The impact of gender quotas on budgetary stability and financial sustainability in Spanish local governments

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Abstract

The main objective of this paper is to analyse whether the gender of the mayor and the municipal council members affects compliance with the principles of budgetary stability and financial sustainability contained in Organic Law 2/2012 on Budgetary Stability and Financial Sustainability. We find that in Spanish local governments during the period 2013–2016, the leadership of women mayors contributes to improving the financial situation of the local government. In particular, the presence of women mayors governing with a high proportion of female councillors increases the probability of compliance with regulations on budgetary stability, financial sustainability and the legal debt limit. Thus, the Law for Effective Equality of Women and Men favours compliance with the Law on Budgetary Stability and Financial Sustainability. In addition, the results show that in pre-electoral periods, women mayors are less likely to employ strategies designed to enhance their re-election chances.

Keywords: women mayors, gender quotas, budgetary stability, financial sustainability, law, municipalities.

JEL Classification: H70, H74, J16

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1. Introduction

During the recent economic crisis which began in 2008, European public administrations had to adapt their budgetary policies on expenditure, taxes, deficits and debt. The consequences of these changes have been noted across all European Union countries, but especially in Spain, Portugal, Greece, Italy and Ireland (Bastida et al., 2014; Moody's, 2013; Navarro-Galera et al., 2015, 2017). In Spain, reduced public revenues and rising public expenditure resulted in the serious deterioration of public finances. In order to stabilise this situation and comply with European fiscal policies, Article 135 of the Spanish Constitution was amended to introduce new fiscal rules on structural deficit, allocation of budget surplus and public debt limits, in accordance with the values established in the Treaty on the Functioning of the European Union.

In an attempt to recover stability, and in response to restrictive EU fiscal policies, on 27 April 2012 the Spanish parliament approved Organic Law 2/2012, the Law on Budgetary Stability and Financial Sustainability (LOEPSF). This law implemented a set of governing principles that would guarantee budgetary stability and financial sustainability at all levels of public administration, thereby strengthening the trust, security and stability of the Spanish economy within the EU framework. Three interrelated dimensions are involved in local government financial sustainability: public expenditure, debt and deficit (Navarro-Galera et al., 2017). One of our aims in this article is therefore to analyse the behaviour of these three dimensions in order to examine how they might affect the risk of local governments' non-compliance with the principles of local government budgetary stability and financial sustainability as defined in the LOEPSF.

In addition, increasing women's representation in local government is also firmly on the agenda, nationally and internationally, as a consequence of legislative responses to the growing social need to achieve gender equality. Women have become more visible in a broad range of social contexts in the wake of major international events such as the United Nations world conferences on women in Nairobi (1985) and Beijing (1995). Current changing trends resulting from the modernisation of administrative structures are driving the need for research on differences in political leadership of women and men as part of wider changes in local government management (Broussine & Fox, 2002; Ryan, Pini, & Brown, 2005). In this line, Navarro-Galera et al. (2017) find that the composition of local governments can affect the risk of their non-compliance with legal limits. Slegten et al. (2018) demonstrate that female and male politicians have different preferences at the local government level in Belgium.

Changes in legislation on gender equality in Spain have led to a rise in women's representation in local government. As a consequence of the legal measures adopted to this end, we wonder whether this shift in local government composition has also had an effect on decisions taken at the municipal level. The present study therefore attempts to analyse whether differences the gender of local government mayors and councillors affect the degree of compliance or the risk of non-compliance with the principles of budgetary stability and financial sustainability contained in the LOEPSF.[1] The main results show that women mayors are more likely to comply with the principles of budgetary stability and financial sustainability, and to adhere to the established legal debt limits.

The paper is structured in six sections. Following this introduction, section 2 reviews the most relevant literature on legislative changes and gender. Section 3 describes the variables, the sample and the specification of the models. Section 5 presents the study's main results, and conclusions are drawn in the final section.

2. Literature review

Some research in the gender studies literature confirms that the composition of government and expenditure allocation vary according to the leader's gender; that is male and female leaders of public institutions have different preferences when allocating public resources (Ennser-Jedenastik, 2017; Funk & Philips, 2018; Svaleryd, 2009). Other studies, however, conclude that the gender of the mayor has no effect on local government management (Guillamón et al., 2011; Carozzi & Gago, 2017; Ferreira & Gyourko, 2014)**.**

In the business environment, research has also examined the differences in management by men and women in political or business positions. Green and Homroy (2018) find that female company directors have positive effects on performance. These authors observe positive and economically significant effects on performance in large European businesses with a female presence on their board of directors, corroborating the claim that female management differs significantly.

[1] In this study we refer to the level of compliance with the principles established in the LOEPSF as the "global limit" (see Table 1).

Hamidullah et al. (2015) studied gender and the magnitude of managerial values in local governments in the U.S., finding that women differed from men in values of equity, long-term perspective, sense of community and representation, as well as in values of efficiency, effectiveness and expertise.

In Spain, Araujo and Tejedo-Romero (2016) analysed the rising role of women in Spanish local governments during the period 2008–2012. They conclude that female political representation has a positive influence on the level of transparency in local councils, reflected by increased information transparency and less information asymmetry. Hernández-Nicolás et al. (2018) show that councils led by a woman mayor have lower debt interest repayment obligations.

Ferreira and Gyourko's (2014) study on the consequences of electing a woman leader in U.S. cities showed that women mayors have higher unobserved political skills than their male counterparts. Slegten et al. (2018) found that female and male politicians use different strategies to reduce public deficit. In a context of budgetary restraints, these authors observed gender-based differences in budget preferences among the council members of Flemish municipalities. Specifically, the female politicians preferred to tackle budget deficit by raising public revenues, whereas their male counterparts preferred to reduce expenditure.

Women's political leadership style, characterised by practices and behaviours that positively influence the quality of public institutions (Epstein et al., 2005), might therefore have an impact on local government policies which affect non-compliance with the established debt limits.

3. Determinants of compliance with the Law limiting local debt in Spain

3.1. Political variables

Gender of the mayor (GEN)

In Spain, promotion of gender equality policies is influenced by the social beliefs about the role of women in senior political positions, which, together with the dictatorship that ended in 1975, delayed women's entry into the public sector, as Hernández-Nicolás et al.

(2018) confirm in their study. These circumstances prevented Spain's inclusion in the list of countries with pioneering gender equality policies. However, legal measures are now being implemented to promote women's participation in the public space, designed to eliminate the barriers to access known as the "glass ceiling". Since the approval of Organic Law 3/2007 for the Effective Equality of Women and Men in March 2007, a growing number of municipalities now satisfy the minimum quota of female participation in municipal electoral lists.

The management of public finances is becoming an important latent issue due to the restrictive budgetary policies adopted to tackle the problems of rising deficit and public debt in EU member states. For this reason, as a result of European legislation on this question, Spanish legislators had to adapt quickly to the economic reality to maintain their commitment to the EU. Recent legal events have placed local budget management in the firing line, since if the fiscal requirements set out in the LOEPSF are not met, obligatory measures are brought to bear. In this line, Slegten et al. (2018) found that to alleviate budget deficit, women politicians preferred to increase public revenues, whereas the preference of male politicians was to reduce expenditure. In turn, authors like Amanatullah et al. (2010) found evidence of different management styles between men and women and as a consequence, different outcomes and performances.

Navarro-Galera et al. (2017), however, found that the mayor's gender was not a statistically significant factor in the risk of local government default. In light of the differences in management behaviour between men and women, in this study we analyse whether there are differences in local government management that may be attributed to the gender of the governing leader. Specifically, we explore whether behaviours in complying with the principles of budgetary stability and financial sustainability differ according to the gender of the mayor and the composition of the local government.

Percentage of women councillors (COUNC)

Organic Law 3/2007 for the Effective Equality of Women and Men, approved in March 2007 (LOI), introduced a new article into Organic Law 5/1985 on the General Electoral Regime, Article 44 bis, according to which political party electoral lists must include a minimum of 40% female and 40% male candidates, both in the complete list and in every five posts. This quota is obligatory only in municipalities with more than 3,000 inhabitants.

It is therefore of interest to analyse how this change in the legislation might have affected compliance with the restrictions established in the LOEPSF. In this vein, Navarro-Galera et al. (2017) found that having a higher proportion of women councillors helps to reduce the risk of local governments failing to meet their financial obligations. Geys and Revelli (2011) observed a positive relationship between the number of women councillors and the combination of tax revenues in municipalities. In a similar line, Navarro-Galera et al. (2017) state that if tax revenues rise, local governments will have more resources with which to meet their financial obligations, and in consequence, would be less likely to violate their financial obligations. The evidence therefore seems to suggest that the number of women councillors in a local government has an impact on whether or not a municipality complies with the principles of budgetary stability and financial sustainability provided for in the LOEPSF.

Gender quotas (EGEN)

Baltrunaite et al. (2014) studied the effects of incorporating gender quotas in Italian electoral lists in relation to the quality of the politicians elected, finding a relationship between gender quotas and an increase in the quality of elected politicians. Chen (2010) analysed the correlation between gender quotas and women's representation in politics, resulting from the response to equality policies, and different government expenditures. The author concludes that a rise in the number of female legislators increases the government's expenditure on health and social welfare.

In turn, Campa and Bagues (2017) observed that while quotas raise the proportion of women council members in Spanish municipalities, they are not effective enough to stimulate women's empowerment in the composition of governments because of underlying beliefs about women's role in society.

Finally, in their study of Indian municipalities Chattopadhyay and Duflo (2004) analysed the effects of reserving 30% of local council seats for women, and the consequences of this policy in terms of expenditure. These authors' main conclusion was that the political leader's gender does lead to differences in public spending. They found that women leaders increase spending on public goods associated with the main concerns they have about their region, and invest less in goods more closely associated with men's concerns.

In light of these studies, and taking into account the gender quota system for Spanish electoral lists introduced in the LOI, we attempt to verify whether the quota of women councillors influences the probability of compliance with the principles of budgetary stability and financial sustainability.

The variable *(EGEN)* represents the gender quota in electoral lists. In accordance with the LOI, this variable takes a value of 1 in municipalities where women councillors represent at least 40% of the total number of councillors (compliance with the LOI), and 0 otherwise (non- compliance with the LOI).

Electoral period (ELECT)

Analysis of political budget cycles in government management has attracted much academic interest (Akhmedov & Zhuravskaya, 2004; Drazen & Eslava, 2010; Rogoff, 1990). The literature contains various research streams on the convergence of political decisions and voter preferences. Governing parties often increase public spending as an electoral strategy to raise their re-election chances. Male mayors may use their experience in local government as a way of launching their political careers in higher levels of public administration (Ryan, Pini, & Brown, 2005). For these reasons, we consider that electoral periods could affect political behaviour in terms of the differences in the electoral strategies male and female politicians employ.

In Spain, Balaguer-Coll et al. (2015) analysed the effects of public spending on the re-election possibilities of local governments, finding that increased spending, particularly investment, in pre-election periods positively affects their probability of re-election.

Repetto (2016) examined whether having more informed voters affects the political budget cycle in Italian municipalities. The study shows that a change in the law requiring municipalities to publish their balance sheets in the pre-election period affects budget cycles by reducing investment expenditure, which in the year before elections was higher than in election years.

In turn, authors such as Ågren et al. (2006) confirm that voters can elect politicians with different preferences from their own. Jottier et al. (2012) found that public policies may not be oriented towards the electorate because politicians are unaware of voters' preferences due to the existence of asymmetrical information. Vila (2012) found no evidence of debt cycles in electoral periods. Finally, Allers (2015) was unable to demonstrate that voters punish bad financial management.

In light of the above, we test whether local governments differ in their compliance with debt limits as a consequence of the political strategies they take at different points in the political budget cycle. In the present study we consider this as a dichotomous variable, where pre-electoral and electoral period take a value of 1 and post-electoral a value of 0.

Political Ideology (SIGN)

Budget allocation preferences of municipal governments may be determined by their political party affiliation (Slegten et al., 2018). In this line, Balaguer-Coll and Brun-Martos (2013) concluded that conservative local governments are more likely to be re-elected than progressive governments, affirming that increased public spending positively affects re-election. Public spending on capital investments is mainly financed through long-term debt, and therefore may affect the global limit of the study.

However, Blais and Nadeau (1992), Kiewiet and Szalaky (1996) and Dickson and Yu (1997) found that conservative parties present lower debt levels. Balaguer-Coll et al. (2015), Brender (2003) and Cassette and Farvaque (2014) showed that high debt levels negatively affect governments' re-election probabilities.

Various authors have explored political party behaviour in terms of expenditure and revenue. Hibbs (1987), Seitz (2000), Tellier (2006) and León Ledesma et al. (2010), among others, support the view that progressive parties are more likely to implement policies financed through higher public spending that, in turn, affects their debt level. However, these authors also note that conservative political parties support austerity measures in their budget policies and therefore have lower levels of public debt.

Slegten, Geys and Heyndels (2018) found that politicians' political preferences are influenced by their ideology; they observed that incumbent political parties are more willing to make quantitative adjustments, and that conservative parties are more likely to reduce government activities than progressive parties. Svaleryd (2009) confirmed that political ideology is correlated with budget preferences. Navarro-Galera et al. (2017) showed that progressive parties incur higher expenditure, debt and deficit than conservative parties, concluding that local governments controlled by progressive parties may have a higher risk of non-compliance with restrictions. Vila (2012) observed that conservative governments are more likely to fail to meet legal debt limits than progressive governments.

In contrast, other authors such as Guillamón et al. (2011), Benito and Bastida (2004), Abizadeh and Gray (1993) confirmed that political ideology does not affect municipal debt levels. Benito and Bastida (2008) concluded that financial management at the municipal level does not depend on the governing party's political affiliation.

Political strength (HI)

Political and managerial decision-making is more straightforward in majority-led governments. In this line, Guillamón et al. (2011) confirmed that political strength influences debt level, showing that municipalities with weak governments have lower levels of debt per capita. Pérez et al. (2013) found that political fragmentation affects local debt. Vila (2012) concluded that minority or coalition governments are more likely to incur debt than single-party governments. Ashworth et al. (2005) demonstrated that more highly fragmented governments have higher levels of debt and public deficit, and suggest that disagreement may be more prevalent among members of coalition governments, or they may use debt strategically. In turn, Roubini and Sachs (1989) showed that parties in a coalition are more likely to present public deficits. Hagen and Vabo (2005) found that less politically fragmented governments have higher levels of public surplus than more fragmented governments.

On the other hand, Benito and Bastida (2008) concluded that municipalities' financial situation does not depend on the strength of the local government. Navarro-Galera et al. (2017) found no evidence that political strength influences the risk of violating legal debt restrictions in municipalities.

Based on the above, we test whether the political strength of the government can affect compliance with the global limit as a result of its decisions on expenditure and debt levels. To quantify the political strength of the governing party we define the Herfindahl index, in the same way as in Guillamón et al.'s (2011) study, by means of the following expression:

$$\sum_{i=1}^{n} S_i^2/S^2 \qquad (1)$$

where S_i is the number of councillors of party i in the local government; and S is the total number of councillors.

3.2. Socio-economic variables

Population (LogPOB)

The number of inhabitants in a municipality is an important factor when analysing expenditure, debt and deficit, since different population groups can lobby for increased spending on social policies that have a greater effect on their interests. Guillamón et al. (2011) and Pogue (1970) showed that municipalities with larger populations also have greater debt; that is, the number of inhabitants affects debt levels. For their part, Benito and Bastida (2008) found evidence to show that municipal population positively influences municipal spending and taxes. In this line, Benito et al. (2015a) demonstrated that population has a positive impact on non-compliance with debt limits. However, other studies have shown that population does not affect debt level (Benito and Bastida, 2004).

Local Income (INCOME)

According to Benito and Bastida (2004), many studies, such as Hulten and Peterson (1984), Dickson and Yu (1997), McEachern (1978), Kiewiet and Szalaky (1996) and Farnham (1985), confirm that families with higher income levels demand better infrastructures and services, which are reflected in increased public spending and, in turn, higher municipal debt. Increases in public spending and debt could also increase the risk of non-compliance with the legal debt limits analysed in this study.

In a similar vein, Cabasés et al. (2007) showed that municipal debt arises as a consequence of spending pressure motivated by the demand for public goods at the local level. These are normal goods and their income elasticity of demand is positive. Non-financial public revenue systems are too rigid to satisfy this demand, and municipalities resort to debt as a result. In sum, per capita GDP has a positive impact on demand for services, which indirectly affects expenditure and local debt. Similar conclusions were drawn by Guillamón et al. (2011): municipalities' economic level positively affects per capita municipal debt. Benito and Bastida (2008) also confirmed that local economic level positively influences local spending.

In contrast, Benito et al. (2015a) found a positive relationship between income level and compliance with the global debt limit. Benito et al. (2015b) concluded that municipal income level does not affect the increase in public debt. Finally, Benito and Bastida (2004) showed that the economic level in municipalities does not explain the indebtedness of Spanish local governments.

Given the wide discrepancies in findings on how municipal income level influences public finances, we study its effect on our dependent variable.

Immigration (INMIG)

Some studies in the literature demonstrate how ethnic fragmentation affects public finances in U.S. cities. The needs of ethnic groups are shown to have a direct impact on spending and debt; in consequence, public spending is inversely related to the level of ethnic fragmentation in the city (Alesina, Baqir & Easterly, 1999).

In the other hand, Pérez et al (2013) found that the immigration rate influences the level of municipal debt. Studies by Oates (1972), Schultz and Sjöström (2001), Guillamón et al. (2011) concluded that the percentage of immigrants positively affects local debt. Finally, Benito et al. (2015b) demonstrated a negative relationship between immigration and the increase of municipal debt.

Retired people (RET)

Social policies designed to meet the specific needs of certain population groups affect local public spending and the financing of services to meet these needs through increased debt. In this vein, Rodríguez, Navarro, Alcaide and López (2016) demonstrated that the population aged over 65 has a negative impact on local financial sustainability. Hagen and Vabo (2005) confirmed that older people have a negative effect on public finance surpluses.

In addition, Crespo and Mira (2014) analysed the relationship between the employment status of European women and caring for older family members. The main contributions of this study suggest that women's loss of employment due to caring for older relatives is more significant in southern European countries than in central and northern Europe. This conclusion leads us to consider that women who are elected to political posts may be more sympathetic to spending on social policies designed to help older people. With regard to spending preferences, in his study on the degree of heterogeneity in public spending preferences in Spanish autonomous communities, Calvo (2019) showed that the rate of dependency of the population, represented by people over the age of 64, has opposing and significant effects; in other words, preferences were not seen to converge.

In turn, Ellis and Schansberg (1999) found that this group has a negative influence on long-term debt levels. Balaguer-Coll and Ivanova-Toneva (2019) evidenced a negative relationship between people over the age of 65 and current debt.

4. Data and specification of the model

4.1. Sample and definition of variables

The sample comprises 1,272 Spanish municipalities with populations of 3,000 or more for the period 2013–2016. These municipalities were selected for the study because under the LOI, they are obliged to meet the established gender quotas for local government composition.

Table 1 presents the sources from which information on the variables was taken: Sielocal (*Sistema de Información Económico Local*, local economic information system), Ministry of Finance (*Ministerio de Hacienda*), Spanish Government's Transparency Portal (*Portal de Transparencia de la Administración del Estado*), Ministry of Interior. Directorate General of Domestic Policy (*Ministerio del Interior. Dirección General de Política Interior*), Ministry of the Presidency and Territorial Administrations (*Ministerio de la Presidencia y Administraciones Territoriales*), Spanish Statistical Institute (*Instituto Nacional de Estadística*) and State Tax Agency (*Agencia Estatal Tributaria*).

(Insert Table 1)

4.2. Model specification

In this study we examine the degree to which the principles of budgetary stability and financial sustainability are satisfied in accordance with the mayor's gender and the gender quota in the local government, taking into account a set of political (electoral period, political ideology of governing party) and socio-economic variables (logarithm of the population, income per capita, percentage of immigration, and percentage of population over the age of 65).

The dependent variable, termed the global limit *(GLOBAL LIMIT)* comprises the average of the three limits analysed individually:[2]
Limit 1 (L1): compliance with the average payment period to local suppliers;
Limit 2 (L2): compliance with the percentage established for public debt;
Limit 3 (L3): compliance with the principle of budgetary stability.

In what follows we define the three individual limits.

The LOEPSF understands financial sustainability from a dual perspective: sustainability of commercial debt and sustainability of financial debt. In consequence, *limit 1 (L1)* is based on compliance with the principle of financial sustainability of the commercial debt, known as the average payment period to suppliers. This law establishes that the period

[2] See Table 1.

must not exceed the maximum term provided for in late payment regulations.[3] Following Olmo et al. (2018), we calculate the variable average payment period to suppliers (APP) as: (outstanding payment obligations/recognised net liabilities) *365 days.[4]

Limit 2 (L2) verifies the compliance with debt limits set for local governments and is established as follows: debt pending payment for the year under study $\leq 110\%$ of current revenues for the previous year.

Finally, *limit 3 (L3)* concerns compliance with the principle of budgetary stability in local governments defined by the LOEPSF as the situation of balance or structural surplus (authors' translation). For this purpose we use data on compliance in each municipality published by the Ministry of Finance.[5]

The variable *GLOBAL LIMIT* can therefore take four values (0; 0.33; 0.66 and 1), that is, it is censored between values 0 and 1. According to Wooldridge (2010), censored regression models are applied when the dependent variable is continuous, but has a positive probability mass at one or several points. We cannot consider using ordinary least squares to model the data in these cases due to their inconsistency of the estimator (Wooldridge, 2010). Given this circumstance, our model is fitted to Tobit's model, developed by Tobin in 1958, of random effects[6] for panel data with the dependent variable restricted to a range between 0 and 1 (see Baum & Christopher, 2006). Our model is therefore defined as follows:

$$Y_{it} = \alpha_i \, x_{it}\beta + v_i + \epsilon_{it} \tag{2}$$

$$Y = \begin{cases} y_i^* & if\ 1 \geq y_i^* > 0 \\ 0 & if\ 1 < y_i^* < 0 \end{cases}$$

where Y_{it} is the probability of complying with the legal limit (*GLOBAL LIMIT*); α_i is the model constant; $i = 1, \ldots, n$ panels; $t = 1, \ldots, n_i$; x_{it} represents the vector of the

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[3] The fifth additional provision of the LOEPSF states that "references in this law to the maximum period set by regulations on late settlement of payments to suppliers will be understood to refer to the period established at each moment in the aforementioned current regulations, which at the time this law comes into force, is thirty days" (authors' translation).

[4] Data obtained from http://www.sielocal.com/.

[5] See http://www.hacienda.gob.es/es-ES/CDI/Paginas/EstabilidadPresupuestaria/InformacionCCLLs/Cumplimiento_objetivoestabilidad_EELL.aspx

[6] As seen in the literature, there is no Tobit model of fixed effects of panel data.

independent variables that affect the probability of compliance or not with the global limit; β represents the coefficient matrix; the random effects termed ν_i are distributed as $\mathrm{N}(0; \sigma_\nu^2)$; ϵ_{it} represents the residuals that are distributed as $\mathrm{N}(0; \sigma_\epsilon^2)$, independently of ν_i; and γ^* is the latent variable.

The model requires a normal distribution $\mathrm{N}(0; \sigma_\nu^2)$ for the random effects ν_i, which yields the combined density of the data observed for the panel. In the present case, for each year the models have 78 censored observations on the left, 2,483 non-censored observations and 2,527 censored observations on the right. The β coefficients in both models measure the marginal effects of the independent variables (*GEN, CONS, EGEN, ELECT, SIGN, HI, LogPOB, INCOME, INMIG* and *RET*) on the latent variable γ^*, which is expressed with the following formula:

$$\beta = \frac{\partial E(y_i^*)}{\partial x_i} \tag{3}$$

However, we are interested in finding out the marginal effects of the aforementioned independent variables on Y:(E (Y|0≤Y≤1), assuming $\nu_i = 0$). That is, we calculate the marginal effects of the independent variables for the probability that a local government will comply with the principles of budgetary stability and financial sustainability using the following formula:

$$\beta^* = \frac{\partial E(y_i, x_i)}{\partial x_i} \tag{4}$$

Table 2 reports some descriptive statistics of the variables used in this study. Table 3 shows the frequency of the dichotomous variables in relation to the dependent variable analysed. The data reveal 79.87% of male mayors compared to 20.13% of female mayors, reflecting the higher participation of men in local politics. The number of municipalities that comply with the gender quota in their electoral lists exceeds those that do not. Progressive political parties represent the most frequent political ideology.

(Insert Table 2)

(Insert Table 3)

5. Results

Two models were estimated because the variables COUNC and EGEN were highly correlated. Table 4 reports the results for models I and II, in which the coefficient ρ is different from zero in both models; therefore the variance component at the panel data level is significant as the panel estimator is different from the pooled estimator. For our data, therefore, the data panel offers a better fit than the pool of data. The log likelihood test is statistically significant, as it compares the pooled estimator with the panel estimator, following Baum and Christopher (2006).

From the β coefficients of both models, we expect that each of the variables with significant and positive effects will increase the probability of a municipality complying with the global limit established, and vice versa. That is, each one of the variables with significant and negative effects will reduce the probability of a municipality complying with the established global limit. However, to accurately interpret the results we calculate the marginal effects of each explanatory variable on the dependent variable (E (Y|0<Y<1)), which is the probability of obtaining that a local government will comply with the principles of budgetary stability and financial sustainability.

(Insert Table 4)

Table 4 reports the estimations of the Tobit models. Here we can observe that in both models the independent variables *GEN, ELECT, HI, INCOME* and *RET* show positive and significant effects on the variable global limit, whereas the variables *SIGN, LogPOB* and *INMIG* present significant and negative effects.

The variable *gender of the mayor (GEN*) has a positive effect on the probability of complying with the global limit; that is, the presence of a woman mayor in the local government contributes to improving the financial situation, due to her commitment to complying with the global limit. Our results are similar to those of Hernández-Nicolás et al. (2018), who found that local governments with women mayors have lower annual interest and debt repayment obligations.

The variables *gender quotas* (*EGEN*) and *councillors* (*COUNC*) have no statistically significant effects when included in the model separately. One possible explanation for this could be that our study covered two electoral cycles; this suggests that the possible effects of gender quotas on participation are not seen in the short term. In this vein, the study by Bagues and Campa (2017) concluded that quotas fail to achieve, at least within three electoral cycles, several other goals with which they are commonly associated.

Table 5 reports the results of the interactions between the above variables, based on the original models, in order to identify possible effects. Specifically, two interactions and their marginal effects are presented (GEN and EGEN; GEN and ELECT).

(Insert Table 5)

The interaction between *gender of the mayor* (*GEN*) and *gender quota* of councillors in the local government (*EGEN*) yielded the following results: if the local government is led by a woman mayor and this government has a percentage of female councils equal to or above 40% of its members, the combination of the two factors has a positive influence on compliance with the global limit, that is, with the LOEPSF.

The results show that when local governments are led by women mayors in a working context comprised of a majority of women councillors, the effect on compliance with the global limit is positive and significant (the marginal effect is 0.010). However, local governments led by women mayors in which the majority of the councillors are men, that is, councils that do not comply with the gender equality legislation, show no statistically significant effects on compliance with the global limit. Neither do we find statistically significant evidence to show that councils with a male mayor and with at least 40% of women councillors in the government, that is, where decisions are taken by male mayors together with a municipal government team that complies with the gender quotas, has no influence on compliance with the global limit.

Our results coincide with those of Navarro-Galera et al. (2017), who confirmed that the increase in the proportion of women councillors in the local government can help to reduce the risk of non-compliance. Similarly, Geys and Revelli (2011) demonstrate that the increase in the proportion of women councillors is positively related to tax revenues; in other words, these councils have more liquidity to meet their payments. We therefore deduce that these local governments will also be more likely to comply with the global limit.

In the second interaction we examined the behaviour of local governments according to *gender* (*GEN*) in the pre- and post-electoral periods (*ELECT*), to identify any possible behaviour strategies. The results show that in pre-electoral periods, male mayors are more likely to comply with the global limit than women mayors, since the marginal effect for men is higher (0.0105) than that for women (0.0085). This suggests that men follow a strategic management behaviour pattern, possibly for electoral purposes. This finding demonstrates that male local mayors could use their position as a way of promoting their political career (Ryan, Pini, & Brown, 2005), and from which we deduce that they use different political strategies than women in their dealings with voters. In this vein, González et al. (2019) found that male politicians change parties as a result of their political ambition and the pursuit of better professional opportunities. These authors show that men are more likely to switch political party than women. This circumstance may be due to the presence of electoral strategies.

Table 4 shows that *electoral period* (*ELECT*) influences the level of compliance with the legal limit; that is, compliance with the global limit is higher in pre-electoral periods. This finding confirms the existence of electoral cycles since incumbent governments make a greater effort to meet the legal limits during this pre-electoral period. This circumstance could also be explained from the point of view of the electorate; as Repetto (2016) showed, today's voters have access to more information about public finances which they might use to punish candidates. This could explain why politicians tend to comply with the legal limits in pre-electoral periods in order to improve their re-election chances.

The variable *political ideology* (*SIGN*) has a negative effect on compliance with the global limit established in the two models. We can therefore confirm that conservative political ideology influences non-compliance with the limits set out in the LOEPSF. Our results are similar to the conclusions drawn by Benito el al. (2015b), who point out that conservative governments significantly influence the likelihood of increased local debt. In the same line, Balaguer-Coll et al. (2015) demonstrated that conservative parties are more likely to be re-elected. In their paper these authors observe how policies that increase public spending –particularly investment spending– in pre-electoral years, positively affect the local government's probabilities of being re-elected. For this reason, and given that investment spending is mainly financed through long-term debt, we consider that councils driven by a conservative political ideology are more likely not to comply with the global limit.

In turn, the variable *political strength of the governing party* (*HI*) positively affects compliance with the global limit. According to Hagen and Vabo (2005), increased political strength positively influences budget balance. Our results are in line with the study by Guillamón et al. (2011), which showed that weak governments have higher levels of contracted debt.

Population size (*LogPOB)* has a negative effect on the probability that a municipality will comply with the legal limits studied. This finding can be explained by the higher volume of public spending, which leads to increased debt (Farnham, 1985; Guillamón et al., 2011; Pogue, 1970). Our results coincide with those of Ashworth et al. (2005) and Benito el al. (2015b), who found that the larger the population, the higher debt growth will be. Higher spending translates into higher debt; in consequence we consider that these two budget factors may be key in non-compliance with established legal limits.

Our results for the variable *local per capita GDP* (*INCOME*) show that it has a positive relationship with global limit compliance. These findings align with Benito el al. (2015b), who revealed a positive relationship between income level and compliance with the global limit. One possible explanation for this finding is that municipalities with higher incomes also have higher revenue collection capacity. Following the studies of Benito and Bastida (2008) and Adams (1977), income level affects the need to finance expenditure through debt; that is, the higher the population's income, the greater the tax revenue and, therefore, the lower the debt.

Regarding the *percentage of immigrants* (*INMIG*), we find that this variable has a significant and negative effect on compliance with the global limit. These results align with the work of Guillamón et al. (2011) and Pérez et al. (2013), who found a positive relationship between percentage of immigrants and volume of debt. This might be explained by the fact that municipalities with higher numbers of immigrants incur higher social welfare expenditure due to the needs of these citizens (Alesina, et al 1999).

Finally, the variable *people over the age of 65* (*RET*) increases the probability of compliance with the global limit. Our results concur with studies by Ellis and Schansberg (1999) and Balaguer-Coll and Ivanova-Toneva (2019), who found a negative relationship between people over the age of sixty-five and debt. This result may be explained by older people's reluctance to leave a negative legacy, which leads them to limit their electoral support for politicians that increase debt levels (Ellis & Schansberg, 1999). According to these authors, younger people prefer financing through debt rather than taxes, in direct contrast to the preferences of older citizens.

6. Conclusions

The aim of this study was to analyse whether the gender of local government mayors and councillors influences the risk of non-compliance with the principles of budgetary stability and financial sustainability provided for in the law (LOEPSF) in Spanish municipalities with over 3,000 inhabitants during the period 2013–2016. We also analysed the effect of a series of political and socio-economic variables on the compliance with this law.

Although the law on gender quotas in local politics (LOI) was introduced only recently, our results do demonstrate its effects. We find that women mayors have an effect on local financial management in that their presence increases the probability that the municipality will comply with the principles of budgetary stability, financial sustainability and legal debt restrictions. In turn, when women mayors lead a local government comprising at least 40% of women councillors, probability of compliance with the LOEPSF increases. Thus, the *Law of Effective Equality of Women and Men* (LOI), which requires a minimum percentage of female participation in the municipal electoral lists, favours compliance with the *Law on Budgetary Stability and Financial Sustainability* (LOEPSF).

Similarly, we identified the use of pre-electoral strategies in complying with the law. However, when the mayor's gender was analysed, we found that in pre-electoral periods male mayors comply with the legal restrictions to a greater extent than their female counterparts. In other words, male mayors make a greater effort to comply through more strategic behaviours in order to increase their chances of re-election.

As regards the other political variables, a conservative political ideology was seen to influence non-compliance with the legal debt limits established in the law. These results coincide with findings by Benito el al. (2015b), who showed that conservative governments have a significant influence on the increase of local debt. Similarly, political strength of the governing party positively affects compliance with the law, as weak governments are more likely to have higher contracted debt.

Finally, in relation to the socio-economic variables, we found that the number of immigrants and population size have negative effects on the probability of compliance with the law. This may be due to the greater needs implied by these two factors, which translate into higher spending and debt. However, people over the age of sixty-five and municipal income have positive effects on compliance. These results suggest that older people aim to avoid leaving a negative legacy to future generations, and that municipalities whose citizens have more disposable income are more likely to comply with the law due to their greater capacity for revenue collection.

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Table 1. Description of variables

	Definition of the variables		Expected sign	Sources
Dependent variable	*Limit 1* (L1): Average Payment Period <=30 days; *Limit 2* (L2): Debt < 110% current revenues; *Limit 3* (L3): compliance with the principle of Budgetary Stability (LOEPSF)	$Global\ limit = \sum_{i=1}^{3} \mathrm{L}i/3$		Sielocal and Ministry of Finance
Political variables	Gender of the mayor (*GEN*)	Dummy variable (0: male mayors; 1: female mayors)	+/-	Spanish Government's Transparency Portal
	Women councillors *(COUNC)*	% women councillors in the municipality	+	Ministry of Interior. Directorate General of Domestic Policy
	Gender quotas *(EGEN)*	Dummy variable (1: municipality complies with LOI; 0: otherwise)	+	Ministry of Interior. Directorate General of Domestic Policy
	Electoral period *(ELEC)*	Dummy variable (1: pre-electoral period and electoral year; 0 post-electoral year)	+/-	Ministry of the Presidency and for the Territorial Administrations
	Political Sign (*SIGN*)	Dummy variable (0: municipalities governed by progressive parties; 1: municipalities governed by conservative parties)	+/-	Ministry of the Presidency and for the Territorial Administrations
	Herfindalh Index (*HI*)	Values between 0 and 1 depending on the number of councillors for each party in the council. High values denote a lower level of political fragmentation or higher political strength.	+/-	Ministry of the Presidency and for the Territorial Administrations
Socio-economic	Logpob *(LogPOB)*	Log of number of inhabitants	+/-	Spanish Statistical Institute
	Income *(INCOME)*	Disposable income per capita	+/-	State Tax Agency
	Immigration *(INMIG)*	% immigrants /total population	+/-	Spanish Statistical Institute
	Retired people *(RET)*	% Population aged over 65/total population	+/-	Spanish Statistical Institute

Table 2. Descriptive statistics

Variable	Mean	Std. Dev	Min.	Max.
GLOBAL LIMIT	0.7881	0.2420	0	1
GEN	0.2013	0.4010	0	1
COUNC	0.4080	0.0829	0.1400	0.6920
EGEN	0.5267	0.4993	0	1
ELECT	0.5000	0.5000	0	1
SIGN	0.4438	0.4969	0	1
HI	0.3623	0.0900	0.1257	0.7693
LogPOB	4.0233	0.4530	3.4518	6.5061
INCOME	21397.61	5740.51	12023	72993
INMIG	0.0941	0.0918	0.0006	0.6915
RET	0.1897	0.0685	0.0460	0.7694

Table 3. Frequency of variables GEN, EGEN and SIGN in relation to global limit

Variable	Dummy	Mean	Std. Dev.	Percentage	Freq.
GEN	0	0.7883	0.2393	79.87	4064
	1	0.7871	0.2528	20.13	1024
EGEN	0	0.7987	0.2344	47.33	2408
	1	0.7785	0.2484	52.67	2680
SIGN	0	0.8027	0.2340	55.62	2830
	1	0.7697	0.2507	44.38	2258

Table 4. Models and marginal effects

	Models		Marginal effects	
Variables	**I**	**II**	**I**	**II**
GEN	0.0343* (0.0197)	0.0351* (0.0197)	0.0104* (0.0059)	0.0106* (0.0059)
COUNC	- -	- 0.0184 (0.0835)	- -	-0.0056 (0.0253)
EGEN	0.0050 (0.0138)	- -	0.0015 (0.0042)	- -
ELEC	0.0282*** (0.0092)	0.0282*** (0.0092)	0.0085*** (0.0028)	0.0085*** (0.0028)
SIGN	-0.0806*** (0.0139)	- 0.0812*** (0.0139)	-0.0243*** (0.0042)	-0.0246*** (0.0042)
HI	0.3294*** (0.0973)	0.3351*** (0.0974)	0.0996*** (0.0293)	0.1013*** (0.0294)
LogPOB	-0.1448*** (0.0256)	-0.1433*** (0.0254)	-0.0438*** (0.0077)	0.0188*** (0.0033)
INCOME	9.32e-06*** (1.99e-06)	9.33e-06*** (1.99e-06)	2.82e-06*** (6.00e-07)	2.82e-06*** (6.00e-07)
INMIG	-0.2723** (0.1226)	-0.2737** (0.1226)	-0.0823** (0.0370)	-0.0828** (0.0370)
RET	0.7547*** (0.1730)	0.7538*** (0.1730)	0.2281*** (0.0521)	0.2279*** (0.0522)
ρ	0.5908 (0.0161)	0.5905 (0.0161)		
Log likelihood	-2693.4600	-2693.5019		

* $p < 0.1$ **; $p < 0.05$; ***$p < 0.01$
Standard error in parenthesis.

Table 5. Interaction effects in models

Interactions		Coefficients	Marginal effect
GEN # EGEN			
Mayor is a woman and municipality does not comply with LOI	10	0.0290 (0.0291)	- -
Female mayors and municipality complies with LOI	11	0.0406* (0.0239)	0.0100* (0.0060)
Male mayors and municipality complies with LOI	01	0.0036 (0.0150)	- -
GEN#ELECT			
Female mayors in post-electoral period	10	0.0316 (0.0217)	- -
Female mayors in pre-electoral period	11	0.0656*** (0.0244)	0.0085*** (0.0028)
Male mayors in pre-electoral period	01	0.0268*** (0.0103)	0.0105*** (0.0059)

* p < 0.1; ** p < 0.05; ***p < 0.01
Standard error in parenthesis.