



Influence of managerial ability on the re-election of municipal political parties

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ABSTRACT

This article investigates whether citizens reward those politicians who achieve better results in public management with re-election. It analyses the last three electoral processes in Spanish local governments, a period that runs from the beginning of the economic crisis (2007) to the last municipal elections (2019). For periods of financial crisis, the results indicate a higher probability of re-election for governments that have better managed public services. In periods of economic growth, citizens do not take into account the capacity that rulers have shown in public management.

KEYWORDS Re-election; ability; local government; municipal elections; management

1. Introduction

In current democracies, the governments that failed to manage the effects of the financial crisis that began in 2008 are being punished electorally (Hernández and Kriesi 2016). The first elections to assess the management of the crisis in Spain (these elections were to elect representatives to the European Parliament elections in 2014) confirmed this trend (Cordero and Montero 2015), and it was reaffirmed a year later in the municipal elections (Orriols and Cordero 2016).

The loss of confidence in politicians has put pressure on local governments to adapt their management to the new demands of society (Araujo and Tejedó-Romero 2017). But the fundamental question is whether these changes will produce modifications in the functioning of democracies (Medina and Correa 2016), and therefore in the management of public services.

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In elections, citizens may value various aspects (economic, ideological, emotional, etc.) when deciding how to vote, with the capacities and abilities of politicians being one of them. Identifying the management capacity of local governments and its impact on re-election will allow us to understand the importance of these aspects in the voting decision. Furthermore, taking into account the budgetary difficulties of local governments and the pressure from citizens for high-quality public services, estimating the management capacity of these levels of government can be valuable, not only in deciding how citizens vote, but also in assessing local government performance.

The aim of this paper is to provide new evidence on factors affecting the likelihood of re-election to local government, in particular, to determine whether local governments that show greater managerial capacity are rewarded with re-election. We examine this issue in the context of the Spanish municipalities for the last three electoral processes (2011, 2015 and 2019).

We adapt the model proposed by Demerjian, Lev, and McVay (2012) to the local public sector and measure that performance and incorporate an economic characteristic (household income) and a set of political characteristics (ideology, party size, gender of the mayor and government fragmentation) that will allow a better understanding of the electoral behaviour of citizens.

To the best of our knowledge, there is no similar research that assesses managerial ability in Spanish local governments or identifies its impact on re-election. Therefore, our study offers the opportunity to understand and quantify these intangible capabilities of politicians and, moreover, their relevance in the voting decision of the electorate.

The paper has five sections. After this introduction, [section 2](#) summarises the theoretical framework concerning the re-election of local governments, economic management and political factors. [Section 3](#) then details the methodology, referring to the sample, calculation of the economic managerial capacity of municipal politicians and the econometric model. The results and discussion of the findings are shown in [section 4](#). Finally, the main conclusions, future lines of research and limitations are addressed in [section 5](#).

2. Theoretical framework

The idiosyncrasies of the public sector make it difficult to assess certain aspects that are necessary for decision-making. To date, there is no proposal to measure politicians' capabilities and their impact on re-election. In the private sector, we find the studies by Demerjian, Lev, and McVay (2012), (2020), where managers with higher capabilities modify their behaviour when it comes to reporting benefits. Therefore, with this research we propose a model to quantify the abilities of local politicians and their impact on the

voting decision of electors, thus filling a gap in the literature in this area. We also believe that our work can serve as a benchmark to be replicated in other countries.

In the current democracies the political decisions are conditioned to the electoral processes, locating the level of present and future revenues and expenditures according to the electoral perspective of the rulers (Nordhaus 1975). Spending now or in the future (investment) is determined by the temporal asymmetry of information between politicians and citizens, manipulating the management of the budget in order to improve party options (Rogoff and Sibert 1988).

The literature has reported the opportunistic behaviour of local politicians in preelection periods (García-Sánchez, Prado-Lorenzo, and Cuadrado-Ballesteros 2011). Akhmedov and Zhuravskaya (2004) showed an average pre-election increase of 5% of GDP in social expenditures and direct subsidies to voters, thus improving the popularity of politicians and the probability of being re-elected. These changes are mainly directed at the composition rather than the amount of the budget during election years, increasing the expenditures most valued by citizens (investments in infrastructure and direct subsidies), which allow for improved re-election options (Drazen and Eslava 2010).

As elections approach, rulers reduce taxes and change the budget composition by reducing current expenditures and increasing capital investments (Klein and Sakurai 2015). The pre-electoral manipulation of public expenditure and the economic situation of the municipality should be the focus of politicians who intend to remain in office (Boukari 2019). In addition, ideological biases in resource transfers from central to local government can affect re-election (Toro 2019).

It is legitimate for politicians to seek re-election because of their managerial ability and not because of budgetary manipulation. It has been shown that increasing expenditures improves the probability of re-election (Balaguer-Coll et al. 2015), and even during election years opportunistic budgetary deviations are rewarded (Chortareas, Logothetis, and Papandreou 2016). In a context where economic demands make it necessary to develop new managerial abilities, the forms of organisation within the public sector must seek a management approach that allows ambidexterity (Smith and Umans 2015). In this sense, there is room for manoeuvre that can improve the management of available resources, if a longterm strategic approach is adopted, conditioned on the ability of political and managerial leaders (Cepiku, Mussari, and Giordano 2016).

Developing the capacity of governments to anticipate, absorb and react to shocks affecting their finances can improve the delivery of public services (Barbera et al. 2017). In addition, the institutional ability (administrative and political) acquired by the political representatives is an

important aspect to ascertain how managers adapt to accounting changes (Fuentes and Borreguero 2018). Consequently, it is necessary to know the economic managerial ability of local governments and its effect on their re-election.

The voter observes the economy, judges the performance of politicians and modifies his or her vote for or against the government's management (Lewis-Beck and Paldam 2000). Economic difficulties at the personal and community level explain the additional variation in electoral support that occurs in different economic contexts (Green and McElwee 2019). Therefore, we understand that variations in income can affect the re-election of local governments, depending on the economic situation that develops.

Public management is conditioned by the ideology of the person in power. Thus, progressive governments have a negative impact on the solvency of Spanish municipalities (García-Sánchez, Mordán, and Prado-Lorenzo 2012). In addition, these governments increase tax rates (Solé-Ollé 2003) and carry out greater social spending (Le Maux, Rocaboy, and Goodspeed 2011). These differences affect re-election, in which case conservative parties are more likely to win (Balaguer-Coll et al. 2015). However, budgetary opportunism seems not to depend on ideology (Aidt, Veiga, and Veiga 2011), and is used by all parties to achieve electoral gains. Today, we find various arguments for that ideology is losing importance in public management as more central ideologies in Spanish politics are leading to electoral majorities 5 (Picazo-Tadeo et al. 2012). In other words, local governments focus on solving citizens' needs regardless of ideology (Rios, Pascual, and Cabases 2017).

It has been demonstrated that political organisations with a broad territorial structure and numerous institutional positions will have an advantage in occupying municipal governments (Núñez 2018). Furthermore, independent candidates are in economic and logistic inferiority to the hegemony of the big national parties (Toro 2019). Moreover, in municipal elections, political clientelism can easily be used to build fidelity and secure the necessary support (Szwarcberg 2013). In this respect, it is appropriate to know the probability of re-election according to the structure and size of the organisation supporting the candidature.

The implementation of laws on gender policies at all levels of government has reinforced and consolidated them in Spain (Bustelo 2016), and they have been incorporated into public life. The presence of women in local government and the activism of feminist groups leads to better performance by municipal governments, especially when both factors are combined (Rodríguez-García 2015). Women bring to municipal management certain ethical and moral values that are innate to them (Hamidullah, Riccucci, and Pandey 2015), thus influencing governance. In this sense, the incorporation of women into local governments provides different experiences and values

from those of men, so affecting management (Araujo and Tejedo-Romero 2017). For all these reasons, we consider it essential to know the probability of women being re-elected in municipal elections.

The enormous financial crisis that began in 2007 and that still has not been fully overcome, brought the irruption of new parties into the political scene after the 6 municipal elections of 2015, and blurred the imperfect bipartisanship of the previous decades (Cordero and Montero 2015), while introducing levels of fragmentation without precedent. However, it has been shown that strong governments have systematically spent less than weak governments, as they have a large electoral majority and do not need to attract more voters at the expense of public resources (Primo and Snyder, Jr. 2010). These facts condition governance and, consequently, may affect the re-election of local governments.

Another relevant aspect of elections is electoral participation, which contributes to broadening democratic legitimacy in local governments (Díaz-Orueta 2006). In this sense, the economic vote (Kukolowicz and Górecki 2018), or other factors (Cancela and Geys 2016) that affect electoral participation, can play an important role in the re-election of those in power. In short, the level of citizen participation in municipal elections can determine the election results, conditioning the re-election of the party in government.

3. Methods

3.1. Sample

The criteria for selecting the sample is conditioned by the information available for the period 2007–2019, which includes the years of the financial crisis and those in which the crisis is considered to have been overcome. In Spain, local governments do not always provide complete and timely information on municipal public services. Thus, we only have information for municipalities with populations between 1,000 and 50,000 inhabitants. We think that the sample is adequate because the size of the municipalities allows a more homogeneous comparison, unlike municipalities with large populations, which have heterogeneous economic and administrative characteristics (Rodríguez Bolívar et al. 2018).

In Spain, municipal elections are held every four years, so we have made a complete panel for each electoral process with the municipalities for which information is available during the years prior to the elections, forming three independent samples. Having eliminated numerical errors and municipalities with incomplete data on some variables relevant to the analysis, the samples are made up of a complete panel with the detail of municipalities and population shown in Table 1.

Table 1. Size of the samples.

	Number of municipalities (%)*	Number of inhabitants (%)*
Re-election 2011	1,864 (59.99%)	13,699,361 (65.60%)
Re-election 2015	1,172 (38.33%)	8,149,324 (39.12%)
Re-election 2019	679 (22.72%)	4,601,852 (22.24%)

* Over the total number of municipalities between 1,000 and 50,000 inhabitants.

The period of analysis includes the last three local government mandates, marked by the 2008 financial crisis and its recovery. The model estimates are made individually for each mandate and their interpretation takes into account the context of that period. For example, during the first mandate analysed, management ability has a significant impact due to the context of the financial crisis, while in the following mandates, as this concern dissipates, it does not show a significant impact. In addition, we include in the model the two most relevant aspects when deciding how to vote, namely economic and ideological factors.

3.2. Managerial ability

Using Data Envelopment Analysis (DEA), Demerjian, Lev, and McVay (2012) estimate the efficiency of a company to quantify the managerial ability of the Chief Executive Officer. Likewise, Baik et al. (2013) confirm the validity of the measure by providing a comparison between different methods. In our case, the purpose is to adapt this measure to local government, where the Ability variable represents an average estimate of economic managerial ability during the pre-election mandate.

Demerjian, Lev, and McVay (2012) estimated managerial ability scores in two steps. First, they calculated the efficiency levels for each company with a non-parametric frontier model (DEA), comparing the income generated by sales (input) conditioned to an expense and capital vector (outputs). Second, and understanding that the efficiency scores are attributable to both the manager and the company, the efficiency levels were estimated in the second stage to identify which part corresponded to each one. To do this, a regression model was used with different variables (size, market share, international operations, ...), with the residue of this estimate being the managerial ability attributed to managers.

Following Demerjian, Lev, and McVay (2012), we first calculated the annual efficiency using the R-Studio program with the deaR package (Coll-Serrano, Bolos, and Benitez Suarez 2019) according to the classical model by Charnes, Cooper, and Rhodes (1978). In line with the most recent literature studying overall efficiency in local governments (Narbón-Perpiñá, Balaguer-Coll, and

Tortosa-Ausina 2019), we will consider as input (Total Cost) the sum of personnel costs, current expenditure on goods and services and current transfers of the budget settlement.

For the outputs, we select the length of water distribution networks; the length of sewer networks; the number of lighting points; the production of urban waste (tons of waste collected); the street infrastructure surface area; the area of municipal markets; the area of public sports facilities; the area of public Parks and gardens; the area of public cultural facilities and the population of the municipality. These outputs correspond to the minimum services established in Law 7/1985, of 2 April, regulating the bases of the local government, which are specified in Table 2. All the selected municipalities provide these services, regardless of the size of the population, and are comparable in the same efficiency analysis.

In addition, deaR allows us to select the orientation and returns of the model. We opted for input orientation aimed at minimising input for the established output level, and variable scale returns (VRS), as the most used and appropriate measure (Simar and Wilson 2002).

Below, we relate the level of efficiency obtained to a group of economic and financial variables associated with the performance and management of local governments. Given the characteristics of the efficiency level, defined in the interval from zero to one, we use the following model (1) of truncated

Table 2. Minimum services provided according to the type of municipality and output variables.

Type of municipality	Minimum services	Output indicators
Municipalities with population between 1,000–5,000	Public street lighting Cemetery Waste collection Street cleaning Supply of drinking water to households Sewage system Access to population centres Paving of public roads	Number of lighting points Total population Waste collected Street infrastructure surface area Length of water distribution networks Length of sewer networks Street infrastructure surface area Street infrastructure surface area
In addition, for municipalities with populations between 5,000–20,000	Public parks Public library Treatment of collected waste	Surface area of public parks Surface area of public libraries Waste collected
In addition, for municipalities with populations between 20,000–50,000	Civil protection Provision of social services Fire prevention and extinction Public sports facilities	Total population Total population Street infrastructure surface area Surface area of public sport facilities

regression with the program R-Studio and the package Truncreg, which estimates for Gaussian variables truncated by maximum likelihood (Croissant and Zeileis 2018).

$$\delta_{it} = \alpha + \beta_1 \text{Revenues}_{it} + \beta_2 \text{Expenditure Deviations}_{it} + \beta_3 \text{Debt}_{it} + \beta_4 \text{Income}_{it} + \beta_5 \text{Cash Surplus}_{it} + \beta_6 \text{Budget Result}_{it} + \varepsilon_{it} \quad (1)$$

Where δ_{it} is the efficiency level with variable returns (VRS) for each municipality and year; α is the constant of the model; β_j are the coefficients; *Revenues* per capita from budget settlement; *Expenditure Deviations* of the budget from expenditures; *Debt* outstanding debt per capita; *Income* household income per capita; *Cash Surplus* cash balance per capita for general expenses; *Budget Result* surplus/deficit per capita from budget settlement and ε_i is the term of error. Table 3 specifies the detail of variables, units of measurement and descriptive statistics.

With the residual of the model (1), following Demerjian, Lev, and McVay (2012), we obtain the annual managerial ability, in our case of the local governments. We calculate the average for the four years prior to the elections, including the year in which the previous elections were held, and we obtain the *Ability* variable, which represents the economic managerial ability of the local government during the term of office prior to the elections.

Given that elections are always held every four years, on the fourth Sunday in May, the elected representatives do not take office until mid-June. At that time, the summer holidays of civil servants begin, and with the new elected representatives facing a set of projects and budgets approved by the previous government, there is little or no room for manoeuvre for the new government to implement its policies. Moreover, in Spain it is customary to give a period of adaptation (100 days) to new governments, so that discounting the summer holidays there would be barely a month left (in the year of the elections) to implement policies for the new government. For all these reasons, and given our knowledge of the work carried out in local governments, the elected representatives do not begin to develop their governmental action until the year after the elections, with the previous months constituting a transition period. Thus, we believe it is more appropriate to impute the year of the elections to the outgoing government.

In addition, before estimating efficiency levels in the second stage, we checked the condition of separability between input-outputs and environmental variables (Daraio, Simar, and Wilson 2018). Following Simar and Wilson (2007) and Simar, Vanhems, and Van Keilegom (2016) we found that environmental variables do not influence either the form or the levels of the envelope, leaving the potential effect of these factors on the distribution of inefficiencies. Likewise, to avoid a possible multicollinearity that invalidates

Table 3. Coefficient of correlation among regression variables for Ability.

	Re-election	Revenues	Expenditure deviations	Debt	Income	Cash Surplus
Expenditure deviations	2011	-0.0005	1.0000			
	2015	** -0.0471	1.0000			
	2019	-0.0394	1.0000			
Debt	2011	***0.3457	0.0237	1.0000		
	2015	***0.2723	0.0242	1.0000		
	2019	*0.0567	*0.0550	1.0000		
Income	2011	***0.2686	-0.0056	***0.2944	1.0000	
	2015	0.0342	**0.0493	-0.0215	1.0000	
	2019	***0.0743	***0.1336	**0.0648	1.0000	
Cash Surplus	2011	***0.0704	***-0.0796	***0.0949	***0.2498	1.0000
	2015	***0.2112	0.0134	***-0.1327	0.0072	1.0000
	2019	***0.2633	0.0260	***-0.2027	***0.1139	1.0000
Budget Result	2011	***0.3120	***0.1793	0.0285	0.0116	***0.0546
	2015	***0.2016	***0.1054	***0.1036	-0.0203	***0.0973
	2019	***0.3989	***0.2656	0.0219	*0.0586	***0.2077

Significance: *** 1%, **5% and * 10%.

the model estimation (1), Table 4 shows the correlation coefficients among the variables. Different significant correlations are observed, being of low degree (<0.5) and not compromising the validity of the model.

3.3. Specification of the model

To determine whether local governments that show greater ability in economic managerial are rewarded with re-election, we estimate two regression models. First, we tested the effect of *Ability* and a set of economic and political variables (model 2) on the re-election of the ruling party during the pre-election term; and second, we specified the interaction of *Ability* with the other selected variables (model 3). With this last approach, we will be able, for example, to know the probability of re-election of local governments according to their *Ability* conditioned to ideology; that is, if local governments with higher *Ability* and a certain ideology are more likely to be re-elected. Thus, we will be able to conclude that a certain ideology increases the chances of re-election together with a certain level of *Ability*. In section 4, Results and discussion, more detail is provided on the interactions of *Ability* with the rest of the variables considered in model 2.

$$\begin{aligned}
 &\text{Reelection}_i \\
 &= \beta_0 + \beta_1 \text{Ability}_i + \beta_2 \text{VariationIncome}_i + \beta_3 \text{Ideology}_i + \beta_4 \\
 &\text{Size Party}_i + \beta_5 \text{Gender}_i + \beta_6 \text{Strength}_i + \beta_7 \text{VoterTurnout}_i + \varepsilon_i
 \end{aligned} \tag{2}$$

Table 4. Coefficient of correlation among regression variables.

	Re-election	Ability	Variation Income	Ideology	Size Party	Gender	Strength
Variation Income	2011	-0.0202	1.0000				
	2015	0.0248	1.0000				
	2019	0.0079	1.0000				
Ideology	2011	0.0495	0.0171	1.0000			
	2015	0.0608	0.0506	1.0000			
	2019	0.0021	-0.0274	1.0000			
Size Party	2011	-0.0367	-0.0517	-0.0313	1.0000		
	2015	-0.0384	0.0462	-0.0623	1.0000		
	2019	0.0274	0.0844	0.0574	1.0000		
Gender	2011	-0.0166	0.0024	-0.0325	0.0144	1.0000	
	2015	-0.0771	0.0245	-0.0354	-0.0579	1.0000	
	2019	-0.0233	-0.0504	-0.0226	-0.0499	1.0000	
Strength	2011	-0.0529	-0.0491	*0.0754	*-0.0784	*-0.0739	1.0000
	2015	-0.0448	-0.0625	**0.1009	***-0.1633	-0.0665	1.0000
	2019	***-0.2206	*-0.1285	0.0495	-0.0622	-0.1014	1.0000
Voter Turnout	2011	***-0.2010	0.0422	-0.0056	*-0.0777	0.0131	***0.2502
	2015	***-0.3082	-0.0629	-0.0092	-0.0253	0.0548	***0.2689
	2019	***-0.4027	**0.1448	***0.1610	-0.0662	-0.0496	***0.3839

Significance: *** 1%, **5% and * 10%.

$$\begin{aligned}
 & \text{Reelection}_i \\
 &= \beta_0 + \beta_1 \text{Ability}_i + \beta_2 \text{Variation Income}_i + \beta_3 \text{Ideology}_i + \beta_4 \\
 & \text{Size Party}_i + \beta_5 \text{Gender}_i + \beta_6 \text{Strength}_i + \beta_7 \text{Voter Turnout}_i + \beta_8 \\
 & \text{Ability} * \text{Controls}_i + \varepsilon_i
 \end{aligned} \tag{3}$$

where *Re-Election* represents the re-election of the political party that was in power before the elections; β_0 is the constant of the model; β_j are the coefficients; *Ability* is the ability to manage during the pre-election mandate; *Variation Income* is the rate of change in household income per capita during the years preceding the elections; *Ideology* is the ideology of the mayor's pre-election party; *Gender* is the gender of the pre-election mayor; *Strength* is the level of fragmentation of local government before the elections; *Voter Turnout* is the percentage of participation in the municipal elections; *Controls* each of the above variables and ε_i is the term for error.

To estimate the model (2) and (3) we use the logistic regression (GLM) with the *R-Studio* software, since the dependent variable (*Re-Election*) takes the value 1 if the party to which the mayor who governed the previous mandate belonged is re-elected and 0 if not. In addition, Table 5 presents the correlation matrix between the variables of the model (2) to rule out a possible multicollinearity that invalidates the estimate.

Table 3 presents the sources of information, units of measurement, description and descriptive statistics of the input, outputs, variables for the *Ability* regression and the variables for the *Re-election* regression.

Table 5. Description and descriptive statistics of input, outputs and variables.

Variable (Unit)	Description	Re-election	Min.	Mean	Median	Max.	Std. dev.
<i>Input</i>							
Total cost (euros) ^a	Sum of expenses in personnel, goods and services and current transfers of budgetary settlement in thousands of euros	2011 2015 2019	273.8275 270.2625 403.5701	5306.2991 4564.6760 4927.2284	2616.1957 2474.0843 2519.8755	44,947.6360 36,244.1187 38,233.5682	6501.0807 5206.0402 5878.6573
<i>Outputs</i>							
Length of water distribution networks (m) ^b	Length of the drinking water supply network	2011 2015 2019	1220.0000 3005.0000 4134.0000	45,041.9423 49,143.9628 46,674.6845	26,819.0000 31,042.0000 30,899.0000	784,431.0000 860,580.0000 367,034.0000	56,317.4202 54,288.2353 44,079.1608
Length of sewer networks (m) ^b	Length of wastewater collection network	2011 2015 2019	1000.0000 1011.0000 1957.0000	26,185.3837 30,918.5704 30,298.1108	17,699.0000 20,712.0000 20,984.0000	263,000.0000 290,307.0000 290,390.0000	25,058.2294 31,290.1048 26,909.0680
Number of lighting points (units) ^b	Number of luminaires in the municipality	2011 2015 2019	104.0000 100.0000 184.0000	1469.7977 1625.8850 1705.0390	943.0000 1066.0000 1108.0000	37,595.0000 62,227.0000 9632.0000	1615.7581 1814.2721 1571.6580
Tons of waste collected (tons) ^b	Annual production of solid urban waste	2011 2015 2019	9.4000 39.3000 140.4000	3716.2735 3441.5177 3366.9236	1659.6000 1715.7900 1596.3500	73,439.2500 36,757.3946 45,436.4000	5352.5736 4372.8008 4455.0946
Street infrastructure surface area (m ²) ^b	Surface area of locally owned road infrastructure	2011 2015 2019	6577.0000 3137.6200 20,142.0000	328,807.4941 377,335.6738 382,664.0567	216,025.0000 246,141.0000 255,173.0000	2,744,026.0000 4,824,680.0000 2,999,497.0000	327,309.5144 396,868.1240 369,270.3873
Sport facilities surface area (m ²) ^b	Surface area of municipal public sports facilities	2011 2015 2019	300.0000 100.0000 2786.0000	64,774.4384 66,119.6407 69,524.0225	33,992.0000 33,390.5000 35,447.0000	992,981.0000 1,997,237.0000 1,296,187.0000	100,252.9090 121,696.1962 116,524.7472
Public parks surface area (m ²) ^b	Surface area of municipal parks and gardens	2011 2015 2019	91.0000 91.0000 190.0000	50,586.5967 62,574.5306 69,053.9654	21,449.0000 27,049.0000 33,058.5000	936,624.0000 981,400.0000 915,149.0000	85,596.1516 103,566.8257 115,011.3128
Cultural facilities surface area (m ²) ^b	Surface area of municipal cultural facilities for public use	2011 2015 2019	135.0000 100.0000 210.0000	10,905.3523 9741.0161 12,066.8133	5723.0000 5403.0000 6810.0000	192,029.0000 151,174.0000 184,959.0000	15,593.3450 12,777.0800 16,522.6153

(Continued)

Table 5. (Continued).

Variable (Unit)	Description	Re-election	Min.	Mean	Median	Max.	Std. dev.
Total population ^c	Number of inhabitants of the municipality on 1 January	2011 2015 2019	1000.0000 1008.0000 1000.0000	7211.8432 7017.3449 6802.2018	3891.0000 3929.0000 3595.5000	49,516.0000 44,941.0000 46,093.0000	8095.7988 7685.0918 8052.9861
<i>Variables for Ability Efficiency</i>	Overall efficiency for minimum municipal services	2011 2015 2019	0.0684 0.1701 0.1794	0.5376 0.6244 0.6633	0.5067 0.6060 0.6462	1.0000 1.0000 1.0000	0.1968 0.1806 0.1790
Revenues (euro) ^a	Budget revenues per capita of the municipality	2011 2015 2019	254.8557 396.9910 454.4451	1139.8958 942.1478 1038.4190	1040.2545 882.1935 973.8440	5401.4073 3554.8879 4417.7483	443.2683 306.1212 331.0610
Expenditure deviations (%) ^a	Difference between the expenditure budget and its implementation	2011 2015 2019	-199.1000 -161.9648 -101.6435	-5.4025 -3.8024 -4.8948	-2.9871 -1.7288 -2.3607	98.9469 67.8966 59.2559	28.9283 20.7127 17.5075
Debt (euro) ^d	Public debt per capita on 31 December	2011 2015 2019	0.0000 0.0000 0.0000	295.1876 340.8286 295.0666	223.4534 255.5903 176.3487	2054.9440 2598.4404 3273.2972	284.0900 338.2577 395.0169
Income (euro) ^e	Available family income per inhabitant	2011 2015 2019	6547.4116 6516.3391 6439.7902	12,622.1431 11,829.0556 10,804.6283	12,239.0943 11,585.8322 10,303.2597	30,673.5865 24,819.9677 18,537.7269	2551.7942 2312.4704 2018.8468
Cash Surplus (euro) ^a	Remaining cash per capita for general expenses	2011 2015 2019	-35,402.4098 -24,466.5076 -26,463.2926	-2900.7406 165.3218 337.7711	0.1844 114.6966 243.2566	11,620.9212 14,144.3806 20,525.8437	6885.4486 613.4245 825.1842
Budget Result (euro) ^a	Difference between the implementation of budget revenue and expenditure	2011 2015 2019	-2218.6111 -17,471.1784 -556.0813	7.4697 62.8032 79.5302	3.5524 48.0335 64.9335	3257.6908 5340.0130 1565.8942	202.0748 352.8335 128.5765
<i>Variable for Re-Election</i>	Re-election of party in the government. Dummy variable that takes value 1 if re-elected, 0 if not	2011 2015 2019	0.0000 0.0000 0.0000	0.6234 0.6032 0.7437	1.0000 1.0000 1.0000	1.0000 1.0000 1.0000	0.4847 0.4894 0.4369

(Continued)

Table 5. (Continued).

Variable (Unit)	Description	Re-election	Min.	Mean	Median	Max.	Std. dev.
Ability	Average economic managerial ability of the local government in the years before the elections	2011 2015 2019	-0.2828 -0.3328 -0.0011	0.0036 0.0011 0.0008	-0.0279 -0.0224 -0.0257	0.7903 0.5110 0.5179	0.1521 0.1246 0.1333
Variation Income (%) ^e	Rate of change in per inhabitant household income in pre-election years	2011 2015 2019	-28.8161 -63.8727 -89.5654	18.7708 -14.5379 4.6255	18.3709 -15.8339 5.5696	129,9953 35,1356 108,0263	10,5708 11,5068 32,3682
Ideology ^f	Political ideology of the mayor. Dummy variable that takes value 1 conservative, value 0 for progressive	2011 2015 2019	0.0000 0.0000 0.0000	0.4077 0.5759 0.3505	0.0000 1.0000 0.0000	1.0000 1.0000 1.0000	0.4915 0.4944 0.4775
Size Party ^f	Size of the party in government. Dummy variable that takes value 1 for local parties and 0 otherwise	2011 2015 2019	0.0000 0.0000 0.0000	0.0617 0.0418 0.0648	0.0000 0.0000 0.0000	1.0000 1.0000 1.0000	0.2407 0.2002 0.2464
Gender ^f	Major gender. Dummy variable that takes value 1 for woman, value 0 for man	2011 2015 2019	0.0000 0.0000 0.0000	0.1454 0.1638 0.2401	0.0000 0.0000 0.0000	1.0000 1.0000 1.0000	0.3526 0.3703 0.4274
Strength ^g	Herfindahl index measuring local government political strength	2011 2015 2019	0.2180 0.1696 0.2063	0.4472 0.4411 0.4405	0.4380 0.4321 0.4321	1.0000 1.0000 1.0000	0.1057 0.1059 0.1037
Voter Turnout (%) ^g	Citizen participation in municipal elections	2011 2015 2019	21.5489 47.5733 45.8678	75.6737 73.9981 74.1067	76.9217 74.4186 74.8883	93.4402 91.2461 93.4588	9.3727 7.6735 8.2161

^aData from Spanish Ministry of Finance <https://serviciostelematicosexth.hacienda.gob.es/SGFAL/CONPREL> Accessed July, 2020.^bData from <https://eiel.redsara.es/descargas/> Accessed July, 2020.^cData from Spanish National Statistics Institute <http://www.ine.es/welcome.shtml> Accessed July, 2020.^dData from Spanish Ministry of Finance <http://www.hacienda.gob.es/es-ES/CDI/Paginas/SistemasFinanciacionDeuda/Viva.aspx> Accessed July, 2020.^eData from Lawrence R. Klein Economic Institute (2018).^fOwn elaboration from http://www.mptfp.es/portal/politica-territorial/local/sistema_de_informacion_local_SIL-/alcaldes_y_concejales.html Accessed July, 2020.^gOwn elaboration from the Spanish Ministry for Home Affairs <http://www.infoelectoral.mir.es/min/> Accessed July, 2020.

4. Results and discussion

Table 6 shows the results of the logistic regressions for the three elections considered, thus allowing us to know the effect of the variables included in the models (2) and (3).

The results show the importance economic issues have in the voting decisions of citizens in times of crisis. Indeed, it was in a context of budget cuts, tax increases and high unemployment rates that the 2011 municipal elections were held, the first after the beginning of the 2007 crisis. The harsh economic and social situations experienced by many citizens explain the greater likelihood of re-election to local governments that demonstrate more *Ability*. That is, when citizens perceive the effects of poor economic management by their rulers, they value and reward the good manager, as was the case in the 2011 elections. If the economic and social situation improves, the demands of the voters are relaxed and more attention is paid to ideological aspects for the re-election of the local government. The results confirm this for the 2015 and 2019 elections, which took place in a context of economic improvement.

The same happens with the level of income of the citizens (*Variation Income*), which has significance in the re-election when there are periods of crisis.

On the other hand, variations in family income during years of economic prosperity (elections in 2015 and 2019) are not perceived by citizens as a determining factor for re-election.

In short, the impact of the financial crisis of 2008 causes a greater relevance of politicians' managerial ability in the voting decision. In this context, family economies are squeezed by the crisis, and the reduction in public revenues forces governments to rationalise spending and increase taxes in order to continue providing services with sufficient guarantees. Then, according to our research, politicians with more managerial abilities and capabilities are more highly valued by citizens, making their re-election possible. However, when economic difficulties disappear, citizens do not consider politicians' management abilities to be relevant for re-election. In other words, when there are economic difficulties, good managers are valued, while in situations of economic growth, other aspects are more decisive for re-election.

According to the study we have carried out, the ability of conservative governments to manage the economy, characterised by expenditure restraint and tax reductions, allows them a greater probability of re-election in periods of crisis. Citizens will opt for re-election of the conservative government when economic instability necessitates these recipes. The results show that in the 2011 elections the conservative parties were more successful in getting re-elected than the progressives, in order to manage the consequences of the



Table 6. Logit regression results.

Re-election 2011									
Intercept	***-2.326077 (-4.969)	***-2.277274 (-4.850)	***-2.272688 (-4.847)	***-2.331543 (-4.977)	***-2.323682 (-4.956)	***-2.326368 (-4.968)	***-2.273612 (-4.824)		
Ability	**0.761346 (2.113)	-0.024825 (-0.036)	0.195159 (0.446)	**0.799359 (2.138)	**0.774844 (1.988)	0.540270 (0.328)	***-10.035095 (-3.637)		
Variation Income	***0.016648 (3.148)	***0.016226 (3.074)	***0.016494 (3.115)	***0.016647 (3.147)	***0.016646 (3.148)	***0.016681 (3.150)	***0.015010 (2.818)		
Ideology	***1.336553 (11.882)	***1.335375 (11.869)	***1.346236 (11.884)	***1.336020 (11.876)	***1.336505 (11.881)	***1.335462 (11.843)	***1.334539 (11.808)		
Size Party	***-0.596648 (-2.803)	***-0.600735 (-2.817)	***-0.593905 (-2.792)	***-0.604264 (-2.825)	***-0.596475 (-2.803)	***-0.596799 (-2.805)	***-0.633065 (-2.954)		
Gender	**0.367266 (-2.560)	**0.365217 (-2.545)	**0.368129 (-2.563)	**0.366474 (-2.555)	**0.367550 (-2.562)	**0.367048 (-2.559)	**0.333439 (-2.308)		
Strength	***5.548194 (9.315)	***5.602818 (9.360)	***5.470550 (9.185)	***5.548952 (9.313)	***5.548752 (9.314)	***5.549254 (9.313)	***5.599678 (9.299)		
Voter Turnout	-0.004021 (-0.672)	-0.004849 (-0.805)	-0.004263 (-0.712)	-0.003952 (-0.660)	-0.004055 (-0.676)	-0.004016 (-0.671)	-0.003988 (-0.662)		
Ability*Variation	-	0.042584 (1.353)	-	-	-	-	-		
Income	-	-	-	-	-	-	-		
Ability*Ideology	-	-	**1.778585 (2.265)	-	-	-	-		
Ability*Size Party	-	-	-	-0.537010 (-0.385)	-	-	-		
Ability*Gender	-	-	-	-	-0.087170 (-0.091)	-	-		
Ability*Strength	-	-	-	-	-	-	-		
Ability*Voter Turnout	-	-	-	-	-	0.530015 (0.137)	***0.147930 (3.945)		

Re-election 2015									
Intercept	-0.858989 (-1.277)	-0.879625 (-1.307)	-0.855745 (-1.272)	-0.861833 (-1.281)	-0.860349 (-1.279)	-0.881020 (-1.308)	-0.804211 (-1.182)		
Ability	0.315787 (0.577)	0.993459 (1.121)	0.078879 (0.089)	0.200057 (0.359)	0.302305 (0.520)	1.626358 (0.689)	-2.077635 (-0.466)		
Variation Income	0.001337 (0.236)	0.001601 (0.282)	0.001219 (0.215)	0.001289 (0.228)	0.001331 (0.235)	0.001578 (0.278)	0.001390 (0.245)		
Ideology	***-1.156772 (-8.464)	***-1.163984 (-8.496)	***-1.155638 (-8.456)	***-1.160830 (-8.480)	***-1.156544 (-8.460)	***-1.155765 (-8.450)	***-1.157700 (-8.472)		
Size Party	0.429303 (1.286)	0.423044 (1.266)	0.426346 (1.277)	0.508900 (1.473)	0.428908 (1.285)	0.434856 (1.302)	0.430055 (1.291)		
Gender	-0.153221 (-0.892)	-0.156363 (-0.910)	-0.152031 (-0.884)	-0.157252 (-0.914)	-0.151458 (-0.872)	-0.155133 (-0.902)	-0.151014 (-0.879)		
Strength	***7.604237 (9.580)	***7.549106 (9.497)	***7.595696 (9.564)	***7.627890 (9.590)	***7.604630 (9.581)	***7.625262 (9.598)	***7.601195 (9.570)		
Voter Turnout	*-0.017502 (-1.874)	*-0.016790 (-1.793)	*-0.017545 (-1.879)	*-0.017562 (-1.879)	*-0.017487 (-1.872)	*-0.017316 (-1.853)	*-0.018078 (-1.921)		

(Continued)

(Continued)

Table 6. (Continued).

	2016	2017	2018	2019	2020	2021	2022	2023
Ability ^a Variation	-	0.044369 (0.976)	-	-	-	-	-	-
Income	-	-	-	-	-	-	-	-
Ability ^a Ideology	-	-	0.364220 (0.336)	-	-	-	-	-
Ability ^a Size Party	-	-	-	2.786015 (1.056)	-	-	-	-
Ability ^a Gender	-	-	-	-	-	-	-	-
Ability ^a Strength	-	-	-	-	-	-	-	-
Ability ^a Voter Turnout	-	-	-	-	-	-	-3.140716 (-0.571)	0.033288 (0.541)
Re-election 2019								
Intercept	0.678539 (0.727)	0.796886 (0.848)	0.679139 (0.726)	0.675642 (0.723)	0.662047 (0.710)	0.582255 (0.622)	0.518783 (0.553)	
Ability	0.709834 (0.935)	0.240354 (0.307)	1.397229 (1.365)	0.818191 (1.024)	0.173513 (0.209)	4.688849 (1.374)	9.470439 (1.488)	
Variation Income	-0.001781 (-0.613)	-0.001503 (-0.510)	-0.001731 (-0.596)	-0.001825 (-0.628)	-0.001883 (-0.647)	-0.001756 (-0.604)	-0.001657 (-0.568)	
Ideology	***-0.601232 (-3.188)	***-0.616963 (-3.246)	***-0.604282 (-3.198)	***-0.597643 (-3.166)	***-0.590613 (-3.125)	***-0.627931 (-3.300)	***-0.618703 (-3.269)	
Size Party	***-0.899261 (-2.747)	***-0.887274 (-2.682)	***-0.886115 (-2.697)	***-0.886905 (-2.696)	***-0.888472 (-2.712)	***-0.909049 (-2.776)	***-0.901748 (-2.752)	
Gender	**-0.450870 (-2.205)	**-0.473598 (-2.301)	**-0.460646 (-2.247)	**_0.452274 (-2.271)	**_0.425902 (-2.056)	**_0.452551 (-2.210)	**_0.442127 (-2.156)	
Strength	***4.102702 (3.778)	***4.153022 (3.820)	***4.031126 (3.717)	***4.093246 (3.769)	***4.150733 (3.807)	***4.057731 (3.730)	***4.160739 (3.831)	
Voter Turnout	-0.012886 (-0.976)	-0.014469 (-1.090)	-0.012412 (-0.938)	-0.012798 (-0.968)	-0.012988 (-0.985)	-0.011517 (-0.870)	-0.011682 (-0.886)	
Ability ^a Variation	-	***0.059976 (2.752)	-	-	-	-	-	
Income	-	-	-	-	-	-	-	
Ability ^a Ideology	-	-	-	-	-	-	-	
Ability ^a Size Party	-	-	-	-1.004967 (-0.451)	-	-	-	
Ability ^a Gender	-	-	-	-	2.511823 (1.475)	-	-	
Ability ^a Strength	-	-	-	-	-	-	-	
Ability ^a Voter Turnout	-	-	-	-	-	-	-9.608536 (-1.202)	-0.120665 (-1.391)

Significance: ***1%, **5%, *10%, coefficient and (z-value)

economic crisis. By the 2015 and 2019 elections the effects of the crisis had dissipated, and then there was more re-election of local governments led by a progressive party.

In addition, the national government in the years before the 2011 elections was led by a progressive president, which leads us to believe that citizens exercise counter-power and opt for ideological divergence between national and local government. In this sense, voters can use municipal elections to punish national politics (Boukari 2019) by showing their dissatisfaction with the president's performance, as happened in the 2011 elections (Torcal 2014). Also, during the years leading up to the 2015 and 2019 elections, the national government was led by a conservative president, with citizens opting for the re-election of progressive parties.

Another factor that influences the re-election of local governments is the size of the organic and territorial structure of the parties (*Size Party*). The results show a higher re-election rate for parties with a national or regional presence, compared to candidates running with local groups or independent platforms. We understand that the big parties have more resources to win the vote of citizens and thus achieve re-election.

During the years analysed, the average number of women with the highest municipal representation was 18%, a figure that is still far from parity. This fact explains the lower probability of re-election for women mayors (*Gender*), since the opportunities to lead a local project are still mostly on the men's side. These results do not mean that women cannot be re-elected; they only demonstrate male leadership in the local governments analysed, where men are more likely to be re-elected because they are a majority group.

Local governments that have extensive electoral support (*Strength*) will be more likely to be re-elected, as they will have been able to implement their programme more easily in the face of more fragmented governments. Furthermore, by being supported by a broad electoral base, the probability of re-election increases.

Citizen participation in electoral processes only has an impact on the 2015 elections, in which an increase in Voter Turnout decreased the likelihood of re-election. However, if the mobilisation of the electorate is proportional among the voters of the different candidacies, democratic legitimacy will increase, but the results will be maintained, rendering the level of electoral participation ineffective.

There is no doubt that the difficult years of the economic crisis influenced the increase in electoral participation and the desire for change of the citizens, who were also fed up with the numerous cases of corruption that had arisen especially in the first half of the decade of the 21st century.

Finally, with regard to the variables that interact with *Ability*, the 2011 elections confirm that conservative governments with higher *Ability* (*Ability*Ideology*) increase the probability of re-election. Similarly,

municipalities with more participatory voters and governments with higher *Ability* ($Ability * Voter\ Turnout$) are more likely to be re-elected. For the 2019 election, governments in municipalities with higher income levels and higher *Ability* ($Ability * Variation\ Income$) increase the probability of re-election.

The significant results for 2011 in the interaction "*Ability * Voter Turnout*" are most likely explained by the fact that in crisis situations citizens turn out to vote in higher percentages than when the economic situation is stable, perhaps because of the desire for change in the political scenario. In this context, and in view of our research, voters reward with re-election those politicians who have managed better in these periods of crisis. We understand, therefore, that if voters pay attention to the management capacity of their rulers in periods of crisis (as is the case in the period since 2011), an increase in voter turnout is more likely to lead to the re-election of the ruling party. Likewise, for the 2019 elections, where the crisis had already been overcome, voters prefer to re-elect political parties that have governed in municipalities where per capita income has increased and, in addition, those in power have managed better. We believe that in view of our interaction, voters are rewarding those who have best managed the economic recovery, i.e., it is very likely that citizens prefer stability to change in response to the good results obtained in economic and management terms.

5. Conclusions

Citizens expect their politicians to manage public resources in such a way as to improve the services they receive. Therefore, our research measures the ability of local governments to manage public services in order to objectively assess their performance when voting for their re-election. The main novelty of our research is the proposal to measure the abilities of local politicians in the management of public services, thus providing citizens with a homogeneous and comparable measure. In this line, in addition to the influence of economic and ideological factors on the voting decision of the electorate, we identify the relevance they give to the abilities of politicians.

To calculate the managerial ability, we first assess the overall efficiency level and then estimate this level with a set of financial variables. The residue of the estimate then allows us to obtain the average managerial ability during the years prior to the elections. We check its effect on re-election with a logistic regression model, incorporating economic (household income) and political variables (ideology, party size, mayor's sex, fragmentation and voter turnout).

The results affirm the relevance of economic issues in times of crisis, where citizens reward with their re-election those local governments that demonstrate greater managerial ability. In addition, if the family economy improves, the local government will have a greater chance of being re-elected. These economic aspects are not considered representative in periods of economic growth.

We understand that if families improve their economic situation and obtain a better standard of living 'thanks to the government's management', they will opt to vote and keep in power those rulers who improve their living conditions. Therefore, our variable 'Variation Income' measures household finances and demonstrates a significant impact on re-election (taking into account the economic context).

According to our research, to manage moments of crisis, citizens re-elect conservative governments, while in periods of economic growth, progressive governments are more likely to be re-elected. Also, a local government supported by a party of supra-municipal scope will have more options to be re-elected. With regard to the sex of the mayor, despite progress in this area, there are still few women who occupy the maximum representation in local government, and therefore the results conclude that those parties whose management is being assessed that were headed by women will be less likely to be re-elected. Finally, governments in majority will be able to implement their policies in a more comfortable way, paying suitable attention to the demands of their voters and so be rewarded with re-election.

With the publication of more complete and timely information in the coming years, it will be possible to expand the sample to municipalities with large populations. For the current study, information limitations have proved to be a determining factor, so in future research it would be appropriate to contrast the extent of managerial ability at other administrative levels and in other economic contexts.

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