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Relation between internet financial information disclosure and internal control in Spanish local governments

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Abstract

Purpose – The application of new public governance by many countries has led to the creation of new management systems in public administration and the development of an effective accounting structure with efficient internal control to guarantee a proper provision of services that meet citizens' requirements. The purpose of this paper is to focus on Spanish local government with the intention of determining the impact of the internal control structure on the disclosure of financial information on the internet.

Design/methodology/approach – The empirical analysis used combines a descriptive aspect with an explanatory one and seeks to answer the question of whether the internal control system (ICS) influences the disclosure of financial information on the websites of Spanish LGs. The authors use a multivariate model that allows us to verify the predictive capability of the previously defined explanatory variable, internal control, in 1,806 local governments. To test the hypotheses, the authors use two different models.

Findings – The authors consider the existence and quality of the financial information disclosure in relation to ICSs, and a series of financial and non-financial variables. The authors conclude that the structure of the ICS influences financial information disclosure and its quality. Also, the socio-political variable gives a better explanation of financial information disclosure than the financial variable.

Originality/value – This research is novel to determine whether the development of ICSs in Spanish municipalities has favored and increased the disclosure of financial information financial through the municipalities' website transparency portal. These findings will contribute to increase the importance of internal control in the management of public entities.

Keywords Internet, Transparency, Internal control, Financial disclosure, Financial information, Local entities

Paper type Research paper

1. Introduction

The application of new technologies in the development of the activities of the public administrations and the need to improve the information provided by these institutions to the citizens has determined the development of the new public management systems, NPG. These NPG try to ensure the highest quality in the provision of public services through effective use of public resources and a more direct relationship with citizens through the new virtual communication systems, ITC and the creation of a digital administration, e-government (Bertot *et al.*, 2010; Halachmi and Greiling, 2013). In addition, they aim to increase transparency in the exercise of their activities through the publication on their websites of relevant financial information, so making public the financial situation, which can be compared with other institutions of similar characteristics (Ferraz-Esteves de Araujo and Tejedo-Romero, 2016; Tejedo-Romero and Ferraz-Esteves de Araujo, 2018).

These digital management systems, e-government, allow more direct communication with citizens, enabling them to participate and get involved in the provision of public services (Cornero, 2012). E-government is of special relevance in local authorities since they have a more direct and closer relation with citizens due to the powers assigned to them. The economic crisis of the past few years, cases of corruption and the demand by citizens for greater transparency in the use of public resources have been a major boost to the

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development of e-government at the local level, and especially to the space devoted to their web pages to presenting financial information (Albalate, 2013). In addition, during these years there has been a modification of the systems of accounting and internal control of these institutions (Heald and Hoges, 2015; Clayton *et al.*, 2015; Van der Kolk *et al.*, 2015), with the aim of reducing corruption, improving the efficiency in the implementation of the financial resources and developing homogeneous economic and financial information documents to be published on their websites, through their transparency portals (Lee and Kwak, 2012; Fung, 2013).

Spanish local authorities represent a cornerstone in the structure of Spanish public administration. These entities are assigned a lot of powers and are the public body that is closest and most committed to the delivery of public services to citizens. In addition, local authorities have to manage a large volume of public resources, although they are not subject to external audits. The economic crisis and numerous cases of corruption affecting these entities have led to the adoption of a series of measures to promote transparency and financial control of these entities (Pérez-López *et al.*, 2013). The adoption law 19/2013 Transparency, access to public information and good government has forced local authorities to make a great effort in the development of e-government and the creation of a portal for transparency on their websites to publish their annual accounts, contracts, grants and other financial information. With this policy, the government seeks to increase the financial transparency of these institutions, to homogenize the financial information published and to encourage citizen participation and information, as is done in other developed countries.

Compliance with this regulation by the Spanish local authorities is difficult to determine since these institutions are not subject to external audits and a large part of the activities and operations carried out are not subject to control by external and independent bodies. There is only one system of control established by the rules and regulations governing internal intervention or control in these entities, which supervises the making or delivery of a certain number of economic public services before this occurs and also monitors compliance with the obligations of these institutions in the area of transparency. However, the internal control system (ICS) is not the same in all Spanish local authorities, and therefore, it is difficult to ensure *inter alia* that all of them are fulfilling their obligations when presenting their financial information on their transparency portals on time and with necessary quality. In addition, these entities are not required to report on the characteristics of their ICSs. Despite the difficulties, some authors (Cárcaba-García and García-García, 2008; Gandía and Archidona, 2008) have analyzed, through the development of indices, the degree of compliance with this regulation, but do not verify the quality of their information, since, they do not check if these entities are subject to a process of internal control when preparing their economic and financial information.

The main objective of this work is to determine how the ICS of the local authorities influences the financial information presented in their transparency portals. It was necessary to determine which local entities have an ICS, and what their characteristics are, but this information is very difficult to obtain. In addition, following the methodology used by other authors (Cárcaba-García and García-García, 2008; Gandía and Archidona, 2008), we have prepared an index related to the financial information that these entities publish on their transparency portals, analyzing the quality and compliance using the terms established by the law for publication. We also consider it of great interest to determine if other social, political or fiscal variables influencing the financial information published on the transparency portals, as other authors (Cárcaba-García and García-García, 2008; Albalate, 2013; Frias *et al.*, 2014) have done.

The paper is organized as follows. Section 2 describes previous studies and literature on management accounting of LGs in Spain; Section 3 defines our model and methodology;

Section 4 describes the sample and the variables used in the model; Section 5 presents the analysis of the results and a robustness test, and Section 6 offers the main conclusions, limitations and recommendations.

2. Theoretical framework

2.1 Financial information reported on the web portal

Many papers about e-government study the use of the internet via Web 1.0 and Web 2.0 by local authorities. ICT applications and the use of new technologies led to the implementation of Web 1.0 by local authorities to their reporting financial information. The studies by Cárcaba-García and García-García (2008), Gandía and Archidona (2008), Groff and Pitman (2004), Styles and Koprowski (2008) and Guillamón *et al.* (2011) try to determine whether budgetary and financial information was available and accessible to citizens via the web. Web 2.0 technology led to these administrations publishing more information. This technological advance proved a very important change in e-government, improving both the information on digital platforms and increasing interaction with the citizens, as well as simplifying access systems and possibilities of action through these virtual platforms (Allen, 2013). The effects of the use of Web 2.0 by public entities have been analyzed by Meijer and Thaens (2010), Bonsón *et al.* (2012) and Picazo-Vela *et al.* (2012), who determine that this technology can help to increase transparency, financial information financial and citizen participation.

There are numerous studies on the impact that the new technologies and, especially, the internet have had on public administrations in terms of the disclosure of financial information, increased transparency and the decrease of corruption. One of the most analyzed aspects is that referring to how new technologies have facilitated the dissemination of financial information as an essential part of e-government, so increasing the transparency of public authorities (Alcaide-Muñoz *et al.,* 2014; Bertot *et al.*, 2010; Ebbers *et al.*, 2008; Vicente and Novo, 2014; Pollifroni, 2015; Gandia *et al.,* 2016). These channels for publishing financial information also encourage citizens to participate in the management by public authorities, as is shown in the studies of Stanley and Weare (2004), Brewer *et al.* (2006) and Kim (2007). Other factors that favor voluntary disclosure of financial information via the internet by public entities have been analyzed by several authors in recent years (Gore, 2004; Laswad *et al.*, 2005; Serrano *et al.*, 2008; Caba-Pérez *et al.*, 2008; Yu, 2010). These factors include the size of the entity, debt, surplus or deficit and media pressure.

More comprehensive analyses of the financial information that local authorities report through their portals have been made by several authors. Groff and Pitman (2004) studied the financial information that 1,000 municipalities published on the internet, web 1.0. The results obtained showed that more important local entities facilitated information of their annual accounts budgets and certain management reports, and that the smaller these entities are, the fewer financial documents they make available to the citizens. At that time, the Web 1.0 systems did not allow employees to interact with citizens and, therefore, only served to publish certain financial documents. Laswad *et al.* (2005) analyze how certain financial variables like debt leverage affect the disclosure of financial information on the internet in the municipalities of New Zealand. Styles and Tennyson (2007) show the online accessibility of the financial information of municipalities and analyze the relation between the information reported and a series of economic and financial data. This issue is also analyzed by Cárcaba-García and García-García (2008) in Spanish Councils, establishing a positive relation with certain variables like the size of the City Council, capital investment and political competition.

2.2 Internal control

The importance of developing good ICSs at a local level for good governance and accountability has been analyzed by authors like Carmona (2009), who report that a possible reason for local governments inefficiencies is a slackening of internal control, which would weaken the control of public spending when most necessary. Huefner (2011) considers that good internal controls contribute to an efficient use of a municipality's financial resources, so enabling greater delivery of services to the community and minimization of local taxes. Thus, strengthening the internal management of municipalities offers multiple benefits: fewer opportunities for fraud, greater compliance with a growing regulatory environment and the likelihood of more efficient resource utilization leading to service improvements. Woods (2009) concludes that at the detailed operational level, within the Birmingham City Council, the control system is contingent upon three variables: central government policy, information and communication technology and organizational size (number of employees).

There are empirical studies that use the internal management system to relate the internal control function of local entities to the level of indebtedness (Gras *et al.*, 2014) or the internal control function to the cost of equity (Ashbaugh-Skaife *et al.*, 2009).

Based on this review of the literature, and considering that the ICS affects management in the municipalities, we propose the following hypotheses:

H1. The disclosure of financial information on websites is positively related to the ICS.

H2. The quality of the financial information disclosure on websites is positively related to the ICS.

3. Sample and variables

3.1 Sample

The population chosen comprised all the Spanish local governments in 2016 (8,117 according to the Ministry of Inland Revenue and Public Administrations). The information on the ICS was obtained via a questionnaire sent by e-mail to the *Colegios Oficiales de Secretarios e Interventores de la Administración Local* (Official Colleges of Secretaries and Controllers of Local Administration). The questionnaire sought to obtain the basic information underpinning the study clearly and concisely. The questionnaires were e-mailed out in December 2016. Fieldwork finished at the end of March 2017. In total, 1,806 responses were obtained – a response rate of 22.25 percent. The response level is highly satisfactory, given the mean for this type of study.

Our sample, therefore, comprises 1,806 local governments.

Table I shows the characteristics of the sample.

3.2 Variables

Information disclosure. Countries with higher levels of transparency have stronger institutions, which favor economic growth and social development. In these countries, the citizens can judge the capacity of their public officials better and decide accordingly.

Table I. Description of the sample

	Inhabitants				No. of local governments			
	Population		Sample		Population		Sample	
> 100,000	18,456,760	40%	12,205,276	66%	62	1%	41	0.5%
100,000–20,001	13,522,171	29%	6,482,686	48%	340	4%	163	48%
20,000–5,000	8,784,020	19%	3,149,726	36%	898	11%	322	36%
< 5,000	5,794,057	12%	1,087,925	19%	6,817	84%	1,280	16%
Total	46,557,008	100%	22,925,613	49%	8,117	100%	1,806	22.25%

Source: Authors' own calculations

Both the European Union and most of its member states already have in their legal systems specific legislation that regulates transparency and the right of access to public information. Spain takes as an example the models of nearby countries and in 2013 adopted the Transparency Act.

With the coming into effect of this law, Spain sought to strengthen and increase transparency in public activity and to recognize and guarantee access to information. Transparency and access to public information should be the cornerstones of all political action. When citizens know how decisions that affect them are made and how public funds are handled, public authorities have to respond to an increasingly critical and demanding society.

Chapter II of the Act is devoted to active publicity and establishes obligations to disclose information relative to institutional, organizational and planning information which is of legal, economic, budgetary and statistical relevance. Active publicity refers to the obligation to publish the information on websites in a clear, structured and understandable way for those interested.

In this study, we focus on the disclosure of financial information. The financial information that the law establishes as mandatory for disclosure on the websites is shown as follows:

- contracts awarded;
- undersigned agreements;
- subsidies and allowances awarded;
- budgets;
- annual accounts;
- audit reports; and
- remuneration of high political offices.

Source: Authors' own calculations.

We not only wish to analyze the degree of compliance with the law on financial information but also to measure the quality of the information disclosed, that is, not only that the information is on the website, but also that the information disclosed is adequate and appropriate for users. We take it as our basis (Cárcaba-García and García-García, 2008), and we establish some items along with a valuation for each of them, which we show in Table II.

For each municipality, the quality of financial information disclosed on the website is calculated as the sum of several items.

As established by Cárcaba-García and García-García (2008), we are aware that a weighted index implies a certain degree of subjectivity, since there is no consensus between the scores assigned to each item by the different user groups (Dhaliwal, 1980; González, 2005). The studies of Robbins and Austin (1986) and Ingram and DeJong (1987) in the public sector show that similar results are obtained by introducing, or not, weightings in the index used to measure the degree of disclosure.

In our study, the dependent variable is existence and the quality of disclosure of financial information on the websites of the city council. Two models are established that allow us to check our hypotheses, and where the dependent variable is defined in a different way:

- *H1:* FID1 is a dummy variable: 0 or 1, indicating that financial information is on the websites (0) or is not (1).
- *H2:* FID2 is a variable that measures the quality of financial information disclosure on websites (values 0.5–13 points).

Items	Value
Informative content	
Explanatory comments	1
Data from previous tax years	1
Data from similar entities	1
Middle information	1
Segmented information	1
In at least two languages	0.75
Presentation format	
PDF	0.75
HTML	0.75
Flash	0.75
Excel	0.5
Power Point, Word, others	0.5
User interaction	
Request via form	1
Request by e-mail	1
Forums	1
Mailing lists	1

Source: Authors' own calculations

Table II.
Rating given to each item

Internal control system. The independent variable selected to test the proposed hypotheses is ICS. In order to measure the extent of ICS, we used the information obtained from the questionnaires. To measure the internal control of each council, we used three fundamental aspects of any ICS: segregation of functions, quality and stability.

From an organizational point of view, in Spain, every LG has a council elected directly by citizens, and the head of the council is the Mayor (elected by the council), who is also the head of the council (the executive body elected indirectly by citizens). The council is responsible for the political approval and publication of the annual budget and the general account (which includes the budget execution and the final financial statements). Approval decisions are adopted by the majority of votes of the Council.

From a technical point of view (not political), the preparation of the budget and the general account is the responsibility of the ICS, which must also submit it to the Spanish Court of Auditors. The ICS of LGs falls to state-authorized persons belonging to a different scale of the central or regional governments. Likewise, public functionaries who may carry out internal control are secretaries, controllers and treasurers:

(1) Secretariat (secretary): whose duties include those related to attestation and mandatory legal assessment.

(2) Secretariat–intervention (controller): who performs the functions of the Secretariat and those of the intervention–treasury.

(3) Intervention–treasury (treasurer): who performs functions related to the control of internal taxation economic-financial and budgetary management, and accounting, treasury and collection.

The compulsory existence of all the above is conditioned by the size of the local entity, as laid put in Table III.

We have awarded nine points (highest score) for each municipality that fulfills the following conditions: three points for municipalities presenting three different people (Secretary, Controller and Treasurer); three points if the three are "state-authorized," and three points if the three are tenured positions.

LG size	Secretary	Controller	Treasurer	Other controlling figures
Fewer than 5,000 inhabitants and less than €3,005,060.52	National authorized obligation			
5,000–20,000 inhabitants	National authorized obligation	National authorized obligation		
More than 20,000 inhabitants			National authorized obligation	
More than 100,000 inhabitants				National authorized obligation

Source: Authors' own calculations

Table III. Internal control function in LGs

As regards internal control function, three different people implies segregation of functions; furthermore, being "state-authorized" implies, on the one hand, the quality of the ICS, because this person has passed an open, national, competitive examination and, on the other, the stability to develop their function because they are civil servants and are tenured. Consequently, these people have more independence when carrying out their duties.

The expected values for this variable are positive for FID1 and FID2.

Explanatory variables. In reference to the private sector, there are different studies on practices of voluntary disclosure of financial information that focus their investigations on existing management incentives in the business sector (Watson-Manheim *et al.*, 2002; Abeywardana and Panditharathna, 2016). These studies are based on theories associated with agency relation, and their models include as explanatory variables the degree of voluntary information disclosure, size, sector of activity, profit and loss, profitability or indebtedness.

In the public sector, some of the studies analyzing the voluntary disclosure of financial information are Gore (2004), Laswad *et al.* (2005), Cárcaba-García and García-García (2008). The literature examining voluntary disclosure in the government sector is largely based on the application of agency theory in that sector.

The relation between the political (public sector) manager and the voter can be described as an agency relation whereby the voter is the principal, and the political manager is the agent (Banker and Patton, 1987). In this scenario, politicians are assumed to be self-interested, maximizing agents, so maximization of their wealth depends on their re-election, advancement and current and future income, both pecuniary and non-pecuniary (Zimmerman, 1977). Voters are also assumed to be self-interested and to act in such a way as to increase their wealth. Voters' wealth is related to the actions of their agents. Accordingly, each voter has an incentive to monitor the behavior of politicians (Zimmerman, 1977). Furthermore, voters may align themselves with interest groups, which have greater power to affect the outcome of elections than individual voters (Baber, 1983).

Like other agency relations, the interest group (the principal) and the politician (the agent in the public sector) share certain benefits and also certain costs. Therefore, elected politicians supply monitoring information to show that they are honoring pre-election promises, and their incentives to do so increase as political competition increases (Baber, 1983).

The agency relations in the public sector provide incentives to public sector managers to voluntarily disclose information that allows the monitoring of their actions (Laswad *et al.*, 2005).

In order to avoid biased results, the analysis models include different control variables whose influence had been tested in previous studies. We can divide these variables into fiscal, socio-economic and political factors.

Fiscal independent variables. Investment (INVEST). This variable refers to the capital amount of the budget execution. It is measured by dividing the capital expenditures at the end of the year and the number of inhabitants (investment per capita). It seems logical that LGs where investment figures have been high are more interested in publishing this information than LGs with a low level of capital expenditure. The voters value positively those public actions that require an important investment effort, understanding that the realization of great works in the municipality will have a beneficial effect on their quality of life.

Cárcaba-García and García-García (2008) and Vila (2013) find a positive relationship between investment and the disclosure of financial information on the websites. Therefore, the expected signs for this variable are positive for FID1 and FID2.

Indebtedness (DEBT). This financial variable is measured by dividing the level of debt and the number of inhabitants (indebtedness per capita).

On the basis of agency theory, authors like Gore (2004) or Baber and Gore (2008) find a positive relationship between the level of fiscal information of LGs and the use of financial markets to obtain financing. Others, like Alt and Lassen (2006) or Albalate (2012), report a non-significant role of debt level in fiscal transparency. In Spain, Cárcaba-García and García-García (2008), Serrano *et al.* (2008), Caamaño *et al.* (2011), Albalate (2012), Esteller-Moré and Polo-Otero (2012) and Vila (2013) report a negative impact of LG's level of indebtedness on disclosure of financial information.

Therefore, the expected signs for this variable are ambiguous.

Municipal wealth (WEALTH). Christiaens (1999) argue that municipal wealth should be positively associated with increased disclosure because it provides a signal of management quality, which may benefit local politicians by increasing their chances of re-election and reducing interest costs. Following Laswad *et al.* (2005) and Gandía (2008), use own revenue per capita as a proxy for municipal wealth.

Therefore, the expected signs for this variable are positive for FID1 and FID2.

Socio-political independent variables. Population (POPUL). The size of the organization is usually considered as one of the determining variables of accounting practices and characteristics of financial disclosure. Several studies use this variable to measure the influence of socio-economic aspects on the disclosure of public financial information (Gandía, 2008; Cárcaba-García and García-García, 2008).

Following Cárcaba-García and García-García (2008), bigger municipalities disclose more information than smaller ones in order to reduce possible costs of agency.

The effect of this variable indicates that the higher the population, the higher the disclosure of financial information on LG websites. The reasons given are:

(1) large administrative staff in large municipalities makes it easier to meet transparency requirements (Esteller-Moré and Polo-Otero, 2012); and

(2) large cities are more likely to create a website than their smaller counterparts and are more likely to offer fiscal information online (West, 2004; Serrano *et al.*, 2008; Gallego *et al.*, 2010; Frias *et al.*, 2014).

Therefore, the expected signs for this variable are positive for FID1 and FID2.

Political ideology (IDEOL). Piotrowsky and Van Ryzin (2007) show that ideology is a determinant of disclosure of financial information, assuming that left-wing governments are more sensitive to disclosing fiscal information than right-wing parties.

The ideology effect on disclosure of financial information is measured with a dummy variable that takes a value 0 if the governing party is left-wing and 1 if it is right-wing.

Therefore, the expected values of this variable for both hypotheses are close to 1 (Albalate, 2012; Caamaño *et al.*, 2011; Frias *et al.*, 2014).

Gender (GEND). There is a growing interest in studying women's participation in politics. Massolo (1996) establishes the importance of developing the link between municipal studies and women and of including gender studies in the new agenda of democratic municipal governments. We, therefore, seek to respond, in terms of municipal performance, to the question asked by many researchers as to whether women's behavior is different from men's when exercising political power.

The gender of mayor variable is measured with a dummy variable that takes a value of 1 if the mayor is male and 0 if female.

Therefore, due to the inexistence of previous works, the expected values for this variable are difficult to predict (Table IV).

4. Model and methodology

The empirical analysis used combines a descriptive aspect with an explanatory one and seeks to answer the question of whether the ICS influences the disclosure of financial information on the websites of Spanish LGs. We use a multivariate model that allows us to verify the predictive capability of our previously defined explanatory variable, internal control (ICS). To test our hypotheses, we use two different models. The same methodology was used in the study of Cárcaba-García and García-García (2008). For the first hypothesis, and to examine the influence of internal control on the disclosure of financial information, we specify Model 1 as follows:

Model 1:

$$\mathrm{FID1} = \beta_0 + \beta_1\mathrm{ICS} + \beta_2\mathrm{INVEST} + \beta_3\mathrm{DEBT} + \beta_4\mathrm{WEALTH} + \beta_5\mathrm{POPUL} + \beta_6\mathrm{IDEOL} + \beta_7\mathrm{GEND} + \varepsilon,$$

where FID1 is a dummy variable, indicating whether financial information is on the websites (0) or not (1). Consequently, a logistic regression analysis is applied. This quantitative technique is one of the most widely used since it allows us to consider

	Variable	Description	Calculation	Expected relation
Dependent	Disclosure of financial information (FID1, FID2)	Level and quality of the disclosure of financial information in the websites of municipality	From websites of each LGs	
Independent	Internal control system (ICS)	Extent of the internal control system. Values from 0 to 9	Response to questionnaire	FID1: + FID2: +
Financial	Municipal wealth (WEALTH)	Own revenue per capita	From Spanish Ministry of Treasury	FID1: + FID2: +
	Indebtedness (DEBT)	Indebtedness per capita		Ambiguous
	Investment (INVEST)	Capital expenditures in budgetary execution per capita		FID1: + FID2: +
Socio-political	Population (POPUL)	Total population of the municipality	From Spanish National Statistics Institute	FID1: + FID2: +
	Political ideology (IDEOL)	Political ideology of the municipality ruling party. Dummy variable 0 (left-wing), 1(right-wing)		FID1: + FID2: +
	Gender (GEND)	Gender of the mayor of the municipality. Dummy variable 1 (male), 0 (female)		Ambiguous

Source: Authors' own calculations

Table IV. Variables and expected relation possible interrelations between the behaviors of the various variables. We chose this model over discriminant analysis because of the "non-normalcy" of the explanatory variables.

To test the second hypothesis and to examine the influence of internal control on the quality of the financial information disclosed on the websites, we specify Model 2 as follows:

Model 2:

$$\text{FID2} = \beta_0 + \beta_1\text{ICS} + \beta_2\text{INVEST} + \beta_3\text{DEBT} + \beta_4\text{WEALTH}$$
$$+ \beta_5\text{POPUL} + \beta_6\text{IDEOL} + \beta_7\text{GEND} + \varepsilon,$$

where FID2 measures the quality of financial information disclosed on websites. Thus, *H2* was tested via ordinary least squares (OLS) regression. This methodology has been used in most of the previous analysis work (Laswad *et al.*, 2005; Cárcaba-García and García-García, 2008; Gras *et al.*, 2014; Gandia *et al.*, 2016).

5. Results

5.1 Descriptive statistics

The descriptive statistics of information disclosure and control variables are presented in Table V. We observe that 43.5 percent of municipalities do not disclose the financial information required by law. The mean value of FID2 is 5.23 points. The descriptive analysis shows that the ICS variable (measure of ICS) takes a mean value of 2.63.

In order to test the independence of the variables, especially the explanatory variables, one intuitive way is to use the bivariate correlations matrix (Marôco, 2010). Table VI shows the Spearman correlation coefficients among all variables of interest. It is observed how these coefficients are within what we could qualify as reasonable values, and therefore, we can say that multi-colinearity does not represent a problem in our models, since the indicator that is used to ensure that our results are not biased and the correlation between the explanatory variables (Marquardt, 1970), the variance inflation factor, in all cases is within acceptable limits (Gujarati, 2003).

5.2 Multivariate analysis

We analyze the empirical relation between internal control and financial information disclosure by means of multivariate regression models. We estimate a logit regression in

Variable	Min.	Max.	Mean	Median	STD
FID2	0.5	13	5.23	8	4.500
ICS	0	9	2.631	3	2.019
INVEST	0	11,360.37	285.76	117.08	677.65
DEBT	0	6.75	0.368	0.21	0.524
WEALTH	0	6,153.63	530.88	440.22	446.99
POPUL	2.19	13.58	7.42	7.38	1.72
	0 (%)	1 (%)			
FID1	56.5	43.5			
IDEOL	29.8	70.2			
GEND	24.5	75.5			

Notes: FID1 is a dummy variable that indicates whether financial information is on the websites (0) or not (1); FID2 the quality of the financial information disclosed on the web; ICS the measure of internal control system; INVEST the total investment divided by the number of inhabitants; DEBT the total indebtedness (thousands of euros) divided by the number of inhabitants; WEALTH the own revenues per capita; POPUL the natural logarithm of total population; IDEOL the dummy variable (conservative = 1, progressive = 0); GENDER the dummy variable (woman = 0, man = 1)

Table V.
Descriptive statistics

	FID1	FID2	ICS	INVEST	DEBT	WEALTH	POPUL	IDEOL	GEND
FID1	1.000								
FID2	0.592**	1.000							
ICS	0.007*	0.071**	1.000						
INVEST	0.069*	0.071**	−0.193**	1.000					
DEBT	−0.148**	−0.043	0.020	0.045	1.000				
WEALTH	0.005	0.042	−0.039	0.436**	0.107**	1.000			
POPUL	0.154**	0.066**	0.626**	−0.443**	0.083**	−0.158**	1.000		
IDEOL	0.116**	0.186**	0.058*	0.032	0.051	0.011	0.100**	1.000	
GEND	0.071*	0.033	0.015	0.009	0.025	0.006	0.027	0.012	1.000

Notes: FID1 is a dummy variable that indicates whether financial information is on the websites (0) or not (1); FID2 the quality of the financial information disclosed on the web; ICS the measure of internal control system; INVEST the total investment divided by the number of inhabitants; DEBT the total indebtedness (thousands of euros) divided by the number of inhabitants; WEALTH the own revenues per capita; POPUL the natural logarithm of total population; IDEOL a dummy variable (conservative = 1, progressive = 0); GENDER a dummy variable (woman = 0, man = 1). *,**Significantly different from 0 at 0.05 and 0.01 levels, respectively

Table VI.
Correlation matrix

Model 1 and a cross-sectional OLS regression in Model 2. We present the results of our models in Table VII.

The results of Model 1 consistently show significant positive relations between financial information disclosure on the web (FID1) and ICS. Local governments with higher levels or ICSs reported financial information required by the law in its transparency portal and this difference is statistically significant at the 0.01 level. These results provide strong evidence for the effect of the ICS on the dissemination of financial information via the transparency portal. Due to the economic crisis and citizens' demands, public administrations have approved different policies to promote the application of new management systems, highlighting the implementation and improvements of systems of internal control to improve the preparation of the financial information and provide citizens with easy access to it via more transparent portals. These measures favor transparency and reduce corruption in these entities. These results are consistent with

Predictors	Model 1 (dependent variable = FID1) Coef. (*z*)	Model 2 (dependent variable = FID2) Coef. (*t*)
Intercept	2.1738 (6.58)***	4.7260 (8.62)***
ICS	0.0904 (2.30)***	0.2612 (2.65)**
INVEST	−0.0002 (−0.18)	0.0003 (1.12)
DEBT	−0.7095 (−5.69)***	0.4676 (0.91)
WEALTH	−0.000 (−0.23)	0.0005 (0.88)
POPUL	0.2898 (5.75)***	0.0005 (3.11)***
IDEOL	0.6642 (5.75)***	2.4089 (5.43)***
GEND	0.3759 (2.57)***	0.060 (0.11)
n	1,806	1,020
R^2 (adjusted)	0.062	0.088
F		9.76***

Notes: FID1 is a dummy variable that indicates whether financial information is on the websites (0) or not (1); FID2 the quality of the financial information disclosed on the web; ICS the measure of internal control system; INVEST the total investment divided by the number of inhabitants; DEBT the total indebtedness (thousands of euros) divided by the number of inhabitants; WEALTH the own revenues per capita; POPUL the natural logarithm of total population; IDEOL a dummy variable (conservative = 1, progressive = 0); GENDER a dummy variable (woman = 0, man = 1). *,**,***Significantly at 1, 5, and 10 per cent levels, respectively

Table VII.
Multiple linear regression models

those obtained by Giroux and McLelland (2003), who affirm that public entities with a better ICS have the best prepared financial information, and publishing such information on their transparency portals promotes transparency and prevents corruption in public institutions. The studies of Shim and Eon (2008) and Cullier and Piotrowski (2009) analyze how the new transparency regulations adopted by countries have meant a change in ICSs to improve the accounting systems, the development of economic and financial information and its disclosure through transparency portals. Reginato *et al.* (2014) determine the existence of a significant relationship between internal management and transparency through the disclosure of the financial information on websites in the municipalities of Germany and Italy, which favors more efficient delivery of public services by these entities. Bertot *et al.* (2010), Ebbers *et al.* (2008), Bonsón *et al.* (2012), Kavanaugh *et al.* (2012), Mossberger *et al.* (2013), Vicente and Novo (2014) and Gandia *et al.* (2016) conclude that the disclosure of financial information makes for more transparency and efficiency in the public institutions, which improves with the existence of an adequate system of internal management in institutions. Our findings provide support for *H1*.

In terms of the control variables, the indebtedness (DEBT) variable reflects a negative relation in the coefficient and a statistically significant value. This negative relation indicates that the level of indebtedness negatively affects the disclosure of the financial information required by the Transparency Act. Therefore, in local governments with higher indebtedness, there is less disclosure of financial information. The local administrations will be interested in showing and disclosing their financial information if is correctly done, since, according to Gore (2004), the financial costs will be reduced for lenders, who perceive a low risk in their investments, as well as having a say in the control of the activities (Cárcaba-García and García-García, 2008; Serrano *et al.*, 2008; Albalate, 2012; Styles and Tennyson, 2007; Jorge *et al.*, 2011). Baber and Gore (2008) determined that municipalities with less internal control and financial transparency had a higher volume of public debt and therefore their financial cost was higher. The studies of Marcel and Tokman (2002) and Esteller-Moré and Polo-Otero (2012) determined that institutions with a higher level of disclosure of financial information have less debt. However, Alt und Lassen (2006) and Albalate (2013) determined that the level of disclosure of financial information of institutions did not affect their level of debt.

The control variable population (POPUL) is found to be significantly and positively related to disclosure of financial information. In accordance with these values, the population has a positive impact on financial information disclosure. Local governments with higher populations publish their financial information according to the Transparency Act. These results are consistent with those obtained by Cárcaba-García and García-García (2008), Serrano *et al.* (2008), Piotroswsky and Bertelli (2010), Jorge *et al.* (2011), Frias *et al.* (2014) and Albalate (2012), all of whom report that municipalities with larger populations reported a greater amount of financial information on their transparency portals and offered more quality financial and economic data than those with a lower population size. However, Polo Otero (2011) concludes that municipalities with a higher population exhibit a lower degree of financial information disclosure on their websites, while Caamaño *et al.* (2011) found no relation between the two variables. In fact, larger municipalities might have more resources and competencies to implement and promote fiscal and economic transparency and, additionally, larger populations tend to increase pressure on municipalities to be more open.

The control variable political ideology (IDEOL) is a widely used variable in studies relating to public institutions. In our work, this variable reflects a positive relation in the coefficient and a statistically significant value. This means that the variable has a significant relation with financial information that is on the websites (FID1). The results show that right-wing governments are less sensitive to disclosing financial information on their websites, which matches the findings of Serrano *et al.* (2008), Cárcaba-García and

García-García (2008), Albalate (2013), Tolbert *et al.* (2008), García-Sánchez *et al.* (2013) and Frias *et al.* (2014).

Other authors, like Piotrowsky and Van Ryzin (2007) and Traunmuller (2001), however, find a relation between fiscal transparency and financial information on websites and the changing political sign, as we do in our analysis, and are unable to determine which political orientation favors fiscal transparency on websites, while Jorge *et al.* (2011) found no relation between fiscal transparency on websites and the political sign in their study of Portuguese and Italian municipalities.

We also find that the control variable gender (GEND) reflects a positive relation in the coefficient and a statistically significant value. Our study shows that those municipalities whose mayor is women reported more information financial on their webpage. Women's access to positions of responsibility has been favored in recent years by cases of corruption in public administration, therefore, in the exercise of their activities they have applied all types of measures to encourage the transparency (Noddings, 2003; Tsegai and Murray, 2005) and among them is the disclosure of financial information on websites.

Finally, we find fiscal variables such as municipal wealth (WEALTH) or investment (INVEST) are not significant in relation with our hypothesis and are therefore not useful in explaining why fiscal information is not submitted on time by LGs to the Spanish Court of Auditors.

In Model 2, we analyze the quality of the financial information in those municipalities which have published it on their transparency portal.

The results of Model 2 consistently show a significant relationship between the quality of the information financial (FID2) reported on the portal of transparency and the ICS. These results provide strong evidence for the effect of ICSs on increasing the level of fiscal transparency and the quality of the information that public entities report on their websites through their transparency portals. These results agree with those obtained by Welch *et al.* (2005), Tolber and Mossberger (2006) and Kim (2007). When public authorities report their financial information, they obviously have a more developed accounting system and one which is subject to ICSs, which allows enhanced disclosure of information, better quality and greater participation by citizens.

In terms of the control variables, we find that the quality of the financial information disclosure on the web (FID2) in terms of days of delay increases with population (POPUL) and ideology (IDEOL).

The control variables population (POPUL) and ideology (IDEOL) are found to be significantly and positively related to the days of delay. A high population has been found to be associated with a high quality of the financial information that is reported on the website of municipal entities. Local councils with larger populations need to develop all the avenues available to deliver the most proper public services to their citizens, and here the internet is fundamental. In addition, these entities have to manage a greater volume of resources, which means developing their accounting, control and internal management systems. These entities have very advanced systems of information and communication with citizens, so allowing their participation in the running of the municipality, which promotes the increase of the quality of the information reported on their websites. Gore (2004) and Cárcaba-García and García-García (2008) corroborate the results obtained in our studies.

The variable political ideology (IDEOL) presents in this model the same results as those obtained in the first, which is consistent, since, if left-wing governments reported more financial information financial on their websites, it is reasonable that they also try to increase the quality of that information.

The variables investment (INVEST), indebtedness (DEBT), municipal wealth (WEALTH) and gender (GEND) do not show any significant relation significantly with the variable quality of the financial information disclosed on the website (FID2).

Robustness check. To examine the robustness of our results, we carried out an additional analysis. We examined other measures of ICS. The Committee of Sponsoring Organizations of the Treadway Commission sets out that a good ICS must include, among other aspects, a proper segregation of duties, good quality in internal controls and stability in the development of the control functions.

Taking into account that our independent variable ICS is obtained as the sum of these three components, we have divided our independent variable ICS into three sub-variables: segregation of functions, quality and stability.

We therefore rerun our Model 2 three times, using as independent variables: segregation of functions (ICSF), quality of the ICS (ICQ) and stability to develop the function (ICST):

Model 3:

$$\mathrm{FID2} = \beta_0 + \beta_1\mathrm{ICSF} + \beta_2\mathrm{INVEST} + \beta_3\mathrm{DEBT} + \beta_4\mathrm{WEALTH} + \beta_5\mathrm{POPUL} + \beta_6\mathrm{IDEOL} + \beta_7\mathrm{GEND} + \varepsilon_{it}.$$

Model 4:

$$\mathrm{FID2} = \beta_0 + \beta_1\mathrm{ICQ} + \beta_2\mathrm{INVEST} + \beta_3\mathrm{DEBT} + \beta_4\mathrm{WEALTH} + \beta_5\mathrm{POPUL} + \beta_6\mathrm{IDEOL} + \beta_7\mathrm{GEND} + \varepsilon_{it}.$$

Model 5:

$$\mathrm{FID2} = \beta_0 + \beta_1\mathrm{ICST} + \beta_2\mathrm{INVEST} + \beta_3\mathrm{DEBT} + \beta_4\mathrm{WEALTH} + \beta_5\mathrm{POPUL} + \beta_6\mathrm{IDEOL} + \beta_7\mathrm{GEND} + \varepsilon_{it}.$$

The results of this analysis are shown in Table VIII. Our results indicate that the three sub-variables of the ICS, ICSF, ICQ and ICST have a positive impact on FID2. From the results, it can be interpreted that mayor segregation of function, mayor quality and mayor stability, raise the quality of the financial information disclosed on the website. These results are consistent with our previous models, as local governments with a high quality of financial information disclosed on the web have better ICSs. The results again support our hypotheses.

6. Conclusions

Our study has analyzed the influence that the systems of internal control of the local authorities have on the financial information they publish in their transparency portals.

Cases of corruption and the financial crisis have increased the demands for economic and financial control and publication of financial information by local authorities. Our results highlight the importance that systems of internal control of these entities have in the quality and the volume of information that local entities publish on their transparency portals. In addition, we analyze the influence of other economic, political and social variables. The variables analyzed include population (POPUL) and gender (GEND), and these are significantly and positively related to disclosure of financial information, while only the variable population (POPUL) is and significantly positively related to the quality of the information published by these entities. Other variable like political ideology shows a positive and significant relation for both the publication and the quality of the information published if they are left-wing parties that rule in City Hall. Also, we have found that more indebted municipalities publish smaller volumes of information in their transparency portals.

Predictors	M3 Coef. (t)	M4 Coef. (t)	M5 Coef. (t)
ICSF	0.423 (2.26)*	–	–
ICQ	–	0.8742 (4.93)***	–
ICST	–	–	0.5540 (3.22)***
INVEST	0.0000 (0.11)	0.0000 (0.12)	0.0000 (0.42)
DEBT	−0.5112 (−2.17)*	−0.4413 (−1.84)	−0.4424 (−1.84)
WEALTH	0.0002 (0.72)	0.0002 (0.76)	0.0001 (0.73)
POPUL	0.3385 (3.83)***	0.4229 (4.90)***	0.3131 (3.88)***
IDEOL	1.8168 (7.06)***	1.8708 (7.28)***	1.8527 (7.20)***
GEND	0.3891 (1.24)	0.3756 (1.22)	0.3801 (1.23)
Intercept	11.801 (20.82)***	12.123 (20.65)***	11.654 (20.32)***
n	1,020	1,020	1,020
F	11.92***	14.31***	12.27***
R^2 (adjusted)	0.050	0.062	0.054

Notes: FID2 is the quality of the financial information disclosed on the web; ICSF the measure of segregations of function; ICQ the measure of the quality of internal control system; ICST the measure of the stability to develop the function; INVEST the total investment divided by the number of inhabitants; DEBT the total indebtedness (thousands of euros) divided by the number of inhabitants; WEALTH the own revenues per capita; POPUL the natural logarithm of total population; IDEOL a dummy variable (conservative = 1, progressive = 0); GENDER a dummy variable (woman = 0, man = 1). *,**,***Significantly at 1, 5, and 10 per cent levels, respectively

Table VIII. Multiple linear regression models

However, our study has certain limitations. The first is getting information about the ICS of more local entities, especially among smaller entities. Second, the study of only Spanish local entities prevents us from making comparisons at the international level.

In the next study, we undertake we will try to determine how the ICSs influence the information published by the local authorities in their transparency portals for a period of time, and using panel data. In addition, it would be interesting to study councils of other countries to analyze the differences between the local authorities of different countries and the possibilities of improving the systems of control and transparency of those entities.

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