

**Factors influencing local government financial sustainability:
an empirical study**

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Abstract

In the present context of international public finance crisis, the analysis of government sustainability is considered of vital importance, and a significant element in this is the accounting measurement of intergenerational equity. The aim of this paper is to identify factors that may influence the financial sustainability of local government, doing so through the analysis of 116 local administrations in Spain. Based on Pearson correlation analysis, our main findings show that the annual budget result is a key determinant of local government financial sustainability, and highlight the value of controlling the balance of budget expenditures in preventing future problems of viability for these local authority services.

Keywords: Financial sustainability; Factors; Local governments.

1. Introduction

In recent years, the financial and economic crisis has added further pressure on public administrations to control financial sustainability, and therefore public administrations are urged to provide higher quality financial information and maintain information transparency (Pina et al. 2010) in order to detect financial distress (Zafra et al. 2009) and achieve a sustainable financial balance (Burrirt and Schaltegger 2010).

In the field of public sector accounting, governmental financial reports, particularly the income statement, play a fundamental role in assessing financial sustainability (IFAC 2011a) and should provide all the information required to assess the capability of public administrations to maintain the level of public services over time (Krueger and Agyeman 2005; Navarro et al. 2010), thus enabling intergenerational equity to be taken into account in decisions affecting the volume of services provided, or those involving the search for new external resources, modifications to user payment requirements for services or any combination of these measures.

In addition, public administrations should seek short-term solvency – defined as the entity's ability to generate sufficient liquidity to pay its debts (Groves et al. 2003) – in order not to increase public debt or incur public deficits. However, current financial tensions in public administrations may prevent them from achieving financial sustainability in the future and this could be a signal of future financial distress (Zafra et al. 2009). The total volume of short-term liabilities could also be associated with financial sustainability, because a high volume of short-term debt could mean governments do not have sufficient financial resources to meet their liabilities, which could provoke fiscal distress.

One approach to defining sustainability is to consider governmental solvency in terms of the inter-temporal budget constraint (European Union –EU- 2012a), examining the government's ability to meet the costs of current and future debt through future revenues (EU 2012a). Financial independence, i.e. the organization's ability to generate sufficient non-financial income to meet its non-financial budgetary obligations (Groves et al. 2003), is required in order to meet current and future debt.

Budget information may have a significant impact on financial sustainability (European Commission –EC- 2011) and in this respect the Council of the EU has issued a directive calling on Member States to implement solid accounting systems in drawing up budget forecasts in order to avoid future budget deficits (EC 2011). To achieve this aim,

budget frameworks require consistent accounting rules and procedures and reliable data collection and processing systems (EC 2011).

It is recognised that complete, dependable public accounting practices are a precondition for the production of high-quality statistics that are comparable across Member States (EC 2011). Therefore, to effectively promote budget discipline and financial sustainability, comprehensive budget frameworks are needed for public finances, with particular attention to the management of risk scenarios (EC 2011). In this regard, governments are called on to publish relevant information on contingent liabilities with a potentially large impact on public budgets, including government guarantees, non-performing loans, and the extent of liabilities stemming from the operation of public corporations.

While such an analysis of financial sustainability would be valid for any level of public administration, it is perhaps more so at the local level as these bodies are closest to the general public and shoulder the greatest burden as far as public services are concerned. In addition, the large budgets managed and the variety of services provided (Saiz 2011), coupled with the present context of global economic crisis and of accumulated deficit and debt in large municipalities (Muñoz-Cañavate and Hípola 2011), all render it necessary to analyse the capacity of governments to continue providing services in the future. In fact, there exists a considerable consensus of opinion that sustainability will not be achieved without the full involvement of local governments and of civil society (Krueger and Agyeman 2005; Echebarria et al. 2009).

At present, despite the crisis, government financial statements do not appear sufficient to assess the financial sustainability or otherwise of public administrations (Williams et al. 2010). Furthermore, little research has been undertaken concerning the assessment and analysis of financial sustainability in government financial statements, particularly regarding financial sustainability in local public administrations. In the local context, although numerous studies have been made of financial disclosure and accountability (Pina et al. 2010; Guillamón et al. 2011), few have been specifically devoted to the question of sustainability reporting (Dumay et al. 2010; Guthrie and Farneti 2008).

While factors like accounting systems, budget information, financial independence and short-term solvency appear to be closely linked to public administrations' ability to achieve financial sustainability, no research in this respect has previously been undertaken.

Therefore, this paper contributes to the analysis of the financial sustainability of local governments by identifying significant factors in this area. We first examine the concept of intergenerational equity in public sector accounting, and then conduct a critical analysis of the usefulness of the annual income statement for measuring inter-period equity, which is viewed as an essential concept in financial sustainability. Finally, we carry out an empirical study to identify the main incentives to measure financial sustainability in public administrations.

The rest of this paper is organized as follows. Section Two discusses the intergenerational concept in public sector accounting. In the following section, the research methodology is described and explained. Section Four presents the results obtained, and the final section discusses these findings and summarises the main conclusions drawn.

2. The intergenerational equity concept in public-sector accounting

In 1945, Hicks observed that the concept of income included that of economic sustainability, defining this as the maximum amount that a person can consume during a period and still be as well off at the end of the period as he was at the beginning. This idea has since been taken up in several academic papers, which have identified an interrelationship between sustainability and accounting, via the latter's capacity to measure the intergenerational equity of public acts and policies. For example, Stavins et al. (2003) and Bath (2001) related sustainability with the revenues and expenses generated by a public administration, and pointed out that economists see a better world whenever the magnitude of profits is greater than that of losses. Stavins et al. (2003) suggested that a broad approach should be taken to sustainability, based on a pattern of growth combining dynamic efficiency – measured on the basis of the difference between revenues and expenses – with future maintenance. Similarly, Pezzey and Toman (2002) and Padilla (2002) have warned that the mere assessment of efficiency in the conventional analysis of sustainability loses much of its legitimacy within the framework of intergenerational analysis because the rights of future generations must be taken into account.

Although sustainability is a complex term (Aras and Crowther 2009), recent international pronouncements (U.S. Agency for International Development 2011; EU 2012; EC 2011; IFAC 2011; Center for Strategic & International Studies 2010) have taken this concept as the ability of public administrations to continue current policies

without causing debt to rise continuously, and have allied this concept with that of “intergenerational equity” (Stavins et al. 2003; IFAC, 2011b; Pezzey and Toman 2002).

Intergenerational equity is considered an essential factor in evaluating sustainability, which in turn is crucial to the future financial viability of public activities. Government financial statements, especially income statements, play a key role in this assessment. Nonetheless, the importance of the income statement in this respect depends on how it represents intergenerational equity for future decision making, and this question is addressed in recent conceptual frameworks (IASB 2010; FASB 2010; IFAC 2011a; IFAC 2013).

International organizations have performed many analyses of the relevance of budget information and other variables with respect to governmental financial sustainability (U.S. Agency for International Development 2011; EU 2012; EC 2011; IFAC 2011; Center for Strategic & International Studies 2010). The EC has highlighted the following factors as vital to any assessment of the overall sustainability of a country's public finances: pension expenditure projections, the level of debt, the primary balance and the assets of public administrations in cases where the real and book values differ or where returns differ from the interest rate on the debt (EU 2012).

Fiscal distress and economic crisis have drawn attention to the need to analyse variables accounting for reduced financial sustainability over time. By the end of 2011, Spanish municipalities had accumulated a total debt of over 46.77 billion euros, amounting to 4.3% of GDP (Bank of Spain 2011). This illustrates the fact that the large budgets managed by local authorities in developed Western countries, the wide variety of services provided (Saiz 2011), the accumulated deficit and debt in large municipalities (Muñoz-Cañavate and Hípola 2011) and the present context of global economic crisis make it necessary to analyse the capacity of governments to continue providing services in the future, and in this respect sustainability (economic, social, and environmental), a key element in corporate social responsibility, will play a crucial role.

With the knowledge provided by such an analysis, politicians, public managers and other stakeholders would become aware of unsustainable budgetary policies and other variables affecting financial sustainability, and would be able to take action to resolve or at least alleviate this problem, and thus put into practice the concept of intergenerational equity.

In view of these considerations, it is a matter of urgent interest to study the importance of the annual income statement (as recommended by IPSAS) in measuring

the financial sustainability of local governments, and to analyse the variables that could affect the financial sustainability of public administrations.

3. Research Methodology

3.1 Sample selection

In Spain, as in other EU countries, public sector income and expenditure have increased very significantly in recent years, as a result of the increasing functions undertaken and the expanding role of the public sector in economic activity (Bank of Spain 2011). Economic growth has taken place in a very unbalanced way; revenues have risen from 23.5% to 35.7% of GDP and expenditure has increased from 23.44% to 34%. According to Ruiz-Huerta and García (2012), Guillamón et al. (2011), and the Bank of Spain (2012) this behaviour is not consistent with the real capacity of the economy, and that it has led to high levels of public debt, which will have a very negative effect on future service provision by all levels of government.

The Fiscal Sustainability Report (EU 2012b) concluded that Spain has a sustainability gap indicator above the EU average, in the short, medium and long term. Spanish governmental concern about the negative impact of these figures on the financial sustainability of public bodies has led to major legislative reforms such as the Budgetary Stability and Financial Sustainability Act (2012) and the Sustainable Economy Act (2011).

Therefore, studies of financial sustainability are an area of great current interest, and very timely in countries like Spain, where the current crisis in public finance has led the EU (2012b) to recognize that the deterioration of governments' financial position and sharp increases in debt, together with the foreseeable evolution of population variables, make financial sustainability a key issue in the future of public sector organizations. For these reasons, the present empirical study is focused on the situation in Spain.

This study focuses on the financial sustainability of local governments for the following reasons. First, because our understanding of this question would be enriched by greater attention to institutional detail, with particular respect to the context of local government, which has been a basic aim of many public sector reforms (Christiaens 1999; Mussari 1999; Ter Bogt and Van Helden 2000; Pallot 2001; Smith 2004). Second, in view of the politics of legislative reforms of administrative structures carried out in the 1990s (Gallego and Barzelay 2010) and the managerial devolution process implemented in Spain (Bastida and Bernardino 2006), local government in this country is well placed to be aware of citizens' information needs (Watt 2004). Furthermore, local governments manage very

large budgets and provide a great variety of services (Saiz 2011). Finally, the accumulated deficit and debt in large municipalities in Spain have very significant effects on the sector (Muñoz-Cañavate and Hípola 2011).

In designing this study, the large number of local governments in Spain (over 8,000, most of which have fewer than 5,000 inhabitants) and the diversity of population sizes obliged us to adopt an appropriate sample selection criterion. In accordance with numerous prior empirical studies of local public finance (Navarro 2005; Bastida and Benito 2007; Rodríguez and Navarro 2007; Navarro et al. 2008; Zafra et al. 2009; Pina et al. 2009; Benito and Bastida 2010; Guillamón et al. 2011), we chose to examine exclusively municipalities with relatively large populations. This was done for the following reasons.

First, because the municipalities with a population of over 50,000 account for more than 50% of the Spanish population (Fundación La Caixa 2011). Therefore, according to the EU Stability and Growth Pact (EU, 2012a) and its Fiscal Sustainability Report 2012 (EU 2012b), sustainability can be more fully analysed in these municipalities, where the demographic effects of a large population on local government finance are apparent, and where a broader range of stakeholders are involved.

Second, in large municipalities the available resources are greater than in smaller ones, and so sustainability analyses have greater scope and impact.

Third, the accounting model used by local governments with large populations (regulated by Order EHA/4041/2004) is considerably more complete and detailed than the simplified version used by small municipalities. Therefore, the information content of the financial statements of large local authorities is expected to be more useful for measuring sustainability.

Fourth, as observed by Navarro et al. (2010) and Rodríguez and Navarro (2007), the professional training of managers in large municipalities is usually more complete than that available in municipalities with smaller populations; accordingly, the former should possess more advanced accounting systems, which could favour innovation regarding the value of financial statements for measuring sustainability.

Under this rationale, the present empirical study is based on a sample of large Spanish municipalities, defined as those with a population of over 50,000 inhabitants, together with those which, although smaller in terms of numbers are classified as "large population" under Article 121 of Local Government Regulatory Act 7/1985, amended by the Local Government Modernization Act 57/2003, i.e. municipalities that are provincial capitals, regional capitals or in which the headquarters of regional institutions are located.

In total, 148 Spanish municipalities meet these conditions, and account for 24,225,379 of the 46,951,532 total population of Spain (51.60%) and disburse 11.18% of the total national budget. The study sample consisted of 116 Spanish municipalities with over 50,000 inhabitants for which financial information and the complete budget for 2010 were available. This number corresponds to 78.37% of valid municipalities for the study and represents 44.42% of the total Spanish population and 9.29% of the total national budget.

3.2 Dependent variable

The aim of this paper is to analyse the financial sustainability of local governments, and therefore this is the dependent variable in the study. As stated in the Introduction, financial sustainability can be defined in various ways (Aras and Crowther, 2009), but for the present purposes we apply a definition based on recent international declarations (U.S. Agency for International Development 2011; EU 2012; EC 2011; IFAC 2011; Center for Strategic & International Studies 2010), in which the financial sustainability of local governments is considered to be their ability to maintain current policies without causing municipal debt to rise.

One of the crucial issues pertaining to sustainability is that of intergenerational equity (Brundtland Report: World Commission on Environment and Development 1987) and it has been allied with the term “inter-period equity” (Stavins et al. 2003; IFAC 2011b; Pezzey and Toman 2002). In the field of public sector accounting, this concept is closely linked to the economic performance of local government, defined as the ability of the income it generates in any one year to cover the costs of delivering its services (GASB 1987 and 1990).

Income statements play a fundamental role in assessing financial sustainability because they should enable users to assess, on the one hand, the capacity of the entity to continue providing at least the same volume of goods and services and, on the other, the level of resources that the entity may need in the future to continue to fulfil its obligation to provide public services (IPSAS No. 1 IFAC 2011a).

The importance of the income statement in measuring these elements depends on how well it represents this equity, with a view to future decision taking. This latter function requires more emphasis on providing information about coming financial years than on explaining the figures for the present one. This outlook is in line with recent conceptual frameworks: IASB (2010), FASB (2010) and IFAC (2011a).

Accordingly, although income statements are an essential element in measuring financial sustainability, it is arguable whether they offer a sufficiently representative measurement of inter-period equity with which to assess the financial sustainability of local governments.

According to the paradigm of the usefulness of a financial information framework, and according to GASB (1987, 1990), IPSAS No. 1, IPSAS No. 3 (IFAC, 2011a) and the sustainability framework of the IFAC (2011b), an income statement is made up of the sum of the surplus/deficit from ordinary activities and of the surplus/deficit from extraordinary items. Ordinary activities are those undertaken by an entity as part of its service-providing activities, and extraordinary activities are those that are not expected to be repeated in the foreseeable future within the environment in which the entity operates.

As the management of future risk is crucial to financial sustainability (IFAC 2011b) and extraordinary activities are unlikely to be repeated in the future, the measurement of financial sustainability must focus on ordinary activities in as much as these activities are those in which local governments are habitually involved. Thus, an initial conceptual analysis leads us to deduce that the inclusion of so-called “extraordinary items” in the annual income statement would distort the representativity of its accounting balance, at least if we wish it to provide a measurement of intergenerational equity that is useful for assessing financial sustainability.

Similarly, whatever the problems arising from applying accrual basis accounting, some items of revenues or expenditure lack any implications for the future despite their classification as ordinary. Thus, any estimation of the maintenance of the level of local government revenue is subject to a certain degree of uncertainty deriving from future occurrences that might affect its financial condition, such as legal changes affecting municipal taxes, changes in the volume of demand for public services for which extra payment is required, substantial modifications in the policies of financing organizations at both national and international level in their awarding of subsidies, the effects of international mechanisms for correcting deficit and debt and the final outcome of certain previously allowed-for contingencies.

On the expenses side, quantification of the future effect may also be subject to uncertainty deriving from possible events, such as changes to regulatory norms concerning the retirement of staff, legislative permissiveness with regard to offers of public employment, the system of length-of-service payments for staff, the behaviour of

current expenditures according to fixed-asset investments, ways of calculating depreciation, or the final outcome of situations considered to be contingent, such as arrears in receivables or legal cases pending judgment.

To all these uncertainties, which might put in question the predictive capacity of the income statement with regard to financial sustainability, we must add one more risk, that of the development of the population receiving the public services provided by local governments. Prior research has revealed that both the size of the population and the socio-economic characteristics of citizenry are capable of influencing future expenses and revenues, above all variables such as the dependent population, income per capita and the unemployment rate (Guillamón et al. 2011; González et al. 2011; Benito et al. 2010; Alt et al. 2006).

Bearing in mind all these weaknesses in the informative capacity of the income statement when it comes to measuring the inter-period equity in local administrations, we have adjusted this magnitude in accordance with the purposes of this paper, with the ultimate aim of improving the income statement to maximise its utility for assessing financial sustainability.

Therefore, in this paper, the dependent variable is represented by the total amount of the adjusted income statement, as shown in table 1.

INSERT TABLE 1 HERE

According to the IPSAS (IFAC 2011) and according to Spanish accounting standards (Ministry of Economy and Finance 2010), it is necessary to distinguish between the concepts of budget expenditures and revenues (termed, respectively, recognized obligations and recognized rights) and financial expenditure and revenue. The former are part of the budget and provide the annual budget results, while the latter fall within the area of financial accounting and constitute the income statement as analysed above.

The differences between these concepts arise, on the one hand, from their content, and on the other, from the criteria applied for allocation. Thus, some expenditures are defined as budget items but are not reflected in the public administration income statement and are not considered financial expenditures. This is the case, for example, of the acquisition of financial assets and non-financial fixed assets (items VIII and VI of the expenditure budget, respectively); while they are considered budget expenditures, they do not constitute financial expenditures in the year of acquisition. Conversely, there are financial expenditures that are charged to the income statement, but which are not present among budget items, for example, impairments of assets and provisions for risks and

expenses. As in the case regarding the existence of differences between financial expenditures and budget expenditures, these differences are reflected in the particular case of budget revenues with respect to financial revenues.

Furthermore, while the allocation of expenses and income to the income statement is carried out in accordance with the accrual basis of financial accounting, the allocation of budget expenditures and revenue is primarily cash-based or follows a mixed cash-accrual criterion in determining the budget results, and these criteria are clearly divergent. Thus, with respect to the income statement, the accrual basis focuses on the concept of financial consumption and service delivery, while in the budget field, the allocation of budget expenditures and revenue focuses on the moment at which the corresponding administrative act is issued to recognize and settle the budget obligation (budget expenditure) or the collection right (budget revenue).

In this paper, therefore, and in accordance with the above arguments that financial sustainability can be estimated by analysis of the income statement, it is deemed to consist of the financial expenditures and revenues of the public organisations under study.

3.3 Independent variables

Internationally, various proposals have been made and studies undertaken on the notion of using accounting variables to measure budget stability and sustainability. The Stability and Growth Pact signed by the EU Member States (EU 2012a) is a regulatory framework to coordinate national fiscal policies within the Economic and Monetary Union, and it was created in order to achieve and maintain sound public finances. The preventive component of this Pact is comprised of accounting tools to prevent excessive deficits, in the view that these are of major importance to the sustainability of government finances. Thus, the Pact states that the long-term sustainability of public finances depends on the effect of variables such as population aging on the behaviour of budget variables.

In the same vein, Council Directive 2011/85/EU of the Council of Europe, (EC 2011) states that improvements in public accounting practices to make them more complete and reliable are crucial to obtaining quality information on budgetary stability and financial sustainability. Furthermore, Article 2 of this Directive includes budgetary accounting systems as key elements of the Member States' budget framework.

In parallel, the Fiscal Sustainability Report (EU 2012b) analysed the sustainability of Member States' public finances, considering the impact of the financial, economic and fiscal crisis, together with its demographic impact. According to this report, improving

government financial sustainability must be addressed in terms of expanding the traditional long-term financial approach to incorporate short-term risk indicators, whereby accounting and budgetary variables will play a vital role in overcoming the crisis in public finances. In the same vein, the Global Aging Preparedness Index (Center for Strategic & International Studies 2010), which is an index of fiscal sustainability for twenty countries, also incorporates variables of a financial and budgetary nature.

However, despite the importance of accounting and budgetary variables in the analysis of governmental sustainability, to date academic studies have paid little attention to analysing the influence of these variables on the financial sustainability of public policies.

Some studies have attempted to identify relevant factors in problematic areas of local government finance, such as debt (Guillamón et al. 2011; Pascual et al. 2008; Lago-Peñas 2008; Vallés et al. 2005; Bastida and Benito 2005), deficit (Benito and Bastida, 2009), financial condition (Zafra et al., 2009), the accrual accounting method (Pina et al. 2009) or fiscal pressure (Benito et al. 2010; Delgado 2006). However, none have focused specifically on the factors that may affect the financial sustainability of local government, although some have analysed issues that could be related to this area.

Taking into account previous research, and given the aims of this study, we selected four variables as possible factors influencing the level of financial sustainability of the local governments under study, namely: 1) budget result per capita as defined in the European System of Accounts; 2) financial independence; 3) short-term solvency; 4) current liabilities per capita. To enable comparison between different municipalities, these variables are considered in relative terms, per capita (Guillamón et al. 2011).

The first two variables are of a budgetary nature and are calculated taking the budget performance included by the local governments in their financial statements, prepared in accordance with current accounting standards in Spain. These two variables were selected because both the Stability and Growth Pact (EU 2012a) and the Fiscal Sustainability Report 2012 (EU 2012b) consider the budget surplus/deficit a key variable of financial sustainability. Accordingly, the budget results should be measured in non-financial terms, i.e. without including revenues and expenditures arising from financial assets and liabilities.

The financial autonomy variable was selected because, according to some recent papers and reports (Ruiz-Huerta and García 2012; Bank of Spain 2012; EU 2012b; Eurostat 2011; U.S. Agency for International Development 2011), one of the possible causes of the precarious state of government finances internationally may be a confounding of the ordinary and extraordinary nature of much public revenue. To avoid this confusion, the

financial independence variable is obtained as the ratio of budget revenues from own resources, i.e., direct taxes, indirect taxes and public fees and charges (the numerator) to total budget revenues in the revenue budget (the denominator).

The reason for including the solvency variable concerns the possible effect of the current capacity to meet obligations with respect to future financial viability. Council Directive 2011/85/EU (EC 2011) stated that the measurement of financial sustainability requires not only budget data but also complete, reliable accounting practices. In the same vein, the Fiscal Sustainability Report 2012 (EU 2012), the Center for Strategic & International Studies (CSIS 2010) and the U.S. Agency for International Development (USAID 2011) have all concluded that the measurement of future financial risk is a key element in governmental fiscal sustainability.

According to these sources, thus, the solvency ratio can help visualize financial risks, both short and long term, and therefore, determine the level of sustainability of local government policies. It is calculated, not on the basis of budget payments, but from the balance data, prepared on the basis of accrual accounting policy, as is mandatory for Spanish local governments. Thus, in the solvency ratio the numerator is current assets and the denominator is current liabilities. This value provides useful information to assess the ability of local government to meet payment obligations in coming years.

Finally, the current liabilities variable represents short-term local government debt, at a particular time. This is a key element in calculating both the solvency ratio and non-financial debt, and reflects the volume of financial resources that the municipality must disburse in the short term in order to meet its debts to third parties. It could be related to financial sustainability in the sense that a high value could jeopardize the financial resources needed by the municipality to conduct its activities and perform its functions.

3.4 Information compilation method and statistical analysis

For the purposes of this study, economic and financial information was needed for the municipalities included in the sample, and in particular their financial income statements and budget payments. To obtain these, we first consulted the accountability website of the Spanish Court of Audit (<http://www.rendiciondecuentas.es>), which facilitates the online presentation of local government accounts, thus increasing the transparency of municipal management. Second, if the municipal economic-financial statements were not available on this website, we contacted the municipality directly to request the information needed. Budget performance data were supplied by the Ministry of Finance and Public

Administration (<http://www.minhap.gob.es>) for all the municipalities in the sample. All the economic and financial information compiled for this study refers to the fiscal year 2010, which was the last for which complete information was available for analysis.

The Pearson correlation coefficient (technically, the Pearson Product Moment Correlation) was calculated to determine the influence of the financial variables on financial sustainability, as measured by the corrected income statement for the financial year. This correlation measure is widely used in statistical analysis (Smith, 2004; Yesilkagit and Van Thiel 2012), and is considered an excellent means of measuring the linear relation between two random quantitative variables (Gujarati 2004; Wooldridge 2005). This quantitative method of analysis is also used because the index it produces enables easy interpretation of the relationship between the variables considered. Therefore, we obtained the Pearson correlation matrix and the variance inflation factor for the multicollinearity of the model, using SPSS v.20 statistical software.

4. Analysis of results

4.1. Descriptive statistical analysis of budget performance

Tables 2 and 3 show descriptive statistics of the budget performance of expenditures and revenues, respectively, for all the sample municipalities.

INSERT TABLES 2 AND 3 HERE

As can be seen in Table 2, the major item in the budget performance of expenditures is “Current account goods and services” (29.20%) followed by Personnel (27.08%). The remainder of the budget performance of expenditures mainly concerns investments and current transfers. However, the standard deviation is very high for all the items, and so the mean values are not statistically significant.

In the sample municipalities, the majority of items concern running expenditures (73.41% of the budget performance of expenditure is concentrated in items 1-4), i.e., those needed in order to provide public sector services. Of the remaining items (i.e., capital expenses), 17.22% concern investments; these municipalities, therefore, dedicate almost a fifth of their expenditure budget to acquiring infrastructure, property, plant and equipment for the provision of public services.

In any case, due to the great variety of the municipalities included in the sample, it was not possible to perform a statistical analysis of overall trend. As noted previously, the sample municipalities are those defined by Spanish legislation as “large population”, which includes all those with over 50,000 inhabitants plus smaller ones that are provincial capitals,

regional capitals or the location of regional institutions. In consequence, the sample municipalities present widely varying characteristics; some have a population of over three million (Madrid) while one (Teruel) has only 35,000 inhabitants.

With respect to budget revenues, the main sources of funding for the sample municipalities are the transfers received, mainly from other public administrations (26.01% and 10.69%, current and capital transfers, respectively), followed by the direct taxes (33.98%) imposed by the municipality. Nonetheless, as with budget expenditures, the pattern for budget revenues is not homogeneous; the standard deviation is very high in every case, and so the mean values are not statistically significant.

Nevertheless, the data suggest that the main source of municipal funding is that of transfers from other public entities, because the minimum values for items 4 and 7 of the revenue budget are higher than the sum of items 1, 2, 3 and 5. Therefore, the sample municipalities appear to depend on external funding in order to meet their budget expenditures.

4.2. Statistical analysis of the factors of financial sustainability

The descriptive statistics for the dependent and independent variables show that, except for financial independence and short-term solvency, there is a generally high dispersion in the behaviour of the municipalities with respect to financial solvency, budget results and current liabilities (Table 4). Nonetheless, while per capita financial sustainability is positive in all cases (minimum value greater than 0), some municipalities have per capita budget deficits (minimum value less than 0).

The data for financial independence suggest that these municipalities are financially dependent on other public bodies and do not generate sufficient own resources to cover operating expenses (financial independence ratio less than 1). This corroborates the above comments on the budget performance of revenues by the municipalities in our sample.

INSERT TABLE 4 HERE

To identify potential factors influencing the behaviour of the dependent variable (the financial sustainability of local government), Table 5 shows the Pearson correlation matrix, which reveals the possible association between variables and its degree of strength. In addition in table 6 the variance inflation factors for the multicollinearity of the model are under 10, which means that there is no multicollinearity among the variables analysed.

INSERT TABLES 5 and 6 HERE

According to this analysis, the per capita budget result is the only variable presenting a very strong positive association with financial sustainability (+0.575 and $p < 1\%$). This shows that variations in the per capita budget result may cause changes in the behaviour of local government financial sustainability, in the same direction and with the same sign. Thus, a downward trend in per capita budget results could be the source of potential problems of financial sustainability arising from the policies adopted by local governments, as our analysis shows that a negative budget result generates negative balances in the income statement.

By contrast, Table 5 also shows that short-term credit and financial independence have no statistically significant influence on the dependent variable, because, although their values are positive (+0.063 and 0.033, respectively), their probabilities (0.724 and 0.500, respectively) clearly exceed the 1% required to corroborate the existence of a statistical relationship between the variables. Therefore, the behaviour of these two variables does not appear to significantly influence local government financial sustainability.

Similarly, the current liabilities per capita variable has no significant relationship with financial sustainability. In this case, too, the value is positive (+0.110) but the probability exceeds 1%. In conclusion, these results show that variations in this variable would not be related to the evolution of financial sustainability. On the other hand, and as shown in Table 4, the current liabilities per capita variable is inversely related to another independent variable, the short-term solvency, with a value of -0.024 and $p = 0.007$, i.e., less than 1%. This result was to be expected, as solvency is a ratio whose denominator is the level of local government current liabilities. However, considering that this denominator, in turn, is calculated from the number of inhabitants, it seems that population size has no influence on the above-mentioned inverse relationship between solvency and current liabilities.

In view of these Pearson partial correlations, together with the definition of budget results used (as set out in ESA 95), our results suggest that the ordinary non-financial management of local governments in Spain – with respect to the financial resources necessary for the provision of services, for transfers and for investments – could be one of the most influential factors in their financial sustainability.

Therefore, regardless of the borrowing operations of these governments (such as the raising or repayment of bank loans), achieving a balance in the non-financial budget results would greatly favour the future viability of local government policies, by helping preserve future financial sufficiency. In short, the financial sustainability of the local governments

studied can be more effectively enhanced by paying attention to the overall management of non-financial budgetary resources than by controlling partial budget concepts, financial or otherwise, in day-to-day management in local government.

Moreover, the very strong relationship between non-financial budget results and financial sustainability reveals that the accounting control of budget performance during the year significantly contributes to ensuring the financial sustainability of local government actions, especially as regards staff costs, current expenditures and, to a lesser extent, the volume of investments. These three items represent, on average and in cumulative terms for the municipalities analysed, 27.08%, 29.20% and 17.22% of the budget performed (Table 2).

Furthermore, the effectiveness of the control of these expenditures (personnel, current expenditures, investments) for the purposes of financial sustainability does not depend on the origin of the resources, since financial independence bears no statistically significant influence on the dependent variable (Table 5). In addition, these results are confirmed by the values of the correlation between financial independence and budget results (+0.006 and 0.952), thus indicating that the first of these exerts no statistically significant influence on the second. According to the results of our analysis, current liabilities do not exert a positive influence on financial sustainability (+0.110 and $p > 1\%$), which could indicate that the negotiation of longer payment terms to suppliers and short-term creditors does not favour the future viability of local public services, because these debts will still need to be repaid on the due date.

However, in order to control financial sustainability, it is necessary to systematically monitor developments in financial expenses, due to the interest payment obligations generated by current liabilities. This necessity arises for two reasons: first, because our descriptive analysis shows that, on average and in aggregate terms, the specific weight of financial expenditures is 1.64% (Table 2) for the local governments studied. Second, because Spanish legislation, and the general trend in Europe, is very demanding as regards the right of creditors to demand default interest from local governments when debt repayment exceeds certain time limits.

The negative relationship between current liabilities and financial solvency, together with the scant influence of solvency on financial sustainability (+0.063 and $p > 1\%$), could indicate that local governments' management of receivables has similarly little effect on their financial sustainability, to the extent that the numerator of the solvency ratio does not alter the absence of statistical relationship between current liabilities and financial solvency.

Finally, Table 5 shows that the goodness of the predictor variables ($R=0.593$) and the goodness of fit ($R^2=0.351$) suggest that the variables considered in this study do account for many of the effects on local government financial sustainability, as they accounted for more than a third of its determination. However, future studies should examine other variables, financial and non-financial, that could contribute to our understanding of local government financial sustainability.

5. Conclusions

In the present context of international crisis in public sector finance, the measurement of financial sustainability in local governments is a crucial matter, which has led to renewed interest in the concept of intergenerational equity in analyses of local government policy making. In this respect, financial statements, and especially income statements, play a key role.

According to international accounting standards, and the findings of previous research, the annual income statement presents certain weaknesses for the purposes of assessing the financial sustainability of public administrations. Taking into account the concept of sustainability generally employed, in order to measure local government financial sustainability it is necessary to correct the balance of the income statement result by adding the negative entries and subtracting the positive ones for extraordinary activities. In parallel, international organizations such as the EU, the EC, Eurostat and the IFAC all recognize the relevance of accounting ratios, as published in local government income statements, for assessing financial sustainability.

Statistical analysis of the financial statements of 116 Spanish local governments has shown that the per capita budget result significantly influences the financial sustainability of these governments' policies. On the other hand, no evidence was obtained of any such influence by the variables short-term solvency, financial independence and current liabilities per capita.

Therefore, the long-term behaviour of local governments' budget results could provoke problems concerning the sustainability of public services, as a downward trend in this respect could reduce sustainability and prejudice the future viability of local governments' future actions.

Our results also imply that in order to prevent the appearance of problems in financial sustainability, local governments should pay particular attention to maintaining balanced budget results. For this purpose, careful accounting control is needed of the

budget performance of expenditures and revenues and of their degree of compliance with budget estimates. To this end, the analysis and systematic monitoring of ordinary, non-financial management (i.e., excluding bank debt operations) could contribute significantly to maintaining the financial sustainability of local government, where a key role is played by personnel costs, current expenditures and local government investments, and their correlation or otherwise with equity and with the transfers received from other levels of government (central or regional).

Similarly, our results show that the preventive control of financial sustainability can be enhanced by a systematic monitoring of the financial expenditures arising from interest on financial and non-financial liabilities. However, apart from the impact of financial expenditures, we obtained no evidence that the management of local governments' receivables produces any effect on financial sustainability.

In any case, these conclusions about the factors impacting on financial sustainability are not dependent on the origin of local governments' resource because, as stated above, financial independence is not a causal variable. Therefore, the origin of budget resources does not limit the positive impact on financial sustainability of measures such as the accounting control of the budget balance or monitoring the behaviour of the cost of interest payments.

Finally, the empirical results obtained reflect the interest and timeliness of questions for future research such as: a) the influence on local government financial sustainability of other variables, of an accounting, population, socioeconomic or political nature; b) the behaviour of local government financial sustainability in terms of population size; c) regression modelling based on time series for different financial periods; d) the comparative analysis of factors influencing local government financial sustainability and of those influencing financial sustainability at other levels, such as regional government.

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TABLES

Table 1. Intergenerational equity for 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 sustainability)	(1) + (2) – (3)

Table 2. Budget performance of expenditures

Item	Mean (€)	Coefficient of Variation	%
1 Personnel	57,490,849	2.01	27.08
2 Current account goods and services	61,983,227	3.03	29.20
3 Financial expenditures	3,472,307	3.72	1.64
4 Current transfers	32,889,475	3.07	15.49
6 Real investments	36,563,104	2.39	17.22
7 Capital transfers	7,375,523	5.61	3.47
8 Financial assets	937,431	2.39	0.44
9 Financial liabilities	11,589,748	2.92	5.46

Table 3. Budget performance of revenues

Item	Mean (€)	Coefficient of Variation	%
1 Direct taxes and social security	70,247,103	2.23	33.98
2 Indirect taxes	6,379,903	1.97	3.09
3 Fees, charges and other revenues	30,701,161	2.08	14.85
4 Current transfers	53,784,680	2.53	26.01
5 Equity revenues	4,249,581	1.76	2.06
6 Disposal of real investments	2,551,607	3.56	1.23
7 Capital transfers	22,104,610	1.79	10.69
8 Financial assets	1,502,804	7.75	0.73
9 Financial liabilities	15,232,846	3.84	7.37

Table 4. Descriptive statistics for the variables ($n = 116$)

Variables (expected sign)	Description	Source	Mean	Median	Std. Deviation	Min.	Max.
<i>Financial Sustainability: Corrected income statement for the financial year capital</i>	Adjusted results per capita 2010 (euros)	Local government financial statement	168.79	152.30	114.16	16.75	825.31
<i>Budget result per capita (+)</i>	Budget result per capita 2010 (euros)	Ministry of Finance and Public Administration	-3.57	3.22	102.10	-333.20	411.44
<i>Short-term solvency (+)</i>	Ratio of current assets to current liabilities 2010	Local government financial statement	1.52	1.18	2.15	0.24	23.21
<i>Financial independence (+)</i>	Ratio of sum of items 1, 2 and 3 of budget revenues to total budget revenues 2010	Ministry of Finance and Public Administration	0.53	0.54	0.08	0.26	0.77
<i>Current liabilities per capita (-)</i>	Current liabilities per capita 2010 (euros)	Local government financial statement	468.62	371.62	366.94	18.465	2,688.30

Table 5. Pearson correlation variables ($n = 116$)

	1	2	3	4	5
1. Corrected income statement per capita	1.000	-	-	-	-
2. Budget result per capita	0.575 (0.000)***	1.000	-	-	-
3. Short-term solvency	0.063 (0.500)	0.004 (0.969)	1.000	-	-
4. Financial independence	0.033 (0.724)	0.006 (0.952)	0.041 (0.661)	1.000	-
5. Current liabilities per capita	0.110 (0.240)	0.001 (0.988)	-0.248 (0.007)***	0.031 (0.742)	1.000
R (predictor variables)	0.593				
R²	0.351	Adjusted R²	0.328		

NOTE 1: Significance at 1% (***)

Table 6. Multicollinearity Test ($n = 116$)

Variance Inflation Factors (VIF)	
Budgetary result per capita	1.000
Short-term solvency	1.068
Financial independence	1.004
Current liabilities per capita	1.067

NOTE: Minimum possible value = 1
Values over 10 indicate a problem of multicollinearity among variables.