

## Municipal elections and cultural expenditure

Bernardino Benito · Francisco Bastida ·  
Cristina Vicente

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**Abstract** The aim of this paper is to analyze the effect of electoral timing on municipal public cultural spending. We use a panel sample of all municipalities from the Spanish Region of Murcia for 1995–2008. Our results reveal that mayors adopt an opportunistic behavior, increasing cultural spending in the election year and reducing it in the second year after the election. We also investigate whether the electoral cycle in cultural spending is influenced by mayors' ideology, political strength, willingness to run for re-election, and electoral competitiveness. In this regard, our study shows that when mayors expect close elections, political budget cycles' size is greater. Concerning political leadership, the magnitude of the electoral cycle is influenced by mayors' political ideology rather than mayors' political strength and re-election willingness. Additionally, we seek to shed some light on the determinants of public cultural spending. We find that income and upper-level governments' transfers have a positive impact on cultural spending. Finally, unemployment, young people's proportion and elderly people's proportion negatively influence cultural spending.

**Keywords** Electoral cycles · Cultural spending · Local governments

**JEL Classification** H76

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B. Benito (✉) · F. Bastida · C. Vicente  
Dpto. de Economía Financiera y Contabilidad. Facultad de Economía y Empresa, University  
of Murcia, 30100-Campus de Espinardo, Murcia, Spain  
e-mail: benitobl@um.es

F. Bastida  
e-mail: alba@um.es

C. Vicente  
e-mail: cristina.v.o@um.es

## Abbreviation

PBC Political budget cycles

## 1 Introduction

Political budget cycles (PBC) theories became one of the branches of the Political Business Cycles literature. Periodic elections in democratic countries trigger Political Business Cycles, since incumbents may be tempted to manipulate economic variables to remain in power. The term PBC refers to government spending increases, deficit increases or tax cuts carried out by incumbents before elections, with the aim of increasing their chances to win them (Drazen 2008b).

Public spending is the variable commonly used to check the existence of PBC. However, we believe it is appropriate to analyze PBC on specific types of public spending. This interest stems from the fact that new PBC theories show that incumbents sometimes do not change the total budget, but they just modify its composition (Rogoff 1990; Drazen and Eslava 2010). Following this approach, some works identify PBC on health, social security, and education spending.

Regarding cultural spending, three works investigate PBC: Getzner (2002), who does not find a total cultural spending increase before elections; Noonan (2007), who detects PBC on state-level arts expenditure; and Nogare and Galizzi (2011), who show that Italian local authorities reduce cultural spending in the electoral year. The purpose of our paper is to extend this literature by analyzing the impact of the electoral schedule on cultural spending at the municipal level in Spain. From our point of view, local governments are suitable for studying PBC on cultural spending for two reasons. On the one hand, local politicians are better informed about voters' preferences on culture than national politicians. Besides, the former are directly rewarded if they meet voters' preferences and punished otherwise (Van der Ploeg 2006). Consequently, incentives to influence voters through cultural expenditures manipulation are higher for local politicians than upper-level politicians. On the other hand, large parts of local budgets are reserved for statutory expenditure, making cultural policy one of the few areas where local governments have wide authority to decide (Schulze and Rose 1998). Accordingly, chances are that PBC impact on cultural spending be more pronounced at this level of government. In fact, the largest part of culture spending in Spain is managed by local governments.

This paper contributes to PBC literature in two ways. On the one hand, it extends the scarce literature on electoral cycles in cultural spending at the local level. On the other hand, it analyzes for the first time the existence of a conditional PBC in cultural expenditure by researching whether the PBC in cultural spending is influenced by mayors' ideology, political strength, willingness to run for re-election, and electoral competitiveness.

The paper has been structured as follows. Section 2 reviews theoretical and empirical literature on PBC, PBC determinants, and determinants of public cultural expenditures. Section 3 describes public cultural expenditures in Spain. Section 4 shows the econometric model, sample, and variables. Section 5 presents results, and Section 6 summarizes the conclusions.

## 2 Literature review

### 2.1 Political budget cycles

Political Business Cycles literature studies the relationships between economic fluctuations and the electoral schedule. Two kinds of models describe this phenomenon (Drazen 2008a): opportunistic and partisan. In the former, Political Business Cycles appear when an opportunistic incumbent boosts [the] economy before an election to enhance his/her re-election chances. The latter posits that fluctuations are caused by the alternation in office of leaders with different policy goals.

Both models have evolved in two phases, depending on the assumptions plural made on voters' behavior. First, voters' expectations stem from adaptation, which allows governments to make a short-term influence on macroeconomic variables through monetary policy with electoral purposes (Nordhaus 1975) or partisan objectives (Hibbs 1977). The second phase started in the late 80s when the focus shifted from models in which adaptive expectations are assumed to models in which voters form their expectations rationally (Drazen 2008a). In this latter case, it is the information asymmetries between voters and incumbents that lead to political cycles. Rogoff and Sibert (1988), Rogoff (1990), and Persson and Tabellini (1990) develop opportunistic rational models. Alesina (1987) sets a rational partisan model. Persson and Tabellini (1990) and Alesina (1987) introduce rational expectations into models of cycles in economic activity. In contrast, Rogoff and Sibert (1988) present the original PBC model in which cycles are generated in budget components. This model is based on information asymmetries between incumbents and voters about incumbents' competence. These authors assume that incumbents have a competence level known by themselves, but unknown by citizens. The latter cannot directly observe incumbents' competence, and thus, they must infer it from fiscal policy outcomes. Competence is defined as the ability to provide a certain level of services at the lowest tax rates. This information asymmetry creates incentives for high-type incumbents to implement expansive fiscal policies before elections to signal their type to voters, which is less costly for them than it is for low-type incumbents, thus enhancing the chances to remain in office. Later, Rogoff (1990) presents a model in which electoral manipulation appears by means of a change in budget composition. The government, before elections, increases spending that is more noticeable by voters (public consumption) instead of less short-term perceptible spending (public investment).

More recently, Shi and Svensson (2002) present a moral hazard model of PBC, which assumes that neither incumbents nor voters know incumbents' competence when policy decisions are taken. Consequently, this model predicts that all types of incumbents manipulate the budget during the pre-electoral period to improve their chances to remain in power. The fact that the latter models focus on budget cycles rather than on cycles in macroeconomic variables is due to the lack of empirical evidence of Political Business Cycles in many countries (Drazen 2008b). Nevertheless, the literature to date is far from unanimous (Geys 2007).

Finally, Drazen and Eslava (2010) develop a model in which incumbents do not change the overall budget but they just modify its composition. Specifically, to

avoid increasing total public spending, incumbents increase spending that voters as a whole prefer and decrease those categories of spending that voters like less or that are less visible.

## 2.2 Determinants of political budget cycles

Shi and Svensson (2004) suggest that the way political and institutional features influence the magnitude of the electoral cycle may be an important area for future PBC research. In fact, recent studies have turned to identify the determinants of PBC magnitude, showing that the context affects how and when these cycles appear (Aidt et al. 2011). Alt and Rose (2007) state that PBC may be context-conditional, that is, incumbents must have the ability and the incentive to manipulate fiscal policy. If any of these conditions are not met, it is likely that the cycle will not be generated.

According to the literature on PBC determinants, incumbents' ideology, political strength (majority), the decision of running for re-election, and the electoral competitiveness can impact the ability or incentives of incumbents to manipulate fiscal instruments with an electoral aim.

### 2.2.1 Ideology

In respect of ideology, some authors find a partisan influence in electoral opportunistic behavior. For example, Kneebone and McKenzie (2001) show that Canadian provincial governors reduce revenues and increase spending in the electoral year, but this phenomenon only happens with right-wing governors. Veiga and Veiga (2007) find that even though all Portuguese mayors adopt an opportunistic behavior in the electoral year, left-wing mayors increase investment spending to a higher extent than right-wing ones.

### 2.2.2 Political strength

Geys (2007) argues theoretically how political strength can influence incumbents' opportunistic behavior and ultimately PBC. On the one hand, PBC may be less prominent under divided governments due to their coordination problems because it limits governments' ability to engage in electioneering. Not only can government fragmentation affect ability, but it may also encourage an opportunistic behavior. Thereby, one-party governments may have greater incentives to PBC than coalition governments, because it is easier to attribute the pre-electoral expansion to the former. On the other hand, government fragmentation may encourage PBC for two reasons: the uncertainty about the fragmented government's political future, and thereby its incentives to manipulate policy are higher; the difficulty to internalize the fiscal costs of their actions is greater, which may lead not only to a high level of spending, but also to a high pre-electoral spending boom. According to Alt and Rose (2007), the heterogeneous preferences of coalition members can reduce their ability to coordinate on monitoring or sanctioning activities. This increases incumbents'

ability to generate PBC, which in turn explains why PBC may be larger under divided governments than under those unified.

Notwithstanding the foregoing, there are no clear findings in the literature about the effect of political strength (majority vs. coalition) on incumbents' opportunistic behavior. For example, Geys (2007) states that, in a sample of Flemish municipalities, the hike in debt rates during the election year is positively correlated with the number of parties in the government. In contrast, Veiga and Veiga (2007) show that PBC size does not depend on whether the government is fragmented or not. Likewise, Alt and Rose (2007) hold that government fragmentation does not affect PBC magnitude.

### 2.2.3 *Re-election*

The traditional hypothesis posits that incumbents not running for re-election, either because they decided to do so or because of legal limits, have fewer incentives to manipulate budget with electoral aims. Nevertheless, the spending expansion in an election year is motivated by incumbents' intention of re-election for either themselves or their party (Drazen 2008b). Accordingly, Alt and Rose (2007) state that it is not that obvious that incumbents running for re-election generate larger PBC than no re-election incumbents (lame ducks), since the party's collective motivation keeps manipulation incentives intact. Moreover, Rosenberg (1992) shows that lame ducks increase spending to a higher extent than politicians running for re-election. The former want to signal their ability, as a way to increase their chances to find a good job outside politics. Besley and Case (1995) compare budget policies of US governors running for election with governors who cannot run for re-election according to law. The results indicate that the latter are less concerned about their reputation, thus reducing governors' effort to keep taxes and spending at low rates. Rose (2006) and Alt and Rose (2007), also using a panel data from American states, find that PBC magnitude does not depend on whether the governor runs for re-election or not. As Rose (2006) suggests, lame ducks' concern about their professional future and their desire to help a member of their party to win elections may explain their opportunistic behavior.

### 2.2.4 *Competitiveness*

Aidt et al. (2011) investigate theoretically and empirically the interaction between the incentive to generate PBC and the margin of victory. These authors extend the Rogoff and Sibert model and show that when a close election race is expected, incumbents' incentive to manipulate fiscal policy with electoral purposes intensifies, and thereby PBC size increases. The theory states that incumbents distort policy before elections to signal their competence to voters as a way to increase their chances to win. As Aidt et al. (2011) suggest, the theory indicates that the incentive to manipulate depends on the expected margin of victory. Furthermore, using a sample of Portuguese municipalities, this theory can be confirmed, for their result suggests that the smaller the win-margin the greater the magnitude of the opportunistic distortion.

Alt and Rose (2007) also state that the more competitive an election is expected to be, the greater the incumbent's incentive to fiscal manipulation. In fact, these authors show that electoral competitiveness increases the pre-electoral spending size. Specifically, they find larger PBC when a close election is expected.

## 2.3 Determinants of cultural expenditures

### 2.3.1 Political factors

**2.3.1.1 Ideology** It is commonly assumed that left-wing parties favor public spending increases while right-wing parties aim at budget reductions, both at national and subnational level (Tufté 1978; Hibbs 1987; Seitz 2000; Allers et al. 2001; Tellier 2006). Cusack (1997) defines this idea as the “partisan politics matters” (PPM) thesis.

Hibbs (1977) posits that PPM stems from differences between left and right electorate. Left electorate has lower income levels and accordingly supports social policies on wealth redistribution. Right electorate, with high income, applauds tax reductions. In this sense, we expect left governments, with the aim of redistribution, to fund culture with public resources. In fact, income inequality has been one of the arguments to justify government intervention in culture (Fullerton 1991; Frey 2003; Gray 2009). Following this approach, cultural activities must be affordable to people of all kinds. Consequently, governments should finance culture to make it available to people who cannot afford it on a regular basis (Frey 2003). Therefore, considering the redistributive nature attributed to culture, left governments are expected to spend more on culture than right governments.

However, empirical literature so far shows that high-income people both appreciate culture to a higher extent (Bille Hansen 1997; Throsby and Withers 1986) and support cultural public funding (Schulze and Ursprung 2000; Getzner 2004; Potrafke 2010). Thus, considering that governments adapt spending to their voters' preferences (Drazen and Eslava 2010), right-wing incumbents will probably finance culture as a way to satisfy their high-income voters. It is not surprising that some empirical works find an anti-wealth redistribution effect, with high-income people benefiting from government-funded cultural activities (Grampp 1989; Throsby 1994; Frey 2003). From this point of view, government funding of culture would favor high-income people, compared to health, education, or social assistance, which would benefit low-income people. This could make left governments replace culture spending with other wealth redistribution policies (Potrafke 2010).

According to the literature, the impact of ideology on culture spending is ambiguous (Getzner 2002). Schulze and Rose (1998) and Potrafke (2011) show that in Germany right governments support culture to a higher extent than left municipal and state governments, respectively. However, Stastna (2009) finds the opposite relationship in Czech local governments. Finally, no impact of ideology on culture was found in Austria (Getzner 2002), Flemish local governments (Werck et al. 2008) or German municipalities (Wert 2006).

**2.3.1.2 Political strength** According to Alt and Lowry (1994), there are two theoretical approaches on the relationship between political strength and fiscal policies. On the one hand, Roubini and Sachs (1989) show that coalition governments face higher deficits than majority, no-coalition governments. According to these two authors, no-majority governments, weakened by internal conflicts, are influenced by interest groups, which leads to spending increases. This literature coined this hypothesis as the “Roubini and Sachs weak government hypothesis” (RSH). On the other hand, Alesina and Rosenthal (1995) and Jones et al. (1997) suggest that divided governments’ political disagreement hinders budget modifications, which reduces the impact on fiscal policies.

Stastna (2009), Getzner (2002) and Werck et al. (2008) find no effect of government fragmentation on cultural spending.

### 2.3.2 Socioeconomic factors

**2.3.2.1 Income** According to Wagner’s Law, the increase in the public sector size is a consequence of an increase in the income, provided that income elasticity of demand for public goods is greater than unity (Wagner 1958). Following Wagner’s Law, Getzner (2002) posits that income increases will lead to an increase in public spending on culture. A different approach is adopted by Schulze and Rose (1998), who assert that income has a positive effect on public investment in culture. According to the idea that voters’ preferences determine parties’ policies, these authors base their assumption on the fact that high-income people appreciate culture activities to a higher extent (Bille Hansen 1997; Throsby and Withers 1986). This theoretical statement has been empirically confirmed by Getzner (2002), Wert (2006) and Lewis and Rushton (2007).

Although the majority of the empirical literature supports the theoretical assumptions, Schulze and Rose (1998) show a negative impact of income on culture spending, and Werck et al. (2008) do not find it significant.

**2.3.2.2 Unemployment** Getzner (2004) states that citizens’ support for culture spending will be lower as unemployment increases, due to the positive income elasticity on demand of cultural goods. Lewis and Rushton (2007) and Werck et al. (2008), in turn, do not find that relationship significant. An explanation for this could be that unemployed people have a lower opportunity cost of time, and accordingly, they are expected to demand more culture.

**2.3.2.3 Age structure of population** The literature on cultural economics argues that a bequest value might be assigned to art which leads people to behave altruistically toward future generations. In other words, people might support public funding of culture in order to preserve cultural heritage for future generations (Frey 2003; Bille Hansen 1997; Schulze and Ursprung 2000). Schulze and Ursprung (2000) argue that people with small kids are more likely to exhibit this intergenerational altruism because they are more interested in taking future generations into account. Therefore, we expect an increase of support for public

funding of culture in populations with a high proportion of young people. This relationship has been found by Getzner (2004), who studies the determinants of voting behavior in a referendum on the construction of a theater in Austria. According to the approach of Schulze and Ursprung (2000), Getzner suggests that the approval rate is higher in populations with a high proportion of young people due to the perception of the value of cultural heritage. Nevertheless, the fact of being a parent not only enhances the concern about the future of cultural heritage but it also reduces the time available to attend cultural events (Rushton 2005). Therefore, the opportunity cost of parental time might counteract the effect of bequest value, thereby reducing overall support for government intervention and spending on culture in populations with a high percentage of young people (Werck et al. 2008). Accordingly, the influence of the share of young people on cultural spending has not been clearly determined in the literature. There are studies that show a positive relationship (Stastna 2009), no significant results (Kushner et al. 1996; Werck et al. 2008), and a negative impact (Noonan 2007).

Regarding the effect of the share of elderly population on public cultural spending, some authors show a positive relationship. For example, Stastna (2009) indicates that the higher the percentage of elderly inhabitants, the greater the expenditure on culture, sport, and leisure. Werck et al. (2008) come to the same conclusion for the case of municipal spending on culture. In both studies, the authors attribute their results to the low opportunity cost of time of elderly people. This is the reason why, according to Schulze and Ursprung (2000), elderly citizens will be willing to support public financing of cultural activities.

Finally, the effect of the age pyramid on other expenditure categories might indirectly affect public spending on culture. Borge et al. (1995) show that a high percentage of young people reduce spending on cultural services because it increases education spending. Likewise, a high proportion of elderly increases elderly care spending, which in turn triggers cultural spending trims. These authors state that due to budgetary constraints, an increase in one sector should be financed by a reduction in another sector.

*2.3.2.4 Education* Theoretical arguments suggest that educational level increases the enjoyment of culture and art. First, cultural consumption has been defined as positively addictive—the more cultural goods are consumed over time, the higher the marginal utility (Throsby 1994). The more culture people consume, the more they understand and enjoy it. This process of capital consumption accumulation is more rewarding for individuals with higher educational levels, since they obtain and decode information more easily (Schulze and Rose 1998; Schulze and Ursprung 2000).

Second, highly educated individuals are expected to appreciate culture to a higher extent because they have been exposed to an environment in which it is valued. For example, a university graduate has had to experience peer pressure to attend arts events (DiMaggio and Useem 1978).

Finally, better-educated people often have parents with high educational attainment. It is likely that better-educated children have been exposed to culture



in their childhood and that early socialization influences their assessment of culture when they become adults (DiMaggio and Useem 1978).

Undoubtedly, the greater value which highly educated people give to culture may explain why they are more favorable to public spending in this area. Schulze and Ursprung (2000), Getzner (2004), and Rushton (2005) show that education is one of the main factors that explains the support for public funding of culture in referendums on this issue. Brooks (2001) and DiMaggio and Pettit (1999) obtain similar results when they analyze public preferences through surveys. Finally, contingent valuation studies have also confirmed that willingness to pay for culture is higher among people with higher education (Bille Hansen 1997; Throsby and Withers 1986).

Although this literature shows that highly educated people have a more favorable attitude toward culture and its public funding, most authors have found no significant influence of education on cultural public expenditure (Lewis and Rushton 2007; Noonan, 2007; Schulze and Rose 1998; Stastna 2009). An exception to this pattern could be Werck et al. (2008), who show that educational level has a positive and significant impact on municipal cultural spending.

Furthermore, the effect of education on culture spending may depend on the level of the government. Brooks (2001) shows that education level is positively correlated with the support to local financing of culture, but not when upper governments do it. The fact that local public funding is particularly visible in cultural events contributes to an increased support from highly educated individuals, who mostly attend these events.

### 2.3.3 Geographical factors

**2.3.3.1 Population density** The effect of population density on municipal culture spending is ambiguous. On the one hand, in high population density municipalities, the distance people need to travel to attend cultural events is lower. Since this distance discourages attendance to cultural events (Schulze and Ursprung 2000; Getzner 2004), it is likely to decrease demand and spending in lower population density municipalities (Withers 1979). This relationship has been found by Stastna (2009), Borge et al. (1995), and Aaberge and Langørgen (2003). On the other hand, higher population density may lead to economies of scale in the provision of cultural services. In this case, municipal cultural spending per capita will be lower in more densely populated areas. The existence of economies of scale could explain the significant negative relationship that Werck et al. (2008) find between population density and municipal spending on culture in Flanders.

**2.3.3.2 Population** It is generally assumed that larger local governments receive higher demands for public spending from their citizens (Ashworth et al. 2005). Werck et al. (2008) extend this assertion to public spending on culture and also provide another theoretical argument to explain the positive impact of population size on public expenditure in this area. The basic idea is that, since more populated

cities have a central role in relation to cultural public goods, it can be expected that their cultural spending per capita be higher than smaller cities. In this regard, Schulze and Rose (1998) find that public orchestras' funding increases with population size. Stastna (2009) shows that population is positively related to culture spending, sport and leisure, which demonstrates that cultural life is concentrated in large cities. Similarly, Wert (2006), Borge et al. (1995), and Werck et al. (2008) conclude that population has a significant positive impact on culture.

#### 2.3.4 *Financial factors*

Krebs and Pommerehne (1995) were the first who considered that government support for culture might be influenced largely by the financial resources available. These authors show that public subsidies to arts institutions depend on the public donor's financial situation. In this sense, Werck et al. (2008) suggest that the level of debt and government transfers received from higher levels are good indicators of the financial situation of the municipality.

**2.3.4.1 Debt** Schulze and Rose (1998), Werck et al. (2008), and Potrafke (2011) use the level of debt to explain the behavior of public spending on culture. Schulze and Rose (1998) argue that public funding of orchestras depends on the budget constraint that is measured by the level of debt, because it limits the city's ability to raise new loans and restricts the resources to service debt. In other words, they assume that government support for local orchestras is negatively related to the level of debt. Werck et al. (2008) adopt a similar approach, that is, it is likely that higher levels of historic debt lead to lower levels of public goods in the current period since the current budget repays the debt. Potrafke (2011), in turn, fails to demonstrate empirically the negative impact of debt on cultural spending.

**2.3.4.2 Transfers** Transfers received from upper-level governments are another factor that may impact public cultural spending. Werck et al. (2008) show that transfers positively impact municipal spending on culture. This effect was expected by these authors, because local governments tend to provide more public goods when they can be financed, at least in part, through transfers, since the perceived cost of that spending is lower for taxpayers. Stastna (2009) also uses this variable as a measure of the current budget constraint. However, her results do not show a significant relationship between transfers and expenditure on culture, sport, and leisure.

### 3 Public cultural expenditures in Spain

The 1978 Spanish Constitution sets three administrative levels: central government, autonomous regional governments, and municipalities. All three government levels have competences in culture spending.

On the one hand, local governments have duties on local heritage, cultural activities, amenities, and leisure and free time activities. The law requires municipalities over 5,000 inhabitants to provide library services. Moreover, local authorities can also promote complementary activities to those provided by other government levels and particularly those related to culture. In reality, local authorities have a considerable scope to encourage cultural activities. In 2008, cultural activities accounted for 2.9 % of GDP, EUR 7,111 million (0.66 % of GDP) corresponding to public administrations: 15 % central governments, 30 % regional governments, and 55 % local governments.<sup>1</sup> Therefore, Spanish municipalities are the main public investors in culture. Local authorities over 5,000 inhabitants are only obliged to provide library services. However, the fact that they develop most of the cultural expenditure can only be explained by their proximity to citizens and the political compensation of such activities (Real Instituto Elcano 2004).

On the other hand, while local authorities are important for cultural activities, no resources are transferred from the Central and Regional Administration to municipalities. Thus, cultural spending decisions are up to local politicians due to the lack of both financial aid from upper governments and legal obligations on how much they should spend on culture. Thereby, it could be considered mainly a discretionary category of expenditure. In fact, differences in municipalities' cultural spending show the level of autonomy local governments have over cultural policies. This is why some municipalities spend around 10 % of their annual budget on culture, while others devote a much lower percentage (2008 average was 6.30 %). In short, Spanish municipalities have enough autonomy on cultural issues to create PBC.

## 4 Econometric procedure

### 4.1 Model

Following the theoretical framework, we analyze the determinants of municipal cultural spending by estimating an autoregressive panel data model. This model has been used by the PBC literature (Blais and Nadeau 1992; Kneebone and Mckenzie 2001; Veiga and Veiga 2007; Drazen and Eslava 2010) and also by the literature on determinants of cultural expenditure (Krebs and Pommerehne 1995; Getzner 2002; Noonan 2007) to account for the persistence of spending decisions.

The lagged dependent variable as regressor ( $y_{it-1}$ ) controls for the inertia in spending. The model specification is:

$$y_{it} = \alpha y_{it-1} + \sum \beta_j x_{jit} + c_i + \varepsilon_{it} \quad (1)$$

where  $y_{it}$  is the dependent variable and  $y_{it-1}$  is the lagged value of the dependent variable.  $x_{jit}$  is the vector of explanatory variables,  $\beta$  is a vector of parameters to be estimated, and  $c_i$  (unobserved heterogeneity) is designed to measure unobserved characteristics of the local governments that have a significant impact on local

<sup>1</sup> Source: Spanish Ministry of Culture database.

governments' cultural spending. They vary across municipalities but are assumed to be constant for each municipality. Finally,  $\varepsilon_{it}$  represents random disturbances.

The existence of individual effects ( $c_i$ ) in dynamic panels implies that OLS estimates are inconsistent even if the error term ( $\varepsilon_{it}$ ) is not serially correlated, since the lagged dependent variable is correlated with the individual effect ( $c_i$ ). A possible solution would be to use the estimator proposed by Anderson and Hsiao (1981) in which the individual effects ( $c_i$ ) are eliminated by first differencing the model and then using  $\Delta y_{i,t-2} = y_{i,t-2} - y_{i,t-3}$  or just  $y_{i,t-2}$  as an instrument for  $\Delta y_{i,t-1} = y_{i,t-1} - y_{i,t-2}$ . Both  $\Delta y_{i,t-2} = y_{i,t-2} - y_{i,t-3}$  and  $y_{i,t-2}$  are valid instruments given that they are not correlated with  $\Delta \varepsilon_{it} = \varepsilon_{it} - \varepsilon_{i,t-1}$  as long as  $\varepsilon_{it}$  are not serially correlated. Arellano and Bond (1991) argue that, by utilizing the orthogonality conditions that exist between lagged values of the dependent variable and the error term ( $\varepsilon_{it}$ ), it is possible to obtain additional instruments in dynamic panels. Specifically, these authors state that a valid set of instruments for  $\Delta y_{i,t-1} = y_{i,t-1} - y_{i,t-2}$  is  $(y_{i1}, y_{i2}, \dots, y_{i, T-2})$ .<sup>2</sup> Similar sets of instruments are also used for elements of the vector of explanatory variables ( $x_{jit}$ ) that are considered to be endogenous or at least predetermined (Roodman 2009). We use Arellano and Bond's GMM estimator because it is more efficient and it uses more information than Anderson and Hsiao (1982).

In addition, to test our estimation consistency, we show the test for the absence of second-order serial correlation proposed by Arellano and Bond (1991). Likewise, we present the Hansen test for over-identifying restrictions, which tests the absence of correlation between the instruments and the error term (this is a test on instruments' suitability).

In our model, all regressors except dummy variables are treated as endogenous. The reason is that decisions about how much to spend on culture may be influenced by the same random disturbances that affect municipal socioeconomic indicators such as unemployment rate, indebtedness, income, and educational level. In this respect, Cárdenas and Sharma (2011) argue that the variables transfers, municipal debt, and income are potentially endogenous in a model of municipal spending determination given the existence of bidirectional causality. That is, not only do these variables affect spending but also they get influenced by spending in turn. These authors state that, for example, the variable income is potentially endogenous as an increase in spending is likely to increase revenue effort. It is possible that as spending increases, municipal debt might increase since local governments may try to finance the increased spending by borrowing. An increase in spending is also likely to influence transfers received because both of them may be correlated with the unobserved features such as overall economic performance. Specifically, these explanatory variables are likely to be correlated with the error term. The unemployment rate is another independent variable in our model that may be correlated with the overall performance of the economy, and accordingly, it should be treated as endogenous.

Moreover, it is important to note why the variables *youth*, *elders*, *education*, *urban*, and *population* (see Table 1 for their description) are considered to be

<sup>2</sup> See Baltagi (2001).

endogenous. On the one hand, according to Tiebout (1956), citizens move to municipalities that best satisfy their demands for local public services. Accordingly, it is expected that families with small kids, elders and highly educated individuals choose to locate in municipalities that spend more on culture since they are assumed to be more in favor of public funding of culture. Public investment in culture may increase the educational level of the population which may also explain the bidirectional causality between the variable *cultural exp* and *education* (see Table 1 for their description). On the other hand, if a municipality spends more on culture, it may attract a large number of residents, which involves an increase in both population and population density.

## 4.2 Sample

The sample consists of all municipalities from the Spanish Region of Murcia for 1995–2008. In this 14-year period, four municipal elections took place.<sup>3</sup> Due to its features, the Region of Murcia is very representative of the Spanish municipalities. On the one hand, it is composed of a small number (45) of relatively large municipalities. On the other hand, we find an appropriate variability of municipal characteristics, since, for example, it has one of the largest municipalities in Spain in terms of km<sup>2</sup> (Lorca), together with a municipality with one of the highest population densities in Spain (Alcantarilla).

Working with subnational data has two main advantages: data features and PBC adequacy to this level of government.

Regarding data features, studies focused on national data usually take one country or a sample of countries. In the former case, the number of observations is small. In the latter, an international comparison is possible, with an increase in observations. However, the problem of institutional differences among countries arises. For example, with respect to public spending on culture, Van der Ploeg (2006) argues that little reliable data exist for Europe on a comparable basis. Subnational samples solve both problems, because local and regional electoral data provide more observations than national elections (Rogoff 1990). Besides, the institutional background is homogeneous, compared to samples of different countries.

In respect of PBC adequacy, some authors suggest that the subnational scope is the most suitable for testing PBC theories. For example, Kneebone and Mckenzie (2001) posit a stronger PBC in subnational governments, because they cannot use monetary policy, but just fiscal manipulation to influence voters. Furthermore, Balerias and Costa (2004) think that under democratic rules, administration positions are subject to turnover rates higher than elsewhere in the economy. Incumbents who fail to be re-elected in general have no certain employment prospects in other public sector offices. These people must find an alternative job in case they are not re-elected. It therefore seems quite reasonable to expect rational incumbents to bear in mind outside income (that is, income earned outside the

<sup>3</sup> Elections dates: in May 1995, June 1999, May 2003 and May 2007. Elections were always held on the same day for all municipalities.

public sector). This behavior is particularly plausible at the local rather than the central government since the uncertainty regarding future political appointments is greater for local than for higher-rank politicians.

#### 4.3 Variables

The dependent variable of our model is municipal per capita expenditure on culture (*culturalexp*). This category of spending includes creation, maintenance, and operation costs of buildings intended to be used as libraries, museums, archives, cultural centers, cultural activities, day centers offering leisure and free time activities for senior citizens or youth centers; exhibition halls, conference centers, zoos, music bands, concerts and festivals, as well as costs regarding recreational activities on beaches, preservation of historical and artistic heritage and other cultural and recreational expenditures; together with transfers to third parties who collaborate in promoting these activities.

To determine whether incumbents generate PBC, we define three dummy variables: *electoral year* (election year-1, otherwise-0), *electoral year + 1* (1 year after election-1, otherwise-0), and *electoral year + 2* (2 years after election-1, otherwise-0). This approach, adopted by Golden and Porteba (1980), Alesina (1988), Blais and Nadeau (1992), and Foucault et al. (2008), allows us to analyze each year of the cycle separately, compared to the traditional method with just one dummy variable: no election year-0, election year-1.

In addition to the above variables, it is also necessary to control for other relevant political, socioeconomic, geographical, and financial variables, in agreement with the literature. First, we control for mayors' political ideology and political strength by defining the variables *left* and *minority*, respectively. The variable *left* takes value 1 when the mayor's political ideology is left and 0 when it is right, the variable *minority* takes the value 1 if the municipal government is made of a coalition of two or more political parties and 0 otherwise. Second, we control for the income level (*income*), the unemployment rate (*unemployment*), the proportion of population aged under 15 (*youth*), the share of population aged over 65 (*elders*) and the educational level of the citizens (*education*) because these socioeconomic factors may affect the demand for cultural spending. This last variable is measured as the proportion of population with at least second-degree studies. Third, we include geographical variables such as population density (*urbanen*) and population of the municipality (*population*) as control variables. Finally, we control for the financial situation of the municipality by including the municipal debt (*debt*) and the State and Regional transfers received by local governments (*transfer*).

Table 1 shows descriptive statistics of variables, together with the expected sign of variables according to the literature.

Moreover, we investigate whether PBC magnitude depends on four aspects: mayor's ideology, government political strength, re-election run, and electoral competitiveness. With this aim, we include the interaction terms between cycle variables (*electoral year*, *electoral year + 1* and *electoral year + 2*) and variables *left*, *minority*, *no\_reelection*, and *winmargin*. There are some empirical studies in the literature on conditional PBC that include interaction variables in their models.

**Table 1** Definition of variables and descriptive statistics

Variable (Expect sign)	Description	Calculation	Min.	Max.	Mean	SD
Culturalexp	Municipal expenditure on culture per capita (in euros)	Taken from “Estudio Financiero de los Ayuntamientos de la Región de Murcia”	3.52	580.06	91.55	68.25
Electoral year (+)	Dummy election year	Takes value 1 in the election year and 0 otherwise	0	1	0.29	0.45
Electoral year +1 (-)	Dummy election year + 1	Takes value 1 in the year after election year and 0 otherwise	0	1	0.29	0.45
Electoral year +2 (-)	Dummy election year + 2	Takes value 1 in the second year after the election 0 otherwise	0	1	0.21	0.41
Left (?)	Political ideology of the municipal ruling party	Political ideology of the municipal government: progressive/left = 1; conservative/right = 0	0	1	0.27	0.45
Minority (?)	Municipal political strength	Value 1: municipal government is made of a coalition of 2 or more political parties. Value 0: only 1 party forms the government	0	1	0.37	0.48
No_reelection (?)	Dummy for reelection	Value 1: if the mayor does not run for re-election Value 0: otherwise.	0	1	0.19	0.39
Wmargin (?)	Margin of victory of the mayor	The difference between the percentage of votes cast for the mayor’s party and those cast for the largest opposition party.	0.02	54.32	17.76	12.48
Income (+)	Municipal tax revenue per capita as a proxy for income per capita (in euros) <sup>b</sup>	Taken from “Estudio Financiero de los Ayuntamientos de la Región de Murcia”	50.67	684.04	193.26	101.04
Unemployment (?)	Rate of unemployment of the municipality	Taken from “Anuario Económico La Caixa”	0.8	12.4	3.96	1.81
Youth (?)	Share of population aged under 15	Taken from the Spanish National Statistics Institute	6.95	21.73	17.17	2.39
Elders (+)	Share of population aged over 65	Taken from the Spanish National Statistics Institute	9.77	26.25	15.51	3.37
Education (+)	Share of population with at least second-degree studies	Taken from the Spanish National Statistics Institute	23.45	70.08	43.12	6.55

Table 1 continued

Variable (Expect sign)	Description	Calculation	Min.	Max.	Mean	SD
Urbanised <sup>a</sup> (?)	Population density of the municipality	Taken from the Spanish National Statistics Institute	1,127.97	49,649.3	9,497.52	4,363.79
Population (+)	Population of the municipality	Taken from the Spanish National Statistics Institute	559	430,571	27,310.15	60,913.54
Debt (-)	Municipal debt per capita (in euros)	Taken from "Estudio Financiero de los Ayuntamientos de la Región de Murcia"	0	1,126.65	272.95	198.24
Transfer (+)	Regional and central transfers per capita (in euros)	Taken from "Estudio Financiero de los Ayuntamientos de la Región de Murcia"	122.028	1,833.91	339.62	219.53

All € values are 2001 real figures. All budgetary data have been deflated using the consumer price index published by the Spanish National Statistics Institute. In 2002, the Spanish National Statistics Institute introduced a new system for calculating the consumer price index which caused a break in the continuity of the series. In order to maintain the index continuity, this institute provides a link value which converts the consumer price index with base year 1992 (base year in the previous system) to consumer price index with base year 2001 (base year in the current system). The earlier series with base year 1992 was spliced to correspond with the series with base year 2001. Therefore, all budgetary data is presented in constant 2001 €

<sup>a</sup> Urbanised is calculated as population divided by total surface of urbanized km<sup>2</sup>

<sup>b</sup> Unfortunately, there is no income data available for the municipalities in Region of Murcia. Following Schulze and Ursprung (2000), we use tax revenue as a proxy for income



These works examine whether the influence of elections on fiscal outcomes depends on certain factors (Rose 2006; Rose 2008; Von Hagen 2006).

These interaction terms let us analyze four aspects. First, the influence of ideology on opportunistic behavior. Second, whether the intensity of PBC depends on the political support of the mayor. Third, whether looking for re-election influences the incentives of mayors to generate PBC. Fourth, whether expecting close elections leads to greater PBC. We have defined two new variables: *no\_reelection* that takes value 1 if the mayor does not runs for re-election and 0 otherwise and *winmargin*, measured as the difference between the percentage of votes cast for the mayor's party and those cast for the largest opposition party in the upcoming elections.

## 5 Results

### 5.1 Unconditional PBC

The first column of Table 2 shows the results for the basic model.

The estimation results provide evidence that cultural spending is affected by the presence of elections. The positive and significant coefficient of electoral year indicates that in the election year, the per capita cultural spending is 12.33€ higher than in the base year, which in our case is the year before the election (third year after election). The negative and significant coefficients on *electoral year + 2* show that 2 years after elections, there is an adjustment, that is, a decrease in cultural spending. Specifically, in the second year after election, the per capita cultural spending declines by 2.95€. This result contrasts with Nogare and Galizzi (2011), who find that the electoral cycle in Italian municipalities is characterized by a decrease in cultural spending in the election year. They state that this could imply that Italian voters prefer other kinds of public expenditures to cultural expenditure. Figure 1 shows the unconditional electoral cycle in cultural spending. We note that the time path of municipal cultural spending between elections resembles a “V”, which is indicative of the presence of a cycle, according to Alt and Rose (2007).

### 5.2 Determinants of conditional PBC

In Sect. 5.1, we have identified an unconditional PBC in culture spending, that is, a *ceteris paribus* PBC. In this section, we analyze the effect of political ideology, political strength, re-election willingness, and the electoral competitiveness on the magnitude of PBC. This is known as conditional PBC in the literature.

#### 5.2.1 Ideology

The second column of Table 2 reports the results of model 2, which includes the PBC dummy variables (*electoral year*, *electoral year + 1* and *electoral year + 2*) and the interaction terms between these dummies and variable *left*. The effect of the timing of election on cultural spending when a right-wing party is in power is

Table 2 Results (I)

Dependent variable	Culturalxp				
	(1) Basic	(2) Ideology	(3) Political strength	(4) Re-election	(5) Competitiveness
Culturalxp (-1)	-0.07 (0.134)	-12.36 (0.119)	-0.05 (0.317)	-0.18( 0.004)***	-0.11 (0.136)
Left	6.96 (0.628)	6.88 (0.754)	8.09 (0.600)	21.13 (0.280)	42.21 (0.226)
Minority	13.02 (0.446)	-4.44 (0.642)	38.37 (0.063)*	2.99 (0.875)	-28.14 (0.235)
Income	0.07 (0.000)**	0.05 (0.001)***	0.07 (0.000)***	0.05 (0.000)***	0.07 (0.000)***
Unemployment	-4.91 (0.001)***	-5.28 (0.003)***	-6.64 (0.001)***	-13.23 (0.000)***	-6.42 (0.016)**
Youth	-10.54 (0.004)***	-9.44 (0.003)***	-9.29 (0.005)***	-12.15 (0.002)***	-3.99 (0.404)
Elders	-19.10 (0.021)**	-17.04 (0.022)**	-21.22 (0.0003)***	-31.95 (0.001)***	-12.41 (0.138)
Education	-0.17 (0.275)	-0.05 (0.781)	-0.05 (0.761)	0.01 (0.935)	-0.10 (0.458)
Urbaniden	0.0006 (0.661)	0.001 (0.410)	0.004 (0.077)*	0.002 (0.169)	0.002 (0.201)
Population	0.00004 (0.692)	0.0001 (0.255)	0.00004 (0.712)	-0.0003 (0.093)*	-0.0001 (0.458)
Debt	0.02 (0.055)*	0.03 (0.172)	0.05 (0.033)**	-0.03 (0.291)	0.04 (0.218)
Transfer	0.12 (0.000)***	0.12 (0.000)***	0.13 (0.000)***	0.10 (0.001)***	0.11 (0.010)**
No_reelection				-32.79 (0.042)**	
Winnargin					1.85 (0.326)
Electoral year	12.33 (0.000)***	12.14 (0.000)***	21.26 (0.000)***	14.47 (0.000)***	-3.05 (0.780)
Electoral year + 1	-1.18 (0.117)	0.71 (0.613)	3.82 (0.033)**	-7.03 (0.000)***	-18.65 (0.130)
Electoral year + 2	-2.95 (0.006)***	2.44 (0.143)	6.58 (0.000)***	-5.35 (0.032)**	-27.38 (0.002)***
Electoral year* left		-0.70 (0.902)			
Electoral year + 1* left		-11.37 (0.119)			
Electoral year + 2* left		-24.06 (0.001)***			
Electoral year* minority			-37.04 (0.006)***		
Electoral year + 1* minority			-23.20 (0.051)**		
Electoral year + 2* minority			-39.32 (0.000)***		

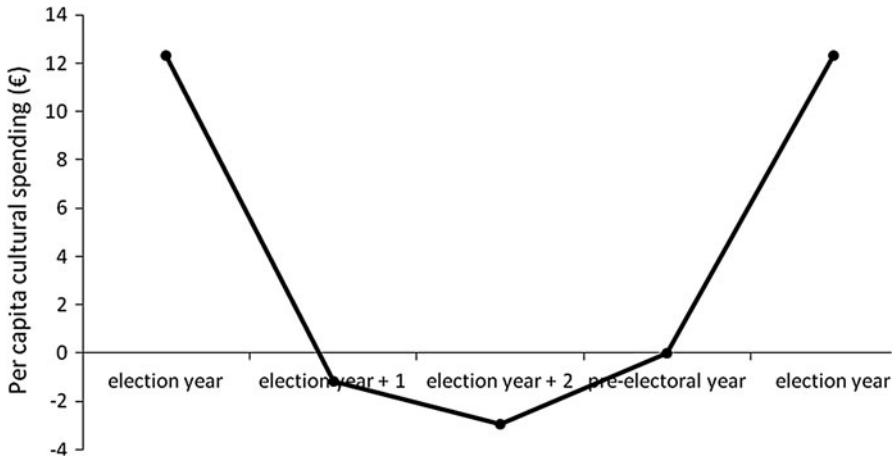
**Table 2** continued

Dependent variable	Culturalexp				
	(1) Basic	(2) Ideology	(3) Political strength	(4) Re-election	(5) Competitiveness
Electoral year* no_reelection				-8.68 (0.361)	
Electoral year + 1* no_reelection				25.77 (0.089)*	
Electoral year + 2* no_reelection				-0.34 (0.983)	
Electoral year* winmargin					0.97 (0.099)*
Electoral year + 1* winmargin					0.89 (0.171)
Electoral year + 2* winmargin					1.29 (0.004)***
m <sup>2</sup> (p value)	0.39 (0.696)	0.33 (0.743)	0.79 (0.429)	0.03 (0.973)	0.54 (0.591)
Hansen (p value)	25.28 (1.000)	22.03 (1.000)	22.84 (1.000)	24.49 (1.000)	25.78 (1.000)
Observations	367	367	367	353	367

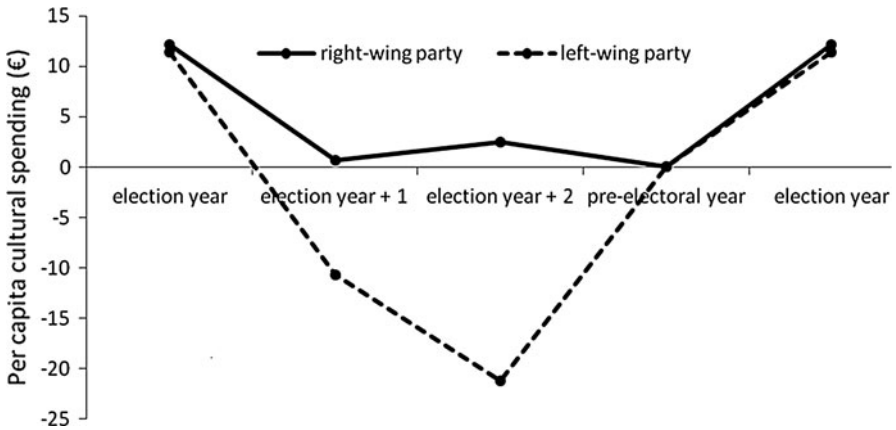
Significance: \*\*\*1 %, \*\*5 %, \*10 %, P values in brackets

The tests applied confirm the goodness of our regressions. Arellano and Bond (m<sup>2</sup>) test confirms that there is no second-order serial autocorrelation. Hansen test for restrictions overidentification shows no autocorrelation between instruments and error term

All variables are treated as endogenous except dummy variables. The first-differenced equation has instruments in form of the endogenous variables in levels lagged by 2 periods



**Fig. 1** Unconditional PBC



**Fig. 2** PBC and political ideology

captured by the coefficients of the PBC dummy variables, whereas election effect on cultural spending when a left-wing party is in office is captured by the sum of PBC dummy variables and interaction terms. The significant coefficient on *electoral year* shows that right-wing mayors increase cultural spending by 12.14€ in the election year. The fact that the coefficient on *electoral year\*left* is not significant implies that the level of cultural spending in the election year in left-wing local governments do not differ significantly from that observed in right-wing local governments. Nevertheless, the significant coefficient on *election year + 2\*left* indicates that when a left-wing party is in power, per capita cultural spending declines by 21.62€ (2.44€–24.06€ = –21.62€) in the second year after election.

Besides, Alt and Rose (2007) state that the magnitude of the electoral cycle is the difference between estimated spending variable at the peak and the trough of the cycle. In this respect, Fig. 2 shows that the cycle is larger (33.06€ from peak to

trough) when a left-wing mayor is in office than when a right-wing mayor is in power (12.14€). Therefore, our results are consistent with those obtained by Kneebone and Mckenzie (2001) and Veiga and Veiga (2007), who also show that ideology influences PBC magnitude.

### 5.2.2 Political strength

The third column (Table 2) presents model 3 coefficients, which test whether political strength impacts electoral cycle. The positive and significant coefficient of *electoral year* suggests that when a majority government is in office, the per capita cultural spending rises by 21.26€ in the election year. Although the coefficients of *electoral year + 1* and *electoral year + 2* are also positive and significant, their values reveal that majority governments only increase per capita cultural spending by 3.82€ and 6.58€ in the year after the election and in the second year after election, respectively.

In contrast, when a minority government is in office, per capita cultural spending declines by 15.78€ ( $21.26€ - 37.04€ = -15.78€$ ) during the election year, as indicated by the significant coefficient on *electoral year\*minority*. Likewise, the per capita cultural spending shrinks by 19.38€ ( $3.82€ - 23.20€ = -19.38€$ ) in the year after the election and declines by 32.74€ ( $6.58€ - 39.32€ = -32.74€$ ) in the second year after election when the mayor’s party does not govern alone.

In summary, as Fig. 3 shows, while majority governments create PBC by increasing culture spending in the election year, divided governments do it in the year before the elections.

### 5.2.3 Re-election

The results of model 4 (fourth column of Table 2), clearly show that mayor’s decision of running for re-election does not determine the presence of the cycle. The

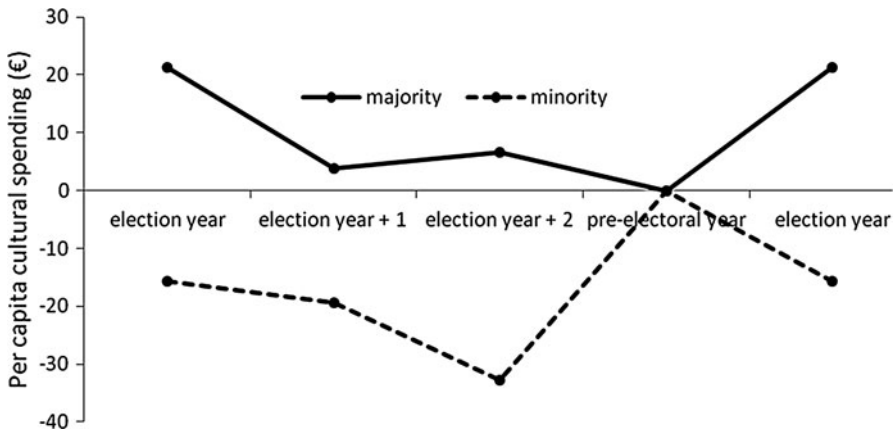


Fig. 3 PBC and political strength

significant coefficients on *electoral year*, *electoral year + 1*, and *electoral year + 2* indicate that mayors who decide to run for re-election increase per capita cultural spending by 14.47€ in the election year and reduce it by 7.03€ and 5.35€ in the year after the election and in the second year after the election, respectively. The coefficients of the interaction terms *electoral year\*no\_reelection*, *electoral year + 1\*no\_reelection*, and *electoral year + 2\*no\_reelection* are not significant at the five percent level, which implies that PBC generated by either lame ducks or mayors running for re-election are not statistically different. Therefore, our data reject the hypothesis of Rosenberg (1992), who states that lame ducks generate a greater cycle than politicians running for re-election, since the former want to improve their chances to find a good job outside politics. Moreover, our results reject the traditional hypothesis which posits that incumbents not running for re-election have fewer incentives to manipulate budget for electoral purposes. Finally, our findings agree with Rose (2006) and Alt and Rose (2007), who find that PBC size does not depend on whether the incumbent runs for re-election.

#### 5.2.4 Competitiveness

We should observe larger PBC when mayors expect close elections, that is, when their win-margin is small. Coefficients of variables *electoral year*, *electoral year + 1*, and *electoral year + 2* show how electoral timing affects cultural spending when mayors' win-margin is zero. All of these coefficients are negative, which indicates that cultural spending in the election year, in the year after the election and in the second year after the election is smaller than cultural spending in the base year, that is, in the previous year to the election. Therefore, our results reveal that when mayors expect absolutely close elections, cultural spending expansion takes place in the previous year to the election. The positive and significant coefficients of the interaction terms (*electoral year\*winmargin* and *electoral year + 2\*winmargin*) indicate that the higher the win-margin, the less pronounced the spending expansion in the previous year to the election is. Hence, these results agree with Aidt et al. (2011) and Alt and Rose (2007): incumbents are more prone to adopt an opportunistic behavior when they expect closer elections.

### 5.3 Determinants of cultural expenditures

#### 5.3.1 Political factors

The ideology variable (*left*) shows that the government's political orientation does not affect cultural spending. Therefore, our data do not support the PPM theory. This finding agrees with the results of Brooks (2003), who shows that ideology does not have an impact on public support for government funding of culture in Spain. In a similar study with US data, Brooks (2001) concludes that people who describe themselves as conservatives tend to be less favorable to public funding of culture than people who describe themselves as progressive. According to Brooks, the difference is that cultural policy in Spain is depoliticized, contrary to what happens in the US. In other words, Spanish political parties keep cultural issues separated

from broader social programs. Moreover, our results are in line with Getzner (2002), Werck et al. (2008), and Wert (2006), who show that political orientation does not influence government decisions on cultural spending.

The non-significance of variable *minority* prevents us from confirming RSH. Getzner (2002), Stastna (2009), and Werck et al. (2008) also find that government strength has no impact on public cultural spending.

Besides, the negative and significant coefficient of variable *no\_reelection* indicates that mayors not running for re-election spend less on culture than those who run for re-election.

### 5.3.2 Socioeconomic factors

Our results support the hypothesis made by Getzner (2002) that public spending on culture is positively correlated with income. The previous literature has shown that high-income people have a more positive attitude toward culture and its public funding. Thus, we can conclude that higher income is connected with an increase in demand for public spending on culture. This result is similar to Wert (2006), Lewis and Rushton (2007), and Getzner (2002).

Our model also controls for the impact of unemployment on public cultural spending. The coefficient of *unemployment* allows us to support the theoretical assumption previously established by Werck et al. (2008). He argues that, given the positive income elasticity of demand for cultural goods, an increase in the unemployment rate causes a decrease in the demand for cultural activities and, therefore, a reduction of public spending on culture. As stated above, the positive sign of the *income* variable would be foreseeing the negative effect of unemployment rate.

The results obtained confirm that age pyramid is an important explanatory factor. With regard to the proportion of young people (*youth*), the estimates reveal that it negatively affects spending on culture. This is in line with the idea that people with minor children have less time available to attend cultural events (Rushton 2005). That is, the level of cultural spending is lower in municipalities where there is a high proportion of youth people as a result of their parents' high opportunity cost of time. Regarding the elders (*elders*), its negative sign may seem surprising, since elderly have more free time to attend cultural events (Werck et al. 2008; Stastna 2009). It is possible that our results disagree with previous studies because of the low educational level of the Spanish elderly. Only 20 % of people over 65 have finished, at least, second-degree studies. Since education is considered one of the major determinants of public spending on culture, it is expected that the level of cultural spending is lower in the municipalities with a higher share of elderly in the population, given their low education level. Furthermore, the fact that we do not set an upper limit to define the variable *elders* (proportion of population over 65) implies that we are including people who may be too old to attend cultural events. This aspect was taken into account by Schulze and Ursprung (2000) because their data allowed them to consider only the proportion of population between 65 and 79 years.

We find that citizens' education level (*education*) has not impact on cultural spending. Consequently, this is not consistent with the theoretical assumption that educated individuals have a more positive attitude toward culture. Nevertheless, our findings are in agreement with those obtained by most empirical studies on the relationship education-public spending on culture, which have not found significant results (Lewis and Rushton 2007; Noonan 2007; Schulze and Rose 1998; Stastna 2009).

### 5.3.3 Geographical factors

Population density (*urbanen*) does not have an effect on cultural spending. Therefore, our results do not reveal the presence of economies of scale in cultural services. Furthermore, although most previous literature has established a positive relationship between population and cultural spending (Borge et al. 1995, Schulze and Rose 1998; Wert 2006; Werck et al. 2008; Stastna 2009), our data indicate that municipality population (*population*) has no significant effect.

### 5.3.4 Financial factors

Although municipal debt was expected to have a negative effect on public spending on culture, the estimated coefficient for *debt* is not significant at the five percent level. In contrast, transfers received affect cultural spending. The positive sign of *transfer* indicates that municipalities raise spending on culture as transfers received increase. This result agrees with Werck et al. (2008), who show that transfers lead to increased spending on cultural policies. The models are estimated using GMM methods, which control for biases due to unobserved firm-specific effects and endogenous explanatory variables.

Finally, the coefficient of the lagged dependent variable is not significant, which indicates that cultural spending in a particular year does not depend on [the] previous year's cultural spending. The lack of both upper governments' financial support and legal determination of municipal culture spending makes that cultural spending be considered a discretionary category of expenditure. This may explain why we do not find a high level of persistency in cultural expenditures.

As noted above, although previous studies have shown that budget figures usually follow an incremental approach (see Dezhbakhsh et al. 2003), the coefficient of the lagged dependent variable was not found to be significant. Accordingly, to test the robustness of our results, we reran Table 2 regressions without the lagged dependent variable, and the results are shown in Table 3. The models in Table 3 are estimated using GMM method to control for explanatory variables' potential endogeneity. It is important to use an estimator that controls this source of bias since, as noted in Sect. 4.1, all regressors except dummy variables are treated as endogenous. As shown in Table 3, results do not change substantially when we drop the lagged dependent variable from our models. This confirms the robustness of our estimations.



**Table 3** Results (II)

Dependent variable	culturalexp				
	(1) Basic	(2) Ideology	(3) Political strength	(4) Re-election	(5) Competitiveness
Model					
Left	12.13 (0.662)	0.94 (0.957)	-11.16 (0.769)	27.71 (0.180)	7.41 (0.812)
Minority	-6.77 (0.758)	21.82 (0.260)	26.73 (0.341)	34.48 (0.460)	2.19 (0.937)
Income	0.07 (0.000)***	0.07 (0.000)***	0.07 (0.000)***	0.06 (0.000)***	0.07 (0.000)***
Unemployment	-11.19 (0.000)***	-10.03 (0.000)***	-8.45 (0.000)***	-18.71 (0.000)***	-10.59 (0.000)***
Youth	-11.31 (0.001)***	-11.34 (0.002)***	-7.37 (0.074)*	-4.96 (0.061)*	-6.67 (0.220)
Elders	-29.09 (0.000)***	-26.57 (0.000)***	-19.63 (0.009)***	-28.02 (0.009)***	-20.76 (0.066)**
Education	-0.22 (0.028)**	-0.21 (0.129)	-0.27 (0.129)	0.13 (0.422)	-0.18 (0.252)
Urbaniden	0.002 (0.075)*	0.004 (0.053)*	0.001 (0.583)	0.004 (0.011)**	0.004 (0.136)
Population	-0.0002 (0.784)	0.00002 (0.811)	0.0001 (0.161)	-0.0003 (0.063)*	-0.0001 (0.489)
Debt	0.11 (0.000)***	0.11 (0.000)***	0.08 (0.018)**	0.04 (0.157)	0.10 (0.002)***
Transfer	0.07 (0.001)***	0.08 (0.000)***	0.09 (0.000)***	0.07 (0.006)***	0.05 (0.134)
No_reelection				-72.83 (0.000)***	
Winnargin					1.16 (0.431)
Electoral year	10.23 (0.000)***	9.58 (0.000)***	13.73 (0.000)***	8.11 (0.000)***	-4.91 (0.584)
Electoral year + 1	-1.10 (0.259)	-0.40 (0.804)	2.26 (0.184)	-13.54 (0.000)***	-19.03 (0.017)**
Electoral year + 2	-4.57 (0.000)***	-0.21 (0.904)	0.27 (0.886)	-9.61 (0.001)***	-23.60 (0.000)***
Electoral year* left		-3.07 (0.746)			
Electoral year + 1* left		-4.68 (0.516)			
Electoral year + 2* left		-13.71 (0.026)**			
Electoral year* minority			-18.51 (0.115)		
Electoral year + 1* minority			-20.24 (0.149)		
Electoral year + 2* minority			-18.60 (0.090)*		
Electoral year* no_reelection				2.87 (0.781)	

Table 3 continued

Dependent variable	culturalexp				
	(1) Basic	(2) Ideology	(3) Political strength	(4) Re-election	(5) Competitiveness
Electoral year + 1 * no_reelection				53.71 (0.002)***	
Electoral year + 2* no_reelection				17.52 (0.241)	
Electoral year* winmargin					0.93 (0.034)**
Electoral year + 1 * winmargin					0.91 (0.037)**
Electoral year + 2* winmargin					1.08 (0.000)***
m <sup>2</sup> (p value)	1.26 (0.207)	1.44 (0.149)	1.02 (0.310)	1.05 (0.292)	1.37 (0.170)
Hansen (p value)	25.07 (1.000)	20.75 (1.000)	27.76 (1.000)	26.65 (1.000)	22.97 (1.000)
Observations	429	429	429	403	429

Significance: \*\*\*1 %, \*\*5 %, \*10 %, P values in brackets

The tests applied confirm the goodness of our regressions. Arellano and Bond (m<sup>2</sup>) test confirms that there is no second-order serial autocorrelation. Hansen test for restrictions overidentification shows no autocorrelation between instruments and error term

All variables are treated as endogenous except dummy variables. The first-differenced equation has instruments in form of the endogenous variables in levels lagged by 2 periods

## 6 Conclusions

This paper aims to evaluate the effect of electoral timing on local public cultural spending, within the framework of political budget cycle theories. We use a panel sample of all municipalities from the Spanish Region of Murcia for 1995–2008. Our results confirm the existence of electoral cycles in cultural spending. Mayors behave opportunistically and manipulate this budget item on the election year to influence voters. This result is in line with the theoretical assumption that election-motivated incumbents prefer policies that can be targeted to voters, adjusted over time, easily manipulated, noted by voters, and attributable to incumbents (Franzese and Jusko 2006). Local cultural spending fulfills these criteria for three reasons. First, cultural policy is one of the few areas where local politicians have total autonomy to decide. Second, its effects are clearly perceived by voters. Third, the fact that municipalities do not receive earmarked transfers to be spent in culture makes this type of expenditure be attributable to local governments.

The paper also analyzes the effect of 4 factors, namely, political ideology, political strength, re-election willingness, and the electoral competitiveness, on the magnitude of the political budget cycle. First, the electoral cycle is larger under left-wing governments than under right-wing ones. Second, we find that the opportunistic expansion takes place in the election year when the mayor's party governs alone, whereas such expansion takes place in the previous year to the election when a minority government is in office. Third, mayor's decision to run for re-election does not determine the presence of electoral cycles. Finally, mayors generate larger cycles when they expect closer elections, that is, when their win-margin is small.

Our results also show that spending on culture does not depend on government's ideology or strength. Getzner (2002) and Werck et al. (2008) likewise find that these political variables do not affect cultural spending. Nonetheless, we have found that mayors who run for re-election spend more on culture than those who do not.

We find that income has a positive impact on cultural spending, which was expected, since previous studies have shown that high-income people have a more positive attitude toward culture and its public funding.

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