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Transparency in Spanish municipalities: determinants of information disclosure

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Abstract: The changes occurred in the management systems of public administration at present allow greater accountability and transparency. The purpose of this paper is twofold; firstly, study the level of transparency in the Spanish Public Administration, in particular we will focus on local governments; and, secondly, to determine those factors or variables that are affecting the levels of transparency. The methodology used to analyze the level of transparency used the transparency index of municipalities build by Transparency International in Spain as a proxy. For the treatment of the data, univariate and multivariate analyses are performed. The pressures exerted by citizens and other stakeholders are leading municipalities to become more transparent in the process of creating legitimacy before citizens and stakeholders. Those municipalities, where citizens have greater access to the Internet, have more population, fiscal pressure is heavier and are governed by left-wing parties, are more pressured to be transparent.

Key words: information disclosure, transparency, access to information, municipalities, open government.

Resumen: Los cambios que han ocurrido en los sistemas de gestión de la Administración Pública están permitiendo una mejor divulgación de información y transparencia. El propósito de este trabajo es estudiar el nivel de transparencia en los municipios españoles y determinar aquellos factores o variables que están afectando dicho nivel. La metodología empleada utiliza como *proxy* el índice de transparencia (IT) de los ayuntamientos, elaborado por la organización Transparencia Internacional en España. Para el tratamiento de los datos, se lleva a cabo un análisis univariante y multivariante. Las presiones ejercidas por los ciudadanos y otros *stakeholders* están llevando a los municipios a ser cada vez más transparentes, para crear legitimidad ante ellos. Aquellos municipios donde los habitantes cuentan con un mayor acceso a Internet, tienen más población, la presión fiscal es más elevada y una ideología más progresista, se encuentran con una mayor presión para ser transparentes.

Palabras clave: divulgación de información, transparencia, acceso a la información, municipios, Gobierno Abierto.

Introduction¹

The ideas of the New Public Management (NPM) have changed the traditional culture of Public Administration, organizations being open and mechanisms of accountability and information transparency being increased. Such transparency is a mechanism to improve good governance in public services (Piotrowsky, 2007; Albalate, 2013; Bauhr and Grimes, 2014) and to increase the public's capacity to have access to information concerning the government (Roberts, 2006; Piotrowski and Van Ryzin, 2007). It is about government's decisions leading to increase the efficacy of management, seeking to increase their ethical values (Cooper and Yoder, 2002).

Transparency allows for a better comprehension of public policy, increases people's trust and reduces corruption (Park and Blenkinsopp, 2011). Public leaders and managers are to be accountable for their activities and results on the basis of information accessibility and disclosure (Albalate, 2013). Transparency in Public Administration has increased worldwide since 1990 (WBG, 2007; USAID, 2011). Numerous international organizations have recommended that governments are to adopt socially responsible practices and to provide information of their activities (OCDE, 2006; UE, 2011).

Recently in Spain, the Transparency, Public Information Access and Good Governance Law 19/2013, of December 9th was approved.

It aims to widen and strengthen the transparency of public activity, to regulate and ensure the right for information access concerning such activity and to establish the responsibilities of a good governance that public responsible are to fulfill. This law is applicable to all public Administrations and to the whole state public sector as well as to other institutions such as the Royal Household, General Council of the Judiciary, Constitutional Court, Congress of Deputies, Senate, Bank of Spain, Defender of the People, Court of Auditors, among others (Law 19/2013, of December 9th, articles 1 and 2).

The Law anticipates a progressive entry into force (the following day of its publication, the following year or two years), considering the particular circumstances that implies the application of various regulations. Specifically, the term for local entities to adapt themselves to the regulations of this law was two years at most.

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Regarding transparency in the local field, it does matter in order to better comprehend local government (Piotrowski and Bertelli, 2010; Greco *et al.*, 2012). The efficient use of public resources demands more efficient mechanisms of transparency in decision-making of local governments. This is motivated by the pressure from citizens in order to reduce corruption and abuse of power. The impact of the crisis has compelled Spanish municipalities to reduce public debt. Additionally, there are financial restrictions that require from local governments greater legal of public deficit (Pérez-López *et al.*, 2013). In this sense, municipalities are to increase efficacy in managing public resources and be more transparent.

Nonetheless, there are certain political and economic important factors to account for the level of transparency in the local government (Alt *et al.*, 2006; Piotrowski and Van Ryzin, 2007; Guillamón *et al.*, 2011; Albalate; 2013; Navarro *et al.*, 2014; Alcaraz-Quiles *et al.*, 2015; Nevado-Gil and Gallardo-Vázquez, 2016). In this work the level of transparency is analyzed and those features in the municipalities that affect it are identified. We decided to carry out this analysis in municipalities since problems of transparency are more common in this field (Guillamón *et al.*, 2011; Cuadrado-Ballesteros, 2014).

On the basis of the agency and legitimacy theories this research contributes to the literature of this subject, attempting to explain the determinant factors for the level of transparency in Spanish municipalities. The aim is to answer the following questions: (a) has the level of transparency increased in Spanish municipalities? And (b) what factors influence the level of transparency in such municipalities?

In order to achieve this aim a univariate and bivariate descriptive analysis was carried out as well as a multivariate linear regression analysis. In total 100 municipalities were chosen, such were included for the first time in the municipal IT in 2008, created by the Transparency International España, and the same municipal governments were considered in order to obtain data from 2014.

Finally, there is a panel data composed of 200 observations. Results show that there has been an increase in the municipalities of the sample in their levels of transparency and that factors such as the municipality's size, tax burden, the level of Internet access inhabitants have, the municipality's political ideology, and the effect of the region's (autonomous community) political party's ideology have a significant impact in the level of municipal transparency.

The next part of this work is organized as follows: in the next section literature on transparency is presented, its definition, factors that affect it, and hypotheses are developed. Research methodology in the third section; data description and empirical analysis in the fourth; and main conclusions in the fifth.

Theoretical background and development of hypotheses

Spanish public sector is divided in three levels: Central Government, 17 Regional Governments and 8.112 Local Governments, grouped in 50 provinces. Municipalities hold the lowest level in the territorial organization of the State, they have legal personality and full capacity to achieve its objectives. The municipalities' government and administration correspond to their corresponding municipal governments, composed of majors and councilors.

In order to analyze the Local Government's transparency we focused our attention in municipalities. In Spain, the reform originated by the Measures for the Modernization of Local Government Law 57/2003 underscores the need to promote the use of Information and Communication Technology so as to facilitate participation and communication with neighbors (Serrano-Cinca *et al.*, 2009; Guillamón *et al.* 2011; García *et al.*, 2013); contributing thus, with information transparency.

Literature points out four principles of transparency: (1) information of the public organizations' activities that affect the interests of citizens is to be valued and be at the public's disposal; (2) the amount of available information is to be proper according to the degree such organizations threaten the interests of citizens; (3) information is to be accessible for those who require it; and (4) social, political, economic structures of society are to be organized in such a way that allow citizens to act. (Birkinshaw, 2006; Ball, 2009; Fung, 2013).

Transparency is a means to improve the efficacy of public policy as well as administrative and management efficacy (Hirsch y Osborne, 2000), leading public affairs openly for citizens to examine it (Birkinshaw, 2006). It goes beyond sheer information access, demanding that such information may be comprehensible for external interested ones (Hood, 2006; Nevado-Gil and Gallardo-Vázquez, 2016).

According to the aim of this research, transparency is the public's capacity to have government information access (Roberts, 2006; Piotrowski and Van Ryzin, 2007; Piotrowski and Bertelli, 2010). In order to investigate

the level of public transparency in local governments so as to verify our hypotheses, we will use the IT of Spanish municipal governments, published by Transparency International España (2018).

The first edition of IT was in 2008 and evaluated the biggest 100 municipalities of Spain through 80 indicators, grouped in five areas of transparency: “information of municipal corporations, relations with citizens and society, economic-financial transparency, contract and services transparency, and transparency of urbanism and public works” (Transparency International España, 2018). As of 2009 110 municipalities are analyzed, and, as of 2012 a new area of study linked to the indicators of the transparency law is added (6 areas in total).

Numerous researches have been based on the agency and legitimacy theories to account for the motives of information transparency (Zimmerman, 1977; Eisenhardt, 1989; Patten, 1992; Suchman, 1995; Shapiro, 2005; Tejedo-Romero, 2014).

In the frame of the agency theory, we have found an agency relationship in Public Administration, where agents (candidates-elect) are to act in favor of the main interest (citizens) (Lane, 2005). Some problems emerge in this relationship between the parties whose origin is found in the existence of information asymmetries (Eisenhardt, 1989). The interests of candidates-elect are different from the citizens' and they are to be accountable for their actions before the latter in order to demonstrate that their actions, according to their responsibilities, are for the citizen's benefit (Lane, 2005; Shapiro, 2005).

When this is otherwise, a conflict of interests sprouts between the parties, creating the so called “agency costs.” Information disclosure is a way to reduce them. Transparency reduces information asymmetries and increases trust between the parties; thus, public trust in political actors limits agency problems (Laswad *et al.*, 2005). On the other hand, when transparency in government decision-making and activities increases, so does the likelihood of a greater citizen participation and democracy.

Another perspective to account for information disclosure in transparency is legitimacy theory (Deegan, 2002; Serrano-Cinca *et al.*, 2009; Rodríguez-Bolívar *et al.*, 2013; Tejedo-Romero, 2014). Revealing information of the organization's activities is a way to legitimize its actions before stakeholders (Archel *et al.*, 2009) and also to grant legitimacy to organizations (Patten, 1992). According to this theory, if the organization's theory is threatened, it will disclose information so as to promote its legitimacy before stakeholders (Deegan, 2006; Tejedo-Romero, 2014).

Information disclosure can be used to regain citizens' trust and to change their perception on the organization. Additionally, it offers an image of good governance as a response to the general pressure, being thus, a way to legitimize and improve the reputation of municipalities (Pina *et al.*, 2010).

Information disclosure by Local Governments has been a concern for researchers since the 1970's, particularly, concerning the factors that promote greater and better dissemination of public economic-financial information (Laswad *et al.*, 2005; Alt *et al.*, 2006; Cárcaba and García-García, 2010; Rodríguez-Bolívar *et al.*, 2013; Nevado-Gil and Gallardo-Vázquez, 2016). Next we will refer to a series of factors that may influence information disclosure, and consequently, the level of transparency in municipal governments.

Information Technology

In the frame of the agency theory, Information Technology, specifically, Internet, are a means that facilitate communication and participation between the parties (Caba-Pérez *et al.*, 2008). Greater are the odds that citizens will consult their municipal government's web site when they have more Internet access (Gandía y Archidona, 2008; Pina *et al.*, 2010; Alcaraz-Quiles *et al.*, 2015).

In this sense, municipal governments would feel more pressure from citizens to be more transparent and to disseminate more information so as to legitimize before them their actions. In addition, it would mean lesser information asymmetries between citizens and municipal governments, reducing the possible conflict of interests that may emerge between both. Therefore, the following hypothesis is suggested:

H1: *There exists a positive relationship between the level of Internet access citizens have and the level of transparency of municipal governments*

Size

The bigger the municipality is, greater will be the number of its users (citizens) of public services (Alcaraz-Quiles *et al.*, 2015) and greater the management of public funds. According to the agency theory it is expected that municipal governments be more interested in revealing more information that allows citizens and other groups to supervise the actions performed by their candidates-elect (Laswad *et al.*, 2005; Benito *et al.*, 2010; González *et al.*,

2011; Nevado-Gil and Gallardo-Vázquez, 2016). On the other hand, when there is more information disclosure, it means more legitimacy of the municipal government before citizens, who want to know at all times whether their resources have been managed effectively and efficiently (Styles and Tennyson, 2007). The second hypothesis to be verified is:

H2: There is a positive relationship between the municipality's size and the level of transparency in municipal governments

Tax burden

According to the agency theory, there exists a positive relationship between the high levels of taxes in municipalities and the level of fiscal transparency of the municipal governments. (Lassen, 2000). Citizens want the best public services and the lowest amount of taxes possible (Alcaraz-Quiles *et al.*, 2015). In order to reduce information asymmetries and increase trust, municipal governments will disclose more information so as to justify before citizens that such tax burden has been motivated by an improvement of public services (Guillamón *et al.*, 2011).

On the other hand, high levels of transparency and accountability is a requirement for municipal governments to demonstrate good management of financial resources, and for taxpayers to legitimize their actions. In this sense, the following hypothesis is proposed:

H3: There is a positive relationship between the tax burden by the municipality and the level of transparency of municipal governments.

Political competition

Political competition may be a determinant for the governing party to be more transparent. In those municipalities where there are more political parties, the opposition will put more pressure on the governing party (García-Sánchez *et al.*, 2013; Nevado-Gil y Gallardo-Vázquez, 2016). Therefore, the governing party in order to legitimize its actions before the opposition, will tend to be more transparent. Thus, the possible conflict of interests that may exist between them is reduced. Consequently, the following hypothesis is suggested:

H4: *There is positive relationship between the level of political competition of the municipality and its level of transparency.*

Political ideology

Some researchers point out the existence of a strong relationship between political ideology and transparency, researches have not been conclusive, however (Albalate, 2013; García-Sánchez *et al.*, 2013). For his their part, Guillamón *et al.* (2011) and García-Sánchez *et al.* (2013) indicate that left-wing political parties are more transparent than right-wing parties, whereas authors such as Piotrowski and Van Ryzin (2007) and Vila i Vila (2013) notice that such relationship is ambiguous because both parties, progressive and conservative, are keen on being transparent. Thus, the following hypothesis is proposed:

H5: *There is a positive relationship between the governing party's political ideology and the level of municipal transparency.*

Research methodology

In this section the sample used is presented and the chosen variables to verify the hypotheses of the empirical study are justified.

Sample

The simple used to verify our hypotheses is composed of 100 municipal governments, which were included in 2008 in the first IT published by Transparency International España (2018). The same municipal governments were used for 2014 and so a balanced panel data of 200 observations was obtained ($N=2 \times T=2$).

Variables and data collection

Dependent variable: in order to know the level of public transparency in local governments of Spanish municipalities, the dependent variable was IT, published by Transparency International España (2018). The index takes values from 0 to 100. For this analysis, IT is used in a scale from 0 to 1.

Information to create the dependent variable was taken from the Transparency International España (2018) web site.

Independent variables: on the basis of previous studies on the determinant factors that may influence transparency, the following variables that may contribute to increase information disclosure in municipalities were chosen. Data were taken from Instituto Nacional de Estadística (2014) and Ministerio de Economía y Administraciones Públicas de España (2014).

- Information Technology: numerical variable that reflects the number of people with Internet access, divided by the municipality's total number of inhabitants.
- Size: numerical variable that reflects the municipality's number of inhabitants.
- Tax burden: numerical variable that represents the municipal governments' total amount of direct and indirect taxes per capita.
- Political competition: numerical variable that represents the number of political parties that participated in municipal elections. For 2008 data regarding 2007 local elections were taken, and for 2014, data corresponding to 2011 local elections.
- Political ideology: dummy variable that takes value of 1 if the governing party in the municipal government is progressive and 0 if it is conservative. For 2008 data regarding 2007 local elections were taken, and for 2014, data corresponding to 2011 local elections.

Control variables: we have incorporated the *regional party effect* to know if transparency is influenced by the region's (Autonomous Community) governing party's political ideology. This variable takes the value of 1 when it coincides with the political ideology of the municipal government and the region, and takes the value of 0 if it does not. And we also incorporated the *year* to know whether the levels of transparency have been more significant in 2008 or 2014.

Research model

The main objective of this work is to analyze factors that affect the level of transparency in 2008 and 2014, therefore, a multivariate linear regression analysis was carried out. This is proved empirically using the following econometric model:

$$\text{Transparency Index}_{it} = \beta_0 + \beta_1 \text{Information Technology}_{it} + \beta_2 \text{Size}_{t_i} + \beta_3 \text{Tax Burden}_{it} + \beta_4 \text{Political Competition}_{it} + \beta_5 \text{Political Ideology}_{it} + \beta_6 \text{Regional Party}_{it} + \beta_7 \text{Year}_{it} + \varepsilon_i \quad (1)$$

where:

i stands for municipal government, t stands for the year, β represent the parameters to be estimated and ε stands for the error term.

Data were processed with the econometric software STATA 19.1.

Results and discussion

This section shows the empirical results of this study through three types of analysis. Firstly, the descriptive analysis presents the main characteristics of the Spanish municipalities that are part of the sample. Next, a bivariate analysis will be carried out in order to show the bivariate correlation between dependent and independent variables. Lastly, a multivariate analysis, to have evidence about how the proposed variables in the econometric model related to one another.

Descriptive analysis

In Table 1² the main descriptive statistical (mean, standard deviation, maximum and minimum value) for dependent, independent and control variables are shown. Owing to the existence of extreme values, tax burden and size variables winsorized to a 10% and their logarithms have been taken.

In panel A of Table 1 a mean value of IT is shown for the 200 observations of 0.6868. A very significant value that may be caused by the effect the transparency Law had from its implementation. The impact of such law from its entry into force is confirmed in the mean value that IT acquires in the two years, going from 0.5213 in 2008 to 0.8523 in 2014.

From the descriptive analysis it is worth noticing that Internet access has increased in Spanish households, going from a mean value of 77.4940 in 2008 to 93.8000 in 2014; which means that most households have Internet access. Concerning tax burden of municipal governments, the levels of direct and indirect imposition have been similar for 2008 and 2014; this may be attributed to the crisis period in which we have been immersed, since in spite of the efforts made to reduce public debt, tax burden has maintained itself, virtually in a constant way so as to not worsen the economic situation of citizens.

2 All tables are found in the Appendix, below this article (Editor's note).

Regarding variables related to politics a noteworthy increase in the mean number of political parties is observed, going from a mean of 9 parties by each municipality to 11 parties. The pressure coming from the 'Indignados' Movement amid the crisis may have been the cause of such increase.

In panel B of Table 1, it is observed that although parties with a progressive ideology ruled in 54% of municipal governments in 2008, there is a decrease of virtually half of them in 2014, with only 25% of progressive parties governing in municipal governments. Perhaps the pressure from new political movements, at a local level, has caused a shift towards more conservative ideologies. Additionally, for the 200 observations, it is shown that in 58% of municipal governments the leading ideology is the same at the regional level (autonomous community).

Bivariate analysis

Table 2 presents Pearson correlation coefficients between the previous variables, and the last column reflects the values of variance inflation factors (VIF).

In Table 2 it is shown that bivariate relations are consistent with the theoretical frame developed above and with the results from previous studies (Guillamón *et al.*, 2011; Albalate, 2013; Caamaño *et al.*, 2013; Nevado-Gil and Gallardo-Vázquez, 2016). Nonetheless, a significant correlation between the index of transparency and political ideology and regional effect was not confirmed.

Moreover, values do not indicate collinearity. A collinearity problem is considered serious if a pair correlation coefficient surpasses 0,80 (Gujarati, 1995: 335). On the other hand, the variance inflation factors were analyzed in order to examine the presence or absence of multicollinearity. The values obtained indicate absence of multicollinearity; VIF values below 5 are acceptable (Hair *et al.*, 2006).

Multivariate analysis

Results of the linear regression pooled model for panel data (also called pooled model) are in Table 3. Results for the complete sample of 200 observations are in column 3. Results exclusive to 2008 are in column 4, and results regarding 2014 are in column 5, each with 100 observations (cross-section analysis).

To validate the global model several test were conducted: *Breusch-Pagan / Cook-Weisberg* for heteroscedasticity, Ramsey's omitted variable test and the multicollinearity test (VIF, mentioned above). The model's global significance is verified through the statistical *F*.

Breusch-Pagan/ Cook-Weisberg test revealed in the results absence of heteroscedasticity ($X^2_{(32)} = 25.44$; p -value = 0.7879). On the other hand, the Ramsey Reset test shows that no variable has been omitted ($F_{(3,189)} = 0.42$; p -value = 0.7410. The statistical *F* ($F_{(7,16)} = 138.49$; p -value = 0.0000) results significant.

As seen in column 3 of Table 3, results reflect that *Information Technology* impacts positively and significantly in the level of transparency of the municipalities at a 10% level ($\beta_1 = 0.0040$). This *confirms Hypothesis 1*, since it demonstrates that municipalities are more transparent when citizens have more access to information technology, specifically, Internet. This is consistent with Caba-Pérez's *et al.* (2008), Gandía and Archidona's (2008) and Alcaraz-Quiles' *et al.* (2015) findings.

The *size* variable, as observed (column 3 of Table 3), presents a positive effect for a significance level of 1% ($\beta_2 = 0.0845$). This *confirms Hypothesis 2*, demonstrating that the biggest municipalities are the ones with more levels of transparency. This is consistent with results from other works (Benito *et al.*, 2010; Alcaraz-Quiles *et al.*, 2015; Nevado-Gil and Gallardo-Vázquez, 2016).

With regard to *tax burden* variable (column 3 of Table 3) it has resulted significant as well, for a level of 1% and it has a positive relationship with IT ($\beta_3 = 0.1558$). Thus, *Hypothesis 3 is verified*, being proved that municipalities who exert more tax burden over citizens are the more transparent ones.

However, in column 3 of Table 3 no significant relation between *political competence* and the level of transparency of municipal governments is observed, yet it has a positive effect ($\beta_4 = 0.0007$). Consequently, *Hypothesis 4 is not confirmed*.

On the other hand, we found a positive and significant effect for an acceptance level of 1% regarding the *ideology* variable ($\beta_5 = 0.0630$). Which *confirms Hypothesis 5*, for it proves that political ideology is linked to the level of transparency of municipal governments. All in all, results confirm Guillamón's *et al.* (2011) and García-Sánchez's *et al.* (2013) findings, who found that the more progressive municipal governments are the ones with more levels of transparency.

Lastly, control variables (column 3 of Table 3) reflect that the regional party has an effect on the level of transparency of municipal government.

Thus, those municipalities, who share the Autonomous Community's political ideology, are more transparent ($\beta_6 = 0.401$) for a significance level of 10%. Likewise, municipal governments are more transparent in 2014 compared to 2008, for a significance level of 1% ($\beta_7 = 0.2728$).

In addition to our global model, we wanted to test the model for each one of the years, separately. Thus, for 2008 the significant variables are: size, tax burden and ideology; and for 2014: Information Technology, tax burden, ideology and the regional party effect.

Conclusions

This work aims to contribute to the literature on transparency. Within the frames of the agency and legitimacy theories the main objective was to analyze the level of transparency of Spanish municipal governments and the features that may influence such levels of transparency.

A pooled regression model was employed with 200 observations which corresponded to a balanced panel data of 100 municipalities for 2008 and 2014. Results show that owing to existing information asymmetries between leaders and citizens, Spanish municipalities are providing more information, are more transparent in 2014 than in 2008. Pressure from citizens and other stakeholders are leading municipalities to be more transparent with their activities so as to prove legitimacy before them. This results in citizens and other stakeholders trusting more in municipal governments, in a better reputation and good municipal governance with more ethical and responsible values.

Additionally, the entry into force of the transparency Law has lead municipalities to adapt themselves to it and to voluntarily provide specific information before its compulsory implementation.

We have evinced that municipal governments are more transparent in municipalities whose inhabitants have more Internet access. The municipality's size is also linked to its level of transparency, yet municipal governments, in this case, are pressured by a greater number of citizens.

On the other hand, municipalities with higher tax burden seem to be more pressured to show more transparency before their citizens and so avoid the possible conflict of interests between them. What is more, it is a way for the municipal government to legitimize before its citizens that its actions are in accordance with the law.

We have also confirmed that municipal governments ruled by more progressive ideologies are the ones who disclose more information and are

more transparent. Moreover, there is a positive effect when the regional and municipal government share the same ideology.

Lastly, the referred year in the study influences significantly the levels of transparency of municipal governments.

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Appendix

Table 1

Descriptive analysis of variables

Variable	Observ.	Mean	Standard deviation	Minimun	Maximum
Panel A. Continuous variables					
<i>Transparency Index</i>					
2008 and 2014	200	0.6868	0.2424	0.1250	1.0000
2008	100	0.5213	0.1776	0.1250	0.9060
2014	100	0.8523	0.1768	0.2880	1.0000
<i>Information Technology</i>					
2008 and 2014	200	85.6470	9.3256	70.3000	96.9000
2008	100	77.4940	6.0576	70.3000	85.8000
2014	100	93.8000	1.9573	90.4000	96.9000
<i>Size</i>					
2008 and 2014	200	11.8419	0.5095	11.2260	12.7131
2008	100	11.8357	0.5142	11.2260	12.7131
2014	100	11.8481	0.5073	11.2260	12.7131
<i>Tax burden</i>					
2008 and 2014	200	6.3512	0.1917	6.0568	6.6488
2008	100	6.3131	0.1905	6.0568	6.6488
2014	100	6.3894	0.1861	6.0568	6.6488
<i>Political competition</i>					
2008 and 2014	200	9.8650	4.1946	3.0000	25.0000
2008	100	8.9700	3.7076	3.0000	25.0000
2014	100	10.7600	4.4724	4.0000	25.0000
Panel B. Dummy variables					
	Observ.	1	0		
<i>Ideology (%)</i>					
2008 and 2014	200	40	60		
2008	100	54	46		
2014	100	25	75		
<i>Regional effect (%)</i>					
2008 and 2014	200	58	42		
2008	100	61	39		
2014	100	55	45		

Source: Authors' compilation.

Table 2

Pearson correlation matrix

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	VIF
1. Transparency Index	1									
2. Political Ideology	-0.12	1								1.17
3. Political competition	0.292**	-0.116	1							1.85
4. Information technology	0.655**	-0.222**	0.250**	1						4.49
5. Regional effect	0.03	-0.183**	0.019	-0.016	1					1.06
6. Tax burden	0.243**	-0.113	0.198**	0.167*	0.018	1				1.12
7. Year 2008	-0.684**	0.297**	-0.214**	-0.876**	0.061	-0.200**	1			
8. Year 2014	0.684**	-0.297**	0.214**	0.876**	-0.061	0.200**	-1.000**	1		4.75
9. Size	0.192**	-0.075	0.615**	0.077	0.037	-0.044	-0.012	0.012	1	1.73
Mean value VIF										2.31

**. Correlation is significant at 0.01 level (bilateral). *. Correlation is significant at 0.05 level (bilateral).

Source: Authors' compilation.

Table 3
Linear regression model (*pool*)

DEPENDENT VARIABLE: Transparency Index				
INDEPENDENT VARIABLES	Predict. Sign	2008-2014	2008	2014
Information Technology	H1(+)	0.0040* (0.0022)	0.0035 (0.0028)	0.0162* (0.0088)
Size	H2(+)	0.0845*** (0.0257)	0.1281*** (0.0272)	0.0306 (0.0443)
Tax burden	H3(+)	0.1558*** (0.0528)	0.1525** (0.0576)	0.1787** (0.0831)
Political competition	H4(+)	0.0007 (0.0039)	-0.0016 (0.0060)	0.0045 (0.0043)
Ideology	H5(?)	0.0630*** (0.0147)	0.0582* (0.0284)	0.1161*** (0.0253)
Regional effect		0.0401* (0.0213)	-0.0075 (0.0201)	0.1119*** (0.0327)
Year 2014		0.2728*** (0.0391)		
Constant		-1.8337*** (0.5052)	-2.2384*** (0.4524)	-2.3132* (1.2221)
N		200	100	100
R ²		54.1	19.4	16.2
F (7, 16)		138.49***		
Breusch-Pagan /Cook-Weisberg test, p-value		X ² ₍₃₂₎ = 25.44; 0.7879		
Ramsey Reset test, p-value		F _(3,189) = 0.42; 0.7410		

Note: Robust standard errors are in parentheses at cluster level by regions (Autonomous Communities).

*** = Significant for p<0.01; ** = Significant for p<0.05; * = Significant for p< 0.1

Source: Authors' compilation.

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