


**WHICH DETERMINANTS EXPLAIN MUNICIPALITIES' DEBT? THE CASE OF
PORTUGUESE MUNICIPALITIES FROM 2014 TO 2017**

Inês Margarida Cadima Lisboa^A, Alexandra Cristina Pinheiro Carvalho^B



ARTICLE INFO	ABSTRACT
<p>Article history: Received: March, 25th 2024 Accepted: May, 24th 2024</p>	<p>Objective: Municipality sustainability is crucial for promoting the country's wealth and the citizens' well-being. Therefore, understanding municipalities' indebtedness is relevant to avoid situations of severe financial constraints. This work aims to understand the determinants that explain Portuguese municipalities' debt levels (both total and excess of debt), after the introduction of the Regime Financeiro das Autarquias Locais e Entidades Intermunicipais (RFALEI) published in 2013 (Law no. 73/2013).</p>
<p>Keywords: Municipalities; Portugal; Debt; Excess Indebtedness; Panel Data.</p>	<p>Theoretical Framework: In this work, the indebtedness of Portuguese municipalities is studied, from the perspective of net debt and excess indebtedness in order to give a broader picture of this topic and to be able to characterize the main determinants that explain debt in Portuguese municipalities.</p>
	<p>Method: Municipalities' debt is measured using not only the net debt ratio (as most of the works) but also the excess of municipalities' indebtedness. Institutional, political, and financial-economic variables are analyzed to explain debt using a linear regression model with fixed effects. The sample includes all Portuguese municipalities for the period from 2014 to 2017.</p>
	<p>Results and Discussion: Results show that only institutional and financial-economic determinants are relevant to explain municipalities' indebtedness. Municipalities with less tourism, less State transfers, and with more capital revenues are the ones more indebtedness. Beyond these factors, municipalities with more investments and less tax revenue tend to present more excess debt.</p>
	<p>Research Implications: The results of this work are useful to a group of users of the information provided by municipalities: By knowing the main reasons that lead to debt, municipal managers can somehow reduce debt; Regulatory entities can create laws to limit debt and citizens know how public money is being managed.</p>
	<p>Originality/Value: This work analyzed all Portuguese municipalities, during four years, a larger sample than used in previous works. Moreover, institutional, and financial-economic determinants are also used, in addition to political variables, and these determinants show relevance to explain municipalities' debt. Finally, we focus not only on the debt ratio but also on excess of debt which was the main concern of RFALEI.</p>
	<p>Doi: https://doi.org/10.26668/businessreview/2024.v9i6.4724</p>

^A PhD in Financial Economics and Accounting. Centre of Applied Research in Management and Economics, School of Technology and Management, Polytechnic of Leiria. Leiria, Portugal.

E-mail: ines.lisboa@ipleiria.pt Orcid: <https://orcid.org/0000-0003-2802-2589>

^B PhD in Financial Economics and Accounting. School of Technology and Management, Polytechnic of Leiria. Leiria, Portugal. E-mail: alexandra.carvalho@ipleiria.pt Orcid: <https://orcid.org/0000-0003-0951-4035>

PRINCIPAIS DETERMINANTES DO ENDIVIDAMENTO DOS MUNICÍPIOS PORTUGUESES NO PERÍODO DE 2014 A 2017

RESUMO

Objetivo: A sustentabilidade dos municípios é crucial para a promoção da riqueza do país e do bem-estar dos cidadãos. Portanto, compreender o endividamento dos municípios é relevante para evitar situações de graves restrições financeiras. Este trabalho tem como objetivo compreender os determinantes que explicam os níveis de endividamento dos municípios portugueses (total e excedente de dívida), após a introdução do Regime Financeiro das Autarquias Locais e Entidades Intermunicipais (RFALEI) publicado em 2013 (Lei n.º 73/2013).

Referencial Teórico: Neste trabalho, estuda-se o endividamento dos municípios portugueses, numa perspetiva de endividamento líquido e excesso de endividamento de modo a dar uma imagem mais alargada sobre esta temática e conseguir caracterizar os principais determinantes que explicam o endividamento nos municípios portugueses.

Método: A dívida dos municípios é medida não só pelo rácio do endividamento líquido, mas também pelo excesso de endividamento dos municípios. Variáveis institucionais, políticas e económico-financeiras são analisadas para explicar a dívida por meio de um modelo de regressão linear com efeitos fixos. A amostra inclui todos os municípios portugueses para o período de 2014 a 2017.

Resultados e Discussão: Os resultados mostram que apenas os determinantes institucionais e económico-financeiros são relevantes para explicar o endividamento dos municípios. Os municípios com menos turismo, menos transferências do Estado e com mais receitas de capital são os que estão mais endividados. Além desses fatores, municípios com mais investimentos e menos arrecadação tributária tendem a apresentar mais excesso de endividamento.

Implicações da Pesquisa: Os resultados deste trabalho são úteis a um conjunto de utilizadores da informação prestada pelos municípios: Ao conhecerem os principais motivos que levam ao endividamento, os gestores autárquicos podem de alguma forma diminuir o endividamento; as entidades reguladoras podem criar leis para limitar o endividamento e os cidadãos ficam a saber como está a ser gerido o dinheiro público.

Originalidade/Valor: Este trabalho analisou todos os municípios portugueses, durante quatro anos, uma amostra maior do que a utilizada em trabalhos anteriores. Além disso, também são utilizados determinantes institucionais e económico-financeiros, além de variáveis políticas, e esses determinantes mostram relevância para explicar o endividamento dos municípios. Por último, centramo-nos não só no rácio do endividamento, mas também no excesso de endividamento, que foi a principal preocupação da RFALEI.

Palavras-chave: Municípios, Portugal, Endividamento, Excesso de Endividamento, Dados em Painel.

PRINCIPALES DETERMINANTES DE LA DEUDA DE LOS MUNICIPIOS PORTUGUESES DE 2014 A 2017

RESUMEN

Objetivo: La sostenibilidad de los municipios es crucial para promover la riqueza del país y el bienestar de sus ciudadanos. Por lo tanto, comprender el endeudamiento de los municipios es relevante para evitar situaciones de graves restricciones financieras. Este trabajo tiene como objetivo comprender los determinantes que explican los niveles de deuda de los municipios portugueses (deuda total y excedente), tras la introducción del Régimen Financiero de las Autoridades Locales y Entidades Intermunicipales (RFALEI) publicado en 2013 (Ley nº 73/2013).

Marco Teórico: En este trabajo se estudia el endeudamiento de los municipios portugueses, desde la perspectiva de la deuda neta y el exceso de endeudamiento, con el fin de dar una visión más amplia de este tema y poder caracterizar los principales determinantes que explican la deuda en los municipios portugueses.

Método: La deuda municipal se mide no sólo por el ratio de deuda neta, sino también por el exceso de deuda de los municipios. Se analizan variables institucionales, políticas y económico-financieras para explicar la deuda mediante un modelo de regresión lineal con efectos fijos. La muestra incluye todos los municipios portugueses para el período de 2014 a 2017.

Resultados y Discusión: Los resultados muestran que sólo los determinantes institucionales y económico-financieros son relevantes para explicar la deuda municipal. Los municipios con menos turismo, menos transferencias del Estado y con más ingresos de capital son los que están más endeudados. Además de estos factores, los municipios con más inversiones y menos ingresos fiscales tienden a tener más exceso de deuda.

Implicaciones de la Investigación: Los resultados de este trabajo son útiles para un grupo de usuarios de la información proporcionada por los municipios: al conocer las principales razones que conducen al endeudamiento, los gestores municipales pueden de alguna manera reducir la deuda; Las entidades reguladoras pueden crear leyes para limitar la deuda y los ciudadanos saben cómo se gestiona el dinero público.

Originalidad/Valor: Este trabajo analizó todos los municipios portugueses durante cuatro años, una muestra mayor que la utilizada en trabajos anteriores. Además de las variables políticas, también se utilizan determinantes

institucionales y económico-financieros, y estos determinantes muestran relevancia para explicar la deuda municipal. Por último, nos centramos no sólo en el ratio de endeudamiento, sino también en el exceso de deuda, que era la principal preocupación de RFALEI.

Palabras clave: Municipios, Portugal, Deuda, Exceso de Deuda, Datos de Panel.

1 INTRODUCTION

The 2008 international financial crisis spread to all countries and Portugal was no exception. The Portuguese public deficit increased, as well as the levels of indebtedness and unemployment. To overcome these problems, in 2010, Portugal asked for Troika's help, and several measures were applied to reduce the high public deficit and to increase revenues (Pires, 2019).

In this sequence, and at the level of the local public sector, the Regime Financeiro das Autarquias Locais e Entidades Intermunicipais (RFALEI) was published (Law no. 73/2013, of September 3), revoking the Law no. 2/2007. This Regime aimed to “adjust the paradigm of municipal revenues to the current reality, increase demands and transparency in terms of accountability, as well as provide local finances with the necessary instruments to guarantee effective coordination between Central and Local Administration, thus contributing to budgetary control and for the prevention of situations of financial instability”. This new law impacted Portuguese municipalities' debt. From 2014 to 2017, total debt decreased by 27.6% (Pordata, 2019). However, some municipalities continue presenting excess debt.

This work aims to identify which determinants explain municipalities' debt levels (total and excess of debt) in the period between 2014 and 2017. There is a lack of research on public finance in local governments, special for small-size countries (Lara-Rubio et al., 2022). However, the municipalities' debt level is relevant to both macroeconomic and microeconomic levels. Municipalities' sustainability not only promotes the country's stability but also the citizens' well-being. Therefore, cases of excess debt will increase uncertainties for the whole country (Basílio & Borralho, 2021).

Analyzing Portuguese municipalities is interesting, not only due to the high debt levels presented, which contributed to the country's public deficit and financial and economic instabilities but also because studies on this topic in Portugal are scarce. However, some studies analyze Portuguese municipalities, such as Fernandes (2011), Ferreira (2011), Melo (2013), Ribeiro et al. (2013), Ribeiro and Jorge (2014), Lopes (2015) and Ribeiro and Jorge (2015), Pires (2019), Basílio and Borralho (2021). This work differs from the previous ones for several reasons:

1. most works focus on Law no. 2/2007 (e.g., Ferreira; 2011; Melo, 2013; Ribeiro et al., 2013). We aim to understand the impact of the RFALEI (Law no. 73/2013) regarding the debt levels of municipalities;
2. we focus on all Portuguese municipalities, while others focus on some specific ones (e.g., Fernandes, 2011, only studies the municipalities of Mainland Portugal; Ribeiro et al., 2013, the municipalities of Lisbon; and Ribeiro & Jorge, 2014, the municipalities of the North);
3. we include not only political variables, for example, Basílio and Borralho (2021) but also institutional and economic-financial variables, giving an overall picture of the determinants that can explain municipalities' debt levels;
4. finally, we not only analyze total debt (e.g., Ferreira, 2011; Pires, 2019; Basílio and Borralho, 2021) but also excess debt, which must be avoided for municipalities to escape financial restructuring situations.

The sample comprises panel data of 308 Portuguese municipalities, over the period 2014-2017. To explain debt, institutional (tourist capacity), political (political ideology and form of governance), and economic-financial variables (tax revenue, State transfers, investment, capital revenue, and purchasing power capacity) were analyzed.

This work not only adds new knowledge to the literature review but is also relevant to practice, helping municipal managers to make decisions that avoid an increase in debt levels and to guarantee municipalities financial sustainability. This work contributes to external entities that can control the financial management of the Portuguese public sector and create or adapt laws or regulations to mainly avoid excessive debt. Finally, all voters may be interested in the results presented in this work as it is essential to understand how public money is being managed.

This work is structured as follows: after this introductory section, the literature review follows, where the hypotheses are defined considering the main determinants that can explain municipalities' indebtedness. In section 3, the sample, data sources, variables, and model are described. In section 4, the main results are discussed. The work culminates with the conclusions of the study and suggestions for future lines of research.

2 LITERATURE REVIEW

Municipalities' own revenues as well as central government transfers are usually insufficient to meet their current expenses that allow to satisfy the citizens' interest (Simionescu & Cifuentes-Faura, 2023a). Therefore, municipalities need to resort to credit (Pires, 2020). On one side, debt allows municipalities to overcome the lack of financial resources, but on the other side, it increases uncertainties as there is a commitment to repay the credit. The problem increases when several municipalities present high levels of indebtedness, putting their financial sustainability at risk. Pires (2019) argues that excessive public debt is problematic and increases uncertainties for all public bodies. It is necessary to promote the financial well-being of governments (Simionescu & Cifuentes-Faura, 2023b).

For it, in Portugal, the RFALEI (Law no. 73/2013, of September 3) was published in 2013 to control and prevent municipalities debt levels. This law wanted to control and prevent financial problems, calling for the need to change the budget execution and control, the municipal credit and debt regime, the transparency of information, and the publication of annual information. It also introduced mechanisms to early detect deviations of financial ratios and, if needed help the financial recovery of municipalities with financial constraints. To support this financial recovery, the law claimed the creation of a municipal support fund with the contribution of municipalities and the central government, as a mechanism of solidarity and financial co-responsibility of all municipalities. This law also introduced changes to reduce the base of local revenues, such as the reduction/extinction of the IMT (Imposto Municipal sobre Transmissões Onerosas de Imóveis - Municipal Tax on Onerous Property Transfers).

The main reform introduced by the RFALEI was related to debt, by establishing new limits for municipal debt, including for new debt loans. These limits were applied to the local authority, municipal services, municipal and inter-municipal companies, foundations, and other entities participating in or controlled by municipal councils.

In 2012, the framework of the Local Business Sector was changed, by the Law no. 50/2012, of 31 August. Its legal configuration was adjusted, now being included in the designated "local business activity". Following the recommendations of the memoranda to introduce mechanisms for controlling and restricting late payments by the public sector, in the same year, the Lei dos Compromissos e Pagamentos em Atraso (LCPA) was implemented (Law no. 8/2012, of 21 February, and Law Decree no. 127/12, of June 21). This new law wanted to discipline late payments, through the control of new commitments by the limit of funds

available for 90 days. The co-responsibility of public sector suppliers, the improvement and integration of information systems, as well as the civil, criminal, and financial responsibilities of public agents who allow public expenditure without the existence of funds available, were also introduced. The approval of the LCPA introduced the obligation to forecast available funds for supporting municipalities' commitments and to achieve a more balanced budget execution. Consequently, the budgetary risk was reduced, and uncertainties were mainly related to the possibility of an increase in revenue that did not allow the commitments already made or those legally foreseen to be met. Therefore, this law had implications for the reorganization of municipal activity, particularly from an economic, budgetary, and financial perspective, requiring additional effort to control municipal expenditures.

Also to control excessive debt levels, a new legal regime for municipal financial recovery was approved in 2014, through Law no. 53/2014, of 25 August. This law provided the legal and financial mechanisms necessary to be implemented by a municipality to respect the total debt limit. It also regulated the Municipal Support Fund, the support given to municipalities in a situation of bankruptcy or financial constraints.

These laws were introduced with the focus of assuring municipalities' financial sustainability. However, it is necessary to understand which determinants can justify debt levels, especially high levels of excess of indebtedness. The most relevant determinants can be grouped into three categories: institutional factors (tourist capacity), political factors (political ideology and form of governance), and economic-financial factors (tax revenues, State transfers, investment, capital revenues, and purchasing power capacity) (Fernandes, 2011; Ferreira, 2011; Ribeiro et al., 2013; Lopes, 2015), which support the following hypotheses of the study.

In what concerns institutional factors, more tourist municipalities have more expenses with infrastructure both for their residents and tourists. To support these investments, municipalities financial needs increase (Escudero-Fernández and Prior-Jiménez, 2002; Fernández-Llera et al., 2003; Melo, 2013; Ribeiro et al., 2013). This leads to our first hypothesis: debt levels of municipalities increase with debt levels.

Hypothesis 1: There is a positive relationship between tourist capacity and Portuguese municipalities' debt.

Political factors, as political ideologies depend greatly on the parties that govern the municipalities. Usually, left-wing governments are more progressive and have more social promises such as reducing unemployment, while right-wing governments are more

conservative and are concerned with price control (Ferreira, 2011; Ribeiro and Jorge, 2015). To fulfill their promises, left-wing parties tend to be less austere in budget management (Lopes, 2015). Studies for the Spanish market, such as Escudero-Fernández and Prior-Jiménez (2002) and Zafra-Gómez et al. (2009) proved that municipalities managed by left-wing governments are more prone to present high debt levels. The following hypothesis is then:

Hypothesis 2: There is a positive relationship between left-wing parties' management and Portuguese municipalities' debt.

The form of governance, absolute majority or no (fragmentation), also impacts municipalities' decisions, such as financing decisions (Lopes, 2015). In the case of more fragmented governance, to meet different interests and reach a consensus regarding investments and other decisions, municipalities have more expenses and need more financial resources. Bastida et al. (2012) found that political parties with the majority of the votes have lower debt than the remaining ones. However, Ribeiro et al. (2013) argue that for Portugal, majority governance can facilitate the use of debt. This relationship was also found by Melo (2013). On the other hand, Ferreira (2011), Ribeiro et al. (2013), and Basílio and Borrvalho (2021) did not find any statistically significant relationship between the majority of the political party and debt. Based on the presented, we consider that it is relevant to analyze the form of governance to explain the level of indebtedness of Portuguese municipalities, although it is not possible to predict the sign of the relationship. Hypothesis 3 is then established:

Hypothesis 3: There is a relationship between the form of governance and Portuguese municipalities' debt.

Regarding financial-economic factors, the level of municipalities' own revenues not only reflects its effectiveness in collecting taxes but also contributes to its financial independence (Melo, 2013). Municipalities with more own revenue, through direct and indirect fees and taxes (tax revenues), have less need for debt, as their revenues cover financing needs or at least part of them (Ribeiro et al., 2013). However, for Spain, Escudero-Fernández and Prior-Jiménez (2002) and Guillamon et al. (2011) found that municipalities with more tax revenue are those more indebtedness, since due its financial stability and guarantees, these municipalities can easily access debt. For the municipalities of Lisbon, Ribeiro et al. (2013) did not validate this relationship, perhaps because all municipalities in Lisbon have the same level of tax revenue, which may not happen when we extend the analysis to all Portuguese municipalities. As the relationship between tax revenues and debt is not consensual among researchers, the following hypothesis has no expected sign:

Hypothesis 4: There is a relationship between tax revenue and Portuguese municipality's debt.

State transfers are another form of municipalities' revenue. On the one hand, the higher the value of the transfers, the higher the municipality's level of expenditure tends to be, which may imply a greater need for debt. Fernandes (2011) validated this positive relationship for municipalities in the Portuguese mainland. On the other hand, State transfers can be a substitute for debt as it is a financial source. Ferreira (2011) found that as State transfers increased, the level of debt of Portuguese municipalities decreased in the period from 2003 to 2005. The following hypothesis is established:

Hypothesis 5: There is a relationship between State transfers and Portuguese municipalities' debt.

Municipalities that make more investments in fixed capital, such as the acquisition, production, or changing of durable goods, have more expenses and need to finance it using self-funding or debt. Since revenues are often insufficient to finance these investments, municipalities tend to increase debt (Fernandes, 2011; Ferreira, 2011; Melo, 2013). Hypothesis 6 is as follows:

Hypothesis 6: There is a positive relationship between investment and Portuguese municipalities' debt.

Municipalities with higher capital revenues have more self-funding and less need for debt (Lopes, 2015; Tavares et al., 2016). This negative relationship between capital revenues and debt was found for Lisbon municipalities by Ribeiro et al. (2013). This suggests the following hypothesis:

Hypothesis 7: There is a negative relationship between capital revenues and Portuguese municipalities' debt.

Finally, the purchasing power capacity has an impact on municipal debt (Melo, 2013). On one side, families with higher income seek more infrastructure, goods, and services, which leads municipalities to increase their investment and, therefore, there is more need for financial resources. Thus, municipal debt increases due to the increase in public expenditure (Guillamon et al., 2001; Melo, 2013). On the other hand, families with lower incomes pay less taxes, and thus municipal revenues are lower, so financial needs increase and municipalities tend to resort to more debt to finance their expenses (Fernandes, 2011; Bastida et al., 2012; Ribeiro et al., 2013). The last hypothesis is established:

Hypothesis 8: There is a relationship between the purchasing power capacity and Portuguese municipalities' debt.

3 METHODOLOGY

3.1 SAMPLE

The sample focuses on all Portuguese municipalities – 308, 278 located on the mainland and 20 on the islands (ANMP – Associação Nacional dos Municípios Portugueses). Based on the number of inhabitants, municipalities are classified by size: small ($\leq 20\,000$ inhabitants), medium ($> 20\,000$ and $\leq 100\,000$ inhabitants), and large ($> 100\,000$ inhabitants). There are around 186 small, 98 medium-sized, and 24 large-sized municipalities. Most of the large municipalities are located in the Lisbon region, where the Portuguese capital is located (Carvalho et al., 2017).

The sample period covers the years 2014 to 2017, being 2014 the year of implementation of the RFALEI, and then we analyze the impact of it in the next years.

Municipalities' financial information was collected on the Portal Municipal. Other information, such as the number of inhabitants, the number of tourist establishments, and purchasing power capacity per municipality was collected from Pordata. The website of the Comissão de Eleições Nacional was also consulted to obtain the electoral results, namely, the winning party and the percentage of votes.

The total sample is a balanced panel data sample with 1,228 observations.

3.2 VARIABLES

Debt is measured through the ratios per inhabitant: net debt and excess debt. The explanatory variables are grouped into three characteristics: institutional, political, and economic-financial factors. Table 1 shows how the variables were calculated. All the ratios were based on the works of Ferreira (2001), Ribeiro et al. (2013), Melo (2013) and Lopes (2015).

Table 1*Variables description*

Variable	Formula
Debt	
Net debt	$\frac{\text{Debts to third parties – accounts receivables and cash}}{\text{number of inhabitants}}$
Excess of debt	$\frac{1.5 \text{ times the average current revenues of the last 3 years} - \text{Debts to third parties}}{\text{number of inhabitants}}$
Institutional factor	
Tourism capacity	Number of touristic accommodations
Political factors	
Political ideologies	1 if it is a left-wing party (PS, BE, PCP-PEV or coalition) and 0 otherwise
form of governance	1 if the party has the majority of the votes (> 50%) and 0 otherwise
Economic-financial factors	
Tax Revenue	$\frac{\text{Tax Revenues}}{\text{number of inhabitants}}$
State Transfers	$\frac{\text{State transfer}}{\text{number of inhabitants}}$
Investment	$\frac{\text{Investment}}{\text{number of inhabitants}}$
Capital Revenues	$\frac{\text{Capital revenues} - \text{Financial liabilities}}{\text{number of inhabitants}}$
Purchasing power capacity	Purchasing power capacity per capita

3.3 MODEL

The proposed model is the following:

$$\begin{aligned}
 \text{Debt}_{i,t} = & c + \beta_1 \times \text{Tourism Capacity}_{i,t} + \beta_2 \times \text{Political Ideologies}_{i,t} \\
 & + \beta_3 \times \text{Form of Governance}_{i,t} + \beta_4 \times \text{Tax Revenue}_{i,t} \\
 & + \beta_5 \times \text{State transfers}_{i,t} + \beta_6 \times \text{Investment}_{i,t} + \beta_7 \times \text{Capital Revenues}_{i,t} \\
 & + \beta_8 \times \text{Purchasing Power Capacity}_{i,t} + U_i + \varepsilon_{i,t}
 \end{aligned}$$

$\varepsilon_{i,t}$

With:

i – municipality;

t - year;

U_i – fixed effects;

ε – error term.

The model will be tested using linear regression with fixed effects since the Hausman test (Table 2), show that is the most suitable method.

Table 2

Hausman test

	Debt	Excess of debt
Chi ² Statistic	63,2288 ***	62,2117 ***

*** Significant at level 1%

4 RESULTS AND DISCUSSIONS

Table 3 presents the descriptive statistics (panel A) and the correlation matrix (panel B).

Table 3

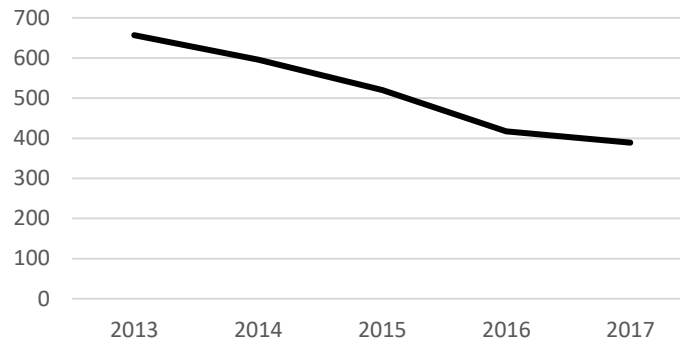
Univariate analysis

	Debt	EDebt	TC	Ideol.	Form	TaxR.	Transf.	Invest.	Cap.R.	PP
Panel A: Descriptive Statistics										
Mean	666.0580	95.8693	15.0839	0.6010	0.5098	351.2857	657.6832	182.1229	151.6978	80.4134
Median	308.0332	530.7927	7.0000	1.0000	1.0000	171.3945	426.1806	106.8082	96.94107	75.8000
Maximum	21056.93	36448.39	542.0000	1.0000	1.0000	7418.287	4777.659	3460.755	2529.275	214.500
Minimum	-6888.764	-5205.608	0.0000	0.0000	0.0000	4.3162	11.2335	1.2124	0.781381	55.8000
Std. Dev.	1577.088	2852.676	35.8855	0.4899	0.5001	753.4513	655.4438	262.1728	206.3875	18.34140
Panel B: Correlation matrix										
Debt	1									
EDebt	-0.1707 ***	1								
TC	-0.0202	-0.0305	1							
Ideol.	0.0491 *	0.0019	-0.0129	1						
Form	-0.0843 ***	0.1211 ***	-0.1270 ***	-0.0007	1					
TaxR.	0.0602 **	0.6486 ***	0.0738 ***	0.0315	0.0143	1				
Transf.	0.1991 ***	0.4573 ***	-0.1304 ***	0.0253	0.1601 ***	0.5947 ***	1			
Invest.	0.0825 ***	0.4497 ***	-0.0467 *	0.0188	0.1418 ***	0.5998 ***	0.7010 ***	1		
Cap.R.	0.1687 ***	0.4244 ***	-0.0764 ***	0.0226	0.1380 ***	0.5570 ***	0.7840 ***	0.7814 ***	1	
PP	0.0210	-0.0390	0.4617 ***	0.0485 *	-0.3447 ***	0.0696 **	-0.2923 ***	-0.1427 ***	-0.1751 ***	1

Debt – net debt ratio; EDebt – excess of debt; TC – touristic capacity; Ideol. – political ideology; Form – form of governance; TaxR. – tax revenues; Transf. – State transfer; Invest. – investment; Cap.R. – capital revenue; PP – purchasing power capacity.

***, **, * Significant at level 1%, 5%, and 10%, respectively

Table 3, panel A, shows that most of the municipalities are in debt, although the level of debt is singular across the sample. There are municipalities with a high debt level, while others have accounts receivable and cash similar higher than debt payments (the minimum of net debt is negative). Graph 1 presents the evolution of the average debt per year.

Figure 1*Evolution net debt per inhabitant per year (mean value)*

Source: own source

From 2013 to 2017 municipal debt level decreased, suggesting that RFALEI impacted the level of debt of local government.

Regarding excess debt (a negative value means high excess of debt), some municipalities have excess debt, but most municipalities do not incur this situation.

Table 4*Number of municipalities with excess debt per year*

	2014	2015	2016	2017	Mean
Number	82	59	47	43	58

Analyzing Table 4, it is possible to conclude that the number of municipalities with excess debt decreased over the analyzed years. On average 58 municipalities presented excess debt, which represents 18.8% of the sample. These results are similar to those found by Santos and Martinho (2019).

Of these municipalities with excess debt, 42 municipalities presented excessive debt levels consecutively in the last 4 years analyzed, and 5 municipalities were district capitals. Therefore, we can conclude that excessive debt levels not only occur in smaller municipalities. Santos and Marinho (2019) show that medium-sized municipalities are the ones with a higher excess of debt.

In terms of tourist accommodation, there are municipalities with more than 500 establishments, which are mainly located in Lisbon and Algarve, but there are municipalities without tourist capacity. The mean value is 5 establishments.

The majority of municipalities are managed by left-wing parties, and more than half have a majority form of governance. Regarding tax revenues, state transfers, investment, and

capital revenues are positive on average, but very volatile, which highlights the great disparity among municipalities. The difference is not regarding the number of inhabitants as the variables are calculated per inhabitant, but because they are more on the coast, are district capitals, have more tourism, among other factors. Finally, the purchasing power capacity is higher in some municipalities than in others, as can be seen by the difference between the maximum and minimum values.

Analyzing the correlation matrix (panel B) we can see that the explanatory variables, except the tourist capacity and the purchasing power capacity, are relevant to explain municipalities' indebtedness. There are no strong correlations, at least statistically significant, between the variables.

Finally, the proposed model was tested to understand which determinants explain the net and excess debt of Portuguese municipalities. The results are in Table 5.

Table 5

Model regression results

Variables	Debt	Excess of debt
Constant	934.5394	-124.5505
Tourism Capacity	-3.9523 ***	2.3988 ***
Political Ideology	67.2276	3.8825
Form of Governance	-60.0190	-18.3729
Tax revenue	0.1726	0.9768 ***
State Transfers	-1.9353 ***	2.3455 ***
Investment	0.2462	-0.2619 ***
Capital Revenues	0.3181 *	-0.4060 ***
Purchasing Power Capacity	11.1968	-9.0300
Adjusted R ²	88.98%	99.34%
F-statistic	32.5411 ***	587.1069 ***

***, **, * Significant at level 1%, 5%, and 10%, respectively

The proposed explanatory variables explain around 89% of net debt and 99% of excess debt of Portuguese municipalities. We can also add that the models are accurate given that the F-statistic is statistically significant.

Tourist capacity is relevant to negatively explain Portuguese municipalities' debt level. Contrary to expectations (hypothesis 1), municipalities with greater tourist capacity have lower debt and excess debt. Although these municipalities have more expenditure on tourist infrastructure, they also have more revenues, as population density increases (albeit occasionally). Thus, the collection of these revenues is sufficient to pay the necessary additional expenses, meaning that the need for financing decreases.

The ideology of the political party, whether right-wing or left-wing, has no impact on the debt of Portuguese municipalities. Hypothesis 2 is not validated, as in the works of Bastida et al. (2012), Ferreira (2011), and Ribeiro et al. (2013) who suggest that citizens just want to see their needs satisfied, regardless of political ideology. When analyzing the correlation matrix, it was found that the political ideology variable has a positive relationship with the municipalities' debt, that is, municipalities managed by left-wing parties are more indebted. However, upon multivariate analysis this statistical significance disappears, suggesting that this relationship is justified by other items.

The fact that the party has a majority also has no impact on the municipality's debt, not corroborating hypothesis 3. Similar results were found by Ferreira (2011) and Ribeiro et al. (2013).

Tax revenues are not relevant to justify municipalities' debt level but are positive to explain excess debt as forecast in hypothesis 4. The results suggest that municipalities with more tax revenue are those with less excess debt, as they can pay their expenses using their own revenues, presenting a more stable budget.

State transfers are alternative mechanisms of debt to Portuguese municipalities. The higher the value of State transfers, the lower the level of total debt and excess debt since municipalities have an alternative source of finance. The result confirms hypothesis 5 and corroborates the results of Ferreira (2011).

As for the level of investment, when it increases the level of excess of debt also increases, as expected in hypothesis 6. To acquire, produce, or modify durable goods, municipalities need funds, and their own revenues are normally insufficient, leading to an increase in debt beyond the legal debt limit.

Capital revenues have a positive impact on the total debt. The higher the municipality's financial autonomy the greater its excess debt, contrary to what was expected in hypothesis 7. This situation can be justified by the fact that municipalities with a better financial situation are more likely to access financing from banking institutions.

Finally, the purchasing power capacity does not impact Portuguese municipalities' debt, at least at a statistically significant level, so hypothesis 8 is not validated.

Compared with previous studies (Ribeiro et al., 2013 and Melo, 2013), before the approval of RFALEI, the main differences should be highlighted:

- the average level of municipal debt per inhabitant decreased and it continued decreasing from 2014 to 2017;

- the number of municipalities with excess debt has been decreasing, having fallen from 82 in 2014 to 43 in 2017;
- the amount of investment expenditure and capital revenue per inhabitant decreased, on average, but State transfers and tax revenues, in turn, increased;
- the tourism capacity of municipalities was not relevant to explain municipal debt before, but from 2015 to 2017 the lower this capacity, the greater the municipalities' financial needs;
- state transfers were not relevant to explain municipal debt but gained statistical significance in the analyzed period suggesting that the smaller the amount of the State transfers, the greater the municipalities' financial needs;
- finally, capital revenues previously showed a negative relationship with debt, but in our work the relationship is positive, suggesting that municipalities with more capital revenues have greater debt levels.

5 CONCLUSION

The theme of municipalities' debt is of great interest as it could affect the country's macroeconomic financial stability and, at a microeconomic level, the citizens' well-being. It is a topic that should interest all individuals since as citizens, they can understand how municipal funds are being used and how is the municipality's financial sustainability.

This work aims to understand which determinants explain the debt levels of Portuguese municipalities. Debt is analyzed from the perspective of net debt, the ratio most analyzed by previous researchers, and excess debt, which appeared with the introduction of the debt limit. Therefore, we can have a broader picture of Portuguese municipalities' indebtedness.

Analyzing the 308 Portuguese municipalities from 2014 to 2017, the main results show that the legislative changes that occurred between 2012 and 2014 seem to impact the municipality debt level since net debt (average) and excess debt have decreased over the analyzed years. Moreover, investment expenditures and capital revenues have also decreased, while State transfers and tax revenue have increased.

Results show that political factors are not relevant to explain the debt (total and excess) of Portuguese municipalities. Municipalities with more tourist accommodation, which receive more State transfers and have less capital revenue are those with less debt, perhaps because they have more sources of revenue which makes them less in need of external financing. Additionally, excess of debt, in addition to being related to the determinants presented above,

is even greater when investment increases and tax revenues decrease, due to the need for municipalities to make up for the lack of funds to pay their expenses.

This work contributes to the debate on municipalities' indebtedness by analyzing the impact of local law to control high levels of indebtedness, as well as for analyzing both net debt and excess debt, a variable that is usually ignored but that is relevant to ensure municipalities and the whole country financial sustainability. The main results are of interest to managers and politicians to improve their decision-making process. It also helps to monitor debt levels and understand what can lead to increased debt in excess. Local municipality governments can use the conclusions of this work to take advantage of their local condition. Municipalities with more tourism can increase their economic growth and reduce their dependence on debt levels. Moreover, municipalities with more State transfers are less indebted showing the need to control these transferences to promote all municipalities' sustainability.

The aim of the work was accomplished. However, as with all the works it was some limitations that brought suggestions for future works. The results depend on the chosen variables. There is a vast set of variables that can be used and added to the model. Within the institutional variables, whether municipalities are on the coast or inland, belong to the mainland or islands, or their size can be relevant to include. Regarding political variables, the year of the election year or the consistency of political parties over the years are additional variables that can also be added.

We analyze the years 2013-2017 to understand the impact of RFALEI on municipalities indebtedness. Future work can years before and after to check if there are significant changes in the municipalities' debt and, if so, try to understand the main reasons.

REFERENCES

- ANMP. *Associação Nacional de Municípios Portugueses*. Retrieved from <https://www.anmp.pt/index.php/municipios>.
- Basílio, M. S., & Borralho, C. (2021). Political factors and municipalities debt: An empirical assessment in Portugal. *Revista de Informação Contábil*, 15, 1-21.
- Bastida, F., Beyaert, A., & Benito, B. (2012). Electoral Cycles and Local Government Debt Management. *Local Government Studies*, 39(1), 107–132.
- Carvalho, J., Fernandes, M. e Camões, P. (2017). *Anuário Financeiro dos Municípios Portugueses 2017*. SIG - Sociedade Industrial Gráfica, LDA. Retrieved from: file:///C:/Users/In%C3%AAs/Downloads/amp2017_25.pdf.
- CNE – *Comissão Nacional de Eleições*. Retrieved from <http://www.cne.pt/>.

- Decreto-Lei n.º 127/12, de 21 de junho. *Normas legais disciplinadoras dos procedimentos necessários à aplicação da Lei dos Compromissos e dos Pagamentos em Atraso*. Diário da República: I Série n.º 119/2012. Disponível em <http://www.dre.pt>.
- Escudero-Fernández, P., & Prior-Jiménez, D. (2002). Análisis del Endeudamiento y Efectos de su Control en las Corporaciones Locales. *IX Encuentro de Economía Pública*. Vigo, Espanha.
- Fernandes, C. (2011). *Determinantes do endividamento autárquico Evidência Empírica para os Municípios Portugueses utilizando modelo de dados de Paineis*. (Dissertação de Mestrado). Universidade da Beira Interior.
- Fernández-Llera, R., García-Valiñas, M., Cantarero-Prieto, D., & Pascual-Sáez, M. (2003). El Endeudamiento de los Gobiernos Locales en España: Aspectos Generales y Resultados Empíricos. *IV Jornadas de la Asociación Galega de Estudios de Economía del Sector Público*. Santiago de Compostela, Espanha.
- Ferreira, F. (2011). *Determinantes do Endividamento Municipal em Portugal*. (Dissertação de Mestrado). Universidade do Minho.
- Guillamon, D., Benito, B., & Bastida, F. (2011). Evaluación de la deuda pública local en España. *Revista Española de Financiación y Contabilidad*, XL(150), 251–285.
- Lara-Rubio, J., Navarro-Galera, A., Buendia-Carrillo, D., & Gomez-Miranda, M. E. (2022). Analysing financial risks of local governments to design sustainability policies for public services: An empirical study by the population size. *Cities*, 128, 103795.
- Law 8/2012, de 21 de fevereiro. *Regras aplicáveis à assunção de compromissos e aos pagamentos em atraso das entidades públicas*. Diário da República: I Série n.º 37/2012. Disponível em <http://www.dre.pt>.
- Law 50/2012, de 31 de agosto. *Regime jurídico da atividade empresarial local e das participações locais*. Diário da República: I Série n.º 169/2012. Disponível em <http://www.dre.pt>.
- Law 73/2013, de 3 de setembro. *Regime Financeiro das Autarquias Locais e Entidades Intermunicipais*. Diário da República: I Série n.º 169/2013. Disponível em <http://www.dre.pt>.
- Law 75/2013, de 12 de setembro. *Regime Jurídico das Autarquias Locais*. Diário da República: I Série n.º 176/2013. Disponível em <http://www.dre.pt>.
- Law 53/2014, de 25 de agosto. *Regime Jurídico da Recuperação Financeira Municipal regulamentando o Fundo de Apoio Municipal*. Diário da República: I Série n.º 162/2014. Disponível em <http://www.dre.pt>.
- Lobo, F., & Ramos, P. (2010). Os Factores Determinantes da Probabilidade de Ruptura Financeira dos Municípios Portugueses. *16 Congresso da Associação Portuguesa de Desenvolvimento Regional*. Funchal.

- Lopes, C. (2015). *A problemática do endividamento dos Municípios da C.I.R.A.* (Dissertação de Mestrado). Universidade de Aveiro.
- Melo, A. (2013). *Os Fatores Determinantes do Endividamento dos Municípios Portugueses.* (Dissertação de Mestrado). Escola Superior de Ciências Empresariais. Instituto Politécnico de Setúbal.
- Pires, C. (2019). Determinants of Portuguese Local Municipalities Indebtedness. In *Book of Abstracts* (p. 170). DOI: 10.24427/CID2019-conference-023
- Portal Autárquico (2019). *Informação dos municípios Portugueses.* Retrieved from <http://www.portalautarquico.dgal.gov.pt/pt-PT/financas-locais/dados-financeiros/contas-de-gerencia/>.
- Pordata (2019). *Dados dos Municípios Portugueses.* Retrieved from <https://www.pordata.pt/Municipios>.
- Ribeiro, N., & Jorge, S. (2015). Estudo do Endividamento dos Municípios Portugueses: Uma análise multigrupos. *XXV Jornadas Hispanolusas, Enfoques Empresariales de la Gestión Científica.* Ourense, Espanha.
- Ribeiro, N., & Jorge, S. (2014). Determinantes do endividamento da administração local: estudo exploratório nos municípios do norte de Portugal. *Innovar*, 24(51), 61-78.
- Ribeiro, N., Jorge, S., & Cervera, M. (2013). Estudo do Endividamento da Administração Local Portuguesa: Evidência Empírica usando Modelos de Dados em Painel. *Notas Económicas*, 38, 46-67. http://dx.doi.org/10.14195/2183-203X_38_3.
- Santos, P., & Martinho, C. (2019). O endividamento dos mecanismos de alerta precoce do RFALEI na identificação dos municípios sobre endividados. *II Congresso Internacional de Contabilidade Pública*, 14 a 15 de março, Lisboa.
- Simionescu, M., & Cifuentes-Faura, J. (2023a). Analysing public debt in the Mexican states: Spatial convergence, regional drivers and policy recommendations. *Papers in Regional Science*, 102(4), 737-760.
- Simionescu, M., & Cifuentes-Faura, J. (2023b). Public debt in the Spanish municipalities: Drivers and policy proposals. *Evaluation Review*, 0193841X231193465.
- Tavares, F., Pacheco, L., & Loureiro, F. (2016). Administração de tesouraria e endividamento municipal: Situação dos municípios portugueses. *Revista Universo Contábil*, 12(3), 110-125. doi:10.4270/ruc.2016324.
- Zafra-Gómez, J., Plata-Díaz, A., & Pérez-López, G. (2009) Factores Determinantes de la deuda viva en los ayuntamientos. Una aplicación al caso español, *XV Congreso AECA* (Vol. 1), 23 a 25 de septiembre, Valladolid.