jurisdiction at risk (Hildreth and Miller 2002; Kloha et al. 2005; Kriz and Wang 2013).

Using index numbers, Fig. 1 shows that in all three systems LGs have experienced a growth in debt. LG debt shows most gradual and consistent growth in NRW, whereas in the English system it has grown dramatically since 2005. The Dutch system shows the most minimal growth in LG debt, although after a period of reductions, debt has increased rapidly since 2007.

Despite the fact that Dutch, English, and German LGs can legitimately incur debt for capital investment purposes, LG debt poses an increasing risk for local finances. As this chapter shows, deficient monitoring structures on local finances lead to a

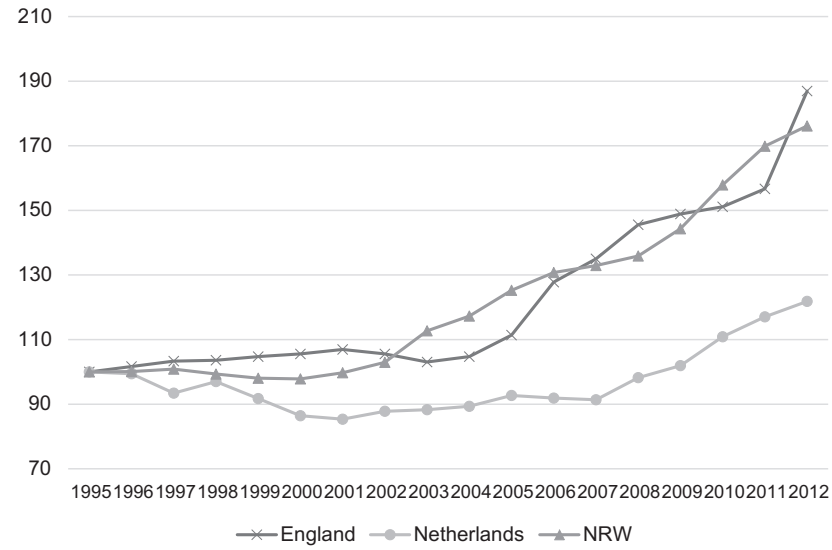

Fig. 1 Index LG debt evolution, 1995–2012 (1995 = 100) *Source:* Own illustration; based upon national statistics (CBS, IT.NRW, DCLG & ONS) & own calculations

'capitalization' of local financial stress. In addition, current revenue pressures in Germany are widely dealt with at the local level by issuing short-term debt. Although offering substantial interest rate benefits, short-term liquidity poses significant interest rate risks and refinancing risks to LGs, hence increasing the vulnerability of local government to sources of funding outside its control or influence (cf. Justice and Scorsone 2013). As English and German LGs are involved in the provision of core services to citizens, and intergovernmental liability structures in the potential case of a local financial default are marked by ambiguity, growing local debt may have serious implications for the sustainability of local service delivery (De Widt 2016). Hence, this chapter concentrates on the impact of regulatory frameworks on the financial sustainability of LGs, with a focus on deficit and debt indicators.

3 Fiscal Rules on LG Debt and Deficit Making

Fiscal rules provide the official boundaries within which local financial decision-making needs to occur. Fiscal rules can be divided in procedural rules and substantive rules. While procedural rules regulate local financial decision-making and accountability processes, substantive rules provide explicit financial norms LGs have to abide with. In all three systems, substantive rules influencing LG financial sustainability are most explicit with respect to LG deficit and debt-making. Procedural and substantive regulations can be identified at three different institutional levels. The first layer contains macro-level regulations that distribute the aggregated borrowing space among government levels. Next, meso-level regulations apply to all LGs individually. Finally, LGs might be affected by tailored micro-level regulations, which particularly apply to LGs that repeatedly run an unbalanced budget, and are subsequently subjected to special intensified intergovernmental supervision. Sections 3.1 and 3.2 discuss the aggregate level and meso-level regulations, while micro-level regulations applying to non-conforming LGs are discussed in Sect. 5.

3.1 Aggregate Level Regulations

Out of the three systems, England has the longest history of controlling expenditure and deficit at a level related to the entire public sector. Introduced as the Public Sector Borrowing Requirement (PSBR) in the 1970s, the UK has strongly designed its borrowing policies around financial aggregates that apply to the country's entire public sector (Thain and Wright 1995). Aggregate figures on local finances have been an integral part of central government policies, resulting in aggregate local borrowing being strictly controlled by the Treasury. Central control of local borrowing has been a reason for intergovernmental tensions but also explains long periods of moderate borrowing among English LG (Fry 2008).

National government budgeting based upon public sector financial aggregates is from a more recent date in the Dutch and German

systems. In both, the introduction of the fiscal responsibility conditions of the Maastricht Treaty in 1993 incentivized a discussion about how to share the newly established borrowing limits among government levels. As the intergovernmental negotiations proceeded slowly, the discussion about sharing the Maastricht borrowing limits was not resolved in Germany with any definitive result in the 1990s (Farber 2002). A reform of Germany's fiscal federalism in 2009, however, resulted in the introduction of specified debt restrictions for the federal government and the *Länder*, but not the local level. The exclusion of the local level from the debt brakes has given rise to local-level fears about potential debt shifting strategies by *Länder* governments towards the local level (e.g., *Städtetag* 2015, 30). This risk, however, seems limited as EU deficit regulations apply to the entire German public sector, including the local level.

Discussions in the Netherlands about the intergovernmental sharing of borrowing limits were particularly incentivized after the signing of the European Fiscal Compact in 2012. The Dutch Ministry of Finance initially aimed to set maximum deficit levels for each individual municipality, including a sanction option in case the municipality violated its deficit limit. Severe opposition by Dutch LG associations prevented the law from being implemented. From 2014 onwards, the EMU's maximum public sector deficit level of 3% GDP is annually divided by central government between the Dutch government layers, following a process of intensive intergovernmental consultation. So far, the consequences of the borrowing limits have been limited as they have not significantly reduced the borrowing space of Dutch LGs for capital investment.

Due to European developments, cross-country differences in macro-level regulations have converged in recent years with the concept of aggregate public sector deficit now constituting the main indicator in budget policies in the three constitutional systems. However, country-specific trends are still relevant and may counteract European developments. The implementation of state-level debt brakes in several German *Länder*, combined with large inter-state financial heterogeneity, means that large local deficits within some German *Länder* do not necessarily result in a negative aggregate EMU balance for the German public

sector. In parallel, macro-level regulations also have a limited impact on the deficit levels of individual LGs in the Dutch and English context, because their deficits can be compensated by LGs with budget surpluses. As a result, Dutch, English, and German macro-level regulations prevent debt accumulation at the local level, but have little impact on preventing debt concentrations within individual LGs. It may be expected that regulations that uniformly apply to LGs, rather than the local or public sector at an aggregate level, are more effective in restraining budget deficits.

3.2 LG Meso-Level Regulations

In all three systems, meso-level regulations applying to all LGs show a fundamental distinction between borrowing for current revenue purposes versus capital investment. In general, current revenue borrowing is restricted to its function of bridging over temporary funding gaps, while LGs have more autonomy to borrow for capital investment. Regarding capital investment borrowing, the principle of the 'golden rule' can be recognized in each system as borrowing for investment purposes is allowed as long as it can be realized in combination with a balanced budget on the current revenue account. Despite the general similarities, the operationalization of these principles in fiscal rules differs strongly between the systems.

3.2.1 LG Meso-Level Regulations in the Dutch System

Table 1 illustrates that only Dutch regulators apply specified debt norms. The *Wet Fido*, or the Law on the financing of sub-central governments, provides the main Dutch regulatory framework for LG borrowing. Fido tightened the relatively liberal Dutch subnational treasury framework in 2000, as a response to the secret commercial banking activities by the province of South Holland, which led to a loss of more than 20 million €.[1] With regard to current expenditure, Fido provides a cash limit (*kasgeldlimiet*), stating that short-term debt is not allowed to exceed 8.5% of the total municipal exploitation costs. Fido's interest

Table 1 System comparison of regulations on local capital and current expenditure borrowing

	England	The Netherlands	Germany/NRW
Main regulatory frameworks (year of implementation)	Local Government Act (2003) CIPFA's Prudential Code (2004) Local Audit and Accountability Act (2014)	Local Government Law (Gemeentewet) (1851/1994) Law on the Financing of Subnational Governments (Wet FIDO) (2000) BBV (2003) Regulation on Loans, Advances and Derivatives of Subnational Governments (Ruddo) (2000/2009)	Local Government Order (GO NRW) (1994) Directive 'Credit- and Credit-Related Local Government Activitie' (2006) Local Financial Management Law (NKFG NRW) (2004)
Specified regulations long term borrowing	Reporting requirements of specified prudential indicators	Interest risk norm (*renterisiconorm*)	Reporting requirements
Specified regulations temporary/current revenue borrowing	Reporting requirements of specified prudential indicators	Cash limit: liquidity credits (max. one year) not allowed to exceed 8.5% of total local exploitation costs	50% of liquidity credits may mature within max. ten years; 25% within max. five years

Source own composition, based upon LG accounting regulations

risk norm (*renterisiconorm*) provides the main regulation on capital expenditure borrowing and prohibits LGs from refinancing debt that exceeds 20% of their total annual budget. This illustrates that in contrast to the norm's title, it is not interest risk but the annual borrowing amount to be refinanced that is observed as the main risk in long-term local borrowing. Because of these criticisms, the main advantage of the Dutch interest risk norm is that it forces LGs to pay attention to a proper spread of the maturity of their debt portfolio in time (Zanten-Lagen-Daal and Wijnands 2001).

The balanced budget rule is operationalized in the Dutch system by focusing upon a materially balanced budget. Materially balanced is defined as the structural costs being covered by structural income, whereby structural refers to a period of 3 years. Other relevant regulations affecting borrowing behavior by Dutch LGs are included in the BBV (*Besluit Begroting en Verantwoording Provincies en Gemeenten*—Decision Budget and Reporting Provinces and Municipalities), which tightened the Dutch regulatory framework for the activation of current expenditure on the municipal balance.

3.2.2 LG Meso-Level Regulations in the English System

In the English system as well, there have been substantial changes in meso-level borrowing regulations. Local borrowing autonomy for capital investments significantly increased with the introduction of the prudential borrowing framework (PBF) in the Local Government Act of 2003. Until 2003, a strict central government monitoring system on English local capital expenditure borrowing was in place, including a system of Credit Approvals through which central government annually set a credit limit for each local authority (outlined in detail in the Borrowing Act, part of the Local Government Housing Act 1989). LGs that exceeded their approved credit limit were confronted with intensive government sanctions, including the possibility of a personal surcharge imposed upon culpable LG officers and councilors (in place up to 2000).

The introduction of PBF in 2003 removed the centrally set capital borrowing limitations. The UK Treasury possesses a reserved power to impose borrowing limits upon the entire English local level, or individual LGs, but the power has not been used hitherto (Local Government Act, Section 4, 1 & 2). According to the prudential borrowing regulations, an English LG has only the obligation to 'determine and keep under review how much money it can afford to borrow' (Local Government Act 2003, Section 3, 1). This duty has been operationalized in the Prudential Code, developed by the accountancy body CIPFA. The Code obliges all LGs to base their capital expenditure decisions on a set of 'prudential indicators,' which should ensure that local capital investment plans are 'affordable, prudent and sustainable' (CIPFA 2011). Although the Code has received legislative backing in 2004, its implementation is not policed in practice and the operationalization of the budget indicators leaves substantial interpretative leeway to LGs.

Compared to the Dutch and NRW regulations, CIPFA's Prudential Code is most explicit in its attention for debt. English councils are required to set an authorized limit for external debt, which establishes the outer boundary of a LG's borrowing based on a realistic risk assessment (Local Government Act 2003, Section 5). This debt indicator applies to the entire local debt volume, including short-term debt. Although the CIPFA Code pays attention to debt, the Code only provides guidelines regarding procedures on how to decide about the level of debt, while the actual debt levels are solely determined at the local level. While the guidelines leave a lot of space to LGs, the balanced budget rule is strictly enforced at the English local level, especially due to the authoritative role of the local Chief Financial Officer (CFO), also known as Officer 151. In practice, the enforcement of the balanced budget rule sets strict boundaries on short-term borrowing by English LGs, something that is reflected in the very small amount of short-term liquidity held by English LGs (around 1% of total English LG borrowing in 2014 (DCLG 2015)).

3.2.3 LG Meso-Level Regulations in the German/NRW System

The NRW system has undergone some major changes in the 1990s regarding the regulation of short-term liquidity. Until 1994, NRW applied a proportional limit similar to the Dutch system, which restricted an authority's amount of short-term borrowing to a maximum of 1/6 of a locality's total annual income. In case a LG was planning to exceed the cash limit, it had to acquire pre-approval from its intergovernmental supervisors. The revision of NRW's *Gemeindeordnung* (Local Government Act) in 1994 removed the cash ceiling and essentially gave LGs total freedom in setting their maximum level of short-term liquidity.[2] In theory, the relaxation of the liquidity credits has not replaced NRW's balanced budget rule, since liquidity credits are only allowed to balance annual budget fluctuations. However, with liquidity credits perceived as budgetary neutral transactions, they are not an integral part of the municipal budget report. Since the removal of the credit ceiling, short-term liquidity in NRW LG has strongly increased, from an amount just above 1 billion € in 1992 to 26.5 billion € at the end of 2014, exceeding long-term debt held by NRW LG (22.3 billion € at the end of 2014) (IT.NRW 2015).

The gradual implementation in NRW of an accrual-based accounting system from 2006 onwards also changed NRW's borrowing regulations. Parallel to the obligation for LGs to draft an opening balance sheet, NRW's Local Government Act was changed to allow the inclusion of a so-called 'balancing reserve facility.'[3] NRW LGs include this facility as a separate asset post on their balance. As long as the facility does not exceed 1/3 of the total municipal assets, and 1/3 of the total annual local income from taxes and grants, LGs are allowed to use the facility to balance annual deficits if faced with such a situation. Even though LGs that use the facility have a deficit in practice, the regulatory framework regards them as formally balanced if they are able to balance their budget by reducing their assets within the defined maximum of the balancing reserve facility (e.g., Gröpl et al. 2010).[4] Hence, many NRW LGs have absorbed their short-term debt in the 'balancing reserve facility.'

The comparative analysis in this section of the fiscal rules that frame local budgeting shows that despite the emphasis put on prudential budgeting in every system, the local level has substantial scope as to how it implements prudential budgeting. After the introduction of PBF in England, this observation applies to all three systems. The NRW system provides most space for local debt-making. Arguably, the unique financial circumstances of individual LGs and the need for local budgetary flexibility make it virtually impossible to prescribe detailed guidelines for local budgeting. With strong arguments against detailed budgeting rules, the formulation and manner of monitoring of the few rules that are present become even more relevant. The next section analyzes the institutional arrangements in the different systems for monitoring LGs that do not conform to the few budgetary regulations in place.

4 Monitoring Regimes in Comparative Perspective

In all three systems, multiple actors are involved in the monitoring of LG finances. Relevant at the local level are the local council and, in most cases, a local audit committee. In addition to local-level actors, LG finances are monitored by external auditors and by higher government actors. In all three systems, the ministry responsible for LG at the central level carries the main responsibility for the regulatory framework in which LGs operate. Since the organization of LG is a state-level responsibility in the German system, the relevant ministry in the German context is based at the NRW state level. In the Dutch case, the ministry responsible for LG is known as the Ministry of the Interior and Kingdom Relations (BZK), in NRW as the Ministry for the Interior and Local Government (MIK), and in the English/UK case as the Department for Communities and Local Government (DCLG). For convenience, the departments are referred to as the Interior Ministries.

In all three systems, the Interior Ministries are not themselves responsible for ensuring regulatory compliance at the local level. The Interior Ministries fulfill a policy responsibility regarding the laws and regulations that provide the statutory basis of the regulatory framework, and

they coordinate and facilitate the activities of the actual regulators. The Interior Ministries only act as active regulators in case a LG infringes the regulations in place or faces a financial emergency (see Sect. 5). In this section, the standard regimes for the monitoring of LG finances are compared.

4.1 The English Monitoring Regime on LG Finances

As shown in Fig. 2, the actual regulators differ among the three systems. In England, during the period leading up to 2014, the Audit Commission constituted the main regulator of English LG finances. The Audit Commission was established as a statutory corporation in 1983, which meant that only its chair and the Commission's board members were appointed by ministers, whereas its members were not to be regarded as civil servants. The Audit Commission fundamentally changed British public sector auditing by making auditors only answerable to the public and the courts rather than to their public sector 'clients' in the field (Campbell-Smith 2008). The mediating function fulfilled by the Audit Commission between LGs and auditors gave English auditors a highly autonomous position towards their LG clientele.

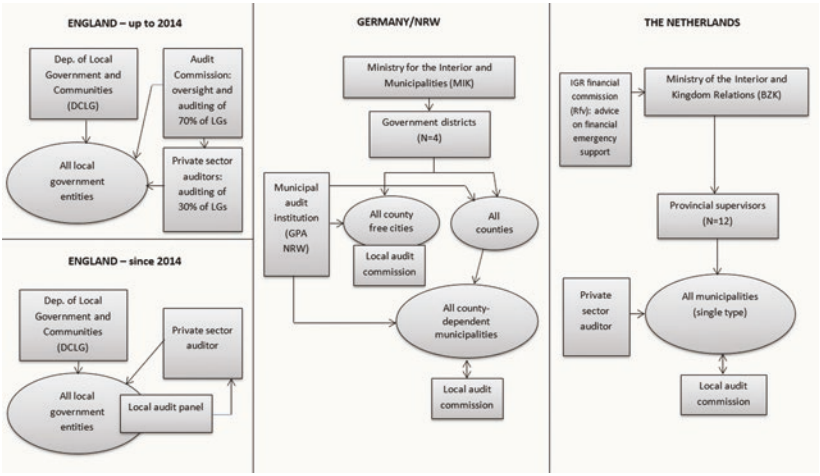

Fig. 2 Schematic representation monitoring structures on LG finances

The independence of English auditors was also strengthened by the Local Government Act 1988, which gave auditors the power to issue a 'prohibition order.' This order enables English auditors to pre-empt any local decision that they believe would lead to a breach of the law. Before 2012, the Audit Commission was responsible for appointing all LG auditors and allocated them to specific LGs. The auditors were a mix of around 70% direct employees of the Commission, and a segment of around 30% from the private sector.

The Audit Commission fulfilled its oversight role by conducting analyses that stretched beyond ordinary financial compliance checks. The Commission obliged its auditors to not only check and conclude local accounts based upon traditional regularity criteria, but to also include a full professional opinion on the economy, efficiency, and effectiveness of local spending (the so-called 'Value-for-money conclusions'). To identify aggregate trends in LG performance, the Commission developed increasingly sophisticated and time-consuming benchmarking systems. The performance measurement systems reduced support for the Commission's work among the local sector, partly explaining why the Conservative-led coalition government faced limited opposition when it decided, in an attempt to reduce costs, to abolish the Commission in 2010. According to many observers, the Commission had gone off track by developing benchmarking systems that were putting increasing demand on local resources. Despite a lack of support within the public sector to keep the Audit Commission alive, the decision to close it was criticized by the rating agencies for its reduction in central government's monitoring capacity of English LG finances (e.g., Moody's 2010).

As shown in Table 1, after 2014 the responsibility for appointing local auditors is no longer based at the central level in the English audit regime. In line with the localism vision of the Conservative-led coalition government (2010–2015), LGs themselves appoint their own auditors. To address concerns regarding the independence of auditors in the new framework, auditors are not directly appointed by the local council but through council-appointed auditor panels. It is uncertain if the audit panels will be able to ensure the independence of local auditors. A second risk of the post-2014 English structure is that with the absence of an independent body standing behind auditors, auditors may be less

willing to expose local malpractices out of fear of being dismissed. Third, the localized English auditing structure has reduced central government's oversight on LG finances. Although the inspection of individual LGs—a task that was previously conducted by the Audit Commission—has been transferred to the Interior Ministry (DCLG), this transfer will only provide partial compensation for the loss of oversight. These so-called corporate governance inspections have been hitherto only commenced after clear indications of regulatory non-compliance have been received. Hence, only 20 corporate governance inspections were carried out by the Audit Commission between 2000 and 2010, and it is unlikely that this number will increase after its transition to the Interior Ministry.[5]

4.2 The German/NRW Monitoring Regime on LG Finances

External regulation of LG in the German state NRW is exercised in a horizontal way through traditional auditing, and vertically through inspections by higher government levels. The identity of the financial supervisor in the vertical chain depends on the type of LG. As shown in Table 1, upper-tier LGs in NRW—i.e., county-free cities and counties—are monitored by government districts (*Bezirken*). The three government districts in NRW represent the state government and their head is directly appointed by NRW's prime minister. While being part of the state administration, the government districts have significant autonomy in the execution of their monitoring duties. Hence, some districts are known for having a tougher monitoring approach than others (Glöckner and Mühlenkamp 2009).

While the government districts are responsible for monitoring LGs that have the largest budgets, most LGs in NRW are based within counties and so fall outside of the monitoring powers of the government districts. As illustrated in Table 1, vertical financial supervision of the lower tier in NRW's counties is conducted by the county administrations. In comparison to the government districts, the quality of supervision conducted by the county administrations has to be critically reviewed due to the existence of strong financial interdependencies between counties

and districts. Most problematic is that the counties raise around 60% of their income via a contribution fee (*Kreisumlage*) levied among their districts. These county contribution fees constitute one of the main explanations for debt-making among NRW's districts (Buettner et al. 2008). At the same time, the counties are the main financial regulator of districts, which, given their financial dependence upon the districts, puts them in a rather ambiguous position.

The monitoring performance of NRW counties is also impeded by political aspects. In the counties, the final responsibility for financial supervision rests with the popularly elected county leader (*Landrat*). Since the similarly popularly elected mayors of the districts often share their party political background with the county leader, political considerations undermine the firmness of county supervision. In addition to vertical monitoring, all LGs in NRW are audited by NRW's Municipal Audit Institute (GPA NRW). Established by NRW's state government in 2003, the Audit Institute is the compulsory auditor for every LG in NRW. Next to auditing, the Audit Institute provides consultancy advice to LGs. NRW's LG sector is strongly involved in the Audit Institute; of the ten members in the board, nine are equally divided among NRW's three main LG representative organizations (county-free cities, counties, and districts) with the remaining board member representing the NRW Interior Ministry. Although the quality of the Audit Institute has been praised (Ebinger and Bogumil 2012), the standard setting role of the organization can be questioned due to the strong involvement of the LG sector in the Audit Institute's leadership.

4.3 The Dutch Monitoring Regime on LG Finances

In the Dutch system, the provincial level carries the main responsibility for monitoring LG finances. The twelve Dutch provinces conduct local financial supervision on behalf of the Interior Ministry. However, as a separate government layer in the Dutch constitutional system, the provinces enjoy significant autonomy in their supervision. The responsibility of supervision at the provincial level rests within the College of Provincial Executives, who, with the exception of its chair who is

appointed by the national cabinet, are elected by the popularly elected Provincial Council. Decision-making in the college is collegial, but one provincial executive carries the primary responsibility for intergovernmental financial supervision. In practice, substantial differences exist among Dutch provincial executives regarding their interests for—and dedication to—the monitoring of LG finances. Some provincial executives show high interest in improving the effectiveness of LG supervision, whereas others pay only marginal attention to it.

Political aspects also affect the monitoring decisions by provincial executives. According to Dutch regulations, LGs must be put under an intensified, so-called preventive form of supervision if they are unable to set a materially balanced budget (see also Sect. 3.2.1). However, as the label 'preventive supervision' attracts considerable media attention and negative publicity for the local politicians involved, the decision to install preventive supervision is not taken lightly by provincial authorities. The decision about whether or not to install preventive supervision is affected by the existence of party political similarities that often exist between provincial executives who are popularly elected politicians and municipal politicians. In some cases, provincial executives continuously refuse to follow advice from their administrative staff to install preventive supervision.[6]

Institutional reforms implemented in Dutch LG in the early 2000s have also influenced the Dutch monitoring regime. These so-called dualism reforms increased the council's control over the local executive and have reduced financial supervision by the provinces. As part of the reforms, the primary responsibility for the local finances has become more explicitly located with local actors, with provincial supervision labeled 'complementary' to monitoring by the local council and local auditor. More than 10 years after the implementation of dualism, the expected benefits of the reforms regarding the council's control over local finances have not materialized. Instead, the program budgets that were introduced as part of the dualism reforms have reduced the financial steering possibilities of Dutch councils (BMC 2010).

In addition to political aspects, the Dutch provincial monitoring regime is affected by policy relationships between the Dutch provincial and local levels. Most relevant for the financial position of LGs are the

spatial planning responsibilities held by the provinces. By translating central government's spatial policies into area-specific plans, the provinces traditionally play a key role in Dutch spatial planning. With the economic opportunities for commercial and private property development strongly increasing in the Netherlands during the 1990s, provinces facilitated and incentivized LGs to initiate large-scale real-estate projects. By reselling former agricultural land to commercial developers, municipalities were able to generate huge profits. In 2006 alone, 900 million € of LG income derived from property projects, while the average share of property profits to the total income of LGs with more than 100,000 inhabitants amounted to 17.4% in 2008 (Ten Have 2010, 29). Commercial interests in construction sites evaporated with the economic crisis in 2008 and municipal profits started to decrease strongly. Since many Dutch LGs had acquired substantial areas for real-estate developments and made large infrastructure-related investments to prepare areas for construction, the sites turned from being a very profitable activity into an expensive undertaking. The financial loss suffered by Dutch LGs between 2010 and 2014 amounts to 4 billion € (*Binnenlands Bestuur* 2015). Although the role of the provinces in the local real-estate debacle has not been subject to separate analyses, the provinces have been criticized in several reports for their long-time reluctance to enforce better financial risk management of real-estate investment within the municipalities (e.g., Rekenkamer Oost-Nederland 2013).

As illustrated in Table 1, local auditors in the Dutch system are directly appointed by their clientele LG. Auditing of Dutch LGs has been run by private sector auditors since 1997. In 2015, only two Dutch LGs had their own auditing service (Amsterdam and The Hague), while others are audited by external firms, mostly the Big-4 (Deloitte, EY, KPMG, and PwC). The quality of audits conducted by the Big-4 has been strongly criticized by the Dutch independent government regulator for financial services (AFM 2014). Problems have been related to the mix of auditing and consultancy that characterized the work of auditors from the Big-4, which alerted to the serious moral hazards in the Dutch accounting profession. The implementation of the EU Audit Reform in 2014, however, can be

expected to have improved the quality of LG auditing, as auditors are no longer allowed to provide consultancy services to clients for whom they are also the statutory auditor.

5 Financial Emergency Procedures: Rules and Approach

The Dutch, English, and German systems do not have legislation in place facilitating LG bankruptcies. However, most European countries have special institutional arrangements in place to respond to local financial crises. The degree of formalization of the arrangements for situations of high financial stress differs strongly among the countries. This section compares the financial emergency arrangements in place in the three selected systems.

5.1 Intensified Supervision in the German/NRW System

The regulatory regime in NRW applies different intervention stages once a LG is unable to set a balanced budget. As illustrated in Table 2, it starts with a situation in which a LG is unable to produce a balanced budget, in which case the LG faces an intensification of intergovernmental supervision. The LG is now only allowed to borrow for investments that generate revenues and is no longer allowed to adopt any new voluntary tasks, and significant limitations are implemented upon its personnel management (Busch 2005). In addition, the budget concept needs to illustrate that in the most recent 5 years since the start of the 4-year budget balancing period, the remaining old debts will be phased out via budget surpluses—assuming that no extraordinary financial setbacks will occur.

In 2011, a major change was implemented in NRW's local budget regulations that has changed the point at which intensified supervision kicks in. Up to 2011, a rebalanced budget needed to be realized by the fourth year after the start of the budget balancing concept. Since 2011,

Table 2 Intervention steps towards non-conforming LGs

	England	Netherlands	Germany/NRW
Normal supervision	- Auditor's standard supervision - Audit Commission oversight (pre-2014)	Repressive supervision	Standard supervision
First phase intensified supervision	DCLG directives	Preventive supervision	Budget balancing concept
Decision taken by	Secretary of State DCLG	Province – provincial representative	Government district (*Bezirksregierung*) or county administration
Second phase intensified supervision	DCLG intervention	Section 12 status	Non-approved budget status
Decision taken by	Secretary of State DCLG	Minister of the Interior & Minister of Finance, after consultation	Government district (*Bezirksregierung*)
Additional funding	No	Yes	No
Main reason second phase intensified supervision 2000–13	Underperformance in public service delivery	Financial problems	Financial problems

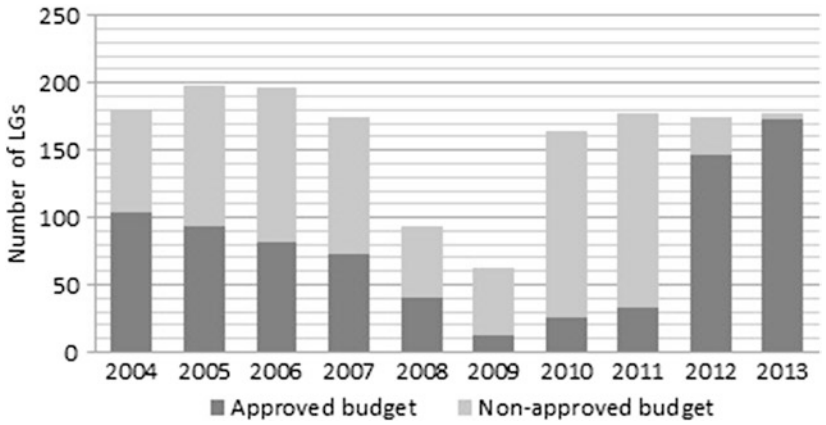

Fig. 3 Graph of approved and non-approved budgets NRW, 2004–2013 *Source:* Own graph, based upon data from NRW Interior Ministry (MIK)

the period has been extended to the tenth year after the start of the procedure (GO NRW § 76, 2). Figure 3 illustrates that in the period leading up to 2011 81% of NRW LGs had a non-approved budget status. The amendment of NRW's LG budgetary law in 2011 reversed this situation and 83% of NRW LGs set an approved budget in 2012. The regulatory change hugely alleviated pressures on the State financial regulators, who, without having had any substantial increase in resources, had experienced a steady growth in the period up to 2011 in the number of LGs requiring intensified supervision.

The final stage of intervention action available in the German system is to send in a state commissioner. Given the strong interference with the constitutional principle of local self-autonomy, state commissioners are used very infrequently. The NRW Interior Ministry used the instrument in 2013 for the first time. The state commissioner was sent to a LG—Nideggen—who had committed itself to the implementation of a set of austerity measures in exchange for additional financial support from the state. As the NRW State regarded Nideggen's speed of implementing the measures insufficient, it decided to send in the commissioner.

5.2 Intensified Supervision in the Dutch System

In the Dutch system, the provinces monitor LG budgets to identify those that exceed their balance over a period up to 3 years. As explained before, a LG is allowed to show a budget deficit in the current budgetary year but should be able to present a balanced budget in its 3-year estimates. This indicates that, at least in theory, a municipality is able to have a continuously unbalanced budget without getting into trouble with the provincial regulator, as long as it can present a balanced budget in its 3-year forecasts. Data on the number of Dutch LGs that are unable to set a balanced budget in the upcoming budgetary year are not systematically disclosed. However, some indications of the scale of unbalanced budgets can be obtained from data disclosed by the provinces of Utrecht, North Brabant, and South Holland. In correspondence from 2015 with the Dutch Interior Ministry (BZK 2016), Utrecht reports 76.9% of its LGs that set an unbalanced budget (20 out of a total of 26), North Brabant, 47.0% (31 out of a total of 66), and South Holland 20.7% (12 out of a total of 58). Notwithstanding the large disparity in the budgetary status of LGs among the Dutch provinces, the figures demonstrate that a substantial number of Dutch LGs are unable to set a balanced budget.

If a LG is unable to present a balanced budget within its 3-year budget plans, the Dutch provincial authorities are legally obliged to put the LG under 'preventive supervision.' In this stage, a LG needs to send its budget and any budget changes its plans during the budgetary year for approval to the provincial regulators. The number of Dutch LGs under preventive supervision has been small and decreased sharply more recently. Whereas 6.4% of the total number of Dutch LGs were under preventive supervision for financial reasons in 2005 (or 30 LGs), this was only 4.1% in 2015 (or 16 LGs). These numbers have been met with criticism, especially due to the fact that at a time when Dutch local finances are under increasing pressure the number of LGs facing intensified financial supervision is reducing (Bekkers 2014). One reason for the small number of LGs facing intensified supervision is an extension implemented in 2013 in the period in which LGs that have been affected by the property bubble are allowed to balance their budget—from three to 10 years.

If the municipal finances do not improve under preventive supervision, a Dutch municipality can apply to central government for Section 12 status, which provides the municipality with a temporary annual funding amount in addition to the normal allocation it receives from the Dutch Municipal Fund. To prevent common pool problems (Ostrom 1990), entrance to Section 12 funding is decided after a tightly organized process lasting approximately one and a half years in which the locality's finances are scrutinized by Section 12 inspectors from the Interior Ministry (BZK).[7] Once a municipality receives Section 12 funding, the municipality is put under intensive supervision, resulting in the virtual abolishment of local financial decision-making freedom. Four Dutch LGs were receiving Section 12 funding in 2015, with a similar annual average over the period since 2001. Historically, this is a relatively small number. For example, in 1955 more than 700 of the then 1,000 Dutch LGs were receiving additional funding (Financial Relations Council 1996). By improving municipal income with an introduction of a local property tax in the 1970s and through continuously sophisticating the Dutch mechanisms for the distribution of grant funding, Section 12 funding has developed from a popular opportunity to get something additional into a safety net of last resort.

5.3 Intensified Supervision in the English System

Compared to the Dutch and NRW systems, procedures as to how intergovernmental regulators should operate in case councils are unable to set a balanced budget is least institutionalized in the English system. The English system puts strong emphasis on the role of the local Chief Financial Officer (CFO) as a key actor in safeguarding a balanced budget. The role of CFO, or Officer 151, has traditionally been defined in a broader sense, with responsibilities that exceed those owned to the local council.[8] The CFO has several duties, including the requirement to provide a report to the local council if there is, or is likely to be unlawful expenditure or an unbalanced budget. This report must also be sent to the LG's external auditor and to the Secretary of State of the Interior Ministry (DCLG). Until the council has considered the report,

Section 114 of the Local Government Finance Act of 1988 determines that the local authority is not allowed to make any new agreements incurring expenditure. By functioning in practice as a prohibition on any local spending, Section 114 gives strong powers to the local CFO. Section 114 notices were frequently issued in the 1990s, but following improvements in local financial management have been relatively scarce in the period since 2000.

The English system provides no formalized follow-up scheme for intergovernmental supervision once a Section 114 notice has been issued by the CFO. In case the LG is unable to re-balance its finances, central government can issue a financial directive, directing the LG to take certain measures. Since the introduction of the Local Government Act of 1999, the UK Government has the additional competence to intervene in a LG in order to re-establish the authority's finances.[9] This decision is up to the discretion of the Secretary of State of the Interior Ministry (DCLG) and is normally taken after pre-agreement within cabinet. Directions and interventions have only seldom been used by central government, the first time being in the London borough of Hackney in 2001, after a critical report from the Audit Commission called for government intervention (*Local Government Chronicle* 2001). Although financial matters often call for central government intervention, non-performing local services, especially in the social welfare domain, constituted the main reason for the interventions that occurred in England between 2000 and 2013 (e.g., Doncaster, Kingston upon Hull, and—threatened with intervention—Walsall).

6 Conclusions and Policy Recommendations

The three regulatory regimes on LG finances investigated in this chapter are highly heterogeneous. The findings demonstrate that the design and enforcement of budget rules in local government is strongly influenced by the wider institutional context in which local authorities operate. Fiscal rules on LG finances are limited and have become more flexible in recent years. Despite the strong belief among credit markets in the quality of the regulatory frameworks, and hence indirectly the

creditworthiness of LGs, the monitoring of LG finances in England, Germany/NRW, and the Netherlands shows flaws in practice. Different features reduce the contribution of the regulatory frameworks to enhance government financial sustainability.

The English regulatory system used to provide the most heavily regulated system of the three regulatory regimes in this chapter. The introduction of the Prudential Borrowing Framework (PBF), however, has transferred many treasury decisions that were previously subjected to intergovernmental inspection to the local level. The local level in NRW has also experienced a relaxation of intergovernmental regulations. Most notable has been the removal of the credit ceiling on short-term liquidity, which has increased the vulnerability of local finances in NRW to factors outside the control of government. In addition, through its debt-enhancing effect the extension of the requirement of setting a balanced budget from the 4th to the 10th year after the identification of an unbalanced budget is likely to reduce long-term spending flexibility of NRW LGs.

In the Dutch system, provincial supervision on LG finances has been reduced in favor of a larger scrutiny role for local politicians. The expected effects of the Dutch reforms regarding greater local control over LG finances have not materialized. The Dutch system also demonstrates substantial local leeway to temporarily escape from the balanced budget rule. The relaxation of the regulatory regime on local debt and deficit making in NRW by the NRW State authorities has been triggered by growing financial stress at the NRW local level, which, to a significant extent, has been caused by increasingly tight federal- and state-level funding for statutory services provided by NRW LGs (De Widt 2016). As both State authorities and LGs in Germany have limited possibilities to increase their own revenues, a relaxation of the regulatory regime on LG finances offers German government actors a readily available solution to alleviate local financial pressures. Further, in the Dutch and English systems, a relaxation of the regulatory regimes has enabled LGs to reduce immediate financial pressures through increased borrowing.

Inadequate performance by the regulatory regimes carries considerable risks for the sustainability of local and intergovernmental finances.

The absence of LG bankruptcies in the recent history of the three systems analyzed in this chapter should not lead to the conclusion that the question of how sovereigns will respond in case of defaulting LGs is only of theoretical interest. The EU financial crisis has led to discussions about defaulting European states unimaginable in the European discourse before the crisis. Uncertainty about the responses of the regulatory regimes in situations of defaulting LGs may well have an immediate effect as well. This is most visible in NRW, where heavily indebted LGs and unclearly defined government liability structures can cause private sector loan providers to apply (slightly) higher interest rates to more indebted NRW LGs in case of a local financial default.[10]

Clearly, a preference exists among intergovernmental actors in all three systems to enable LGs to profit from low local borrowing costs. The findings of this chapter demonstrate that the focus on short-term financial advantages in the form of low borrowing costs affects the thoroughness of intergovernmental monitoring, reduces its transparency to the outside world, and biases local budgeting behavior towards borrowing instead of exploring other financial options, such as reducing expenditure. This even applies to the most heavily indebted LGs, who do not face any penalty costs in the form of higher interest rates. As all three systems generate uncertainty regarding the responses of the regulatory regimes in the case of defaulting LGs, increased divergence in LG borrowing costs constitutes a relevant mechanism to improve local budgetary practices and, in that way, enhance the sustainability of LG finances. A reassessment of the regulatory regimes based upon a realistic evaluation of their regulatory performance, as well as the actual regulations in place, will most likely reduce the debt-enhancing effect of low borrowing costs, since LGs with problematic finances will be charged higher interest rates.

Notwithstanding its likely initial cost-increasing effect, divergence in borrowing costs may well have a positive financial effect in the long term as it will put pressure on LGs to improve their financial decision-making. Clearly, we need more knowledge on how regulatory regimes, in their broadest institutional sense, affect local financial decision-making and the financial sustainability of local authorities. Further studies on the relationship between fiscal rules and the financial health of local government, using both large-N and case study approaches, are likely to generate valuable insights for scholars and policymakers alike.

Notes

1. The province of South Holland speculated with almost 0.8 billion € (1.7 billion gulden) of loans to realize interest profits. After some initial lucrative years, the secret banking activities brought the province near financial collapse when one of its debtors, the trading house Ceteco, went bankrupt (Koelewijn and Meeus 1999).
2. NRW's 1994 and currently operational Local Government Act formulates this as follows: 'For the timely performance of their payments, the municipality may take up liquidity credits up to the ceiling amount as ascertained in its budgetary bill insofar as it has no other means available. The authorization is valid for the budget year and until the adoption of a new budgetary bill'. Original clause: 'Zur rechtzeitigen Leistung ihrer Auszahlungen kann die Gemeinde Kredite zur Liquiditätssicherung bis zu dem in der Haushaltssatzung festgesetzten Höchstbetrag aufnehmen, soweit dafür keine anderen Mittel zur Verfügung stehen. Diese Ermächtigung gilt über das Haushaltsjahr hinaus bis zum Erlass der neuen Haushaltssatzung' (*Gemeindeordnung NRW* Section 89, par. 2).
3. See for this so-called *'Ausgleichsrücklage', Gemeindeordnung NRW*, Section 75, par. 2, sentence 3.
4. The system in NRW regulates capital borrowing through the municipal balance. Capital borrowing is allowed as long as a municipality does not become over-indebted. Over-indebtedness is defined as a municipality that has used all local assets on the municipal balance (*Gemeindeordnung NRW*, Section 75, par. 7).
5. Source: http://archive.audit-commission.gov.uk/auditcommission/inspection-assessment/corporate-governance/pages/default.aspx.html (visited 12 July, 2014).
6. Interviewees NL3 and NL18; part of a series of research interviews conducted amongst central and local government actors in the Netherlands in January 2014.
7. Only in the case the deficit exceeds 2% of the sum the municipality receives from the Dutch Municipal Fund, the municipality can be considered for Section 12 emergency support. In addition, an income threshold, or admission ticket, is in place that demands that the local property tax is at least 20% above the national average, and fees for savage and refuse collection need to cover all costs.

8. Case law *Attorney General -v- De Winton* (1906) established that the local treasurer is not merely a servant of the Council but also holds a fiduciary relationship to the local taxpayers.
9. Local Government Act 1999, Section 15, par. 5 states: 'the Secretary of State may direct the authority to take any action which he considers necessary or expedient to secure its compliance with the requirements of this Part,' and Local Government Act 1999, Section 15, par. 6a states 'the Secretary of State may direct that a specified function of the authority shall be exercised by the Secretary of State or a person nominated by him [-],' and Section 15, par. 6b: 'the authority shall comply with any instructions of the Secretary of State or his nominee in relation to the exercise of that function and shall provide such assistance as the Secretary of State or his nominee may require for the purpose of exercising the function.'
10. A survey conducted by the German treasurers' magazine *Der Neue Kämmerer* (2013) illustrated that whereas 6% of German treasurers had noticed inter-local interest rate differences in 2011, 17% did so in 2013.

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9

The Financial Sustainability of Public Universities in Spain

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1 Introduction

The economic crisis has affected numerous public institutions, including universities, and particularly those in Europe and the USA (Denneen and Dretler 2012). This impact has provoked budget cuts and debt ceilings that jeopardise the continued provision of some public services. In Spain and elsewhere in Europe, some public universities are starting to have difficulty maintaining quality standards in teaching

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M.P. Rodríguez Bolívar (ed.), *Financial Sustainability in Public Administration*,
DOI 10.1007/978-3-319-57962-7_9

and, especially, in research due to the lack of resources (Escardíbul-Ferra and Esparrells Pérez 2013; Pérez-Esparrells 2014). Aware of these problems, the European Union (EU) has nevertheless warned Member States of the need for tight control over the deficit and public debt, in order to ensure the financial sustainability of all European public administrations and thus underpin confidence in the stability of the European economy (EU 2012). Moreover, various international organisations, including the Canadian Institute of Chartered Accountants (2009) and the International Federation of Accountants (IFAC) (2012), have highlighted the need to implement sustainability policies that will create the necessary conditions for the consolidation of public finances and prevent intergenerational inequalities (Cabaleiro et al. 2013). In view of this situation, and under pressure from the EU to adopt measures to limit the public deficit, Spain amended article 135 of its Constitution and regulated the principle of financial sustainability (Art. 4) through Organic Act 2/2012 of 27 April on Budgetary Stability and Financial Sustainability (LOEPSF, Spanish initials), according to which financial sustainability was to be achieved by reference to two criteria (Art. 13): a debt ceiling and a limit on the average period of payment to suppliers (APPS).

Spanish public universities, as institutions subject to public law, must comply with the principle of financial sustainability set out in the LOEPSF, in addition to ensuring their own financial sustainability (European University Association 2008; Malles and Unai Del Burgo 2010). In this regard, universities in Spain are in fact playing a fundamental role in changing the social and economic model of the country, as the paramount agents in the generation, dissemination and transfer of knowledge (Spanish Ministry of Education 2010). Research studies in this field have addressed the question of governmental financial sustainability from various perspectives. Some have identified sociodemographic and economic indicators that influence the financial sustainability of local government (Perez-López et al. 2013; Rodríguez-Bolívar et al. 2015), and others have analysed the solutions adopted by local governments to achieve sustainability (Wällstedt et al. 2014). Other studies have considered fiscal difficulties (Khola et al. 2005; Zafra et al. 2009) and the public debt of national governments (Ballabriga and Martínez-Mongay 2005; Pirtea et al. 2013; Slembeck et al. 2014).

However, with respect to universities, little research has been conducted to address the question of financial sustainability. We concur with Gallego-Álvarez et al. (2011) that it is of vital importance to identify the determinants of financial sustainability of Spanish public universities. This knowledge, made available to the relevant decision makers, can strengthen management and underpin the financial sustainability of these institutions (Rodríguez-Bolívar et al. 2015). Universities that have a solid financial structure will be able to achieve their many goals and successfully address the changes that continually arise in a complex global environment (EUA 2011).

Taking into account the above considerations, and the fact that no previous studies have been conducted to identify the variables that influence governmental financial sustainability (Rodríguez-Bolívar et al. 2015), this chapter has two main aims: First, to determine the financial sustainability of universities, in terms of the two criteria established by the LOEPSF: APPS and net debt; and second, to identify the determinants of financial sustainability among Spanish public universities.

The rest of this chapter is structured as follows: Following the introduction, we consider how financial sustainability can be measured, taking into account the recommendations made in international pronouncements and the conclusions reached in previous studies. Section 3 then describes the means by which the principle of financial sustainability is to be achieved in Spain, as set out in the LOESPF. Section 4 presents the determinants of financial sustainability, after which we explain the method applied and the characteristics of our study sample. Finally, we present the main results obtained, the conclusions drawn and possible areas for future research.

2 Measuring Governmental Financial Sustainability: An International Approach

The concept of the financial sustainability of public administrations is defined as the government's capacity to assume the financial burden of debt, both at present and in the future (Larch 2009). In this respect, and from a theoretical standpoint, it has been observed that

governments should only assume an affordable level of debt, generating a surplus that is sufficient to cover the cost of future repayment (Perotti et al. 1998).

In the same vein, various international organisations (IFAC 2012, 2013; EU 2012; EC 2011) have defined financial sustainability in the public administration as the government's ability, in application of its present policies, to deliver services and to meet current and future financial commitments, without provoking a long-term increase in public debt. As observed by Rodríguez-Bolívar et al. (2015), in the context of statements issued by agencies such as the World Commission on Environment and Development (1987) and IFAC (2012), as well as by authors like Pezzey and Toman (2002), one of the key issues related to sustainability is that of intergenerational or inter-period equity, i.e. the capability of the income earned in 1 year to cover the costs arising from the delivery of services offered during the same year, as reflected in the income statement (Government Accounting Standards Board—GASB 1987).

Among the various financial statements that are published, the income statement is highly useful for identifying and evaluating public sector financial sustainability (IFAC 2012, 2013; EC 2011). Therefore, the income statement is the starting point for determining governmental financial sustainability, and constitutes a fundamental decision-making tool for politicians and managers (Burrit and Schaltegger 2010).

As indicated by Rodríguez-Bolivar et al. (2015), financial sustainability can be measured by reference to two variables. In accordance with international pronouncements made by bodies such as the EU (2012), IFAC (2012), the Financial Accounting Standards Board—FASB (2012) and GASB (1990), as well as previous research (Rodríguez-Bolivar et al. 2014), the first of these is the budget result. However, Rodríguez-Bolívar et al. (2015) suggest that this measure should be adjusted to take into account the effect of extraordinary results, which by their very nature will probably not be repeated in the future; accordingly, the adjusted budget result provides a more accurate measure of governmental financial sustainability.

The second variable used to measure financial sustainability is based on the quantification of net debt. According to international organisations (IFAC 2013; CICA 2009), this variable is a key element in the

sustainability of public administrations. The importance of the level of public debt and the impact of other factors on this level have been analysed for different levels of government (Pogue 1970; Inman and Fitts 1990; Kiewiet and Szakaly 1996; Brusca and Labrador 1998; Balaguer 2002; Dollery and Blight 2011).

Various studies have considered the question of debt levels and financial sustainability in public universities. Thus, Gallego-Álvarez et al. (2011) analysed the financial condition of Spanish universities and the factors that influence it, while Vaquero-García and Pérez-Esparrells (2011), Pérez-Esparrells and Torre (2012) and Pérez-Esparrells (2014) all reviewed funding models and their relationship with university quality.

3 The Control of Financial Sustainability in the Spanish Public Administration

Government regulation of the financial condition of public organisations has traditionally been based on establishing mechanisms to impose legal control on borrowing and, more recently, on budgetary and financial sustainability.

In view of the failure of the control mechanisms set out in Act 2/2011 of March 4 on Sustainable Economy and in response to commitments made to the EU, Act 2/2012 of 27 April on Budgetary Stability and Financial Sustainability (LOEPSF) was adopted. The aim of this law was to restrain the public deficit and to begin the recovery towards budgetary balance. To do so, three main goals were established:

a. to ensure financial sustainability, at all levels of government;
b. to strengthen confidence in the stability of the Spanish economy and
c. to strengthen Spain's commitment to the EU with respect to budgetary stability.

Although the LOEPSF did not explicitly include the public universities, under Article 2 of this Act, the following interpretations of its application could be made:

a. They are considered to be addressed in paragraph 1 of Article 2, and therefore would be classified as belonging to the Autonomous Communities (regions), in accordance with the European System of National and Regional Accounts.
b. They are addressed in paragraph 2 of Article 2, because tacitly the universities are considered to be financially independent from their regional governments.

The distinction between these two views is important because while the principles introduced by the LOEPSF are applicable to the universities, their implementation differs according to whether these institutions are considered to be addressed by Article 2.1 or by Article 2.2.

The Act sets out the goals to be achieved, the procedure for doing so, the corrective measures to be applied in the event of any deviations from this course, and the disciplinary process that will ensue in response to a major breach. It also specifies the two fundamental principles underlying the legislation:

- Budgetary stability (art. 3): the existence of budgetary stability is related to a situation of structural balance or surplus.
- Financial sustainability (art. 4): the term financial sustainability is defined as the ability to finance present and future spending commitments within the limits of deficit, public debt and unpaid commercial debt, in accordance with the LOEPSF, the regulations on late payment and European legislation.

Compliance with the principle of financial sustainability means that public authorities must comply with the limits set for two variables (see Fig. 1): the volume of public debt and the APPS. Thus, the volume of public debt of all levels of government may not exceed the target set by the Central Government or that established by European regulations. This spending target is to be distributed among the central government, the Autonomous Communities and the local corporations, and if the limits are exceeded, further net borrowing will not be allowed.

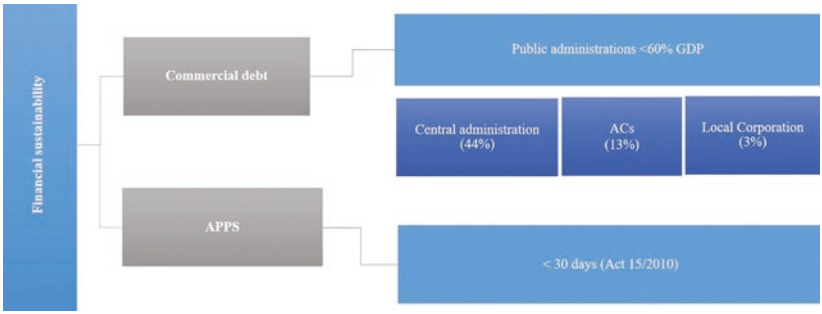

Fig. 1 Implementation of the principle of financial sustainability. *Source* Derived by the authors

Under the LOEPSF, the public debt of the public administration, as a whole, should not exceed 60% of GDP, with the Autonomous Communities being assigned 13% of this 60%, or as otherwise established by the European Union. Nevertheless, this is a medium-term objective, to be accomplished by 2020, and at present the regions are far from achieving it (see Fig. 2).

Control of the APPS is intended to be a definitive measure for controlling the commercial debt of public administrations. Previously, most concerns in this respect had focused on the control of financial debt. However, the persistence of commercial debt in the medium term may generate fiscal instability and increase public debt, which would subsequently be reflected in private debt, with consequent adverse effects on the economy as a whole. For this reason, payment defaults of commercial debt have been incorporated into the principle of financial sustainability, and mechanisms established for control and monitoring, together with preventive, corrective and, ultimately, coercive measures aimed at administrations in breach of the legally stipulated targets.

The LOEPSF expressly states that the public administrations, as well as publishing their APPS, must have a liquidity plan that includes information on the schedule for payment to suppliers, to ensure compliance with the maximum period legally allowable (30 days). Furthermore, each government must undertake to perform its payments at a rate sufficient to ensure implementation of the financial budget. If the APPS

	2014				2015			
	Debt millions €	Debt % GDP	Debt € per capita	APPS December	Debt millions €	Debt % GDP	Debt € per capita	APPS December
Andalusia	29.101	20,90%	3.465	45,65	31.365	21,70%	3.742	42.49
Aragon	6.010	18,40%	4.560	84,11	6.930	20,30%	5.300	99.61
Asturias	3.479	16,50%	3.309	14,13	3.876	18,00%	3.719	18.95
Cantabria	2.428	20,20%	4.149	25,31	2.691	21,80%	4.622	36.39
Castilla and Leon	9.359	17,60%	3.786	44,33	10.557	19,40%	4.316	34.7
Castilla la Mancha	12.858	34,50%	6.244	36,04	13.426	35,50%	6.579	27.87
Canary Islands	6.034	14,80%	2.873	14,61	6.649	15,70%	3.166	3.11
Catalonia	64.466	32,80%	8.586	38,79	72.274	35,30%	9.616	58.78
Extremadura	3.092	18,20%	2.829	81,22	3.576	20,40%	3.291	97.76
Galicia	9.961	18,50%	3.646	21,17	10.375	18,60%	3.818	29.29
Balearic Islands	7.777	29,50%	7.042	36,46	8.306	30,40%	7.505	70.47
Murcia	6.838	25,60%	4.660	57,94	7.601	27,30%	5.190	90.28
Madrid	24.632	12,70%	3.827	58,95	27.646	13,60%	4.277	37.51
Navarre	3.197	18,20%	4.992	-9,95	3.322	18,20%	5.188	-9.63
Basque Country	8.915	14,10%	4.072	-4,99	9.486	14,40%	4.333	-1.02
Rioja	1.296	16,80%	4.089	26,34	1.436	17,90%	4.548	18.47
C. Valenciana	37.376	38,20%	7.504	82,29	41.753	41,30%	8.429	76.21

Fig. 2 Debt and APPS of the Spanish autonomous communities. *Source* Derived by the authors

exceeds the maximum period, the administration is obliged to publish information about the resources it will dedicate to monthly payments to suppliers in order to bring the APPS down to the maximum level allowed under the payment rules. These stipulations are accompanied by the obligation to adopt measures to reduce costs, increase revenues or otherwise enhance the management of revenues and payments, in order to generate the liquidity necessary to reduce the APPS and thus meet the targets set. It is noteworthy that at present, most of the Autonomous Communities are failing to meet the APPS stipulated in the legislation on government payments.

Therefore, all levels of public administration, under the principle of financial stability, are required to achieve two specific goals, which are fundamental in the framework of Spain's commitments to the EU: on the one hand, to observe the debt limits established (and thus control public borrowing); and on the other, to respect the maximum APPS stipulated, in order to control commercial debt.

4 The Determinant Factors of Financial Sustainability in Public Universities in Spain

Several previous studies have analysed the determinants of local government financial sustainability. Pérez-López et al. (2013) concluded that financial variables (net savings, transfers and non-financial capital expenditure), the immigration rate, the level of decentralisation, the degree of inter-municipal cooperation and the political strength of the party in government are the main factors influencing financial sustainability. On the other hand, Rodríguez-Bolivar et al. (2015) identified the budget result, the size of the population, the size of the immigrant population, the level of education, the GDP, the importance of the tourism sector and the degree of business concentration as the main determinants of financial sustainability.

Among previous studies conducted to identify the determinants of financial sustainability in areas other than that of local government, Gallego-Álvarez et al. (2011) analysed the financial condition of Spanish universities. Their results indicate that financial sustainability is influenced by per capita GDP, population, the number of undergraduate and graduate students and by the financial assistance available to students.

Taking into account the above considerations, we selected the following possibly determinant factors in order to analyse their effects on the financial sustainability of public universities in Spain.

University Productivity

The quality and productivity of universities is a difficult concept to define. Therefore, if we wish to determine the relation between universities' funding and financial situation and their greater or lesser productivity, the indicators on which this measurement is based must be carefully weighted (Osuna 2009). In this regard, authors such as Schipper (1977), Bourn (1993), Falcone (2001), Moscoso et al. (2001), Bordons (2010) and Gallego-Álvarez et al. (2011) have analysed different indicators that can be used to measure the productivity

of universities, focusing in particular on the level of productivity that directly affects their financial situation.

Pérez and Aldás (2016) recently published the 4th edition of their U-Ranking report on indicators for the Spanish university system (ISSUE, Spanish initials). This report measures the results and productivity of Spanish universities, according to the core dimensions of teaching, research, innovation and technological development.

Taking into consideration the ISSUE report on university productivity and the findings of previous studies concerning the relation between the latter concept and universities' financial situation, we pose the following hypothesis:

H1. University productivity influences the financial sustainability of Spanish universities.

Political ideology

The level of government debt may be influenced by the political characteristics of the administration, and particularly by its political sign (Tellier 2006). Thus, authors such as Seitz (2000), León-Ledesma (2010) and García-Sánchez et al. (2011) consider that progressive parties tend to favour increased government spending, while conservative ones are more likely to advocate budget cuts. Accordingly, the level of debt is expected to be higher when a progressive party is in government.

In the Spanish public sector, the universities are self-governing, but are accountable to the governments of the Autonomous Communities responsible for their funding (Art. 81 of the Organic Act on Universities, 6/2001-LOU). Article 82 of the same Act sets out the rules and procedures for the development and implementation of university budgets and for the supervision of their investments, spending and revenues.

In view of this control of the universities by the Autonomous Communities and the influence of the ideology of the governing party in the region, the following hypothesis is formulated:

H2. The political ideology of the corresponding autonomous community government influences the financial sustainability of Spanish universities.

Experience of university administrators

In the private sector, experience in management, measured by the age of the institution, is considered to be a determinant factor in the capital structure of firms (Petersen and Rajan 1994; Dollinger 1995; Otero-Fernandez et al. 2007; García 2012). According to the theory of static trade-off (Frank and Goyal 2009), over time a firm's reputation of meeting its financial obligations becomes established and therefore it acquires improved access to funding. On this basis, one would expect the variable "age" to have a positive impact on the level of debt, i.e. the greater the age of the institution, the higher its level of debt (García 2012; Chavez and Vargas 2014).

On the other hand, studies have shown that mature companies are less likely to acquire long-term debt, preferring to use internally generated resources (Mac an Bhaird and Lucey 2010), and that younger ones are the most likely to resort to borrowing as a funding mechanism (Otero-Fernandez et al. 2007; Chavez and Vargas 2014).

Extrapolating these considerations from private enterprise to the context of public universities and, apart from the question of whether the relation is positive or negative, it is reasonable to believe that organisations with a longer history of activity will be more experienced in managing their resources, and hence will present a more stable financial situation. This will lead them to better manage their financial indicators, which for our purposes means lower levels of debt and a lower APPS.

In the public sector, this approach of measuring management experience according to the age of the institution has not previously been used in the analyses of financial sustainability. We believe this is because most of the areas of public administration with self-governing powers and legal personality (such as municipalities, the Autonomous Communities and the State) were created within a relatively short time period. However, a particular situation arises with respect to the public universities, which are autonomous but have a different legal personality from that corresponding to the rest of the public sector (Art. 2 LOU), as they have come into existence over an extended period of time.

Accordingly, we believe it would be interesting to examine to what extent universities' experience in management has influenced their financial sustainability. Therefore, the following hypothesis is formulated:

H3. Management experience is positively associated with the financial sustainability of Spanish universities.

The university community

The size of a university, measured in terms of its population, is an indicator that influences public funding, as larger public administrations receive a greater demand for public spending from the corresponding population (Pettersson-Lidbom 2001; Ashworth et al. 2005).

In the area of university education, according to Schipper (1977), larger institutions are faced by higher costs, although certain expenses such as central services and administration represent a proportionally lower cost for larger universities than for smaller ones (Bourn 1993). Moreover, as Gallego-Álvarez et al. (2011) observe, they also collect a larger volume of funds from student enrolments and government transfers. Nevertheless, these levels of public funding fall well short of optimum values (Escardíbul and Pérez 2013), and in recent years the universities have been affected by an increasing degree of financial insufficiency, caused especially by payment deferrals and cutbacks by the Autonomous Communities (CRUE). In addition, it is argued that larger universities must address significant current spending obligations in order to maintain their infrastructure and services, despite the decline in public funding. Accordingly, we believe it logical to consider borrowing as an alternative source of income, which allows the universities to meet their expenses and to comply with the stipulated APPS.

Taking into account these considerations, and in line with previous studies in this field, we pose the following hypothesis:

H4. The university community is positively associated with the financial sustainability of Spanish universities.

Current transfers

The financing model for Spanish universities is basically a public one, and depends in part on the current transfers received from the

Autonomous Communities (Osuna 2009; Escardíbul-Ferra and Pérez-Esparrells 2013). Indeed, the largest item in the revenue budget in 2013 was that of current transfers, with a relative weight of 62.6% in the non-interest income received by the Spanish public universities as a whole (CYD 2014).

In view of these facts, and that larger universities obtain a greater volume of current transfers from governments (Gallego-Álvarez et al. 2011), we wished to determine whether the volume of such transfers received by public universities affects their financial sustainability. Therefore, the following hypothesis was formulated:

H5. The transfers received from the autonomous communities influence the financial sustainability of Spanish universities.

5 Study Method and Sample Population

The study method applied was developed in accordance with the above-stated aims.

Study goal 1: Method to determine the financial sustainability of universities, according to the two criteria established by the LOEPSF: net debt and APPS.

According to the LOEPSF rules on sustainability, both net debt and the APPS for current operations must be controlled. Brussels requires the regions to control both of these parameters, and so the Autonomous Communities are demanding an increasing volume of monthly data in this respect. On the basis of the information received, more or less liquidity is supplied to each university according to whether its performance improves or worsens the region's net debt and contributes to compliance or otherwise with the APPS limits imposed under the LOEPSF.

To measure the level of debt, we took into account the information in this respect that is published in the university's balance sheet and annual financial statement. It should be noted that on numerous occasions, a large proportion of research spending is grant funded,

in part from FEDER funds; in these cases, the grant award decision states that this amount must be accounted for in chapter 9 of revenue items, "Financial liabilities", at the time of receipt. In other words, it is accounted for as a loan and cannot be converted into a grant; therefore, it forms part of the university's revenue until the competent Ministry, which advances the funds, informs the university that it has received the corresponding amount from the European Community, after proper justification. These funds cannot be considered as real debt incurred by the university (net debt—ND *measured in absolute terms*), because they are non-repayable, and so the consideration of real financial debt leads us to apply the following formula:

(ND)Repayable financial debt$_n$*: Financial debt* $_n$*–Non-repayable financial debt*$_n$

As regards the APPS, although the LOEPSF recommends this information be included in financial statements, most universities do not do so. Accordingly, we have calculated it by the following formula:

$$APPS_n = \left(\frac{S_n + S_{n-1/2}}{LR2 + 6_n} \times 365 \right) - 30,$$

where

S is the net debt to suppliers at year end; and

LR 2 + 6 are the liabilities recognised in Chaps. 2 and 4.

According to Royal Decree 635/2014, the average number of days of payment to suppliers (APPS) is calculated as the number of days elapsed since the 30th day following the date of entry into the administrative record, i.e. 30 days should be subtracted from the total.

Study goal 2: Method to analyse the incidence of factors on financial sustainability

The financial sustainability of public universities is subject to the influence of the institutions' environment. Therefore, according to the factors in Sect. 4, we consider the following ten hypotheses, five for debt and five for the APPS.

The independent variables referred to in the hypotheses were tested against each of the dependent ones—ND and APPS—and thus

EXPLANATORY VARIABLES	MEASURE	SOURCE
University productivity (PRODUCTIVITY)	U-Ranking of global productivity	U-Ranking (2014)
Political ideology (IDEOLOGY)	Political ideology of the governing party: 1 = Conservative; 0 = Progressive	Ministry of the Interior (2015)
University experience (EXPERIENCE)	Number of years elapsed since its foundation	U-Ranking (2016)
Size of the university community (COMMUNITY)	Undergraduate students + Graduate students + Teaching staff + Administrative and Service staff	Ministry of Education, Culture and Sport (2016)
Current transfers (TRANSFERS)	Quantity of operative funds received from the Autonomous Community	Annual Accounts (2014)

Fig. 3 Explanatory factors: measures and sources. *Source* Derived by the authors

two models are proposed. These independent variables were measured in terms of the magnitudes commonly used in previous studies of this nature (Mac an Bhaird and Lucey 2010; García-Sánchez et al. 2011; Gallego-Álvarez et al. 2011; Pérez and Aldás 2016) (see Fig. 3).

Taking into account the structure presented by the dependent variables, the association between dependent and independent variables was tested using Tobit regression (through the STATA 11.1 program), which produced the following equations:

$$\mathrm{ND}_i = \beta_0 + \beta_1\,\mathrm{PRODUCTIVITY}_i + \beta_2\,\mathrm{IDEOLOGY}_i + \beta_3\,\mathrm{EXPERIENCE}_i + \beta_4\,\mathrm{COMMUNITY}_i + \beta_5\,\mathrm{TRANSFERS}_i$$

$$\mathrm{APPS}_i = \beta_0 + \beta_1\,\mathrm{PRODUCTIVITY}_i + \beta_2\,\mathrm{IDEOLOGY}_i + \beta_3\,\mathrm{EXPERIENCE}_i + \beta_4\,\mathrm{COMMUNITY}_i + \beta_5\,\mathrm{TRANSFERS}_i$$

The total study population consisted of 51 Spanish public universities (see Fig. 4), and the final study sample was composed of the 45 public universities for which annual accounts were available for the full year at the time of the study (2014), together with details of the dependent variables. To obtain these financial statements, we first consulted the university's transparency portal; if there was no such portal, the data were obtained from the university website.

AC	Number of universities	AC	Number of universities
Andalusia	9	Galicia	3
Aragon	1	Balearic Islands	1
Asturias	1	Murcia	2
Cantabria	1	Madrid	6
Castilla and Leon	3	Navarre	1
Castilla la Mancha	1	The Basque Country	1
Canary Islands	2	Rioja	1
Catalonia	7	C. Valenciana	5

Fig. 4 Number of universities analysed, per Autonomous Community (AC). *Source* Derived by the authors

6 Results

6.1 Descriptive Analysis

With respect to debt levels, Fig. 5 shows that on average the Spanish public universities had a debt of €82.14 million, spanning a broad range, from €345.35 million to €5.87 million. The universities of the Basque Country and of the Madrid region were the most indebted, on average.

The public universities of the Madrid Autonomous Community make the greatest contribution to the increased indebtedness of their region. In contrast, the (sole) university of the Navarre Autonomous Community contributes most towards the goal of limiting regional debt to 13% of GDP.

Figure 5, from column 6 on wards, shows the APPS results by region, together with the average values for all Spanish public universities regardless of the region in which they are located. It can be seen that, on average, the universities pay their suppliers after 24.31 days,

		Net Debt (millions €)					Average Period of Payment to suppliers			
	Uni/AC	University				*AC*	University			
	% (1)	*M (2)*	*SD (3)*	*Maximum (4)*	*Minimum (5)*	*APP (6)*	*M (7)*	*SD (8)*	*Maximum (9)*	*Minimum (10)*
Andalusia	0,93%	*38,80 38.806.093*	*18,68*	*75,16*	*12,24*	*45,65*	29,19	16,62	56,67	7,74
Aragon	1,46%	*87,99 87.998.876*	-	-	-	*84,11*	18,33	-	-	-
Balearic Islands	0,45%	*34,64 34.642.201*	-	-	-	*36,46*	21,15	-	-	-
Canary Islands	0,88%	*26,64 26.641.657*	*4,64*	*29,92*	*23,35*	*14,61*	15,23	1,15	16,04	14,42
Cantabria	1,75%	*42,59 42.595.377*	-	-	-	*25,31*	8,09	-	-	-
Castilla la Mancha	0,44%	*56,97 56.977.278*	-	-	-	*36,04*	13,50	-	-	-
Castilla and Leon	1,17%	*36,41 36.414.201*	*23,44*	*62,58*	*17,3*	*44,33*	11,00	4,28	15,83	7,70
Catalonia	1,25%	*115,00 115.008.165*	*96,47*	*297,099*	*16,31*	*38,79*	44,87	64,68	190,14	6,56
C. Valenciana	1,63%	*121,96 121.966.852*	*60,88*	*212,56*	*65,33*	*82,29*	17,16	5,78	24,28	8,15
Galicia	1,04%	*34,69 34.696.972*	*42,30*	*83,27*	*5,87*	*21,17*	20,28	7,96	27,51	11,75
Rioja	1,33%	*17,27 17.271.551*	-	-	-	*26,34*	11,06			
Madrid	4,22%	*173,17 173.177.102*	*130,58*	*345,35*	*41,92*	*58,95*	29,13	22,84	75,31	14,82
Murcia	1,15%	*39,22 39.223.401*	*25,84*	*57,499*	*20,94*	*57,94*	5,74	2,16	7,27	4,21
Navarre	0,21%	*6,712 6.712.944*	-	-	-	*-9,95*	12,40	-	-	-
The Basque Country	1,95%	*174,14 174.147.000*	-	-	-	*-4,99*	11,28	-	-	-
Asturias	1,18%	*41,13 41.134.528*	-	-	-	*14,13*	25,14	-	-	-
Average		***82,14***	**82,97**	**345,35**	**5,87**		**24,31**	**28,65**	**190,14**	**4,21**

Fig. 5 Debt and APPS of the Spanish universities by Spanish autonomous community. *Source* Derived by the authors

although the values are widely dispersed, with some paying in 4.21 days (from the 30 days after administrative receipt) while others do so after 190.14 days. However, only six universities exceed the legal limit of 30 days for payment, with the region of Andalusia containing most universities that fail to meet the deadline.

By regions, in Catalonia the APPS appears to be higher than the value obtained after consolidation. Although the universities in the regions of Asturias, Navarre and the Basque Country present payment periods that are greater than those for the region as a whole, they remain within the legal limits. The negative values for Navarre and the Basque Country reflect the fact that the Spanish legislation for APPS allows 30 days for document processing and another 30 days for payment to be paid; therefore, in these Autonomous Communities, the payment was made during the first 30 days allowed for document processing.

6.2 Explanatory Analysis

Our explanatory analysis began by considering the relation between the determinant factors of the APPS and the debt levels in question. To this end, Fig. 6 shows the Pearson correlation matrix obtained, which contains three mid-level correlations between the productivity variables—experience, community and current transfers—as well as some low-grade correlations of little importance. The values of these correlations between independent variables are less than 0.8 in every case, and so there is no problem of multicollinearity that might affect the proposed model (Neter et al. 1996).

The multiple linear regression results shown in Fig. 7 reveal the explanatory power of the models obtained, measured by the adjusted R-squared values (79.15% for Model 1 and 26.75% for Model 2). The linearity of the regression was corroborated by Fisher's F-test (26.61*** for Model 1 and 4.21*** for Model 2). These results confirm the significance of the models and the suitability of the regression analysis for dependent variables of this type (Fig. 7).

With respect to the significance of the explanatory variables, all five were found to be significant in at least one of the two models. In the case of Model 1, measured by reference to net debt, the five variables were all significant. However, in Model 2, referring to the APPS, only two of the five (PRODUCTIVITY-IDEOLOGY) variables were significant. Therefore, and in line with Gallego-Álvarez et al. (2011), these results indicate that there is a relation between the determinant factors analysed and the financial sustainability of Spanish universities.

	ND	APP	PRODUCTIVY	IDEOLOGY	EXPERIENCE	COMMUNITY	TRANSFERS
ND	1.0000						
APP	0.3680**	1.0000					
PRODUCTIVY	0.8137***	0.4687***	1.0000				
IDEOLOGY	0.1418	-0.2844**	0.0645	1.0000			
EXPERIENCE	0.2031	0.3519**	0.4961***	0.1324	1.0000		
COMMUNITY	0.47***	0.2607*	0.6485***	0.1011	0.2840*	1.0000	
TRANSFERS	0.4021***	0.3278**	0.6902***	0.0472	0.4236	0.2806*	1.0000

*Correlation is significant at the 0.10 level. **Correlation is significant at the 0.05 level. ***Correlation is significant at the 0.01 level.

Fig. 6 Pearson correlation matrix. *Source* Derived by the authors

	Model 1 (ND)		Model 2 (APPS)	
F (5, 39)	29.61***		4.21***	
Adj R-squared	0.7915		0.2675	
	Coef.	t	Coef.	t
PRODUCTIVY	0.1382418	9.47***	0.43583	1.79*
IDEOLOGY	0.12983	1.75*	- 0.3343094	-2.56**
EXPERIENCE	-0.2581676	-3.02***	0.204605	1.36
COMMUNITY	-0.2220995	-2.20**	-0.0367581	-0.21
TRANSFERS	-0.3361471	-3.15***	-0.0336567	-0.18
*. Significant at the 0.10 level. **. Significant at the 0.05 level. ***. Significant at the 0.01 level.				

Fig. 7 Results of the regression analysis. *Source* Derived by the authors

A positive relation was obtained for the PRODUCTIVITY variable, but our results conflict with those of Gallego-Álvarez et al. (2011), especially as regards the view that greater research intensity is associated with an enhanced financial condition. The results for this variable suggest, on the one hand, that the productivity of the university does affect its financial sustainability and, on the other, that the universities with the highest levels of debt and the highest APPS present the highest rates of productivity.

The IDEOLOGY variable was found to be a determinant factor in the financial sustainability of the universities. However, taking into account that a score of zero was assigned to the regions governed by parties with a progressive ideology, the significance of these findings varies according to the model considered. In this respect, when we measure the financial sustainability by reference to net debt (Model 1), our results are in line with those of Seitz (2000), León-Ledesma (2010) and García-Sánchez et al. (2011), for whom the universities located in Autonomous Communities governed by progressive parties tend to favour increased government spending, and therefore incur higher levels of debt. However, this is not the case with respect to APPS (Model 2),

whereby the regions governed by conservative parties take longer time to pay their suppliers.

There was observed to be a relation between the variable EXPERIENCE and the financial sustainability of universities. However, this relation only had a significant impact on debt, and not on APPS. Therefore, we find that universities of more recent creation tend to have higher levels of debt than older ones, and conclude that the length of management experience can be of decisive importance regarding universities' financial sustainability.

An inverse relation was obtained for the variable COMMUNITY. On the one hand, the results obtained suggest that the size of the university community affects financial sustainability. But on the other, it appears that universities which incur higher levels of debt have smaller numbers of students, faculty and administrative and services staff. These results are contrary to those of Gallego-Álvarez et al. (2011), especially as regards the inverse association between the volume of undergraduate students and service staff and the universities' financial condition. However, our results are in line with Bourn (1993), who reported that certain items, such as central and administrative services, represent proportionally lower costs for large universities than for small ones.

Finally, we obtained a negative relation for the variable TRANSFERS. Thus, on the one hand, the volume of current transfers received by the universities is a determinant factor in their financial sustainability, while on the other, universities that incur higher levels of debt in turn receive less funding from the Autonomous Communities.

7 Conclusions

A country's national development depends largely on its education system. Universities play a crucial role in the construction of advanced societies, in terms of wealth and prosperity. Hence the importance of ensuring the long-term existence and efficacy of the university system, an outcome to which the presence of financial sustainability can make a major contribution.

Although the LOEPSF does not explicitly include public universities, the principles introduced by this legislation are applicable to them, as entities constituted under public law, and their financial results must be consolidated with those of the corresponding Autonomous Communities, according to EU rules. Thus, the Spanish public universities must meet specific requirements with respect to two variables: the level of debt and the average period of payment to suppliers. The quantification of these variables is an important issue for university managers because, in addition to reflecting compliance or otherwise with the LOEPSF, this information is of great use in the decision-making process regarding the management and reinforcement of the financial sustainability of the institution.

In this context, as well as measuring the financial sustainability of the university, it would be helpful to provide university managers with additional information, such as knowledge of the factors that might significantly influence this variable. Thus, if there were any positive or negative deviations, either from regulatory requirements or from internal goals, the university would be able to identify the areas in which action should be taken to correct the discrepancy.

That said, and in view of the scant research conducted regarding this area of the public sector, this chapter presents evidence on the financial sustainability of Spanish public universities. A sample of 45 universities was examined to determine the APPS and the net debt, in each case, for the year 2014, on the basis of which the determinants of their financial sustainability were identified.

The results obtained show that Spanish public universities have an average net debt of €82.14 million. The University of Navarre makes the largest contribution to its Autonomous Community, meeting the regulatory deficit target, while the debt of the Madrid universities is proportionally the largest, making it more difficult for this region to remain within the legally established debt limit. The overall APPS is 24.31 days, and so the legal deadline of 30 days is complied with, in general. Given the absence of information in the annual accounts about the financial budget, universities that exceed the 30-day limit should be reminded that when their financial budget is revised they should state the resources that will be dedicated to making payments to suppliers,

and the measures with which the necessary liquidity will be generated, thus reducing the APPS to comply with the legal limit.

Regarding the factors that may affect the financial sustainability of universities, our results indicate that the university's productivity, the ideology of the party governing the Autonomous Community, the experience of the university, the size of its community and the volume of current transfers are all determinant factors of financial sustainability. With respect to debt, all of these factors are significant, but in the case of APPS, only productivity and political ideology are significant.

Analysis of our results shows that universities with high productivity, considerable management experience, a large university community and ample funding from their Autonomous Community via current transfers are the most sustainable from a financial standpoint. As regards political ideology, the significance of this factor differs according to whether the focus is on debt or on APPS; universities that are in a region governed by a progressive party will experience a higher level of debt, but those in regions governed by a conservative party will have a higher APPS.

The relation observed between productivity and debt is explained by the fact that many universities, in the recent crisis during which less funding was received from public institutions, resorted to borrowing in order to maintain their productivity indicators. In addition, in order to carry out the necessary investments in high-level European research-related infrastructure, the universities obtained loans from the European Investment Bank, thus increasing their level of indebtedness.

The experience acquired by a university contributes to its financial sustainability, since older institutions tend to have a lower level of debt. This relation would be explained by the fact that universities with a long history have greater experience in the management of the resources available to them, and thus are in a better position to maintain their financial sustainability.

On the other hand, a university with a smaller community tends to have more debt, since fixed structural costs must be met with respect to a smaller student population. Moreover, limitations on current transfers have sometimes forced universities to resort to external financing in order to meet funding shortfalls.

The results presented in this chapter make several contributions to our knowledge of the field, at both academic and practical levels. In the first case, these findings enhance our understanding of financial sustainability and its determinants in the public sector, specifically in the context of Spanish universities. And in the second, from a practical standpoint, this study highlights to universities the importance of compliance with the LOEPSF and reveals the extent to which each one is complying with its obligations of financial sustainability. Although the Autonomous Communities should supervise and ensure the application of the LOEPSF to the public universities in their respective region, this is not actually taking place.

To improve the financial sustainability of these institutions, from the internal standpoint, universities should implement policies to attract alternative sources of funding, such as encouraging sponsorship and patronage, and strengthening relations with private enterprise. In addition, universities should assume greater control of their spending, by preparing a programme budget in line with their objectives, in order to monitor and evaluate spending effectiveness and efficiency.

From the external standpoint, supervisory bodies should take preventive and/or corrective and, if necessary, coercive action to ensure that universities comply with the LOEPSF stipulations. In this regard, various measures are currently being taken to improve the financial sustainability of universities; the question of APPS has been addressed in Andalusia (Regional Government Decree 75/2016); universities' liquidity has been increased, with the effective provision of legally recognised regional funding, through initiatives such as the regional liquidity fund (Resolution of 10 June 2015, by the Treasury and Financial Policy General Secretariat); and the funding model for public universities by the Autonomous Communities has been improved, with an increased percentage of GDP being devoted to higher education.

Our review of the literature in this area shows that relatively little research has been undertaken regarding financial sustainability in universities. Therefore, it would be useful to extend the present study to consider a broader time horizon and a larger number of determinant factors. It would also be advisable to analyse the effect of financial sustainability on universities' efficiency. Finally, studies should be conducted to

examine the question of financial sustainability not only in Spanish universities, but also in other European countries, in view of the importance granted by the EU and by international organisations to the application of sustainability-based policies in order to control the public deficit.

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Part V

Conclusion

10

Financial Sustainability in Public Administration. A Synthesis of the Contributions for Improving Financial Sustainability

Manuel Pedro Rodríguez Bolívar

1 Introduction

The high volume of debt and deficit in the last years provoked by the economic and financial crisis has endangered the public service delivery. It has made public administration to adopt strong measures against the crisis such as budget cuts, public funding reductions, or lowering transfers among different levels of government. Also, this financial position of public administration has highlighted the relevance of accountability in public administration, especially financial accountability, which is linked to the concept of intergenerational equity (GASB 2013). This way, financial sustainability of public entities has become a key concept for public administration even more important than the other dimensions of the sustainability or of the public sector

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M.P. Rodríguez Bolívar (ed.), *Financial Sustainability in Public Administration*,
DOI 10.1007/978-3-319-57962-7_10

management (Afonso and Jalles 2015). Nonetheless, this is a new concept that requires attention from researchers because it needs to be built.

International Organizations have defined it as the ability of the local government to manage expected financial risks and shocks over the long-term financial planning period, without necessity to introduce substantial or disruptive revenue (and expenditure) adjustments (EC 2011; EU 2012a, b; IFAC 2012, 2013). And the IFAC (2013) has declared that long-term financial sustainability should include information about its three interrelated dimensions: revenues, services, and debt (IFAC 2013).

So, this book has tried to analyze this new concept of financial sustainability and how it can be measured. In addition, this book has tried to analyze why these methods used to manage public finances have not been appropriated to warn governments about the financial crisis of the decades of the 2000s and how new methods to assess financial sustainability should be built to analyze the three dimensions that IFAC (2013) is proposing, which have been applied by some governments all around the world to monitor financial sustainability.

In this regard, Lucianelly and Citro (2017) have undertaken a review of current literature to provide an overview of the transformation and main uses of performance information in the higher education sector (HE) as the result of public policy changes. In their chapter, they perform a review of the development of the concept of financial sustainability in the HE, where concepts like financial distress, financial condition, financial sustainability, or financial viability have been used. They conclude that it is quite difficult to develop a single measure for financial sustainability at an institutional level given the diversity of different missions and the complexity of the system of funding for each university in different countries, but it is relevant that HE does not only have an effective management and good governance in the short term. HE also has to ensure their financial sustainability in the long term (Lucianelly and Citro 2017).

This way, it is relevant to undertake research to define, measure, and identify determinants of financial sustainability in public administration.

2 Measurement and Methods Used to Calculate and Report Financial Sustainability

Bisogno et al. (2017) indicate that most of previous studies address financial condition/health as a wide and complete concept, without taking into account the specific relevance of sustainability, which has been considered as a component of these previous concepts. The concept of financial sustainability refers to preservation of social welfare through public policies and public services delivery, which makes us to put the emphasis on the provision of public services rather than focusing only on the efficiency of public administration.

Nonetheless, there is no consensus in the measurement of financial sustainability. It ranges from those focused on the debt measures (IPSASB 2013), to those focused on sustainability indicators (EU 2012a, b), on non-financial budgetary results index (Cuadrado-Ballesteros et al. 2014) or on the adjusted income of the public administration (Rodríguez-Bolívar, Navarro-Galera and Alcaide-Muñoz 2014, Rodríguez Bolívar et al. 2016). In any case, spending, revenues, and debt features are present in all proposals to measures of financial sustainability.

Also, Bisogno et al. (2017) make a review of the determinants of financial sustainability based on prior research. This analysis is interesting because having a systemic view of the financial sustainability determinants means improving the decision-making process of managers and politicians, supporting better the ability of an entity to meet its service delivery, and financial commitments (IPSASB 2013: 5), which in turn means having a positive effect on welfare state, citizens' quality of life, wellbeing, accountability, and so forth.

On another hand, Rodríguez et al. (2017) highlight the relevance of demographic variables in the achievement of financial sustainability of local governments. In fact, although demographic variables have been considered relevant for financial sustainability (EC 2016; EC 2011; EU 2012a, b; IFAC 2013), scarce research has been prefunded regarding this item in EU. With the performance of a data panel of the large

municipalities of Spain during a 9-year period which covers the period before, during, and after the crisis, findings show that the dependent population and the unemployment rate are risk factors for financial sustainability. This way, authors suggest that the usage of management tools, which combine accounting and demographic information, is necessary to handle financial sustainability in order to provide useful information to policymakers and managers for making appropriate decisions about financial sustainability.

Manes et al. (2017) analyze how specific accounting tools and techniques can assist in the control of a local government's financial sustainability based on the governance setting adopted for service delivery. They analyze five case studies in which each one of them offers an example of different service provision settings. From the consideration of the five governance settings, authors identify three main problems, a coordination problem in corporation settings, a conflict problem in market settings (contracting-out and devolution), and a cooperation problem in network settings (public–public collaboration and public–private partnership) and, by this way, demonstrate that promoting financial sustainability requires the adoption of accounting tools and techniques consistent with the governance model adopted.

Finally, Nistor et al. (2017) present two conceptual models—financial sustainability and integrated reporting—and overlap the constituent elements in a matrix, allowing the analysis of delineation matches, as well as the characteristics of forward-looking capital allocation. In their research, they find 30 occurrences of financial sustainability elements which are embedded in the integrated reporting model (pinpointed within the principles, fundamental concepts, and content elements of integrated reporting). So, they affirm that, ultimately, integrated reporting could be a tracking tool for the level of financial sustainability and could be a means to overcome potential challenges regarding the management of financial resources in an organization.

3 International Experiences in Managing and Monitoring Financial Sustainability in Governments

Having a review of the methods used to calculate and report financial sustainability, Biondi and Boisseau-Sierra (2017) explore the link between sovereign debt capacity and financial sustainability in central government with the aim at disentangling financial sustainability mechanisms that are specific to the public sector. They conclude that absolute or relative debt levels are not sufficient to examine financial sustainability of governments and that the sustainability assessment cannot be reduced to a comparison between the interest rate and the growth rate of the economy, as it would be the case in a general equilibrium model where debt is supposed to be fully covered by tax revenues.

On another hand, De Widt (2017) investigates how local government financial sustainability is influenced by the regulatory framework in which local governments operate. To achieve this aim, De Widt (2017) focuses the efforts on the impact of fiscal rules, the monitoring structures in place, and on the institutional arrangements that apply to non-compliant local authorities in three countries (England, Germany, and the Netherlands). Findings demonstrate that the design and enforcement of budget rules in local government is strongly influenced by the wider institutional context in which local authorities operate.

Finally, Alonso-Cañadas et al. (2017) investigate the financial sustainability of Spanish Universities. Applying a comparative approach, authors examine the net debt capacity and the average payment period to suppliers of all sample universities. Also, they focus the efforts in explaining the differences in the position of these variables among sample universities. This way, findings show that the net debt is significantly affected by the productivity of the university, the ideology of the party governing the Autonomous Community, the experience of the university, the size of its community, and the financial support received from the regional government. However, the average payment period is only influenced by productivity and ideology.

4 Concluding Remarks

The book collects relevant studies that highlight the need for analyzing financial sustainability in public administration. To begin with, it is necessary to clearly operate the definition of financial sustainability issued by international organizations with the aim at establishing clear methods to calculate and evaluate financial sustainability. Also, although many different experiences have been analyzed in this book to contribute to this knowledge, future research should be lead to widen this knowledge as well as the factors that could affect financial sustainability in different levels of governments. In general, financial sustainability measures have proved to be useful to assure the provision of public services in the future but main internal and external challenges that have been identified in the empirical studies included in the book should be deeper analyzed in future research to fully understand the best public policies to monitor and keep financial sustainability safe in public administration.

Acknowledgements This research was carried out with financial support from the Regional Government of Andalusia (Spain), Department of Innovation, Science and Enterprise (Research project number P11-SEJ-7700).

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M.P. Rodríguez Bolívar (eds.), *Financial Sustainability in Public Administration*,
DOI 10.1007/978-3-319-57962-7