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Transparency in local government management: a study of its determinants

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Abstract:

Transparency of public management is fundamental in bringing citizens closer to public managers, with this being considered universally as an element of good governance.

The main aim of this study is to identify the factors determining transparency in public management of Portuguese local authorities. Using the Municipal Transparency Index of 2013 and 2014, socio-demographic, political and economic-financial variables are studied for the universe of 308 Portuguese local authorities, by testing the previously formulated research hypotheses in the light of agency theory.

The results show that transparency in public management of Portuguese local authorities is determined by size, the number of individuals aged between 15 and 74 who use the internet, unemployment rate, financial autonomy and net debt.

Key words: Local Authorities, Transparency, Accountability.

JEL classification: H11, H70, H72.

1 Introduction

Transparency in public management, besides being an obligation for managers and politicians, contributes to greater citizen/voter participation in exercising public functions (Tavares and Rodrigues, 2012). It is fundamental that they have transparent information allowing them to assess management efficiency, but also that they identify with the system.

The new form of action in local government, namely regarding accountability to voters/tax-payers, means of communication, controlling bodies and other stakeholders in accompanying governments' activities, increases the attention paid to transparency and its determinants.

The principal objective of this study is to contribute to the scientific literature, seeking to answer the following research question: "what are the determining

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factors of transparency in Portuguese local authority management?” The main purpose is to identify, for the Portuguese local authority situation, the factors determining the level of transparency. To achieve this aim, the results of the recently developed Municipal Transparency Index (MTI) for the years 2013 and 2014 are used.

Following this introduction, the article is structured in 3 sections. Section two relates agency theory with accountability and transparency. The third section presents the empirical analysis, stating the hypotheses and variables, how the data will be treated, and the results and discussion of the hypotheses. The last section presents the main conclusions of the study.

2 Agency theory, accountability and transparency

Jensen and Meckling (1976) define an agency relationship as a contract through which one or more people (the principal – capital holder) hire another person (the agent – manager) to perform a service or work in their name. In this contractual relationship the principal delegates some decision-making authority to the agent, a fact that gives rise to conflicts of interest due to the separation of ownership and control. The agent does not always act in the principal’s interest, which means agency costs are incurred, resulting from adopting monitoring mechanisms and residual losses.

The principal-agent dilemma involves a relational conception of accountability, bearing in mind the matter of information (Ferejohn, 1999). The problem of accountability is related to the problem of delegation, since representative democracies mirror a relation of authority between the person who delegates and the one who is delegated. The principal delegates to the agent the power to carry out something in the former’s interest, and it is the agent’s duty to act in the principal’s interest.

Agency theory has been widely applied to the business situation, but in recent decades it has been used increasingly in other contexts, particularly in representative democracy (Ferejohn, 1986). Considering the agency theory approach to representative democracy, voters (principal) elect politicians/leaders (agents) to represent their interests through the policies proposed by governments and the guidance given to Public Administration to carry them out. In addition, by financing public activities, tax-payers also delegate to their representatives the decision to allocate public resources.

From the agency theory perspective, the lack of transparency can create an advantage for political decision-makers in achieving their objectives: agents (politicians/leaders) can have their own interests that do not always maximize their voters’ well-being. Therefore, and according to the above theory, accountability takes place in the scope of an electoral democracy, according to a minimalist

conception of the democratic process fundamental for the institutionalization of accountability which consists of reducing the information deficit between principals and agents by enhancing transparency.

Alt, Lassen and Skilling (2001) indicate that transparency reduces the information asymmetries between political agents and citizens/voters. The authors suggest two ways to diminish this problem: i) inform voters about the actions taken by elected politicians (Ferejohn, 1999), or ii) facilitate coordination in budget results between the bodies alternating in power.

The concept of transparency emerges as linked to the information economy, where the citizen is seen as an investor and consumer of public goods. In the view of Ferejohn (1999), the principal invests their resources in the action carried out by the agent (politicians/leaders), hoping for a return on the investment made. The balance in the relationship between the principal (voters/tax-payers) and the agent (politicians/leaders) depends on the existence of more transparent entities that are able to reduce the uncertainty of the investment (Ferejohn, 1999). As mentioned above, transparency maximizes accountability by allowing a reduction of information asymmetry between the principal and the agent, thereby ensuring a system of possible accountability through reducing public bodies' secrets. According to this approach, for agency theory, transparency strengthens accountability in the scope of the information economy, with the citizen being seen as a consumer of public goods, i.e., financing public sector activities.

3 Factors determining transparency in Portuguese local authority management

3.1 Research hypotheses

Based on the literature review (Ingram and Copeland, 1982; Christianes, 1999; Ferejohn, 1999; Traunmuller, 2001; Reddick, 2005; Alt, 2006; Piotrowski and Van Ryzin, 2007; Christoph, Schaltgger and Torgler, 2007; Rueda, 2007; García and García, 2008; Gallego-Álvarez, Rodríguez-Domínguez and García-Sánchez; 2010; Guillamón, Bastida and Benito, 2011; Lourenço, Jorge, Sá and Rolas, 2011; Esteller-Moré and Otero, 2012; Mendes, 2012; Pires, 2012; Alegre, Peñas, Santias and Boubeta, 2013; Vicente, Benito and Bastida, 2013; García-Sánchez, Frías-Aceituno and Rodríguez-Domínguez, 2013; Batalha, 2014; Sol, 2013; Tavares and Cruz, 2014, and Sedmihradská, 2015), as well as the precepts of agency theory, a set of research hypotheses was formulated, relating the level of transparency with certain variables considered as potentially explanatory factors of this. For better understanding, the hypotheses analysed were grouped taking into consideration socio-demographic, political and economic-financial factors.

Table 1 presents the various hypotheses, the variables to be studied, data source and the expected sign for each.

Tab. 1: Research hypotheses, variables and expected sign

Research hypothesis	Description	Variable	Data Source	Expected Sign
H ₁	The level of transparency is greater the greater the population of the local authority.	DIM	Pordata (www.pordata.pt)	+
H ₂	The level of transparency is greater the greater the number of people aged between 15 and 74 who use the internet.	INTER1574	Pordata (www.pordata.pt)	+
H ₃	The level of transparency is greater the higher the level of education.	ESCOL	Pordata (www.pordata.pt)	+
H ₄	There is a relationship between the level of transparency and the aging population index.	IENV	Pordata (www.pordata.pt)	Undefined
H ₅	The level of transparency is lower the higher the unemployment rate.	TXDESEMP	Pordata (www.pordata.pt)	-
H ₆	The level of transparency is greater in local authorities with a minority government.	FGOV	CNE (www.cne.pt)	+
H ₇	The level of transparency is greater when a left-wing party governs the local authority.	IDEOL	CNE (www.cne.pt)	+
H ₈	The level of transparency is greater the greater political/voter participation.	PARTELEI	Pordata (www.pordata.pt)	+
H ₉	The level of transparency is greater the greater the local authority's financial autonomy.	AUTFIN	Portal autárquico (www.portalautarquico.pt)	+
H ₁₀	The level of transparency is greater the higher the local authority's net level of debt.	ENDLIQ	Portal autárquico (www.portalautarquico.pt)	+

DIM - Logarithm of the inhabitants residing in the local authority.

INTER1574 - Logarithm of the number of people aged between 15 and 74 who use the internet.

ESCOL - Percentage of population with higher education according to the total population of the local authority.

IENV - Number of people aged 65 and over for every 100 people under the age of 15.

TXDESEMP - Number of unemployed per 100 active people.

FGOV - Dummy variable in which it takes the value '1' if the political party that manage the municipal executive obtained majority (more than 50.1% of the votes), otherwise it assumes the value '0 (zero)'.

IDEOL - Dummy variable with a value '1' when the municipal executive is of right parties ideology and '0 (zero)' in the opposite case.

PARTELEI - Number of voters in the municipal elections, divided by the voters registered in the electoral rolls.

AUTFIN - Own revenues divided by total revenues.

ENDLIQ - Differences between liabilities, in whatever form, including borrowings, leasing contracts and debts to suppliers, and assets, namely the cash balance, bank deposits, treasury applications and credit claims.

In relation to the dependent variable, the MTI was developed in 2013 by Transparency and Integrity, Civic Association (TIAC) and measures the degree of local authorities' transparency through analysis of the information available to citizens on their websites. Specifically, the index measures the transparency of Portuguese local authorities according to information on their composition, functioning and management, as provided on the municipal websites. The index does not measure accessibility, intelligibility, the quality and assumptions of information provision, or corruption. The MTI is made up of 76 indicators consisting of dummy variables with the value of '1' when a certain item of information is provided on the local authority site, or '0 (zero)' if not.

These indicator are grouped into seven dimensions:

- A. Information about the organization, social composition and functioning of the local authority (18 indicators);
- B. Plans and Planning (13 indicators);
- C. Taxes, Fees, Tariffs, Prices and Regulations (5 indicators);
- D. Relationship with society (8 indicators);
- E. Transparency in Public Procurement (10 indicators);
- F. Economic and financial transparency (12 indicators);
- G. Transparency in Urban Planning (10 indicators).

3.2 Data treatment

To determine the relationship between each of the independent variables and the MTI, so as to study the various hypotheses defined, a multivariate analysis is performed using the STATA program.

As the linear regression model has been widely used (e.g., Guillamón, Bastida and Benito, 2011; Vicente, Benito and Bastida, 2013 and Tavares and Cruz, 2014) in defining econometric models that explain the determinant factors of local authority transparency, the same method is chosen in this study. More specifically, the multiple linear regression model is applied by the Ordinary Least Squares method, due to considering that various (independent) variables may explain the local authority transparency index.

According to Marôco (2010), estimation of the linear regression model can only be performed if certain assumptions are fulfilled. Therefore, various tests will be carried out to complete that analysis.

Considering MTI as the dependent variable, and the different variables already mentioned as independent, the following model will be studied:

$$\begin{aligned} \text{MTI} = \alpha + \beta_1 \text{DIM} + \beta_2 \text{INTER1574} + \beta_3 \text{ESCOL} + \beta_4 \text{IENV} + \beta_5 \text{TXDESEMP} \\ + \beta_6 \text{FGOV} + \beta_7 \text{IDEOL} + \beta_8 \text{PARTELEIT} + \beta_9 \text{AUTFIN} \\ + \beta_{10} \text{ENDLIQ} \end{aligned} \quad (1)$$

3.3 Results and Discussion

The results of estimating the model are now presented, with the global model (SOCDEM_PLO_ECOFIN) including the socio-demographic, political and economic-financial variables. In the partial models, each group of factors was estimated individually. Therefore, Model 1 is related to socio-demographic factors (SOCDEM), Model 2 to political factors (POL) and Model 3 to economic-financial factors (ECOFIN).

Analysis of Table 2 reveals that for most variables the partial models present results that are quite consistent with estimation of the global model. In this context, an analysis will now be made of the results of that model (SOCDEM_POL_ECOFIN), finding that it presents an R^2 of 0,214.

The explanatory variables of the model express 21,4% of the variations occurring in the MTI. It is noted that the explanatory power is not very high, but agrees with the results obtained by Guillamón, Bastida and Benito (2011) and Tavares and Cruz (2014), respectively 29% and 25%.

The results of the F test $(_{10,605}) = 34,23$ allow the conclusion that, for a 1% level of significance, there is sufficient statistical evidence to state that the regressors present values different from zero and as a whole explain satisfactorily the variations found in the MTI.

Considering the previous results, tests were made to analyse a possible violation of the model's assumptions. Concerning multicollinearity, no variable was found to present a VIF value above 10, which shows non-violation of the assumption. Nor are the $1/\text{VIF}$ values, i.e., of tolerance, close to zero, showing that the regression coefficients are stable, both in magnitude and sign (Marôco, 2010).

Tab. 2: Results of the Multiple Linear Regression Model (MTI)

Variable	MTI	MTI	MTI	MTI
	SOCDEM (1)	POL (2)	ECOFIN (3)	SOCDEM_POL_ECOFIN (4)
DIM	2,237*** (3,60)			1,588** (2,52)
INTER1574	1,653*** (3,09)			1,668*** (3,15)
ESCOL	0,340** (2,43)			0,184 (1,10)
IENV	-0,000866 (-0,16)			0,000777 (0,15)
TXDESEMP	-0,361** (-2,56)			-0,411*** (-2,83)
FGOV		1,704 (0,83)		1,199 (0,58)
IDEOL		-0,624 (-0,71)		-0,792 (-0,95)
PARTELEI		-0,411*** (-8,60)		-0,0577 (-0,92)
AUTFIN			24,90*** (10,17)	7,079* (1,75)
ENDLIQ			0,00224*** (4,37)	0,00302*** (5,46)
_cons	-1,076 (-0,20)	57,17*** (18,04)	24,84*** (25,28)	6,861 (0,90)
F	18,61***	56,16***	25,90***	34,23***
R ²	0,205	0,103	0,142	0,214
N	616	616	616	616

* p<0.10, ** p<0.05, *** p<0.01

To test for heteroscedasticity, the *White* test was used. As the test statistic is 77,52 above the *p-value* = 0,1032, it is concluded that the assumption of heteroscedasticity was not violated.

Autocorrelation of errors was carried out using the *Durbin-Watson* test, reaching the conclusion that the model does not suffer from error autocorrelation.

The results obtained reveal that for a maximum level of significance of 10%, the variables of DIM, INTER1574, TXDESEMP, AUTFIN and ENDLIQ present statistical significance.

The results obtained will now be discussed, based on agency theory, due to considering that voters (principal), with their votes, elect politicians/leaders

(agents) to represent their interests through policies proposed by governments and orientations given to Public Administration to carry them out.

As there is information asymmetry between agents and the principal, based on the results obtained, it is important to discuss which socio-demographic, political and economic-financial factors determine transparency in public management of local authorities.

Of the ten research hypotheses formulated, the results obtained allow us to validate five.

Validation of H₁ corroborates the idea that municipal authorities are more transparent in larger councils. This result agrees with those obtained by Gallego-Álvarez, Rodríguez-Domínguez and García-Sánchez (2010), Guillamón, Bastida and Benito (2011), Esteller-Moré and Otero (2012), Sol (2013), Mendes (2012), Pires (2012), Batalha (2014) and Sedmihradská (2015).

The results obtained also confirm that the greater the population with access to the internet, the greater local authority transparency, and so **H₂ is also validated**. Easy access to the internet increases the possibility of access to information about the local authority. In this context, citizens seem to be closer to local authorities.

The hypothesis related to the unemployment rate is also corroborated, and so **H₅ is also validated**. This result is consistent with that obtained by Alegre *et al.* (2013), Tavares and Cruz (2014) and Batalha (2014). There seems to be the underlying idea that, on one hand, the more precarious the council's economic situation, the greater the temptation for local authorities to conceal this. On the other hand, the unemployed population may have many other personal worries, and is therefore less concerned about obtaining information about the local authority, outside the area of employment.

In relation to economic-financial factors, the results allow validation of the two hypotheses defined. Therefore, **H₉ is validated**, corroborating the opinions of Tavares and Cruz (2014), Alegre *et al.* (2013) and Vicente, Benito and Bastida (2013). Here, we find that local authorities with greater financial autonomy, which may even be able to charge more taxes, feel the need to inform citizens, and so are more transparent. This fact may contribute to citizens not feeling they are paying high taxes as they may have a precise idea of municipal management.

The results obtained also allow **validation of H₁₀**, corroborating those obtained by Rueda (2007), García and García (2008), Pires (2012) and Batalha (2014). Here, there seems to be statistical evidence confirming that greater net debt leads local authorities to be more transparent. There is a general opinion that such a result can be explained by local authorities wanting to pacify citizens.

Finally, it is underlined that no results were found to enable validation of the hypotheses related to political factors (**H₆, H₇ & H₈**).

4 Conclusion

Recent studies in the field of Public Administration have highlighted the role of transparency in making information available to citizens, allowing them to participate in the political process, as well as promoting accountability, improving the quality of government decision-making and helping to anticipate and lessen corruption. The information provided can reveal private interests that may go against the collective interest and hold actors responsible for all decisions and measures taken or omitted.

This study contributes to scientific knowledge, by investigating the determinants of local government transparency, seeking to answer, in the specific case of the Portuguese situation, the following research question: “*what are the factors determining transparency in public management of Portuguese local authorities*”. In particular, the intention was to identify which factors determine the level of transparency in public management of Portuguese local authorities. To this end, a set of hypotheses were tested, considering the 308 Portuguese local authorities. Use was made of the results of the recently developed MTI for 2013 and 2014. The study was based on agency theory, considering the agency relationships applied to voters/tax-payers (principal) and politicians/leaders of local administration (agent).

In general terms, the results obtained indicate as explanatory determinants of transparency in public management of Portuguese local authorities: population size, individuals aged between 15 and 74 who use the internet, the unemployment rate, financial autonomy and net debt. No results were obtained allowing validation of the hypotheses related to level of education, aging index or political factors (form of governance, political ideology and political/voter participation).

Finally, it is highlighted that this research aimed to make a significant contribution to the literature studying the determinants of transparency in public management of Portuguese local authorities, largely due to the limited number of studies carried out in this area, and particularly, considering the MTI.

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