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DETERMINANTS OF PUBLIC SPENDING AT THE SUBNATIONAL LEVEL: A COMPARISON OF POLISH AND SPANISH LOCAL GOVERNMENTS

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Abstract

This study provides a unique comparison between Polish and Spanish local governments with respect to the impact of various political factors on the size and composition of public expenditure. In particular, it aims at verifying the existence of political business cycles as well as partisan effects in the analyzed states at the subnational level. Additionally, the role of fiscal autonomy in shaping the spending decisions and its effect on the magnitude of opportunistic behavior of mayors are also investigated. For the purpose of an empirical research, panel data analysis is applied and a set of equations is estimated separately for each of the countries. Apart from examining total expenses, the level of expenditure on public goods perceived as potentially highly visible to the voters is also considered. The results confirm the hypothesis of an increased spending, both in the aggregate terms and in particular categories, during the pre-election periods. Also, in Poland and Spain higher degree of fiscal authority granted to lower tiers of public administration corresponds to a decrease in the size of public sector. Finally, an evidence of an intensified opportunistic behavior of politicians in the light of greater fiscal autonomy is found.

Resumo

Este estudo apresenta uma comparação única entre os governos locais de Espanha e Polónia no que diz respeito ao impacto dos vários fatores políticos na dimensão e composição da despesa pública. Em particular, o estudo centra-se em verificar a existência de ciclos políticos bem como de efeitos partidários nos países sobre análise, a um nível local. Adicionalmente, o papel da autonomia fiscal enquanto elemento influente nas decisões sobre gastos públicos e no grau de oportunismos dos decisores políticos são também investigados. Para o propósito da analise empírica, é utilizado dados de painel e o grupo de equações é estimado de forma separada para cada um dos países. Para além de analisar a despesa total, o nível de despesa em bens públicos percebido como potencialmente elevado pelos votantes é também considerado. Os resultados confirmam a hipótese de um nível crescente de despesa publica, tanto em termos agregados como em categorias particulares, durante os períodos pré-eleitorais. Também, em Espanha e na Polónia um grau elevado de autonomia fiscal garantida para os nível baixos da administração pública corresponde a um decréscimo do tamanho do sector público. Finalmente, são encontradas evidencias de intensificação do comportamento oportunista de políticos em ambientes de maior autonomia fiscal.

Palavras-chave

ciclos político-económicos, descentralização, autonomia fiscal, despesa pública

JEL Classificação: D72, H72

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Introduction.

After a long series of failures of a centralized state experienced by a number of countries in the years following the World War II, last decades witnessed a renewed popularity of fiscal decentralization (World Bank, 1997). Both researchers and policymakers worldwide have engaged in a vigorous debate on the possible benefits stemming from the devolution of public functions, including revenue raising and spending decisions, to the lower tiers of government. Theoretically, this phenomenon is considered to be an effective tool in enhancing efficiency in the provision of public goods as well as boosting economic growth (Zhang and Zou, 1998). Nonetheless, the odds are that higher degree of power in the hands of subnational governments will translate into an increased incentive of local administration units to manipulate fiscal budgets with an aim of achieving their personal goals. For instance, *political business cycles* may arise, with incumbent mayors increasing the fiscal aggregates or channeling more resources to areas most visible to their constituencies in pre-election periods in order to gain more votes in the upcoming elections. Due to a huge relevance of government's spending decisions for social welfare and inequalities as well as economic growth, it is undeniably important to understand whether the size and composition of public expenditure at the local level is shaped by political factors.

The main goal of this study is to empirically verify the existence of electoral business cycles in Polish and Spanish local governments, both at the aggregate level and with respect to those categories of public spending that are viewed as potentially highly visible to the voters, such as education, health care, infrastructure and culture. Additionally, it intends to investigate the impact of fiscal autonomy on the size of municipal expenditure and the magnitude of opportunistic cycles. The choice of countries considered in the analysis was dictated by the willingness to compare two seemingly similar European states that differ in terms of their economic situation and fiscal discipline in the light of the recent financial crisis.

This research makes a significant contribution to the existing literature in a number of ways. First and foremost, despite an abundance of empirical papers covering the concept of fiscal federalism and the phenomenon of political business cycles, there are few studies treating those issues simultaneously and investigating the impact of fiscal autonomy on the magnitude of opportunistic behavior of ruling politicians. Also, due to huge disparities between individual countries with respect to the scope of local responsibility for particular public goods, most of the literature explores the topic of political business cycles solely for one state at a time. This study not only provides a unique comparison between two countries but also

concentrates on those economies for which the issue in question is not yet well explored. It is also worth mentioning that, compared to other papers discussing the phenomenon of political business cycles, this research encompasses a wide range of socioeconomic, geographic and political factors as well as employs an extensive dataset and a high degree of public expenditure disaggregation. Finally, it also investigates an impact of the recent economic crisis on the fiscal discipline and budget composition in Polish and Spanish local governments.

Based on theoretical models concerning the political budget cycles and empirical evidence related to this phenomenon, the main hypothesis put forward in this study states that in pre-election periods there is a tendency among Polish and Spanish mayors to manipulate fiscal instruments in order to increase the likelihood of being reelected. What is more, it is expected that higher degree of fiscal autonomy held by local governments is associated with more intense opportunistic cycles.

The empirical results confirm an existence of political business cycles in Polish and Spanish municipalities, visible in a tendency among mayors to increase total spending as well as expenditure on the most visible public goods prior to the elections. Also, in both states greater level of authority granted to lower tiers of government corresponds to a decrease in the size of public sector. Finally, an evidence of an intensified opportunistic behavior of incumbent politicians in the light of greater degree of fiscal autonomy is generally found.

This work is organized as follows. In Section 1 the theory of fiscal federalism as well as institutional background regarding the decentralization process and fiscal systems in Poland and Spain are introduced. In Section 2 the theoretical models related to the phenomenon of electoral budget cycles are presented and a review of empirical literature covering this topic is provided. Section 3 comprises the description of the dataset, a specification of an econometric model as well as empirical results of the research together with their interpretation. The last section summarizes the study and offers some policy implications.

1. Institutional framework.

Decentralization, which stands for the devolution of authority and responsibility for public functions from the central government to its lower tiers, has recently witnessed a great deal of attention from both academics and policymakers all over the world (Davoodi and Zou, 1998; Kis-Katos, 2014; Oates, 2005). This process may take many different forms including administrative, fiscal, political and market decentralization. In the view of numerous failures of a centralized state, reducing its power by means of transferring the public tasks to the subnational governments is widely seen as a way to increase intergovernmental competition and checks and balances, improve the government's responsiveness to local preferences and needs as well as diffuse social and political tensions (Bardhan, 2002) that may arise due to cultural differences across the regions. From the perspective of this work, the phenomenon of fiscal decentralization, meaning the shift of revenue raising and spending decisions from the central government to local administration units, is of utmost importance. It is believed to enhance efficiency in the public sector, cut the budget deficit and stimulate economic growth both at the local and national level (Davoodi and Zou, 1998; Zhang and Zou, 1998). There is no denying that local governments are much better positioned than the central one to meet citizens' needs in terms of delivery of public goods and services due to their close proximity and the matter of limited anonymity of authorities.

1.1. The Theory of Fiscal Federalism.

The Fiscal Federalism Theory deals with the aspect of economic efficiency under fiscal decentralization. It has become embedded in the public finance theory mainly because of three figures, namely Kenneth Arrow, Richard Musgrave and Paul Samuelson, who have highlighted the role of public intervention in correcting various types of market failures (Oates, 2005). The framework developed in their works assumes that policymakers tend to maximize social welfare either due to their benevolent nature or, more probably, their awareness of the power that is held by electors in a democratic system. The Fiscal Federalism Theory considers, among other things, the distributive consequences of the decentralization process in relation to the provision of public goods and services (Carrion-i-Silvestre *et al.*, 2008). Yet, from the theoretical perspective these effects are rather ambiguous.

According to the Decentralization Theorem developed by Oates (1972), there exist informational advantages on the side of subnational governments regarding the demands of

their constituencies as well as local conditions (e.g. cost functions) and therefore an introduction of the decentralized provision of specific public goods will lead to an enhanced economic efficiency in the allocation of resources (Oates, 2005). It goes without saying that due to a huge heterogeneity among the particular administrative entities in terms of their territorial conditions, level of income and socio-demographic characteristics of the citizens, there might exist differences in the preferences of communities related to the public service delivery. If those discrepancies are not taken into account and instead the services are uniformly distributed between the jurisdictions by the general government, a lower level of economic efficiency may be achieved (Oates, 1972). In addition to the abovementioned asymmetry of information between different tiers of government, there is also an issue of some kind of political constraint that hinders unequal distribution of resources by the state government between various jurisdictions, since it seems somehow unfair for the central government to favor some of the regions over the others[1] (Oates, 2005).

In the model proposed by Tiebout (1956), mobile individuals are incentivized to move to the jurisdictions offering the public goods and tax rates that they perceive as most beneficial (Carrion-i-Silvestre *et al.*, 2008). This, in turn, should stimulate inter-jurisdictional competition leading to an increased responsiveness of local governments to the needs of their constituencies (Tiebout, 1956). Another advantage of the decentralization process concerns the possible improvements in the public sector productivity resulting from an incentive of local governments to innovate in the areas of production and supply of public goods. It is highly probable that using the same level of expenditure, subnational governments will be able to offer a higher quality or greater quantity of outputs than the general one (Carrion-i-Silvestre *et al.*, 2008). Therefore, fiscal decentralization understood as a transfer of authority in terms of budget planning from the state government to the lower tiers of public administration may not only enhance the efficiency of public sector, but also help reduce the budget deficit and trigger economic growth (Carrion-i-Silvestre *et al.*, 2008). One has to bear in mind, however, that the potential welfare gains resulting from the decentralization process are maximized in the light of high homogeneity in terms of preferences within the local entities and huge variation in those preferences across different jurisdictions (Oates, 2005).

On the other hand, there are some circumstances in which the decentralized provision of public services may be seen as less efficient than a centralized one. This may happen in case

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[1] Oates (2005) acknowledges that in reality the general government programs often discriminate against some regions with regard to the level of specific public goods provided.

of existence of externalities such as economies of scale in the production of goods or spillover effects[2] between particular jurisdictions (Prud'homme, 1995; Rothenberg, 1970). In fact, in case of some public goods such as e.g. local roads or clean rivers, there is no denying that they provide benefits for the residents of other jurisdictions too (Oates, 2005). Yet, this issue can be handled by means of introducing unit subsidies from the State to the lower levels of government in order to internalize those benefits and encourage the decentralized governments to extend the outputs to efficient levels. Finally, lack of Pareto efficiency in the distribution of resources under fiscal decentralization may also result from the corruption practices affecting the assignment of tasks between local governments (Carrion-i-Silvestre *et al.*, 2008).

The public choice theory presents a completely different perspective when it comes to the role of fiscal decentralization in public sector. The primary concept of this approach is that public administration authorities are utility maximizing agents that seek to pursue their goals, e.g. maximizing the size of their budgets (Oates, 2005). According to Brennan and Buchanan (1980), central government can be seen as a monopolist intending to maximize the resources derived from the economy. Fiscal decentralization can be thus treated as a tool to limit the expansionary tendencies of the state as well as local public administration (Oates, 2005) provided that subnational governments aim at offering the efficient level of public goods rather than maximizing their revenue (Carrion-i-Silvestre *et al.*, 2008).

Another aspect covered by the Fiscal Federalism Theory is related to the choice of best forms of taxation applied to different tiers of government. There is a widespread concern that the vast application of non-benefit taxes on mobile factors at the decentralized levels of public administration may cause the distortions in both the location and levels of economic activity (Gordon, 1983; Oates, 2005). Therefore, the lowest levels of government should rely primarily on benefit taxes (such as e.g. property tax and user fees) that essentially stand for the price of consumption of local public goods paid by the households (Tiebout, 1956). For an economic efficiency to be achieved, the benefit taxes equal to the marginal cost of delivery of services should be imposed on the mobile agents so that there arises an incentive for households and firms to move to the "best" jurisdiction (Oates, 2005). In case of central and sometimes also provincial governments, the application of other forms of taxes such as e.g.

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[2] One important aspect of the Fiscal Federalism Theory is that it assumes efficient delivery of public services by regional and local governments as long as the spatial benefits of those services do not go beyond the geographical scope of particular jurisdictions (Oates, 2005). It is often referred to as *perfect mapping* or *fiscal equivalence* (Olson, 1969).

progressive income tax is justified due to the necessity of redistribution of income at the higher levels. As far as the redistributive grants from the state government to the lower tiers of public administration are concerned, the literature on fiscal federalism sees them as an essential mechanism that corrects for the distortions in the migration patterns as well as offers necessary aid to the least affluent regions (Oates, 2005). Nonetheless, numerous works emphasize the relevance for the local governments to base the financing of their budgets on their own sources of revenues rather than intergovernmental transfers or debt. This is due to the fact that an increased reliance on external resources may create an incentive for the decentralized governments to extend the public programs far beyond the efficient levels (Goodspeed, 2002; Oates, 2005).

1.2. Fiscal decentralization in Spain.

The introduction of current administrative division in Spain dates back to the late 1970s. when the Spanish Constitution was adopted and brought about the beginning of both democratic period and decentralization process. As a result, we can now distinguish between three levels of government, namely state (central), regional (17 Autonomous Communities) and local (over 8100 municipalities grouped by 50 provinces). A high degree of local fragmentation stems from the fact that the majority of municipalities are very small. In fact, almost 90% of them are inhabited by fewer than 5000 citizens and therefore constitute around 5% of the whole Spanish population (Balaguer-Coll *et al*., 2015; Solé-Ollé, 2006).

The distribution of power between particular levels of Spanish public administration is regulated by the Constitution, the Statutes of Autonomy of 17 regions as well as the Local Government Act. The areas exclusively managed by central government are defense, foreign affairs, economic stabilization and social security in terms of pensions and unemployment subsidies (Carrion-i-Silvestre *et al.*, 2008). When it comes to the level of authority of Autonomous Communities, one has to stress that the fiscal decentralization in Spain is of an asymmetric type. More specifically, we can distinguish between two layers of asymmetry: one pertaining to different fiscal arrangements between two regions that hold historical charters on fiscal and economic issues, namely Basque Country and Navarra, and the rest of Spanish ACs and the other one related to the discrepancies in the responsibilities held by all other regions *(*Garcia-Milà and McGuire, 2002).

As far as the first aspect is concerned, the autonomous financing system of the 17 ACs is established in article 157 of the Constitution as well as the Basic Financing Act of the Autonomous Communities (LOFCA). There are basically two systems, with the first one being instituted solely for the Basque Country and Navarra (the so-called *foral regime*) and the second one being applicable to the rest of the ACs (the *common regime*). Most importantly, the *foral regime* allows the transfer of revenue and administration of most state taxes to the autonomous governments of the two regions and enables them to set rates and bases for the ceded taxes. As a result, administration of major taxes such as income, wealth, corporate and wealth transfers is fully carried out by regional governments under the *foral regime*. In addition to this, starting from 1997 the value added tax is also among those collected and administered by those ACs, yet in this case they are not in power of setting the rates nor defining the *base* (Garcia-Milà *and* McGuire, 2002). *In exchange* for the abovementioned services, the regional governments under the *foral regime* are obliged to issue an annual fee to the central government[3]. In this way, they partially contribute to the State's solidarity fund (*Fondo de Compensacion Interterritorial*) which aims at providing financial aid to the poor regions of the country and stimulating their economic growth through an increased investment spending (Garcia-Milà and McGuire, 2002)[4]. Regarding the fiscal arrangement under the common regime, it has undergone a substantial change throughout the years, especially with respect to the local taxing authority. An initial framework assumed a very limited revenue autonomy of the regions in question, with central government transfers[5] constituting over 75 percent of their revenues. The amount of these grants was assigned to particular ACs depending mostly on the size of population and some other factors differing between the regions with unequal level of responsibilities (Garcia-Milà and McGuire, 2002). What is more, the role of ACs under the common regime in terms of tax collection and administration was also fairly restricted, since they were not permitted to set any tax rates and bases in the early years of their existence[6]. In fact, they gained this authority after the reform in 1997, yet the revenue from these taxes accounted solely for around 4 percent of their total

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[3] This payment is referred to as *cupo* in the Basque Country and *aportación* in Navarra and can be understood as a grant from those regional governments to the state government. It is calculated as a percentage of a national deficit defined in artificial and narrow terms (Garcia-Milà and McGuire, 2002). The percentage is established on the grounds of the particular region's income share.

[4] The regions characterized by the lowest levels of *per capita* income receive, in addition to the solidarity grant, some other financial resources such as e.g. FEDER development funds from the European Union (Garcia-Milà and McGuire, 2002*).*

[5] These transfers intended to enable the provision of public goods and services that were included within the scope of authority of particular entities.

[6] The ceded taxes included the wealth tax, the inheritance tax, tax on wealth transfers and tax on gaming and represents around 10 percent of the regional revenues (Garcia-Milà and McGuire, 2002).

revenues (Garcia-Milà and McGuire, 2002). An introduction of another reform in 2002, however, resulted in a considerably increased revenue autonomy of those regions with central government ceding around one third of the personal income tax and the value added tax apart from the special taxes on gas, alcohol or tobacco (Garcia-Milà and McGuire, 2002). In addition to this, the new financing model highlighted the second source of revenue for the ACs, namely the resources assigned from the State's general budgets such as the Sufficiency Fund and a number of specific public health service funds (Carrion-i-Silvestre *et al.*, 2008).

The second layer of asymmetry with respect to fiscal decentralization in Spain concerns the ACs under the *common regime* and involves a distinction between two types of regions depending on the path taken to autonomy – the one indicated in article 143 (slow access route) or 151 (fast access route) of the Constitution[7]. The essential difference between those paths is that the former assumes access solely to common responsibilities[8] and temporarily excludes areas such as health and education that actually account for a vast volume of expenditure[9] (low level of responsibilities). In case of entities that follow the path indicated in article 151, the access to all abovementioned responsibilities is immediate (high level of responsibilities). Nevertheless, all ACs have by now taken responsibilities related to health and education[10], so the levels of spending responsibilities between the article 143 and article 151 ACs have eventually converged. Because of that and since the specific grant aimed at financing public health services has been also eliminated[11], starting from 2002 the financing model ought to be uniform for all of the fifteen regions to which the *common regime* applies. Yet, there might still be some discrepancies even between ACs theoretically enjoying the same level of autonomy due to the individual adoption of the Statutes of Autonomy by each region (Carrion-i-Silvestre *et al.*, 2008).

While the Constitution states the division of power between the State and the regions, the responsibilities of the lowest tiers of government (both provinces and municipalities) are

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[7] Out of fifteen regions under the *common regime*, the ones that followed the fast access route to autonomy were Andalusia, Canarias, Catalonia, Galicia and Valencia.

[8] The common responsibilities include 9 sections, namely *Forestry, agriculture, livestock and fisheries in internal waters*, *Urbanism and housing*, *Roads*, *Ports and airports without commercial activity*, *Hydraulic exploitations, channels and irrigation, Environmental protection, Monumental patrimony of the Autonomous Community, cultural promotion and of the regional languages, libraries, museums and conservatories*, *Self-government institutions* and *Internal commercial fairs, sports promotion and tourism.*

[9] Health and education expenditure represents more than 80 percent of the budget of the article 151 regions.

[10] More specifically, those related to health were granted to article 143 ACs between 1995 and 1999, whereas education responsibilities were subject to transfer in 2002 (Carrion-i-Silvestre *et al.*, 2008).

[11] Since the latest reform introduced in 2002, public health services have been financed within the general system (Garcia-Milà and McGuire, 2002).

regulated in the Local Government Act. The range of spending responsibilities in the hands of local governments includes the provision of basic infrastructure, social promotion, public safety, community facilities and housing (Balaguer-Coll *et al.*, 2015). What is important, education is a sole area that is managed exclusively by regional governments (Solé-Ollé, 2006). The Local Government Act, among other things, establishes the minimum level of compulsory services based upon the size of municipal population (Carrion-i-Silvestre *et al.*, 2008). More specifically, it stresses the obligation of all basic local entities to provide services such as e.g. trash collection, street cleaning, water supply, sewer system and street lighting. Next, municipalities with a population greater than 5000 are also required to assure additional goods and services, namely parks, public libraries and solid waste treatment. Those with the number of inhabitants exceeding 20000 ought to provide local police and social services as well. Finally, the biggest *municipios* with more than 50000 citizens are also responsible for the provision of public transportation and environmental protection services to their citizens (Balaguer-Coll *et al.*, 2015). Interestingly, most of the responsibilities such as major roads and transportation, housing, social services or development policy, are shared by the central and regional governments (Carrion-i-Silvestre *et al.*, 2008). Still, the Local Government Act exhibits some ambiguity regarding the assignment of powers and allows the local governments to provide also a number of services that go beyond their scope of responsibilities and complement those provided by higher tiers of Spanish government in areas such as education, culture, health, housing or environmental protection (Balaguer-Coll *et al.*, 2015). This may result in some overlapping in the distribution of tasks between regional and local governments. Finally, although central and regional parliaments are both able to enact laws of the same category, the state government has the right to establish basic legislation in areas such as education, health and public order (Carrion-i-Silvestre *et al.*, 2008).

Even though the scope of authority held by local governments is rather modest compared to the one of Autonomous Communities, they still enjoy a high level of autonomy in terms of budget planning (Balaguer-Coll *et al.*, 2015). Their financial systems are regulated by the Local Finance Act of 2002, according to which the local sufficiency is based on two financial mechanisms. These are the entity's own revenues coming mostly from taxes (e.g. property tax, local business tax and local motor vehicle tax) that constitute almost 60 percent of local non-financial revenues and unconditional grants from the State accounting for about one third

of them (Balaguer-Coll *et al.*, 2015; Solé-Ollé, 2006)[12]. The power to set the tax rates was transferred to Spanish municipalities in the late 1980s. Although the minimum rates are equal for all of the entities, the maximum ones grow with the size of population (Solé-Ollé, 2006*).* The lowest tiers of government in Spain are also entitled to access other financial resources (e.g. charges obtained from the exploitation of their own property and revenue coming from their market activities) and receive a credit (Carrion-i-Silvestre *et al.*, 2008), subject to authorization of higher levels of government and some formal limits (Solé-Ollé, 2006*).* More specifically, the Budgetary Stability Law from 2001 forbids the existence of non-financial deficit in the local governments, meaning that non-financial revenues of the public administration entities are required to cover at least their non-financial expenses (Benito *et al.*, 2010).

According to Carrion-i-Silvestre *et al*. (2008), a considerable change in the degree of decentralization on the part of expenditure was observed in Spain between 1980 and 2001. More specifically, the share of central government in the total spending has fallen from nearly 90 to 60 percent in the analyzed period, while the shares of regional and local administration units have increased by over 26 and around 2,5 percentage points, respectively. However, the degree of decentralization on the revenues side in the same period was notably lower owing to a significant amount of intergovernmental grants. The shares of particular levels of government in total revenue between 1988 and 2001 decreased by 7 percentage points in case of the state government and increased by about 6 percentage points for the ACs. As far as the local governments are concerned, their share in total revenue rose solely by 1 percentage point during these13 years.

1.3. Fiscal decentralization process in Poland.

Nowadays an administrative division in Poland consists of three levels, namely 16 *voivodeships* (provinces), 380 *powiats* (districts or counties) including 66 so-called *cities with county status*[13] and 2479 *gminas* (communes or municipalities). The latter ones, which constitute the basic level of this subdivision, can be in turn classified as urban (consisting of a town or a city), urban-rural (including a town together with its surrounding villages) or rural

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[12] The remaining ten percent comes from the specific capital transfers (Solé-Ollé, 2006).
[13] Cities with county status combine the powers of both municipalities and counties (Kotarba and Kołomycew, 2014).

(not containing a town)[14]. This structure was ratified in the public administration reform of 1998 and came into force in 1999[15]. Prior to that, Polish territorial division has undergone a number of substantial changes. More specifically, starting from 1975 a two-tier system with 49 smaller *voivodeships* and over 3000 basic local entities (divided solely into *gminas* and cities) was applied. Then, after the political breakthrough in 1989 and pursuant to the Act of Territorial Government of 1990, the system of municipality self-government was restored (Pijewski, 2012). The next step in reforming Polish public administration involved establishing 16 larger *voivodeships* as well as introducing the middle tier of the currently existing structure, that is counties (Hausner *et al.*, 2013: 9). Some people express the view that the number of municipalities in Poland is far too big, especially given the inevitable process of depopulation of many regions, and therefore approve the idea of joining the smallest and economically weakest *gminas* (Hausner *et al.*, 2013: 22). Yet, the proposed financial incentive is apparently not appealing enough, since so far there have been no such cases[16]. One should also mention an important reform that took place in 2002, namely separation of the legislative and executive bodies in municipal governments. Since then, the direct elections of mayors have been introduced. Interestingly, it was initially envisaged that those two authorities will work in close cooperation (Hausner *et al.*, 2013: 28), yet in reality it turned out that conflicts are common in those municipalities where mayors represent different political parties than the majority of members of the city councils.

As far as the allocation of responsibilities across various levels of public administration is concerned, the majority of public tasks is transferred to municipalities on the grounds of their small size and close proximity to citizens (Kotarba and Kołomycew, 2014). The principle of subsidiarity included in the article 164 of the Constitution involves the presumption of competence on the part of *gminas*, according to which the responsibility for execution of all the tasks that are not legally assigned to other levels of public administration lies within the basic local units (Hausner *et al.*, 2013: 19). In reality, the responsibility for the provision of particular goods and services is often fragmented and some of them such as e.g. health care are financed with many different sources, which results in a lot of ambiguity in the

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[14] Currently there are 306 urban, 602 urban-rural and 1571 rural *gminas* in Poland.

[15] Self-government entities were given legal personality as well as a range of powers and the right to financial independence from the State by a new Constitution Act adopted in 1997 (Kotarba and Kołomycew, 2014).

[16] According to the 2003 Act on Local Government Revenue, the joint municipalities will be offered an increase of 5 percentage points in their share in PIT revenues for a period of 5 fiscal years. Nevertheless, such solution could work in those countries where subnational governments rely heavily on the local taxes (Hausner *et al.*, 2013: 23). In case of Poland, the financial system assumes that the entities with low shares of local taxes are provided with higher levels of grants and subventions to compensate for that.

distribution of responsibilities across the three tiers of administration (Hausner *et al.*, 2013: 20-21).

The responsibilities indicated in the Local Government Act are viewed as mandatory, yet in addition to this the municipal authorities can also perform optional tasks that are not placed in the legal acts and are theoretically associated with greater freedom of spending (Kotarba and Kołomycew, 2014). The obligatory tasks assigned to Polish municipalities by the law are related to the use of land, environmental protection (waste disposal), technical infrastructure (provision of water, electricity, gas and sewage services), street lighting, public transportation and roads, health care and social assistance, green areas, culture and heritage, sport and tourism, public order and safety, cooperation with non-governmental organizations and promotion of a municipality and education (kindergartens, primary and secondary schools)[17]. As for the counties, they are responsible for areas such as post-secondary schools, public health services, roads, social assistance, employment services, geodesy, the consumer rights protection and many inspectorates such as e.g. National Sanitary Inspectorate or Construction Supervision Inspectorate (Kasperowicz-Stępień, 2008). The role of *voivodeships* in providing public goods and services is rather limited – they are mainly responsible for the universities of applied sciences, maintenance of voivodeship roads and railway. Besides that, their primary obligation concerns the formulation of regional development policies (Kasperowicz-Stępień, 2008).

The basic regulations concerning the financing of local administration units are provided by the Constitution Act of 1997. Additionally, more details are contained in other acts of law, for instance The Act on the Income of Government Units and The Act of the Local Taxes and Fees (Kotarba and Kołomycew, 2014). The Constitution guarantees that subnational government will be given the access to the public funds suitably to the centrally assigned tasks (Trojanek, 2010). In reality, even though a big scale of responsibilities is transferred to the lower tiers of Polish government, they are given solely a limited control over their financial resources.

When it comes to the structure of local budgets, the sources of revenues as well as their composition differ to some extent across various tiers of subnational governments. Particularly, the revenues of all local administration units fall into three categories: their own

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[17] Kasperowicz-Stępień (2008), Kotarba and Kołomycew (2014).

incomes, general subsidies and specific grants targeted at financing centrally assigned tasks[18]. The general subvention comprises of three elements: levelling (compensatory), balancing and educational in case of municipalities and counties[19]. For *voivodeships* the balancing part is substituted with the regional one (Kotarba and Kołomycew, 2014). The educational part constitutes over three quarters of this transfer (Hausner *et al.*, 2013: 46), while the levelling one intended to correct for the variation in the taxation potential across the jurisdictions accounts for about 15 percent (Hausner *et al.*, 2013: 46). The Constitution states that municipal own incomes contain all the revenues except the subsidies and grants that are subject to a direct transfer from the central budget to the local administration entities (Kotarba and Kołomycew, 2014). An essential source of revenues of municipalities are those obtained from taxes and local charges[20]. Also, their own incomes can come from non-refundable means from foreign sources, funds received from the EU budget and other financial means (Trojanek, 2010). *Gminas* are the sole tier of subnational government in Poland that is given the right to impose their own taxes in addition to those established by law and granted to them from the central public administration (Hausner *et al.*, 2013: 49)[21] as well as fix the amounts of local fees and taxes (Kotarba and Kołomycew, 2014). Among the locally collected taxes are e.g. the property tax, real estate tax, agricultural tax, forest tax, vehicle tax or inheritance and donations tax. Besides that, all levels of local administration are also granted the shares in the proceeds from the personal and corporate income taxes (PIT and CIT) collected by the State. According to Kotarba and Kołomycew (2014), in 2012 the own revenues constituted almost half of the Polish local governments' income, followed by specific grants accounting for nearly 30 percent of it and general subvention reaching the amount of 22 percent. *Powiats* and *voivodeships* are not given the right to raise any local taxes or charges. Their own resources consist mainly of an income from their assets, inheritances and donations, interests on loans and local receivables, subsidies from other local governments and means from the EU budget as well as participation in income taxes from individuals and enterprises (Kotarba and Kołomycew, 2014). The latter ones can in fact be influenced by those administration units by means of employing the pro-growth policies which will result in an increase of economic

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[18] Those grants may come not only from the central budget but also from the national targeted funds such as e.g. the National Fund for Environmental Protection and Water Management (Kotarba and Kołomycew, 2014).

[19] The amount of educational part depends mainly on the number of students attending schools in a particular jurisdiction. The levelling element is calculated based on the population size as well as the ratio of tax revenue of a local government unit expressed in *per capita* terms to the tax revenue of all units of the same administration level (Kotarba and Kołomycew, 2014).

[20] These are for instance stamp duties, market and local fees, dog ownership and exploitation fees (Trojanek, 2010).

[21] Yet their ability to determine the local tax rates is limited by the law.

agents' incomes and thus, indirectly, in the rise of local governments' own revenues. In case of counties, their revenues rely heavily on the general subsidies, while for *voivodeships* the main sources of income are the participation share in the income taxes collected by the State and targeted transfers, especially those aimed at promoting development (Hausner *et al.*, 2013: 47).

One should stress the fact that the amount of specific grants aimed at financing the outsourced tasks assigned by the State is usually not sufficient to cover the costs of performing them and as a result most of local governments are forced to finance those tasks partially with their own revenues (Hausner *et al.*, 2013: 50). Such underfinancing of the tasks on the part of the central government is not beneficial as it may lead to an uncontrolled increase of local public debt. This is especially disturbing in the light of existing constraints regarding the accepted level of debt imposed on Polish local governments in order to enforce more fiscal discipline. Specifically, till the end of 2013 two limits identical for all of the entities were basically in force (Marchewka-Bartkowiak and Wiśniewski, 2012). The first one forbad the level of each local government's public debt to exceed 60% of its revenues in a given year[22]. The other one concerned all the costs associated with the debt, which could not be higher than 15% of local government's planned revenues. These two rules were often criticized for being too rigid and not taking into account the economic situation of particular units of local government. Therefore, starting from 2014 those limits were replaced with only one being calculated for each entity individually, based on its financial situation from the preceding three years. Yet, this new regulation did not meet with a lot of enthusiasm either, since it is perceived not to be beneficial from the perspective of the smallest and least affluent municipalities. Apart from those restrictions, the general government in Poland tends to interfere in the way the outsourced tasks are performed by the local entities, which often yields some additional costs for them, especially in case of financing the schools (Hausner *et al.*, 2013: 42). Finally, targeted grants cannot be utilized for any purposes other than those specified by the central government and any unused funds ought to be returned to the general budget where they are again redistributed and transferred to the poorest regions in a form of a levelling subvention[23]. Another aspect that raises concern is the accessibility of EU funds which are often used to finance some random projects rather than help in the development of the regions (Hausner *et al.*, 2013: 14).

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[22] This constraint excludes the debt resulting from the co-financing of EU projects.
[23] Contrarily, general subsidies as well as the local authorities' own revenues may be spent on various tasks and do not need to be returned.

As for the tendencies of local governments in the management of their expenditure, the spending categories with the largest share in the total expenses of certain types of Polish subnational governments in 2012 were education in case of municipalities and counties (with the shares equal to 37 and 32 percent, respectively) and transport and communication for *voivodeships* accounting for almost 40 percent of total spending (Kotarba and Kołomycew, 2014).

2. Literature overview.

2.1. Political determinants of public spending.

Political business cycles (PBC) refer to the manipulation of fiscal and monetary policy by incumbent politicians to achieve their own goals. Two main approaches related to this phenomenon are the opportunistic and partisan models that were first proposed by Nordhaus (1975) and Hibbs (1977), respectively. At that time both theories were related to monetary policy instruments, namely unemployment and inflation.

In the classical opportunistic model, policymakers are homogenous and their incentive to manipulate the macroeconomic variables stems solely from their willingness to maximize the probability of being reelected (Drazen, 2001). To achieve this, they stimulate the economy with the use of expansionary monetary policy shortly before an election so that the boom with high levels of economic activity is observed, while the contractionary actions are taken afterwards, in the view of the post-election economic recession.

In the traditional partisan model, in turn, the electoral business cycles are driven by the differences between the left-wing and right-wing oriented parties in terms of their ideology and, consequently, macroeconomic preferences. More specifically, leftist parties are more in favor of expansionary monetary policy, while rightist support rather low levels of inflation (Potrafke, 2010). Due to these discrepancies, the fluctuations in economic activity may arise (Drazen, 2001).

In the early political business cycle models, such behavior of the ruling politicians may be constantly repeated prior to each elections, as they assume adaptive expectations of economic agents and their failure to anticipate the ultimate consequences of policymakers' actions (Veiga and Veiga, 2007b). This assumption, however, was criticized in the late 1980s. and adaptive expectations of the electorate were replaced with the rational ones. In particular, Rogoff and Sibert (1988) and Rogoff (1990) introduced opportunistic rational models, while Alesina (1987) developed a partisan rational model. In addition to this, Alesina and Roubini (1992) pointed to the phenomenon of macroeconomic policy manipulation as highly improbable, at least in the developed economies, owing to the central banks independence. Consequently, political budget cycle theory that focused on the fiscal policy instruments became more popular, with Rogoff and Sibert (1988) being the first ones to explore this issue. Even in the models exploiting rational expectations of the voters, the phenomenon of political cycles may arise due to the information asymmetries between the incumbent and the

electorate (Benito *et al.*, 2013). This imperfect information on the part of the voters pertains to the policymaker's competence. Since voters lack some information about the politician's ability to provide public goods efficiently, they formulate their decisions based on the observed economic outcomes. As a result of this, an expansionary monetary or fiscal policy might be perceived as a sign of an incumbent's high competence and therefore rewarded in the upcoming elections (Balaguer-Coll *et al.*, 2015; Drazen and Eslava, 2005; Rogoff, 1990). Opportunistic electoral budget cycles arise when during pre-election periods ruling politicians manipulate the fiscal policy instruments with an aim of increasing the likelihood of being reelected (Shi and Svensson, 2003). This may be achieved by either reducing the taxes or increasing expenses on public goods and often financing them with the budget deficit. In case of the latter method, such behavior may involve both manipulation of the fiscal aggregates, such as total public expenditures, and changes in the municipal budgetary structure (Rogoff, 1990). The so-called *composition effect* arises if prior to elections the government decides to increase spending on public goods that are either more visible to the electorate or favored by certain groups of voters (Hayo and Neumeier, 2012). Importantly, this does not require a rise in total public expenditure or budget deficit (Balaguer-Coll *et al.*, 2015) and may be done at the expense of other expenditure categories.

The existence of opportunistic budget cycles was empirically tested both at the national level (Alesina and Roubini, 1992; Alt and Lassen, 2006; Klomp and De Haan, 2013) and for the lower levels of government (see e.g. Galli and Rossi, 2002; Schneider, 2010; Werck *et al.*, 2008). However, the results obtained at the subnational level, which is especially interesting from the perspective of this study, are mixed. In a number of studies, pre-electoral fiscal cycles were found, particularly evident in an increase of total expenditure and budget deficit (Akhmedov and Zhuravskaya, 2004; Galli and Rossi, 2002; Veiga and Veiga, 2007b) as well as a decline in public debt (Jochimsen and Nuscheler, 2011). Yet, some other researchers do not reveal the importance of political factors in shaping the level of municipal public expenses (Werck *et al.*, 2008). It was empirically proven that the occurrence of political budget cycles may depend on numerous factors such as the level of country's development and democracy, political system or government transparency (Alt and Lassen, 2006; Klomp and De Haan, 2013).

Some of the empirical works exploring this issue utilize the disaggregate categories of public spending (see e.g. Blais and Nadeau, 1992; Benito *et al.*, 2013; Getzner, 2002). This study concentrates on those categories of municipal expenditure that are potentially highly visible to

the voters, namely *education*, *health care*, *infrastructure* and *culture*. For this reason, the rest of the literature review concentrates mainly on the abovementioned expenditure components. Apparently, clear evidence of opportunistic behavior of mayors is found in the literature in case of the first three categories, while culture is the only area of public services for which the obtained findings are ambiguous.

Akhmedov and Zhuravskaya (2004) as well as Galli and Rossi (2002) reveal an increased public spending on education and health care in Russian and German local governments. Castro and Martins (2014) also report an increase in health care as well as social protection expenditure in pre-electoral periods for the case of Portuguese municipalities. Another study revealing an increase in social services spending before the elections is the one by Blais and Nadeau (1992). This phenomenon is also confirmed in an empirical study of 18 OECD member countries conducted by Potrafke (2010) who finds an evidence of a rise in public health expenses at the national level.

The empirical literature related to the existence of political business cycles in public infrastructure spending is quite abundant and uniform with respect to the obtained results. More specifically, an evidence of this phenomenon in case of this category of expenditure is usually found. Particularly, a number of studies for Canadian, German and Portuguese local governments report an increase in public spending on the roads in the run-up to elections (Blais and Nadeau, 1992; Galli and Rossi, 2002; Veiga and Veiga, 2007). Also, Furdas *et al* (2015) find a shift of public expenses from other categories towards building investments for a sample of German local governments, while Drazen and Eslava (2005) discover a tendency of incumbent politicians in Colombian municipalities to increase spending on development projects at the expense of current spending such as social transfers or payments of deficit service.

Contrarily to the abovementioned categories, ambiguous results concerning culture expenditure may be found in the literature. Some authors, such as Akhmedov and Zhuravskaya (2004) as well as Benito *et al.* (2013), discover a pre-electoral increase in spending on culture and art at the regional level. The latter paper is especially relevant, as it analyzes an issue of electoral cycles for a Sample of Spanish municipalities and reveals that local spending on culture rises in the election year and falls in the second year after the elections. Yet, there are also studies which find no evidence of this phenomenon with relation to culture spending (see e.g. Getzner, 2002; 2004) or even report a decrease in local expenses on this type of public goods. For instance, Dalle Nogare and Galizzi (2011) find that Italian local governments tend to spend less on culture in the election years. According to the

authors, it is probable that voters in these areas favor other public goods and therefore a shift of expenditure from culture to other items might be found.

Partisan electoral cycles stem from the discrepancies in ideological views shared by incumbents belonging to different political parties. It is a well-known fact that left-wing oriented electorate consists of people with lower income levels who are in favor of wealth redistribution and social policies, whereas the right-wing voters are generally wealthy citizens supporting tax reductions. Theoretically, left-wing politicians are expected to support spending increases, while the right-wing parties rather prefer the deficit reductions (Hibbs, 1977) and are more concerned about decreasing the expenses after the elections (Castro and Martins, 2014).

It is rather difficult to predict an overall effect of party affiliation on the size of public expenditure in different categories of spending, since the studies investigating this issue often report mixed results. Even though the effect of partisan ideology has not yet been widely discussed for the case of health spending[24], out of the existing works there are a couple that are worth to be mentioned. Particularly, Schmidt (1999) concludes that among all of social policies, health care is the area where the impact of ideology on the size of expenditure is the weakest due to the undeniable importance of this good. In fact, Potrafke (2010) analyses the sample of 18 OECD member countries and finds no evidence of partisan effect on health expenses at the national level. On the other hand, the influence of ideology on health care expenses is confirmed by Galli and Rossi (2002) as well as Costa-Font and Moscone (2008) for German and Spanish local governments, respectively. According to the latter authors, left-wing incumbents in Spain tend to increase public health expenses in relatively more affluent regions, partially because of an increased competition from the private sector in these areas. Galli and Rossi (2002) in their work find an evidence of leftist politicians channeling more money as their opponents not only to public health care but also to other sectors aimed at supporting the working class, such as social security and education. It was also proven that left-wing parties are keen on spending more on social insurance due to lower levels of income and, consequently, higher health risks of their electors (De Donder and Hindriks, 2007). Potrafke (2011) concludes that leftists tend to increase expenditure on schooling, whereas the

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[24] In fact, there is a number of studies covering this issue for the overall social expenditure (see e.g. Dreher, 2006; Iversen, 2001; Potrafke, 2009). These authors find an increased spending on social public goods in case of left-wing incumbent politicians.

right-wing parties rather support universities, which is in line with theoretical considerations about the respective electorate's profile and needs.

In case of cultural affairs, it is quite problematic to predict the influence of political orientation on public spending. On the one hand, this kind of activities should be affordable for everyone regardless of their social status (Seitz, 2000; Tellier, 2006). Therefore, the left-wing governments would be expected to increase the expenditure in this category to make it accessible for their voters. Nevertheless, it was proven that people with high income levels not only tend to value culture more but also support it in financial terms (Benito *et al.*, 2013). The confirmation of both statements can be actually found in the literature. Schulze and Rose (1998), Getzner (2004) and Potrafke (2011) discover that rightist governments generally spend more on culture than their leftist counterparts. On the contrary, Bodo and Bodo (2007) as well as Stastna (2009) report the opposite result. Finally, there exist also papers which find no evidence of a partisan cycle in this category of public expenditure (Dalle Nogare and Galizzi, 2011; Wert, 2006).

This matter is also not so obvious in case of public infrastructure spending. For instance, Hayo and Neumeier (2012) reveal a small yet significant *partisan effect* for a sample of German local governments, with left-wing politicians devoting relatively more money to public infrastructure than their right-wing counterparts. Yet, contrarily, Van Dalen and Swank (1996), who examine this issue for the central level of government in the Netherlands, conclude that right parties attach greater value to infrastructure and defense and hence shift money to these areas. Veiga and Veiga (2007), in turn, distinguish between different subcategories of investment spending and show that while left-wing incumbents tend to increase public expenses on transportation material and machinery and equipment, their opponents prefer to support items related to acquisition of land and diverse constructions.

A number of empirical works also aim at investigating the impact of different political ideologies on the magnitude of political budget cycles. Benito *et al.* (2013) and Veiga and Veiga (2007) analyze this issue for Spanish and Portuguese municipalities and identify the electoral cycles in case of both right and left-wing incumbents, yet point to the latter ones as more opportunistic. Kneebone and McKenzie (2001), on the other hand, discover that in Canada only right-wing politicians are prone to behave in an opportunistic way. Finally, Blais and Nadeau (1992), who also study the case of Canadian local governments, claim that the political orientation does not play an important role in shaping the magnitude of electoral budget cycles.

2.2. Other determinants of public expenditures.

Apart from the political factors, public expenditure may also be determined by a vast number of demographic, socioeconomic and geographic variables. The standard set of explanatory variables utilized in most of the empirical studies includes the size and age structure of the population as well as the measure of average income of the society.

The impact of population variables on the level of public spending cannot be easily predicted, though. For instance, the *size of the population* may exhibit either a positive or negative effect, depending on whether the demand for public goods, and hence also the expenses, grow faster or slower than the population (Werck *et al.*, 2008; Yu *et al.*, 2011). In a number of works the negative relation between this variable and the level of public spending in categories such as transport and communications, health care, defense and communal services can be found (see e.g. Bodkin and Conklin, 1971; Costa-Font and Moscone, 2008; Sanz and Velazquez, 2002; Yu *et al.*, 2011).

Population density, in turn, is supposed to reflect the degree of urbanization. This variable plays an important role especially in shaping the level of infrastructure expenditure. It might be the case that in more sparsely populated areas the demand for infrastructure is higher, which translates into a negative effect of population density on public spending. On the other hand, however, there exist also goods for which the demand is higher in the cities with higher level of population density. Sanz and Velazquez (2002) reveal a negative impact of population density on transport and communications, defense and public services as well as positive effect in case of social security spending. According to Dao (1995), in most of the countries the degree of urbanization and population density do not play any role in shaping the level of public expenditure on education and services. Similarly, Veiga and Veiga (2007b) find no evidence of population density affecting the investment spending.

As for the *age structure* of the society, the variables most often utilized in the analysis are the percentage shares of the young and the elderly in the population. The purpose of including them in the analysis is to test if these two groups of electors benefit over proportionately from the provision of particular public goods, such as health care or education, in comparison to the rest of citizens (Hayo and Neumeier, 2012). Veiga and Veiga (2007b) for the case of Portuguese municipalities reveal that higher share of the population under the age of 15 translates into lower levels of total expenditures but at the same time tends to increase the spending on infrastructure. Not surprisingly, the positive influence of the share of young population on the level of public education expenses is often found (Nord, 1983; Sanz and

Velazquez, 2002). The latter authors also reveal that the young populations increase public spending on health care and social security, while the elderly ones raise expenses on social security but decrease those on transportation and public defense. Finally, Werck *et al.* (2008) explore the impact of the age structure on cultural expenditure. Theoretically, the elderly are more prone to support this category of public goods due to their low opportunity cost of consuming these activities (Schulze and Ursprung, 2000). The youth, on the other hand, might be less likely to appreciate cultural heritage, nevertheless art is supposed to have a so called *bequest value*. Indeed, Werck *et al.* (2008) conclude that in case of Flemish local governments, there is a positive effect of the share of elderly people on the level of cultural spending.

Another variable often employed in the studies covering the issue of public expenditure determinants is the average or median *level of income*, which intends to capture the *per capita* wealth of the community and may reflect the demand for public goods and services. Most of the researches confirm its positive influence on the level of spending both at the aggregated level and for various categories of spending (see e.g. Bodkin and Conklin, 1971; Coffé and Geys, 2005; Nord, 1983; Sanz and Velazquez, 2002). Oddly enough, Costa-Font and Moscone (2008) discover that in case of Spain, regional income has a significant negative effect on the level of health expenditure, which does not support the theoretical view of health services being a luxury good. Also, Sanz and Velazquez (2002) report that an increase in *per capita* income translates into lower levels of public spending on public defense items.

A lot of authors introduce the *rate of unemployment* in their models to control for the economic situation of the entities (Coffé and Geys, 2005; Hayo and Neumeier, 2012; Werck *et al.*, 2008) as well as *the ratio of public debt to total revenues* as an indicator of the local government's budgetary situation (Coffé and Geys, 2005; Hayo and Neumeier, 2012). In addition to this, a number of empirical works explore the impact of *transfers* received by municipalities on the composition and level of public spending. Not surprisingly, they usually find a significant and positive relation between these two variables (Veiga and Veiga, 2007b; Werck *et al.*, 2008). Some studies also include the measures of social capital in order to investigate their effect on the quality of local governments' financial performance. To this end, the rate of *electoral turnout* may be exploited as a proxy for the civic involvement in public affairs (Coffé and Geys, 2005). Lastly, it is a common practice to test for the importance of *geographical location* for the size of public spending. It turns out, however, that the regionalization effect is rarely found in the empirical literature (Bodkin and Conklin, 1971; Kushner *et al.*, 1996).

3. Empirical research on the political determinants of public spending.

3.1. Data sources and variables description.

This empirical study aims at investigating the differences between Polish and Spanish local governments with respect to the impact of various political, geographic and socioeconomic determinants on the level of public spending. Particular emphasis is put on the role of political factors[25] in shaping the level of municipal expenditure in various categories. To this end, a set of equations is estimated separately for both countries and then the results are compared in order to search for similarities and disparities in terms of local governments' spending efficiency.

The research is conducted for the lowest level of administrative division, namely Spanish *municipios* and Polish *gminas*. Due to the lack of some data for the smallest municipalities in Spain, the analysis for this country has to be limited to include only cities with a number of inhabitants exceeding 5 000, for which all the necessary information is available. Such limitation of the sample is also partially caused by Spanish legal regulations, namely the division of responsibilities related to the provision of public services depending on the size of population of a municipality[26]. In addition to this, Ceuta and Melilla are excluded from the sample on the grounds of their full autonomy and completely different administrative systems. As a result of this, Spanish database includes 1344 *municipios*. In order to make both samples comparable, the dataset for Poland is also restricted to comprise solely urban communes, so called urban *gminas*[27]. It has to be mentioned that one of the Polish municipalities, Szczawnica, has changed its administrative status from urban to urban-rural one during the period considered in this study, nevertheless it is included in the sample. Eventually, there are 307 *gminas* in Polish database.

The analysis for Spain is conducted for the years 2005-2014 since the budgetary data at the lowest administrative level are not available prior to this period. The Spanish sample initially includes 11899 observations, yet some of them are later omitted in the regressions due to the

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[25] More specifically, this study intends to test the *partisan theory*, the evidence of political budget cycles, the impact of fiscal autonomy as well as the influence of leaders' characteristics on their spending decisions.
[26] For more information see Section 1.
[27] Urban *gminas* are those which contain a city within their administrative boundaries and of course are characterized by the biggest number of residents. They account for about 12 percent of almost 2500 Polish municipalities.

missing observations for some of the entities. The budgetary data were collected from the Spanish Ministry of Finance and Public Administration (*Liquidación de Presupuestos de las Entidades Locales*). The socioeconomic and geographic variables were constructed based on the Spanish Ministry of Finance and Public Administration database *(Datos del Registro de Entidades Locales)*, National Institute of Statistics (INE) and *La Caixa* Economic Yearbook 2013. The election results were obtained from the Ministry of the Interior of Spain *(Consulta de Resultados Electorales)*. The fiscal data are expressed in euros at current prices.

The time span of the empirical study conducted for Poland covers the years 2002-2013 as this is the period for which the data regarding the dependent variable are available[28]. The total number of observations in this sample is equal to 3684. The inclusion of the longer timespan in case of Poland is intentional and allows for examining the effect of Polish accession to the European Union in 2004 and the influx of EU funds in the subsequent years. All the budgetary data come from the Central Statistical Office of Poland (*Local Data Bank*) and the Ministry of Finance. The socioeconomic data were also collected from the Central Statistical Office of Poland (*Local Data Bank*), while the data related to the municipal elections stem from the National Election Commission database and other online sources. The fiscal data are expressed in Polish currency (*zloty*) at current prices.

3.1.1. Dependent variables.

For the purpose of this empirical research, a set of regression equations varying with respect to the utilized dependent variable is estimated. Apart from investigating total municipal expenses (*tot_exp*) to test for a tendency of incumbent politicians to increase the budgetary aggregates in the run-up to elections, the level of public spending in the following categories is also considered: health care (*exp_health*), education (*exp_edu*), culture (*exp_cul)* and infrastructure (*exp_infrastr*)[29]. These public goods and services are regarded as potentially visible to the electorate, hence an evidence of local governments' opportunistic behavior is expected to be found. The level of municipal expenditure in each of these categories is explained by a number of fiscal, geographic, socioeconomic and political factors. All the budgetary variables utilized in this study are expressed in *per capita* terms.

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[28] It was not possible to extend the period of analysis till 2014, since the data for Polish municipalities for this year has not been published yet.
[29] The names of some of the spending categories are simplified. Particularly, *culture* is related to public expenses on culture, national heritage, physical education and sport, while *infrastructure* comprises both transport and communication spending.

3.1.2. Independent variables.

The independent variables included in this study are divided into five groups based on their nature. Below can be found their detailed description[30].

Fiscal variables.

- **Total public revenues *per capita*** (*revenues*) – total municipal revenue as a ratio of total population. It is expected to have a positive influence on the level of public spending in all categories as the higher the level of financial resources that a government receives, the more it can spend on the public goods and services.

- **Personal income tax revenue *per capita*** (*pit_revenues*) – this variable is introduced in the model only in case of Poland, since no reliable data concerning the level of PIT revenues was available for the lowest tier of Spanish administration. It intends to control for *per capita* welfare of a given municipality as it reflects the level of wages in a given community. A number of empirical works utilize the median household's income as a proxy for the level of society's demand for public goods. Yet, such data is not available for the lowest levels of administrative division in any of the analyzed countries. Still, the PIT revenues seem to be an appropriate measure to substitute for it. Theoretically, the effect of this variable on the level of public spending should be the same as in case of total public revenue.

- **Public debt *per capita*** (*pub_debt*) – this variable corresponds to the level of financial liabilities accumulated by the local governments, therefore constituting a good proxy for their fiscal performance. One has to note that for Poland it contains observations only for the years 2004-2013 as there is no data regarding this variable available prior to this period.

- **European Union funds *per capita*** (*eu_funds*) – this variable is introduced in the model only in case of Poland since no reliable data regarding the influx of the European Union funds was found for Spanish municipalities[31]. This variable comprises payments obtained from the budget of European funds and the funds obtained from the European Union with

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[30] The expected influence (understood as a sign next to a particular coefficient in the empirical regression) is however not always predefined, since in case of some of the factors analyzed it is not possible to indicate how they will affect the dependent variable.

[31] In case of Spain, the financial means from the EU are assigned at a regional level and then granted to municipalities in a form of transfers from the higher levels of public administration. Therefore, the amount of EU funds received by a particular Spanish municipality is not evident, since they constitute a part of all transfers obtained from the higher tiers of government.

an aim of financing the EU programs and projects. There is no data concerning the amount of EU funds available for Polish *gminas* before the year 2006, though. The influence of this variable on the level of municipal spending in the analyzed categories is difficult to predict, since it might be the case that local governments decide to spend the money received from the European Union on other purposes.

Socioeconomic variables.

- **Population density** (*pop_dens*) – this variable contains the information about municipalities' population density per 1 square km. It is supposed to reflect the level of urbanization and, as a result, controls for scale effects in the provision of public goods and services.

- **Share of population under the age of 16/18** (*pop_16under/pop_18under*) – the percentage share of the population at pre-working age in total population. The differences in the construction of this variable between countries result from the legal discrepancies. More specifically, in Poland compulsory education lasts until the age of 18, whereas in Spain school attendance is required until the age of 16.

- **Share of population over 65** (*pop_65over*) – the percentage share of the population at post-working age in total population. The aim of including the variables related to the age structure of the population in the study is to test for the influence of a society's demographic characteristics on the efficiency of municipal expenditure. There is no denying that the young and old societies differ significantly in terms of their needs, therefore determining the level of public spending in particular categories. Their exact effect on the dependent variables is however not so obvious to define.

- **Unemployment rate** (*unemployment*) – calculated as a share of registered unemployed persons in the population in a working age. This variable reflects the municipality's economic situation at a given point of time. In case of Polish database, it contains observations only for the years 2003-2013 due to the lack of availability of necessary data prior to this period.

- **Electoral turnout** (*turnout*) – voter turnout rate in the first round of municipal elections. This variable is measured as a ratio of total number of votes to the voting-eligible population. The purpose of including it in the model is to explore the influence of social capital on the efficiency of public expenditure. This variable is constructed in such a way

that for the period between two consequent elections the rates from the last elections are used.

- **Economic crisis** (*crisis*) – a binary variable which takes value 1 for the years of economic crisis and 0 otherwise. For the purpose of this study, it is assumed that the crisis in both countries started in the year 2007 and lasted until the end of the whole analyzed period.

- **EU membership** (*eu_membership*) – a binary variable utilized solely for Poland, which takes value 1 if Poland was a member of the European Union in a given year and 0 otherwise. It is supposed to capture the effect of Poland's accession to the European Union in 2004 as well as the subsequent years on the level of municipalities' public revenues and, as a result, also expenditures.

Geographic variables[32].

- **Metropolis** (*metropolis*) – a binary variable which takes value 1 for the biggest cities in a given country, namely those inhabited by more than 500 000 people; 0 otherwise. In case of Spain these cities comprise Barcelona, Madrid, Malaga, Sevilla, Valencia and Zaragoza, while in Poland these are Cracow, Łódź, Poznań, Warsaw and Wrocław.

- **Upper Silesian metropolitan area** (*uppersilesia*) – a binary variable used only in case of Poland. It takes value 1 for the cities located in the Upper Silesian metropolitan area; 0 otherwise.

- **Mediterranean Coast** (*medit_coast_reg*) – a binary variable used only for the Spanish case. It takes value 1 for municipalities belonging to the Autonomous Communities located in the Mediterranean Coast of Spain (Andalusia, Catalonia, Murcia and Valencia); 0 otherwise. The purpose of including this variable in the study is to control for the corruption scandals in the housing and real estate market which took place during the period analyzed in this study in this particular region and could have led to the distortions in the local governments' spending patterns in Spain (Loures and Oureta, 2006).

- **Capital city** (*capital_city*) – a binary variable which takes value 1 for Madrid and Warsaw in Spanish and Polish samples, respectively; 0 for other cities.

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[32] The regional dummies are introduced in the model to check whether the demand for particular public goods and services is higher in specific regions, both in Poland and Spain, than in other parts of these countries. Yet, since later the FE estimator is utilized, all the binary variables are omitted in the regressions.

- **Autonomous Community of Catalonia** (*aut_reg_catalonia*) – a binary variable applied for the Spanish database only. It takes value 1 for municipalities located in the Autonomous Community of Catalonia; 0 otherwise.

- **Autonomous Community of Galicia** (*aut_reg_galicia*) – a binary variable used for Spanish database only. It takes value 1 for municipalities located in the Autonomous Community of Galicia; 0 otherwise.

Political variables.

- **Political business cycles** (*bc_bef, bc_elect* and *bc_aft*) – these variables intend to control for the effect of electoral budget cycles. To investigate whether the ruling parties in the Polish and Spanish municipalities manipulate the fiscal instruments in order to increase the probability of being reelected, three binary variables are introduced in the model: *bc_bef* and *bc_aft* correspond to the year before and year after the municipal elections, while *bc_elect* takes value 1 in the years of the elections (meaning 2002, 2006, 2010 for Poland and 2007, 2011 for Spain).

- **Education level of the incumbent** (*edu_level*) – this variable is applied only in case of Poland due to the lack of availability of such information for Spanish local governments. The purpose of including this discrete variable is to capture the influence of a mayor's level of education on the size of public spending, since it may affect the efficiency of the incumbent's ruling. It takes value 0 for candidates with higher education, 1 for those with secondary education and 2 for the mayors with primary education.

- **Continuous ruling** (*cont_gov*) – this binary variable takes value 1 if an incumbent or a party ruling in a given year was elected in the previous municipal elections as well; 0 otherwise. It aims at exploring whether the fact of being elected for the next term of office affects the fiscal decisions of the local government. In case of Poland this variable comprises only the observations for the years 2006-2013. This is due to the lack of availability of necessary data for elections that took place in the year 1998.

- **Political affiliation** – the political party affiliation of the ruling mayor or party is supposed to reflect the incumbent's ideological views and therefore may turn out to affect the size of public spending in particular categories as suggested by the *partisan theory*. In order to investigate this issue, a number of binary variables are introduced. Importantly, the composition of the variables related to the political ideology differs between Polish and Spanish samples due to the differences in the political systems of these two countries.

In Spain a noticeable polarization of the ideological views of political parties can be observed and thus we can easily classify the ruling parties[33] as belonging to one of the three categories, namely *central*, left-wing (*left*) and right-wing (*right*) oriented ones. In case of Poland, such division is not possible though, since the political sphere in this country is not so strongly polarized and many of the ruling parties share the views of more than one political orientation, so cannot be easily classified. As a result of this, for the Polish case the ruling mayors are assigned to one of the four main political parties governing in Poland, which are Civic Platform *(po)*, Polish People's Party *(psl)*, Law and Justice *(pis)* and Democratic Left Alliance *(sld)*. The last binary variable, *independent*, is the same for both countries and takes value 1 if the ruling mayor cannot be assigned to any political spectrum or the abovementioned parties. The rest of the dummies take value 1 if the ruling mayor is a member of a particular political party in a given year and 0 otherwise. For the periods between two consequent elections it is assumed that the party affiliation of an incumbent did not change since the last elections. One has to mention that while constructing these dummy variables some simplifications were made in case of Polish database since it is much more difficult sometimes to classify the candidates' affiliation. More specifically, if there is no information about the candidate's political affiliation in a given year available, it is assumed that it is the same as during the subsequent elections. Also, if there is no information about the political affiliation available but it is possible to conclude from the name of the local committee supporting the candidate that it is either a left-wing oriented, right-wing oriented or an independent one, they are assigned to particular groups[34]. Finally, in case of Polish municipal elections in 2002 there are some candidates that at that time were members of other political parties which do not exist anymore but have been absorbed by one of the four main ones or shared similar political views. In such a case, it is assumed that politicians being members of parties such as Solidarity Electoral Action (AWS), The Christian National Union (ZChN), Self-Defense of the Republic of Poland (SRP), The Right Wing of the Republic (PR) or The League of Polish Families (LPR) can be classified as members of the Law and Justice party due to their ideological proximity to the right-wing

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[33] In Spanish municipalities every four years citizens elect the members of the cabinet (aldermen) who in turn elect mayors (Benito *et al.*, 2010). Two national political parties playing the most important role at the local level are the "Socialist Party" (left-wing) and "Popular party" (right-wing oriented).

[34] To be more precise, candidates supported by the left-wing oriented committees are classified as members of the Democratic Left Alliance party, those supported by the right-wing oriented ones are assumed to be members of the Law and Justice party, while the committees that seem to be small, local ones are regarded as politically independent.

politics, while those who were members of Labor United (UP) should be considered members of Democratic Left Alliance. The observations obtained on the grounds of these simplifications, however, constitute less than 10 percent of the whole Polish sample. As already mentioned before, for the Spanish sample it was rather easy to classify the ruling parties as central, right-wing or left-wing oriented ones. In case of the small, local parties it is assumed that they are politically independent.

Fiscal decentralization index.

- **Municipal fiscal autonomy index** (*mun_autonomy*) – This index is calculated as a ratio of the sum of general subventions and grants received by a municipality from the entities at the higher levels of administrative division to its total revenue in a given year. The purpose of introducing this variable is to examine how the level of a municipality's fiscal autonomy in terms of its revenues affects the local government's spending decisions. As for an interpretation of this variable, higher values of this index characterize municipalities with lower levels of fiscal authority. It is essential to mention that both in Polish and Spanish sample there are a few municipalities for which the value of this index is surprising, since it exceeds 1. This is probably a result of some measurement error on the part of data providing sources. The scale of this problem is not huge, though, and the faulty observations constitute 2,5 percent and less than 1 percent in case of Spain and Poland, respectively. Therefore, the observations for which the value of this index is most probably incorrect, are excluded from the samples.

Basic summary statistics (number of observations considered, minimum and maximum values, means and standard deviations) of all utilized variables are presented in the Appendix (Tables A1-A2). In addition to this, correlation matrices were created. Yet, due to their huge size as well as lack of any alarming correlation relationships among the variables, they are not presented in this work.

3.2. Empirical method and models specification.

In order to identify the determinants of public spending at a subnational level, panel data analysis is applied. The estimation of empirical models has been conducted in STATA 12 software.

To verify whether the variables are normally distributed, histograms of the raw variables as well as their logarithmic forms were constructed (see Figures A1-A4 in the Appendix). Based on their graphical representation, one can conclude that distribution of each of the continuous variables is not close to normal and therefore the logarithmic transformation is required. Thus, all of them are taken in logarithms to better fit the assumptions[35]. Consequently, the coefficients in the model can be interpreted as elasticities. Finally, since the construction of the line plots of spending variables indicated an existence of trend in the size of expenditures, the time trend variable is included in each of the empirical regressions to test for the influence of time on the level of public expenses.

For the purpose of this research, independent variables are divided into five groups. More specifically, the distinction is made between *basic variables* (comprising fiscal, socioeconomic and geographic factors), *political variables* (including the variables related to the phenomenon of electoral business cycles as well as the incumbent's level of education and the binary variable corresponding to continuous ruling), *political affiliation* dummies and *fiscal decentralization index*. In addition to this, interaction terms are introduced in the model by multiplying the level of a municipality's fiscal autonomy index and the dummy variables related to the political business cycles. In this way, three more variables are generated: *mun_autonomy*bc_bef*, *mun_autonomy*bc_elect* and *mun_autonomy*bc_aft*. This allows to capture the marginal effect of municipal fiscal autonomy on the electoral budget cycles' power.

For each of the dependent variables, five models are estimated varying with respect to the explanatory variables included. First, the model with only *basic variables* is estimated. Next, the *basic political factors* are introduced in the regression[36]. The third regression equation includes the dummy variables corresponding to the *political affiliation* of the ruling mayor in order to test for the ideology's influence on the level of public spending. After that, the *fiscal autonomy index* is also considered. Next, interaction terms are introduced to check whether the effect of political business cycles, expressed by the years before, during and after the municipal elections, is different for various levels of local government's fiscal autonomy. The functional forms of all of the estimated models are the following:

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[35] This, however, results in the observations equal to zero being dropped.

[36] The two indices cannot be included in the regressions simultaneously due to the possible correlation between them. Two separate regressions are therefore estimated.

$$\textit{expenditure variable}_{it} = \alpha_i + \beta \textit{basic variables}_{it} + \mu_{it} + \varepsilon_{it} \tag{1}$$

$$\textit{expenditure variable}_{it} = \alpha_i + \beta \textit{basic variables}_{it} + \delta \textit{basic political variables}_{it} + \mu_{it} + \varepsilon_{it} \tag{2}$$

$$\textit{expenditure variable}_{it} = \alpha_i + \beta \textit{basic variables}_{it} + \delta \textit{basic political variables}_{it} + \theta \textit{political affiliation}_{it} + \mu_{it} + \varepsilon_{it} \tag{3}$$

$$\textit{expenditure variable}_{it} = \alpha_i + \beta \textit{basic variables}_{it} + \delta \textit{basic political variables}_{it} + \theta \textit{political affiliation}_{it} + \sigma \textit{fiscal autonomy index}_{it} + \mu_{it} + \varepsilon_{it} \tag{4}$$

$$\textit{expenditure variable}_{it} = \alpha_i + \beta \textit{basic variables}_{it} + \delta \textit{basic political variables}_{it} + \theta \textit{political affiliation}_{it} + \sigma \textit{fiscal autonomy index}_{it} + \tau \textit{interaction terms}_{it} + \mu_{it} + \varepsilon_{it} \tag{5}$$

Indices i and t correspond to the particular entities and year, respectively. ε_{it} is an error term, μ_t reflects the time-varying parameter that is constant across the municipalities, while α_i refers to the time-invariant entity-specific intercept, which in case of this analysis constitutes a municipality's individual effect. These effects may be fixed or random, depending on whether or not they are correlated with the vector of independent variables. To be able to determine which type of intercepts are present in this model and, hence, what kind of estimators are appropriate for this research, it is required to run Breusch-Pagan Lagrange-Multiplier (LM) and Hausman tests. To this end, equation (5) comprising all the explanatory variables is estimated for each type of expenditure categories as well as total expenses and then the abovementioned tests are conducted. The null hypothesis in the Breusch-Pagan test is that there are no individual specific effects in the model and thus the pooled OLS estimator is preferred to the random effects model. For all of the dependent variables except one (*exp_tot* in case of Polish sample) the p-value of this test is equal to zero, which uniformly points to the random effects model as an appropriate one. Still, it is assumed that there must exist the municipality-specific characteristics that affect the level of local governments' spending in all of the examined cases and therefore the pooled OLS method is rejected for each of the estimated equations. Hausman test, in turn, helps to examine whether these individual effects are correlated with the set of explanatory variables and is used to discriminate between the fixed and random effects estimators. Based on low p-values of this test obtained for all of the estimated regression equations[37], random effects estimators are rejected in favor of the fixed effects that allow for the correlation between the municipality-specific effects and

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[37] One has to mention that the model explaining expenditure on culture in Spanish sample failed to meet the asymptotic assumptions of the Hausman test and thus it cannot be concluded which estimator should be used in this case. Yet, I decide to employ the same kind of estimator (fixed effects) in all of the regressions.

independent variables. One has to remember, however, that employing the fixed effects estimator does not allow to estimate the coefficients of time-invariant predictors.

In the next step, Wald and Woolridge tests are conducted in order to detect if the datasets suffer from heteroscedasticity and autocorrelation, respectively. Heteroscedasticity is present in the model if the variance of unobservable disturbance terms conditional on independent variables is not constant. This results in the estimators being still unbiased but not efficient anymore. Since the calculated standard errors are not correct in a model troubled by heteroscedasticity problem, obtained test statistics as well as confidence intervals are not valid for inference problem and cannot be relied on. Serial correlation in the error terms, in turn, occurs when the disturbances at one point of time are correlated with the disturbances from the previous periods. Again, it results in OLS estimators no longer being BLUE (best linear unbiased estimators), since the standard errors tend to be underestimated. While there exist some other estimators such as e.g. feasible generalized least squares estimator (FGLS) that allow to correct for both of these problems, these methods are recommended for panel datasets with the number of time-series observations greater than cross-section units. Since this is certainly not a case here, this technique cannot be employed. Based on the p-values of both tests equal to zero in all examined cases, I acknowledge the presence of both heteroscedasticity and autocorrelation in the models as well as their serious consequences for the obtained empirical results. Nonetheless, while the first issue is later solved by applying the robust standard errors with cluster option that takes into account the fact that those errors are non-independent across municipalities in the sample, the latter one cannot be handled without the use of much more advanced econometric techniques. T-statistics and p-values of Hausman, Woolridge and Wald tests for both samples are included in the Appendix (Tables A3-A4).

There is one relevant issue concerning the estimation of empirical models for Polish sample that has to be mentioned. More specifically, among the basic variables present in all of the equations there is one related to the amount of EU funds received by municipalities. As it has been already said before, the observations for the variable in question are not available prior to the year 2006. In addition to this, it contains a number of observations equal to 0 as not always all of the entities were granted financial help from the European Union. As a result of this, introducing *eu_funds* in the model leads to over a thousand of observations being excluded from the sample. Then, after taking a logarithm of this variable even more

observations are dropped. Eventually, the dataset consists of about 2150 observations compared to an initial number of over 3600. Because of that, all of the regressions were estimated both including and excluding this variable from the sample and then the results were compared. In fact, the coefficients and p-values of the analyzed models were in both cases very similar and, what is important, *leu_funds* exhibited a high level of statistical significance almost every time. Thus, since the limited number of observation does not alter the empirical results of the study, I decide to display only those of the equations containing the variable *leu_funds*.

3.3. Empirical results.

3.3.1. Results for Poland.

Total expenditure

The parameter estimates for the models explaining the level of total public spending in Polish municipalities are presented in Table 1. As far as the political factors are concerned, all of the dummy variables related to the phenomenon of political budget cycles are highly statistically significant and hold a positive sign in almost each of the equations. It appears that in general Polish mayors increase total spending both prior to and after the municipal elections, yet the biggest rise is observed in the election years followed by the year prior to the elections. This confirms the findings of Galli and Rossi (2002) as well as Akhmedov and Zhuravskaya (2004). In the years after the elections the total expenses still increase but the magnitude of this phenomenon is smaller. This could be a sign that on the one hand an opportunistic behavior of leaders is observed prior to the elections in order to gain more electorate, but on the other hand it might be the case that these expenditures are still kept high afterwards due to the subsequent execution of pre-election promises made to the citizens or the need to finish the previously initiated projects.

Table 1. Determinants of total public spending in Poland; FE panel estimates.

Total expenditure in Poland					
	(1)	(2)	(3)	(4)	(5)
Total revenue	0.86*** (23.76)	0.86*** (24.15)	0.85*** (24.07)	0.88*** (26.42)	0.88*** (27.03)
Public debt	0.03** (2.08)	0.03** (2.12)	0.03** (2.12)	0.03** (2.16)	0.03** (2.19)
Electoral turnout	0.09** (2.03)	0.06 (1.32)	0.06 (1.30)	0.06 (1.35)	0.06 (1.24)
Crisis	0.05*** (4.36)	0.06*** (4.79)	0.06*** (4.75)	0.06*** (4.68)	0.06*** (4.66)
Unemployment rate	0.04** (2.25)	0.02 (1.46)	0.02 (1.40)	0.02 (1.22)	0.02 (1.49)
Population density	-0.07 (-0.55)	-0.10 (-0.75)	-0.10 (-0.72)	-0.09 (-0.69)	-0.09 (-0.70)
Share of population under 18	-0.14 (-1.33)	-0.09 (-0.86)	-0.10 (-0.91)	-0.10 (-0.99)	-0.15 (-1.44)
Share of population over 65	-0.21*** (-2.65)	-0.16** (-2.07)	-0.16** (-2.05)	-0.17** (-2.18)	-0.17** (-2.18)
EU funds	0.01*** (6.67)	0.01*** (5.43)	0.01*** (5.49)	0.01*** (5.30)	0.01*** (5.85)
PIT revenues	-0.24*** (-5.18)	-0.13*** (-2.77)	-0.13*** (-2.77)	-0.12** (-2.55)	-0.12** (-2.45)
time trend	0.00 (0.51)	-0.00 (-0.12)	-0.00 (-0.14)	-0.00 (-0.31)	-0.00 (-0.60)
Year before elections		0.03*** (5.89)	0.03*** (5.88)	0.03*** (5.88)	0.00 (0.08)
Election year		0.05*** (6.17)	0.05*** (6.13)	0.05*** (6.14)	0.08*** (3.60)
Year after elections		0.01** (2.35)	0.01** (2.33)	0.01** (2.38)	0.06*** (3.19)
Education level		0.03 (1.30)	0.04 (1.40)	0.04 (1.33)	0.04 (1.38)
Continuous governance		-0.00 (-0.20)	-0.00 (-0.13)	-0.00 (-0.01)	0.00 (0.04)
PO			0.01 (1.08)	0.01 (1.17)	0.01 (1.06)
PiS			0.01 (0.45)	0.01 (0.50)	0.01 (0.48)
PSL			0.01 (0.46)	0.00 (0.37)	0.01 (1.15)
SLD			0.00 (0.44)	0.00 (0.39)	0.00 (0.40)
Fiscal autonomy				0.06** (2.31)	0.04 (1.37)
Fiscal autonomy*year before elections					-0.03 (-1.52)
Fiscal autonomy*election year					0.04 (1.49)
Fiscal autonomy*year after elections					0.05** (2.29)
Constant	2.44** (2.32)	2.11** (2.02)	2.09** (1.98)	1.80* (1.73)	1.66 (1.62)
N	2139	2139	2139	2139	2139
R² between	0.57	0.67	0.68	0.69	0.71

Note: t-statistics in parentheses. *,**,*** denote statistical significance at 10, 5 and 1% level, respectively.

As for the fiscal autonomy index, it exerts a positive and significant effect on the size of total expenditure in model (4). One has to remember that higher values of this index in fact stand for less autonomy of local governments in terms of their budgets, since in such case the majority of their revenues comes from the State and is therefore meant to be used for the centrally established purposes. Thus, an obtained result implies that in Poland *gminas* which are more dependent from the central government in general spend more, while those with higher degree of fiscal autonomy are characterized by greater thriftiness. Such a finding is reasonable, since logically local governments would exhibit more fiscal responsibility in managing their own money than those received from the State. As for the interaction terms, the only significant one refers to the year after the elections. Based on Figure 1, one can conclude that for the low values of municipal autonomy index, the effect of a year after the elections on total spending is actually negative. Contrarily, for the highest levels of the index, the expenditures grow after the elections and the higher the value of an index, the greater an increase in spending. This means that mayors from municipalities characterized by high levels of fiscal autonomy tend to decrease public spending during post-election periods, which might be a sign of their greater opportunism. All the other political factors are not statistically significant in explaining the level of total public expenditure in Polish municipalities.

Figure 1. Marginal effects of a year after elections on total expenditure in Poland.
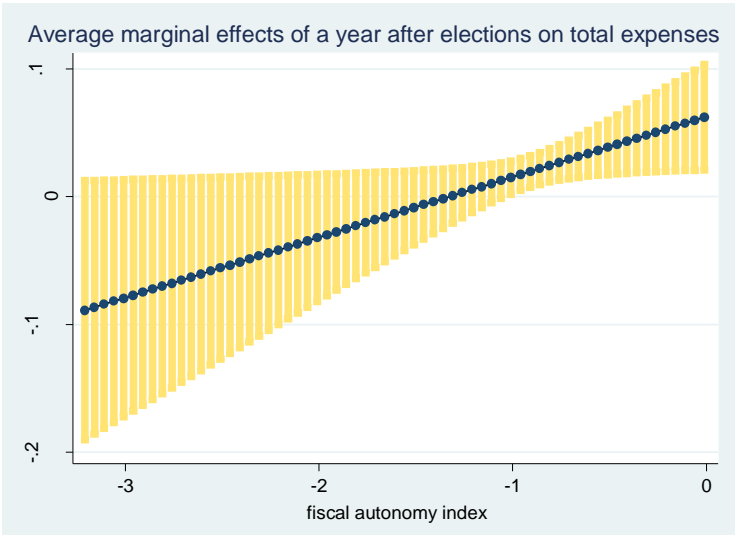
Source: Own compilation in STATA 12.

As for the control variables, total revenue and public debt *per capita* are statistically significant and exert a positive influence on total public spending across all specifications. The first finding is not striking at all, since the more money a municipality possesses, the more it can spend. As for the latter case, the level of public debt constitutes a good proxy for a municipality's fiscal performance. Therefore, it appears that *gminas* which are more indebted (so tend to perform poorer in terms of fiscal responsibility) are characterized by higher expenditure. In all of the analyzed models the dummy related to economic crisis as well as the EU funds are of huge significance and exhibit a positive influence on total public expenditure. It is actually a well-known fact that Poland did not suffer from the recent financial crisis, thus not surprisingly Polish *gminas* were able to spend even more money on public services in this period than before[38]. Also, the financial support received from the European Union after Poland's accession in 2004 was of huge relevance to its spending capabilities. The municipality's share in PIT revenues affects its total spending in a negative way. Since this variable reflects the level of the society's wealth, one could interpret it as a sign of more affluent societies holding lower demand for public goods and services. This logic is also supported by a negative coefficient next to the share of population over the age of 65. There is no denying that people in a post-working age are in general quite wealthy. In addition to this, the average age of a retired person in Poland is in fact very low, thus the need for public services particularly targeted at elderly population can be lower in Polish societies than in other European countries. When it comes to social factors, unemployment rate as well as electoral turnout are significant and positive in the basic model. Not surprisingly, a bigger number of unemployed persons in a municipality increases the demand for various public goods such as e.g. health care or social support and this corresponds to higher spending in general. As for the electoral turnout, societies with a higher degree of political and social awareness also exhibit more needs in terms of public goods and services and are also more successful in demanding them.

Health expenditure

The empirical results obtained for the case of health care expenditure in Poland are displayed in Table 2. Similarly to the previous case, expenses on health care in Polish municipalities tend to rise in the years before, during and after the municipal elections. Again, the greatest

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[38] Yet one should notice that since the final model is conducted for the years 2006-2013 and the dummy variable for *crisis* takes the value 1 for all years except 2006, this result may not be very credible.

increase occurs in the election years, while in the years after the municipal elections this impact is the weakest. Thus, an evidence of pre-election budget cycles is observed in case of this category of spending, while their increase after the elections might be a sign of either a continuation of the ongoing projects in the area of health services or the fulfillment of pre-election promises regarding the public health services. What is more, mayors from PSL tend to spend less on public health services than the politically independent ones, yet this effect is statistically significant only at 10% level. Finally, health care is the only category of public spending that is not affected by the municipal autonomy index, which indicates that the amount of resources spent on health services is not determined by the level of local governments' fiscal autonomy.

The impact of total and PIT revenues on the size of health spending is positive and statistically significant in almost every specification[39], while the influence of public debt is always negative and significant on 5% level. This means that, first of all, higher level of society's wages corresponds to an increased health care spending of a municipality. It could also be a sign that Polish mayors tend to finance health services with their own revenues and also spend less on this area in the light of higher financial liabilities. This is not striking, when we take into account the fact that in Poland health care is mainly a responsibility of *powiats*. Thus, most of the targeted grants related to this area are transferred to districts and, as a result of this, *gminas* spend money on this purpose only if they possess it. Not surprisingly, an increase in the share of population under 18 decreases public expenses on health care, as the societies with prevailing young citizens do not require as much in terms of public health services as those with a higher percentage of elderly people.

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[39] The impact of total revenue on health spending is not significant after an introduction of the fiscal autonomy index.

Table 2. Determinants of health spending in Poland; FE panel estimates.

Health expenditure in Poland					
	(1)	(2)	(3)	(4)	(5)
Total revenue	0.35* (1.90)	0.33* (1.85)	0.33* (1.83)	0.40 (1.48)	0.40 (1.50)
Public debt	-0.02** (-2.32)	-0.02** (-2.25)	-0.02** (-2.29)	-0.02** (-2.26)	-0.02** (-2.24)
Electoral turnout	-0.06 (-0.24)	-0.07 (-0.25)	-0.07 (-0.24)	-0.06 (-0.22)	-0.06 (-0.21)
Crisis	-0.02 (-0.48)	-0.02 (-0.39)	-0.02 (-0.39)	-0.03 (-0.41)	-0.03 (-0.45)
Unemployment rate	0.08 (1.15)	0.05 (0.70)	0.05 (0.70)	0.05 (0.58)	0.04 (0.49)
Population density	0.14 (0.25)	0.04 (0.06)	0.05 (0.09)	0.06 (0.11)	0.08 (0.14)
Share of population under 18	-1.03** (-2.56)	-0.90** (-2.27)	-0.94** (-2.37)	-0.95** (-2.43)	-0.96** (-2.42)
Share of population over 65	-0.16 (-0.39)	-0.11 (-0.25)	-0.12 (-0.27)	-0.14 (-0.32)	-0.14 (-0.32)
EU funds	0.01 (1.36)	0.01 (1.47)	0.01 (1.58)	0.01 (1.49)	0.01 (1.48)
PIT revenues	0.11 (0.99)	0.25* (1.85)	0.25* (1.84)	0.27** (2.08)	0.25* (1.93)
time trend	0.00 (0.02)	-0.00 (-0.18)	-0.00 (-0.18)	-0.01 (-0.28)	-0.01 (-0.26)
Year before elections		0.05*** (2.72)	0.05*** (2.68)	0.05*** (2.67)	0.02 (0.34)
Election year		0.07** (2.51)	0.07** (2.48)	0.07** (2.56)	0.03 (0.38)
Year after elections		0.04** (1.99)	0.04** (1.99)	0.04** (2.00)	0.11 (1.30)
Education level		-0.16 (-0.87)	-0.15 (-0.80)	-0.15 (-0.80)	-0.15 (-0.78)
Continuous governance		0.01 (0.26)	0.01 (0.32)	0.01 (0.36)	0.01 (0.37)
PO			0.08 (1.02)	0.08 (1.03)	0.08 (1.04)
PiS			0.02 (0.21)	0.02 (0.22)	0.02 (0.22)
PSL			-0.28* (-1.73)	-0.28* (-1.78)	-0.27* (-1.69)
SLD			0.01 (0.26)	0.01 (0.23)	0.01 (0.24)
Fiscal autonomy				0.15 (0.67)	0.14 (0.69)
Fiscal autonomy*year before elections					-0.03 (-0.63)
Fiscal autonomy*election year					-0.04 (-0.53)
Fiscal autonomy*year after elections					0.07 (0.91)
Constant	-2.85 (-0.73)	-2.71 (-0.66)	-2.84 (-0.68)	-3.56 (-0.81)	-3.61 (-0.82)
N	2139	2139	2139	2139	2139
R^2 between	0.21	0.32	0.30	0.30	0.29

Note: t-statistics in parentheses. *,**,*** denote statistical significance at 10, 5 and 1% level, respectively.

Education expenditure

The parameter estimates obtained from the regressions containing the expenditure on education in Polish municipalities as a dependent variable can be found in Table 3. In models (2) to (4), a rise in education spending in the election years is found at the lowest assumed level of statistical significance, implying the existence of pre-election budget cycles shortly before the elections. Such finding is in line with the works of Akhmedov and Zhuravskaya (2004) as well as Galli and Rossi (2002) who examine this phenomenon for Russian and German local governments, respectively. A year after the elections is significant and exerts a positive influence on the dependent variable solely when the fiscal autonomy index is added to the model. The municipal autonomy index proves to positively affect the size of education spending according to model (4), however this effect is rather small. This indicates that mayors from *gminas* with higher levels of fiscal autonomy do not favor this category of public spending.

Apart from this, total revenue, electoral turnout, economic crisis, unemployment rate and EU funds exert a positive and significant effect on education expenses in Polish municipalities in all of the considered equations. It shows that during the recent economic crisis education was among the categories of spending favored by the ruling mayors as well as it is to a huge extent financed with the money coming from the European Union. Also, since people actively voting in elections are usually characterized by higher level of educational attainment, they are aware of the importance of educational system and tend to support its increased financing. As for the positive coefficient next to *unemployment*, people who cannot find a job related to their professional qualifications often take up some additional trainings and courses in order to retrain and look for employment opportunities in other fields. Therefore, an increased unemployment rate may translate into higher education spending. The influence of PIT revenues on education spending is significant and negative in the first specification. This is not a striking outcome, since education in Polish *gminas* is mostly financed with targeted grants rather than municipalities' own revenues. It is a well-known fact that education is over-financed in Poland and mayors, if they have such a choice, prefer to utilize the possessed money for other purposes. Last but not least, positive trend in education expenses is noticeable over time. This proves that this category of spending will probably gain even more significance in the next years, therefore resulting in other areas of public services being neglected.

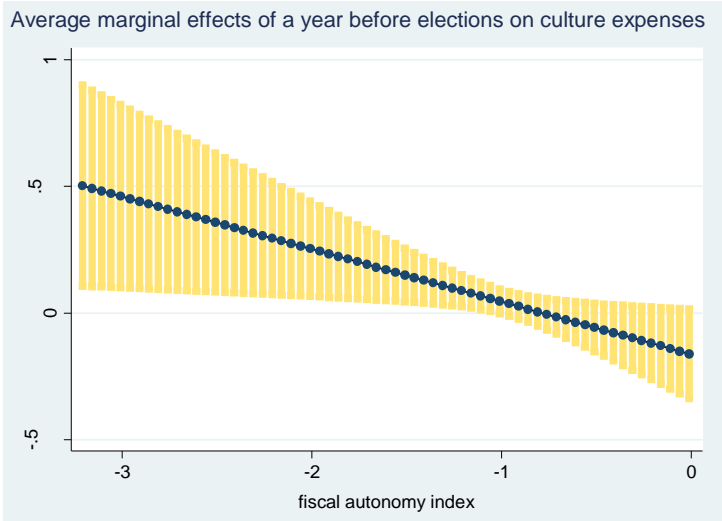**Table 3.** Determinants of education spending in Poland; FE panel estimates.

			Education expenditure in Poland		
	(1)	(2)	(3)	(4)	(5)
Total revenue	0.09***	0.08***	0.08**	0.11***	0.11***
	(3.02)	(2.63)	(2.56)	(3.09)	(3.10)
Public debt	0.01	0.00	0.01	0.01	0.01
	(0.80)	(0.73)	(0.75)	(0.82)	(0.84)
Electoral turnout	0.16***	0.13**	0.13**	0.13**	0.13**
	(2.63)	(2.11)	(2.03)	(2.11)	(2.09)
Crisis	0.06***	0.06***	0.06***	0.06***	0.06***
	(6.07)	(5.77)	(5.71)	(5.66)	(5.65)
Unemployment rate	0.04***	0.04***	0.04**	0.04**	0.04**
	(2.63)	(2.68)	(2.49)	(2.24)	(2.30)
Population density	0.28	0.20	0.22	0.23	0.23
	(1.46)	(1.01)	(1.13)	(1.17)	(1.17)
Share of population under 18	0.21	0.24	0.23	0.22	0.20
	(1.24)	(1.43)	(1.33)	(1.31)	(1.21)
Share of population over 65	0.02	0.05	0.05	0.04	0.04
	(0.23)	(0.54)	(0.58)	(0.46)	(0.47)
EU funds	0.01***	0.01***	0.01***	0.01***	0.01***
	(8.84)	(8.20)	(8.32)	(7.75)	(7.87)
PIT revenues	-0.09**	-0.06	-0.07	-0.06	-0.05
	(-2.35)	(-1.46)	(-1.51)	(-1.33)	(-1.20)
time trend	0.05***	0.05***	0.05***	0.05***	0.05***
	(9.31)	(9.15)	(9.16)	(9.17)	(8.86)
Year before elections		-0.00	-0.00	-0.00	-0.01
		(-1.03)	(-1.00)	(-1.03)	(-0.73)
Election year		0.01*	0.01*	0.01*	0.03
		(1.77)	(1.73)	(1.85)	(1.28)
Year after elections		0.01	0.01	0.01	0.03*
		(1.56)	(1.56)	(1.61)	(1.85)
Education level		0.00	0.00	0.00	0.00
		(0.11)	(0.08)	(0.05)	(0.07)
Continuous governance		0.00	0.00	0.00	0.00
		(0.54)	(0.45)	(0.58)	(0.59)
PO			0.01	0.01	0.01
			(0.85)	(0.93)	(0.87)
PiS			-0.01	-0.01	-0.01
			(-0.45)	(-0.42)	(-0.43)
PSL			0.01	0.01	0.01
			(0.53)	(0.46)	(0.63)
SLD			0.03	0.03	0.03
			(1.10)	(1.09)	(1.09)
Fiscal autonomy				0.07*	0.06
				(1.84)	(1.57)
Fiscal autonomy*year before elections					-0.01
					(-0.48)
Fiscal autonomy*election year					0.01
					(0.68)
Fiscal autonomy*year after elections					0.02
					(1.41)
Constant	4.92***	5.41***	5.26***	4.93***	4.88***
	(3.49)	(3.64)	(3.56)	(3.36)	(3.32)
N	2139	2139	2139	2139	2139
R^2 between	0.02	0.02	0.02	0.04	0.04

Note: t-statistics in parentheses. *,**,*** denote statistical significance at 10, 5 and 1% level, respectively.

Culture expenditure

Table 4 contains the empirical results obtained from the estimation of models considering the culture and heritage expenditure in Polish municipalities. First, a positive and significant effect of the years before and during the municipal elections on the size of spending is found in all models except the last one, where the coefficient of a year before elections turns negative. It seems that Polish mayors indeed tend to increase expenses on culture as a public good highly visible to the electorate. The interaction term between the fiscal autonomy index and the year prior to municipal elections is found to have a negative effect on the size of expenditure. The graphical representation of the marginal effects depending on the distribution of the fiscal autonomy index (see Figure 2) allows to conclude that for the low values of this index, an increase in the culture spending is observed prior to the elections. What this implies, is that local governments which are most fiscally independent from the State, increase the expenses on culture in the years preceding the elections. This effect, however, diminishes as the degree of fiscal autonomy falls and becomes negative for the municipalities characterized by the lowest degree of fiscal authority. Such an outcome supports the hypothesis that in Polish local governments greater level of fiscal autonomy translates into an increased opportunism of mayors.

Figure 2. Marginal effects of a year before elections on culture spending in Poland.

Source: Own compilation in STATA 12.

Table 4. Determinants of culture spending in Poland; FE panel estimates.

	(1)	(2)	(3)	(4)	(5)
Culture expenditure in Poland					
Total revenue	0.96*** (6.21)	0.94*** (6.18)	0.95*** (6.17)	0.99*** (5.64)	1.00*** (5.74)
Public debt	0.02 (1.24)	0.03 (1.29)	0.02 (1.24)	0.02 (1.27)	0.03 (1.28)
Electoral turnout	0.30 (0.90)	0.26 (0.75)	0.28 (0.83)	0.29 (0.84)	0.29 (0.83)
Crisis	0.22*** (3.84)	0.24*** (3.77)	0.25*** (3.88)	0.25*** (3.87)	0.24*** (3.76)
Unemployment rate	0.25*** (2.82)	0.23*** (2.60)	0.25*** (2.83)	0.24*** (2.76)	0.23** (2.50)
Population density	-0.53 (-0.90)	-0.55 (-0.93)	-0.65 (-1.08)	-0.64 (-1.08)	-0.63 (-1.06)
Share of population under 18	-1.32** (-2.58)	-1.26** (-2.45)	-1.18** (-2.39)	-1.19** (-2.43)	-1.25** (-2.51)
Share of population over 65	-0.07 (-0.13)	0.04 (0.09)	0.00 (0.01)	-0.01 (-0.02)	-0.03 (-0.06)
EU funds	0.05*** (8.77)	0.05*** (7.45)	0.05*** (7.25)	0.05*** (7.18)	0.05*** (7.17)
PIT revenues	-0.16 (-1.07)	0.02 (0.12)	0.04 (0.23)	0.05 (0.32)	0.01 (0.07)
time trend	-0.07*** (-3.16)	-0.08*** (-3.57)	-0.08*** (-3.50)	-0.08*** (-3.51)	-0.08*** (-3.44)
Year before elections		0.04* (1.81)	0.04* (1.78)	0.04* (1.78)	-0.16* (-1.93)
Election year		0.08** (2.46)	0.08** (2.49)	0.08** (2.51)	-0.03 (-0.27)
Year after elections		0.02 (0.74)	0.02 (0.74)	0.02 (0.76)	-0.05 (-0.55)
Education level		0.17 (1.61)	0.17 (1.51)	0.17 (1.49)	0.17 (1.52)
Continuous governance		0.04 (1.36)	0.04 (1.46)	0.04 (1.50)	0.04 (1.51)
PO			-0.05 (-0.97)	-0.05 (-0.96)	-0.05 (-0.95)
PiS			0.01 (0.21)	0.01 (0.22)	0.01 (0.22)
PSL			-0.39 (-1.56)	-0.39 (-1.55)	-0.38 (-1.52)
SLD			-0.16 (-1.61)	-0.16 (-1.62)	-0.16 (-1.60)
Fiscal autonomy				0.09 (0.63)	0.17 (1.12)
Fiscal autonomy*year before elections					-0.21** (-2.50)
Fiscal autonomy*election year					-0.10 (-1.15)
Fiscal autonomy*year after elections					-0.07 (-0.85)
Constant	1.03 (0.23)	0.37 (0.08)	1.08 (0.24)	0.62 (0.14)	0.63 (0.14)
N	2110	2110	2110	2110	2110
R^2 between	0.00	0.00	0.00	0.00	0.00

Note: t-statistics in parentheses. *,**,*** denote statistical significance at 10, 5 and 1% level, respectively.

Moving to the control variables, higher total revenues and unemployment rate always lead to an increased spending on culture. A positive coefficient next to *unemployment* could result from the fact that those who are not working have more time to spend on leisure and therefore hold lower opportunity cost of consuming cultural goods that are provided by local governments free of charge. Economic crisis turns out to positively affect the culture spending in Polish municipalities in all models. Moreover, higher share of citizens under 18 and bigger influx of EU funds affect culture expenses in a negative and positive way, respectively. As for the former, it is in line with the considerations of Werck *et al.* (2008) that kids and teenagers are not so prone to appreciate cultural heritage. Finally, there is a significant negative trend in the dependent variable, meaning that leaders of Polish local governments were diminishing expenses on this type of public goods over time and instead channeling them to other directions.

Infrastructure expenditure

The parameter estimates of the models explaining the size of infrastructure spending in case of Polish local governments are presented in Table 5. It is evident that all of the dummy variables related to political budget cycles are almost always highly statistically significant and positive. Such empirical results prove that there is a tendency among Polish mayors to increase infrastructure spending prior to the elections and confirms the results obtained by Blais and Nadeau (1992) or Veiga and Veiga (2007). In addition to this, candidates often try to convince the potential electorate to vote for them by promising some infrastructure projects to be performed provided that they will be elected. Apparently, they tend to fulfill those promises afterwards, since an increase in infrastructure spending in the years after the municipal elections, even though smaller than in the other two years, is observed in the Polish sample. Another possible explanation of such outcomes is that mayors who are already in power and crave to be reelected can start new public infrastructure projects before the elections in order to gain more support from the electorate. It goes without saying that this category of spending often involves investments that need several months or years to be finished. Consequently, an increase in infrastructure expenses after the elections may therefore also be due to the necessity of concluding those projects. The interaction term between the fiscal autonomy index and the year prior to the elections is highly significant and exerts a positive impact on the dependent variable. Based on the marginal effects plot constructed for this model (see Figure 3), it is evident that an opposite relation to the one

obtained for cultural goods is observed. Apparently, the less fiscal autonomy in the hands of Polish local governments, the greater an increase in public infrastructure spending prior to the elections. This is probably due to a considerable amount of grants received from the State with the purpose of implementing infrastructure development projects. This can also mean that mayors from more independent *gminas* prefer to invest in other public goods and services.

Figure 3. Marginal effects of a year before elections on infrastructure spending in Poland.
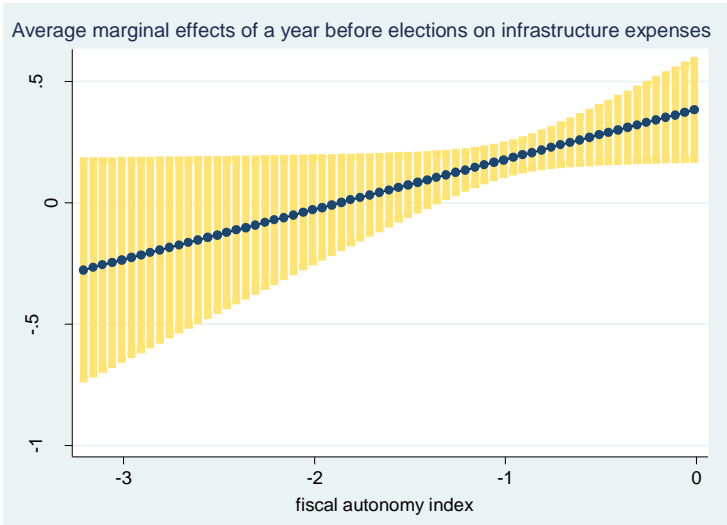
Source: Own compilation in STATA 12.

In each of the analyzed models, total revenues exert a positive impact on infrastructure spending. Also, the *crisis* dummy is positive across all specifications, which is a signal that the financial crisis in Poland did not affect the public infrastructure spending in a negative way. This is not surprising, since the majority of investments related to public infrastructure is financed with the resources received from the European Union. As a result, local governments cannot really wait with an implementation of such projects.

Table 5. Determinants of infrastructure spending in Poland; FE panel estimates.

Infrastructure expenditure in Poland					
	(1)	(2)	(3)	(4)	(5)
Total revenue	2.10*** (10.79)	2.05*** (10.84)	2.05*** (10.82)	2.15*** (9.59)	2.14*** (9.62)
Public debt	-0.02 (-0.57)	-0.01 (-0.47)	-0.01 (-0.47)	-0.01 (-0.44)	-0.01 (-0.47)
Electoral turnout	0.02 (0.05)	-0.13 (-0.39)	-0.13 (-0.38)	-0.12 (-0.35)	-0.11 (-0.33)
Crisis	0.22*** (3.04)	0.22*** (2.88)	0.22*** (2.89)	0.21*** (2.86)	0.22*** (2.89)
Unemployment rate	0.21** (1.98)	0.10 (0.99)	0.10 (0.99)	0.09 (0.88)	0.10 (0.96)
Population density	-1.76** (-2.45)	-2.09*** (-2.93)	-2.12*** (-2.90)	-2.11*** (-2.88)	-2.12*** (-2.88)
Share of population under 18	0.46 (0.48)	0.90 (0.91)	0.83 (0.84)	0.80 (0.81)	0.90 (0.91)
Share of population over 65	-2.97*** (-4.70)	-2.67*** (-4.11)	-2.65*** (-4.08)	-2.68*** (-4.13)	-2.66*** (-4.11)
EU funds	0.05*** (5.78)	0.06*** (5.53)	0.06*** (5.74)	0.06*** (5.54)	0.06*** (5.39)
PIT revenues	-0.98*** (-3.00)	-0.36 (-1.15)	-0.37 (-1.16)	-0.34 (-1.06)	-0.30 (-0.96)
time trend	0.01 (0.26)	-0.01 (-0.47)	-0.01 (-0.51)	-0.02 (-0.61)	-0.02 (-0.59)
Year before elections		0.18*** (6.46)	0.18*** (6.40)	0.18*** (6.41)	0.39*** (3.98)
Election year		0.29*** (5.86)	0.29*** (5.82)	0.29*** (5.83)	0.37*** (2.83)
Year after elections		0.17*** (4.79)	0.17*** (4.80)	0.17*** (4.83)	0.16 (1.32)
Education level		-0.20 (-1.51)	-0.15 (-1.11)	-0.16 (-1.10)	-0.16 (-1.13)
Continuous governance		-0.00 (-0.00)	0.00 (0.12)	0.01 (0.18)	0.01 (0.16)
PO			0.10 (1.45)	0.10 (1.49)	0.10 (1.49)
PiS			0.12 (1.29)	0.12 (1.29)	0.12 (1.30)
PSL			-0.10 (-0.43)	-0.10 (-0.43)	-0.12 (-0.50)
SLD			0.12 (1.42)	0.12 (1.41)	0.11 (1.36)
Fiscal autonomy				0.19 (0.95)	0.14 (0.65)
Fiscal autonomy*year before elections					0.21** (2.19)
Fiscal autonomy*election year					0.07 (0.61)
Fiscal autonomy*year after elections					-0.01 (-0.06)
Constant	2.78 (0.45)	2.48 (0.40)	2.58 (0.41)	1.66 (0.26)	1.77 (0.28)
N	2139	2139	2139	2139	2139
R^2 between	0.02	0.01	0.01	0.01	0.01

Note: t-statistics in parentheses. *,**,*** denote statistical significance at 10, 5 and 1% level, respectively.

Population density as well as share of population over 65 are highly statistically significant and influence public expenses on infrastructure in a negative way. The former result suggests that in case of Polish municipalities, areas with higher degree of urbanization demand less infrastructure, meaning that there are scale effects in the provision of this type of goods. The latter, in turn, is in line with the outcomes obtained by Sanz and Velazquez (2002). Unemployment and PIT revenues are significant in the first equation and come with a positive and negative sign, respectively. The financial resources coming from the European Union positively affect the spending on infrastructure, which is not surprising since many EU projects conducted in Poland aimed at stimulating the development of particular regions also with respect to public infrastructure.

3.3.2. Results for Spain.

Total expenditure

The empirical results of the models containing the total public expenditure of Spanish local governments as a dependent variable can be found in Table 6. As can be seen in all of the columns except the last one, a statistically significant increase in Spanish municipalities' total spending is observed in the years prior to the elections as well as its decrease in the election years and a year after. This is undoubtedly an evidence of budget manipulation at the local level. It seems that mayors in Spain increase the aggregate public spending in order to gain more electorate prior to the upcoming elections and decrease it afterwards. One could wonder why a drop in expenses occurs already in the year of municipal elections. Since local elections in Spain are held in May, it might be the case that immediately after they take place, the leaders start to decrease the expenditure and the scope of this phenomenon is really huge. Similarly to the Polish case, the fiscal autonomy index is highly significant and exerts a positive impact on the level of total public spending, which indicates that more fiscal autonomy of local governments corresponds to a decrease in the size of public sectors in both of the analyzed states. The interactions between the fiscal autonomy index and a year before as well as an election year are significant and come with a negative sign. When it comes to their graphical interpretation (see Figure 4), both one year before and in the election years municipalities with high levels of fiscal autonomy increase total expenditure, yet this effect diminishes with an increase in fiscal dependence from the State. For local governments holding the lowest levels of fiscal authority, the effect of these two years on total spending is

even negative. Therefore, in Spanish municipalities, like in case of Poland, higher degree of autonomy leads to mayors acting in a more opportunistic way.

Table 6. Determinants of total public spending in Spain; FE panel estimates.

Total expenditure in Spain					
	(1)	(2)	(3)	(4)	(5)
Total revenue	0.99***	0.97***	0.97***	0.99***	0.99***
	(111.84)	(104.54)	(104.53)	(110.45)	(110.16)
Public debt	-0.00	-0.00	-0.00	-0.00	-0.00
	(-1.52)	(-1.54)	(-1.54)	(-1.45)	(-1.42)
Electoral turnout	0.00	0.00	0.00	-0.00	-0.00
	(0.05)	(0.01)	(0.02)	(-0.06)	(-0.09)
Crisis	0.04***	0.05***	0.05***	0.04***	0.04***
	(10.24)	(11.51)	(11.23)	(10.20)	(10.08)
Unemployment rate	-0.01***	-0.03***	-0.03***	-0.03***	-0.03***
	(-3.04)	(-4.17)	(-4.16)	(-4.24)	(-3.99)
Population density	-0.60***	-0.61***	-0.61***	-0.70***	-0.71***
	(-23.70)	(-23.75)	(-23.75)	(-22.22)	(-22.19)
Share of population under 16	-0.03	-0.01	-0.01	-0.01	-0.01
	(-1.07)	(-0.50)	(-0.38)	(-0.50)	(-0.53)
Share of population over 65	-0.03	-0.02	-0.02	-0.02	-0.02
	(-1.04)	(-0.74)	(-0.72)	(-0.59)	(-0.67)
Time trend	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***
	(-8.03)	(-5.49)	(-5.27)	(-4.92)	(-4.86)
Year before elections		0.01***	0.01***	0.01***	-0.01***
		(6.61)	(6.41)	(7.05)	(-2.83)
Election year		-0.01***	-0.01***	-0.01*	-0.03***
		(-3.86)	(-3.72)	(-1.75)	(-4.71)
Year after elections		-0.01***	-0.01***	-0.00	-0.01*
		(-3.45)	(-3.38)	(-0.85)	(-1.73)
Continuous governance		-0.00	-0.00	-0.00	-0.00
		(-0.19)	(-0.30)	(-0.20)	(-0.20)
Left-wing			0.00	0.00	0.00
			(0.16)	(0.19)	(0.22)
Right-wing			0.00	0.00	0.00
			(0.31)	(0.27)	(0.29)
Central			-0.00	-0.00	-0.00
			(-0.36)	(-0.14)	(-0.15)
Fiscal autonomy				0.05***	0.06***
				(5.53)	(6.62)
Fiscal autonomy*year before elections					-0.02***
					(-5.93)
Fiscal autonomy*election year					-0.02***
					(-3.82)
Fiscal autonomy*year after elections					-0.01
					(-1.59)
Constant	3.24***	3.39***	3.40***	3.83***	3.93***
	(18.31)	(18.36)	(18.39)	(17.80)	(17.57)
N	9164	9164	9160	9160	9160
R² between	0.07	0.07	0.07	0.05	0.05

Note: t-statistics in parentheses. *,**,*** denote statistical significance at 10, 5 and 1% level, respectively.

Figure 4. Marginal effects of a year before and during elections on total expenditure in Spain.
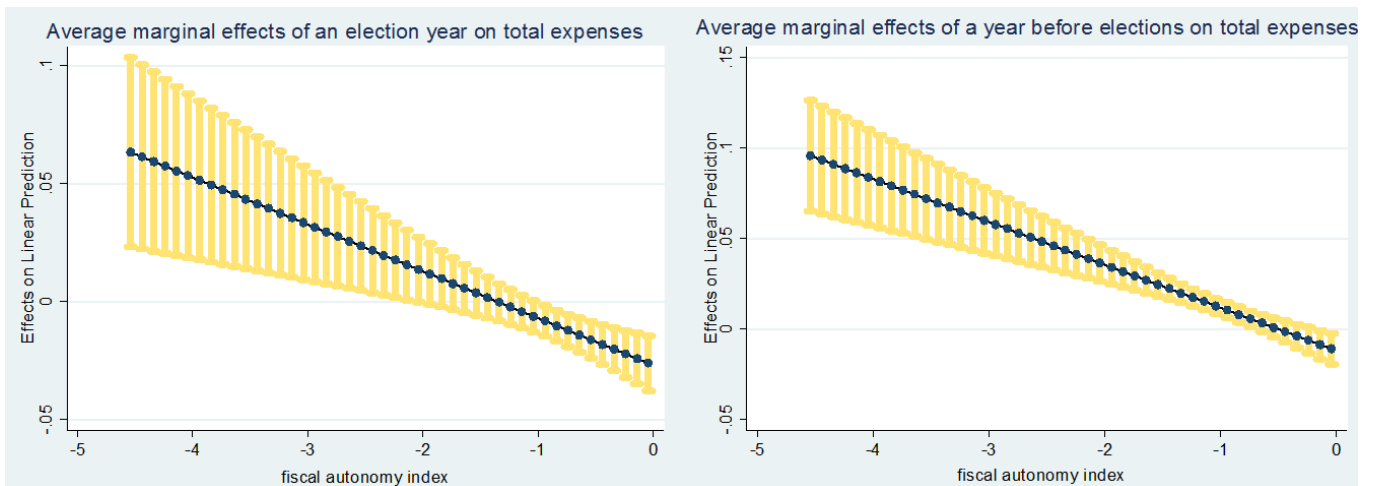
The control variables react in the same way irrespective of the utilized independent variables. Total revenue as well as economic crisis increase total expenditure in Spanish municipalities, which proves that total expenses in both of the analyzed countries reacted uniformly to the financial crisis that started in the last decade. Higher unemployment rate and population density in general lead to a decrease in spending. As the former variable reflects the economic situation of a municipality, it indicates that those in worse state in general spend less. Last but not least, a negative trend is observed in the dependent variable over time, implying that Spanish mayors show a tendency to spend less and less money over time.

Health expenditure

According to the outcomes displayed in Table 7, health care is the sole area of public services that is not affected by political factors in Spain. The effect of political business cycle dummies on the dependent variable is almost never significant, with an exception of model (5), where the election year as well as one year after municipal elections exert a negative impact on health spending. Even though this could suggest there is a tendency among the mayors to decrease expenditure in this category after the elections, there is no evidence regarding the opportunistic behavior of incumbent politicians during pre-election periods. Also, no *partisan effect* is found for this category of spending, which confirms the statement of Schmidt (1999) that health care, as an indispensable public good, is not determined by incumbents' ideological views.

Table 7. Determinants of health spending in Spain; FE panel estimates.

	Health expenditure in Spain				
	(1)	(2)	(3)	(4)	(5)
Total revenue	0.11* (1.71)	0.08 (1.10)	0.08 (1.13)	0.08 (1.09)	0.08 (1.08)
Public debt	0.00 (0.32)	0.00 (0.30)	0.00 (0.32)	0.00 (0.32)	0.00 (0.34)
Electoral turnout	0.03 (0.18)	0.03 (0.17)	0.03 (0.18)	0.03 (0.18)	0.03 (0.17)
Crisis	0.20*** (5.15)	0.25*** (5.57)	0.26*** (5.44)	0.26*** (5.33)	0.25*** (5.19)
Unemployment rate	-0.09 (-1.08)	-0.14 (-1.22)	-0.14 (-1.22)	-0.14 (-1.22)	-0.13 (-1.18)
Population density	-0.64* (-1.92)	-0.68** (-2.04)	-0.68** (-2.00)	-0.69* (-1.88)	-0.77** (-2.03)
Share of population under 16	0.38 (0.84)	0.44 (0.95)	0.41 (0.89)	0.41 (0.89)	0.40 (0.87)
Share of population over 65	0.08 (0.22)	0.11 (0.31)	0.11 (0.31)	0.11 (0.31)	0.10 (0.26)
Time trend	-0.06*** (-3.18)	-0.05** (-2.13)	-0.05** (-2.18)	-0.05** (-2.18)	-0.05** (-2.15)
Year before elections		0.03 (1.24)	0.03 (1.28)	0.03 (1.28)	-0.05 (-0.89)
Election year		-0.05 (-1.34)	-0.05 (-1.38)	-0.05 (-1.31)	-0.11* (-1.80)
Year after elections		-0.03 (-0.75)	-0.03 (-0.79)	-0.03 (-0.73)	-0.11* (-1.66)
Continuous governance		-0.00 (-0.03)	0.00 (0.10)	0.00 (0.10)	0.00 (0.10)
Left-wing			-0.12 (-0.85)	-0.12 (-0.84)	-0.12 (-0.83)
Right-wing			-0.14 (-0.94)	-0.14 (-0.94)	-0.13 (-0.93)
Central			-0.09 (-0.49)	-0.09 (-0.48)	-0.09 (-0.50)
Fiscal autonomy				0.01 (0.09)	0.06 (0.79)
*Fiscal autonomy*year before elections*					-0.08 (-1.64)
*Fiscal autonomy*election year*					-0.06 (-1.13)
*Fiscal autonomy*year after elections*					-0.07 (-1.44)
Constant	4.67** (2.05)	5.16** (2.21)	5.17** (2.21)	5.22** (2.13)	5.71** (2.25)
N	8617	8617	8617	8617	8617
R² between	0.05	0.05	0.06	0.06	0.05

Note: t-statistics in parentheses. *,**,*** denote statistical significance at 10, 5 and 1% level, respectively.

Economic crisis and population density are highly statistically significant across all specifications, with the first one affecting health expenses in a positive way and the latter one exerting a negative impact. This implies that there exist economies of scale in the provision of health care services in Spanish municipalities. In addition to this, in the basic model a positive

influence of total revenue on health spending is noticeable. Finally, a negative significant trend in the dependent variable is observed in all of the considered econometric models.

Education expenditure

The outcomes of the models estimated for the education spending in Spanish municipalities is included in Table 8. In case of this type of public goods, the dummy variables related to the election and post-election years are almost never statistically significant. On the contrary, the one related to the year before the municipal elections is always highly significant and positive, pointing to an opportunistic behavior of Spanish mayors. Again, no other political determinants are significant in explaining the level of expenditure devoted to education.

As for the rest of the factors, economic crisis and population density seem to influence education spending in a positive way regardless of the utilized control variables and total revenues exert a positive impact as well in the first specification. Similarly to Polish case, higher unemployment rate leads to greater education expenses when only basic variables are considered.

Table 8. Determinants of education spending in Spain; FE panel estimates.

|	(1)	(2)	(3)	(4)	(5)
Education expenditure in Spain					
Total revenue	0.12*** (3.15)	0.06 (1.52)	0.06 (1.53)	0.06 (1.55)	0.06 (1.47)
Public debt	0.00 (0.00)	-0.00 (-0.19)	-0.00 (-0.20)	-0.00 (-0.20)	-0.00 (-0.23)
Electoral turnout	0.16 (1.49)	0.17 (1.53)	0.17 (1.55)	0.17 (1.54)	0.17 (1.56)
Crisis	0.15*** (5.96)	0.24*** (7.38)	0.23*** (7.15)	0.23*** (7.02)	0.24*** (7.09)
Unemployment rate	0.08* (1.66)	0.08 (1.27)	0.08 (1.27)	0.08 (1.26)	0.08 (1.23)
Population density	0.62*** (2.74)	0.48** (2.14)	0.49** (2.14)	0.48** (2.06)	0.49** (2.08)
Share of population under 16	-0.11 (-0.45)	-0.08 (-0.31)	-0.07 (-0.27)	-0.07 (-0.27)	-0.07 (-0.26)
Share of population over 65	-0.27 (-1.01)	-0.25 (-0.96)	-0.25 (-0.93)	-0.25 (-0.93)	-0.25 (-0.92)
Time trend	0.01 (0.66)	-0.00 (-0.32)	-0.00 (-0.25)	-0.00 (-0.24)	-0.00 (-0.28)
Year before elections		0.13*** (8.44)	0.13*** (8.26)	0.13*** (8.29)	0.13*** (3.27)
Election year		0.00 (0.07)	0.00 (0.17)	0.00 (0.18)	0.07 (1.49)
Year after elections		0.01 (0.47)	0.01 (0.53)	0.01 (0.54)	-0.00 (-0.05)
Continuous governance		-0.01 (-0.33)	-0.01 (-0.42)	-0.01 (-0.42)	0.00 (-0.41)
Left-wing			0.00 (0.03)	0.00 (0.03)	0.00 (0.02)
Right-wing			0.02 (0.18)	0.02 (0.18)	0.02 (0.18)
Central			-0.00 (-0.03)	-0.00 (-0.03)	-0.00 (-0.00)
Fiscal autonomy				0.00 (0.05)	-0.01 (-0.22)
Fiscal autonomy*year before elections					0.00 (0.12)
Fiscal autonomy*election year					0.06 (1.55)
Fiscal autonomy*year after elections					-0.01 (-0.29)
Constant	-1.34 (-0.88)	-0.14 (-0.09)	-0.12 (-0.08)	-0.10 (-0.07)	-0.12 (-0.08)
N	9012	9012	9008	9008	9008
R² between	0.07	0.07	0.07	0.07	0.07

Note: t-statistics in parentheses. *,**,*** denote statistical significance at 10, 5 and 1% level, respectively.

Culture expenditure

The parameter estimates of the models explaining the cultural expenses in Spanish municipalities are presented in Table 9. Most importantly, there is a highly significant

evidence of an increased spending in this area in the years preceding the elections. As for the rest of dummies related to political business cycles, an increase in spending on culture one year after the elections is found in models (2) and (4). No effect for the election year is revealed, which does not confirm the results obtained by Benito *et al.* (2013) who also study a sample of Spanish municipalities and discover an increase in local public spending on cultural goods in the election years as well as their decrease in the second year after the elections. Apart from this, the interaction term between a year before elections and fiscal autonomy index is statistically significant and comes with a negative sign. Based on Figure 5, it can be stated that in the years before the elections Spanish mayors generally increase their expenses on culture, yet this effect is the strongest for municipalities with the highest levels of fiscal autonomy and falls together with an increase in the value of an index.

Figure 5. Marginal effects of a year before elections on culture spending in Spain.
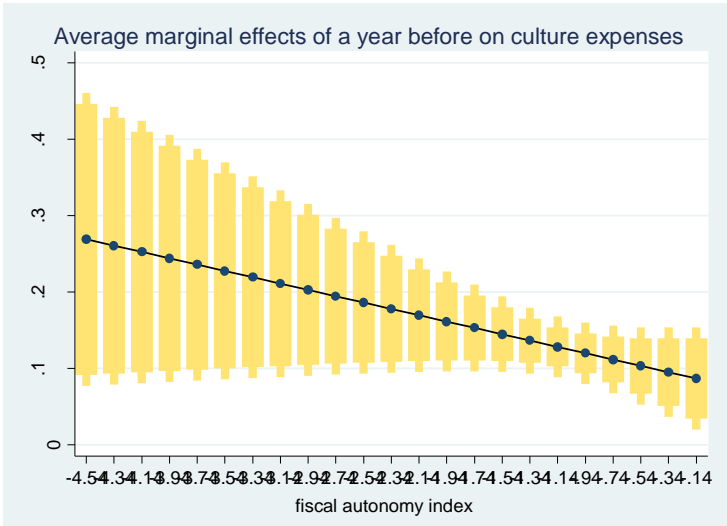
Source: Own compilation in STATA 12.

Total revenue and economic crisis tend to exert a positive influence on the size of municipal spending on culture across all specifications, while a negative impact is observed for population density. Also, a negative time trend is found for this dependent variable.

Table 9. Determinants of culture spending in Spain; FE panel estimates.

|	Culture expenditure in Spain				
	(1)	(2)	(3)	(4)	(5)
Total revenue	0.19*** (5.92)	0.13*** (3.95)	0.13*** (3.96)	0.13*** (3.88)	0.13*** (3.81)
Public debt	0.00 (0.66)	0.00 (0.39)	0.00 (0.52)	0.00 (0.52)	0.00 (0.45)
Electoral turnout	0.09 (1.01)	0.10 (1.07)	0.10 (1.07)	0.10 (1.06)	0.10 (1.08)
Crisis	0.21*** (10.20)	0.30*** (12.25)	0.30*** (11.51)	0.30*** (11.32)	0.30*** (11.31)
Unemployment rate	0.01 (0.18)	0.02 (0.45)	0.02 (0.48)	0.02 (0.48)	0.02 (0.52)
Population density	-0.45*** (-2.86)	-0.59*** (-3.73)	-0.58*** (-3.70)	-0.61*** (-3.76)	-0.58*** (-3.54)
Share of population under 16	-0.22 (-1.15)	-0.18 (-0.93)	-0.20 (-1.01)	-0.20 (-1.02)	-0.19 (-0.98)
Share of population over 65	-0.22 (-1.33)	-0.19 (-1.14)	-0.20 (-1.17)	-0.20 (-1.16)	-0.18 (-1.09)
Time trend	-0.07*** (-9.12)	-0.08*** (-8.49)	-0.08*** (-8.37)	-0.08*** (-8.34)	-0.08*** (-8.42)
Year before elections		0.13*** (10.63)	0.13*** (10.61)	0.13*** (10.58)	0.08*** (2.89)
Election year		-0.00 (-0.07)	-0.00 (-0.21)	-0.00 (-0.11)	0.01 (0.15)
Year after elections		0.03* (1.69)	0.03 (1.61)	0.03* (1.65)	0.05 (1.37)
Continuous governance		-0.01 (-0.50)	-0.01 (-0.37)	-0.01 (-0.37)	-0.01 (-0.36)
Left-wing			-0.02 (-0.28)	-0.02 (-0.28)	-0.02 (-0.28)
Right-wing			-0.03 (-0.43)	-0.03 (-0.43)	-0.03 (-0.45)
Central			-0.00 (-0.03)	-0.00 (-0.02)	0.00 (0.04)
Fiscal autonomy				0.01 (0.43)	0.02 (0.44)
Fiscal autonomy*year before elections					-0.04* (-1.73)
Fiscal autonomy*election year					0.01 (0.28)
Fiscal autonomy*year after elections					0.02 (0.58)
Constant	5.19*** (4.95)	6.50*** (6.14)	6.47*** (6.08)	6.59*** (6.11)	6.53*** (5.98)
N	9023	9023	9019	9019	9019
R^2 between	0.08	0.08	0.08	0.08	0.08

Note: t-statistics in parentheses. *,**,*** denote statistical significance at 10, 5 and 1% level, respectively.

Infrastructure expenditure

Table 10 contains the outcomes obtained from the estimation of the models related to infrastructure spending in Spanish municipalities. As far as this category of public

expenditure is concerned, negative effect of the election year as well as one year prior to the elections on this expenditure category is found, implying that there are no political business cycles in this category of spending. As for the year after elections, it is only statistically significant in the last model and also comes with a negative sign. Since it was already shown that Spanish mayors tend to increase expenditure on education and culture prior to the municipal elections, it is highly probable that voters in Spain favor those particular types of public goods and thus the ruling mayors tend to shift the expenses from this category to the abovementioned items. The fiscal autonomy index is statistically significant and affects the expenses on infrastructure in a positive way. This shows that in general greater fiscal power translates into a decreased spending on this category of public goods and makes sense, given that it was already mentioned that infrastructure is not among the expenditure categories favored by the electorate in Spain.

Figure 6. Marginal effects of a year before and after elections on infrastructure spending in Spain.
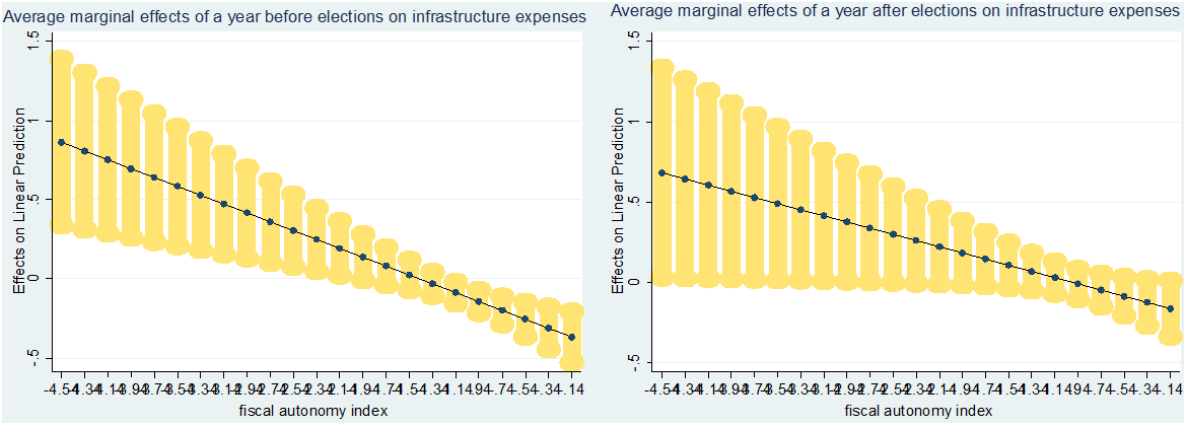
Source: Own compilation in STATA 12.

Yet, the graphical analysis of the interactions between the fiscal autonomy index and a year before as well as a year after elections (see Figure 6) points to *municipios* characterized by high fiscal autonomy spending more on infrastructure prior to and after the elections, while the opposite effect is found for municipalities enjoying low degree of fiscal autonomy. Therefore, it seems that in general greater fiscal authority in the hands of local governments leads to a decrease in infrastructure expenses, yet in the years preceding the elections as well as after they take place it actually corresponds to an increased spending on this type of public goods. Yet, based on such ambiguous results, it is rather difficult to predict an overall effect

of fiscal autonomy on the spending decisions of Spanish mayors regarding public infrastructure. Interestingly, in Spain mayors coming from right-wing oriented parties are found to spend less on public infrastructure than those regarded as politically independent.

Table 10. Determinants of infrastructure spending in Spain; FE panel estimates.

	Infrastructure expenditure in Spain				
	(1)	(2)	(3)	(4)	(5)
Total revenue	0.20* (1.89)	0.14 (1.23)	0.14 (1.26)	0.19* (1.71)	0.19* (1.67)
Public debt	0.00 (0.12)	-0.00 (-0.07)	-0.00 (-0.01)	0.00 (0.02)	0.00 (0.03)
Electoral turnout	0.13 (0.60)	0.10 (0.48)	0.10 (0.49)	0.10 (0.46)	0.10 (0.46)
Crisis	0.72*** (13.14)	0.80*** (12.30)	0.82*** (12.07)	0.79*** (11.17)	0.79*** (11.24)
Unemployment rate	-0.06 (-0.65)	-0.24* (-1.80)	-0.24* (-1.79)	-0.24* (-1.81)	-0.23* (-1.69)
Population density	1.11** (2.12)	1.09** (2.06)	1.11** (2.10)	0.73 (1.32)	0.55 (0.93)
Share of population under 16	-0.93 (-1.38)	-0.71 (-1.04)	-0.77 (-1.12)	-0.79 (-1.13)	-0.80 (-1.16)
Share of population over 65	-0.81 (-1.45)	-0.61 (-1.09)	-0.63 (-1.12)	-0.61 (-1.09)	-0.64 (-1.14)
Time trend	-0.34*** (-14.92)	-0.31*** (-11.17)	-0.32*** (-11.17)	-0.32*** (-11.05)	-0.32*** (-11.14)
Year before elections		-0.11*** (-3.40)	-0.10*** (-3.18)	-0.10*** (-2.97)	-0.41*** (-4.74)
Election year		-0.27*** (-5.87)	-0.28*** (-6.08)	-0.26*** (-5.36)	-0.38*** (-4.43)
Year after elections		-0.01 (-0.23)	-0.02 (-0.38)	0.02 (0.38)	-0.19** (-2.05)
Continuous governance		0.05 (0.97)	0.06 (1.25)	0.06 (1.27)	0.06 (1.28)
Left-wing			-0.26 (-1.42)	-0.26 (-1.42)	-0.25 (-1.41)
Right-wing			-0.33* (-1.79)	-0.33* (-1.82)	-0.33* (-1.81)
Central			-0.22 (-0.93)	-0.21 (-0.89)	-0.20 (-0.88)
Fiscal autonomy				0.21** (2.35)	0.36*** (3.31)
Fiscal autonomy*year before elections					-0.28*** (-3.89)
Fiscal autonomy*election year					-0.11 (-1.50)
Fiscal autonomy*year after elections					-0.19** (-2.24)
Constant	-6.45* (-1.83)	-5.64 (-1.58)	-5.63 (-1.57)	-3.70 (-1.01)	-2.52 (-0.67)
N	8748	8748	8744	8744	8744
R^2 between	0.04	0.04	0.04	0.04	0.03

Note: t-statistics in parentheses. *,**,*** denote statistical significance at 10, 5 and 1% level, respectively.

As for the rest of the factors, according to models (1) to (3), higher population density leads to an increased spending on municipal infrastructure, which confirms the finding of Sanz and Velazques (2002). This means that urbanization affects public spending on infrastructure in Poland and Spain in a different way. Also, in the years of economic crisis this expenditure was higher than in other periods. Greater unemployment rate in the society corresponds to lower expenses on infrastructure, indicating that in the times of poorer economic situation municipalities spend less on those purposes. A positive and significant impact of total revenues on this category of spending is also found in some of the specifications. Finally, a negative trend in infrastructure expenditure was observed in the analyzed period.

3.3.3. Comparison between Polish and Spanish local governments.

The study revealed some similarities between Poland and Spain with respect to determinants of public spending at the subnational level. Most importantly, there is an evidence of opportunistic electoral budget cycles during pre-election periods in both countries. This means that Polish and Spanish local governments tend to boost total public expenditure in the run-up to municipal elections in order to increase their chances of being reelected. The difference, however, lies in the attitude of mayors towards the fiscal aggregates afterwards. In Poland an increase in total public expenditure is observed both prior to and after the elections, although the magnitude of this phenomenon is greatest before the elections. Such an outcome could be interpreted as an evidence of incumbent politicians actually performing the tasks indicated in their pre-election promises afterwards or concluding the projects initiated in the preceding years. In case of Spain, in the election and post-election years a decrease in total public spending is observed, pointing to even more visible political business cycles.

The study identified the existence of electoral budget cycles in both countries also when the disaggregated categories of public expenditure were taken into account. More specifically, in case of Polish local governments all of the analyzed categories, which are supposed to be the public goods highly visible to the electorate, indeed experience an increase in spending during pre-election periods. Also, health care and infrastructure are the categories where the rise in expenditure is observed after the elections too. Apparently, a lot of pre-election promises regarding these areas of public sector are made by politicians to their constituencies and these promises are indeed being fulfilled in the subsequent years. Another possible explanation is that an increase in spending in these particular categories after the elections is associated with the need to conclude the projects initiated in the preceding years. This makes sense especially

in case of public infrastructure which often involves investments requiring long periods of time to be finished. For Spain, health care and public infrastructure are actually the areas not affected by political business cycles. In fact, a *composition effect* is found, with mayors shifting the resources from infrastructure to other categories, presumably education and culture, prior to municipal elections. Interestingly, for Spain the phenomenon of opportunistic budget cycles always takes place one year before the upcoming elections, while in case of Polish local governments the rise in expenditure occurs also in the election years. This probably stems from the fact that local elections in Spain are held in the first half of the year, whereas in Poland they usually take place in November.

When it comes to the relevance of fiscal autonomy, in both states greater level of authority granted to lower tiers of government corresponds to a decrease in the aggregate expenditure. In addition to this, in Poland more fiscally independent local governments tend to spend less on education, while in Spain a decrease in infrastructure expenditure is found for municipalities enjoying greater degree of autonomy in terms of their budgets. Also, both in Polish and Spanish local governments an evidence of an intensified opportunistic behavior of mayors in the light of greater fiscal autonomy is found. To be more precise, in Poland *gminas* characterized by higher levels of fiscal independence from the State decrease total public spending after the elections, while in Spain they tend to increase it one year prior to and in the election years. Also, municipalities enjoying greater degree of fiscal autonomy increase public expenditure on culture one year before the elections in both of the analyzed states. In case of infrastructure, an increase in fiscal independence of local administration units translates into a rise in expenditure on this type of public goods before the elections in Spanish *municipios*, yet the opposite relation is observed for Poland.

Next, the results suggest that in the analyzed countries the ideology shared by incumbent politicians does not play an important role in shaping the size of public expenditure at the local level. In case of Poland, the only *partisan effect* found in the research concerns mayors coming from the Polish People's Party who are revealed to spend less than their independent opponents on health care. In Spanish municipalities, there is an evidence of right-wing oriented politicians channeling less money to public infrastructure than independent ones.

Importantly, the economic crisis did not affect Polish and Spanish local governments' spending priorities and, in fact, a rise in total public expenditure as well as increased spending in almost all of the analyzed categories were found both for Poland and Spain, despite their completely different experiences related to the recent financial crisis. This points to great importance of the considered areas of public sector to the societies in both states.

Finally, a significant negative trend in the size of total public expenses as well as all of the investigated categories except education was found for Spanish local governments in the analyzed period. In Poland, in turn, more and more resources were spent on education at the expense of culture spending.

Conclusions.

Last decades experienced a renewed popularity and growing implementation of fiscal decentralization, both in advanced and emerging economies. Theoretically, this phenomenon is seen as a way to enhance efficiency in the delivery of public goods and stimulate economic growth. Yet, in the light of an increased fiscal authority in the hands of local governments, the ruling politicians may be incentivized to manipulate the budgets in order to be reelected. The relevance of this topic is undeniable due to its possible implications for the areas of social welfare, economic growth and inequalities.

This study aimed at exploring the similarities and discrepancies between Polish and Spanish local governments with respect to the impact of various political factors, controlling for other socioeconomic and geographic determinants, on the size and composition of public spending. The primary goal was to verify the existence of *political business cycles* as well as *partisan effects* in the analyzed countries at the subnational level. In addition to this, the impact of fiscal decentralization process on the spending decisions as well as its effect on the magnitude of opportunistic cycles was empirically tested.

This work comprises both theoretical and empirical parts. The former provides some theoretical considerations related to the issues of fiscal federalism and electoral budget cycles as well as discusses the history and regulatory aspects of the decentralization processes in Poland and Spain. Also, a review of existing empirical literature covering this topic is presented. For the purpose of an empirical research, panel data analysis was applied and a set of regression equations was estimated for each of the states under investigation. Apart from examining the aggregate municipal expenditure, the level of public spending on health care, education, culture and infrastructure was also considered. Since these categories are perceived as potentially highly visible and favored by the voters, an evidence of opportunistic behavior of the mayors was expected to be found. Additionally, greater magnitude of opportunistic electoral cycles was anticipated in the view of higher degree of fiscal autonomy held by local governments.

The study revealed an existence of political business cycles in Polish and Spanish municipalities, visible in a tendency among mayors to increase total spending as well as the expenses on the most visible public goods and services during pre-election periods. For Spain this is even more evident, as a fall in the aggregate expenditure is observed in post-election years. While in case of Poland all of the analyzed categories experience a rise in spending in the years preceding the elections, a *composition effect* was found for Spanish local

governments, with incumbent politicians shifting resources from infrastructure to public goods apparently more favored by the voters, such as education and culture, before the elections. In addition to this, in both states greater level of authority granted to lower tiers of government translates into a decrease in the aggregate expenditure. Also, in Poland more fiscally independent local governments tend to spend less on education, while in Spain a fall in infrastructure expenses is found for municipalities enjoying greater degree of autonomy in terms of their budgets. Importantly, in both states an evidence of an intensified opportunistic behavior of mayors in the light of greater degree of fiscal autonomy is generally found. Last but not least, *partisan ideology* seems to play a very limited role in shaping the size and composition of public spending in both of the analyzed countries at the subnational level.

The outcomes of this analysis yield some important policy implications. More specifically, unreasonable manipulation of fiscal aggregates can actually lead to serious indebtedness of local governments and therefore hinder economic growth of the regions. What also raises concerns, is a noticeable tendency of incumbent politicians to channel public expenditure into the areas regarded as most favored by their constituencies. As a result, it might happen that other spheres of public sector that are actually in greater need of development, will be neglected.

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Figure A1. Histograms of dependent variables and their logarithmic form for Poland.
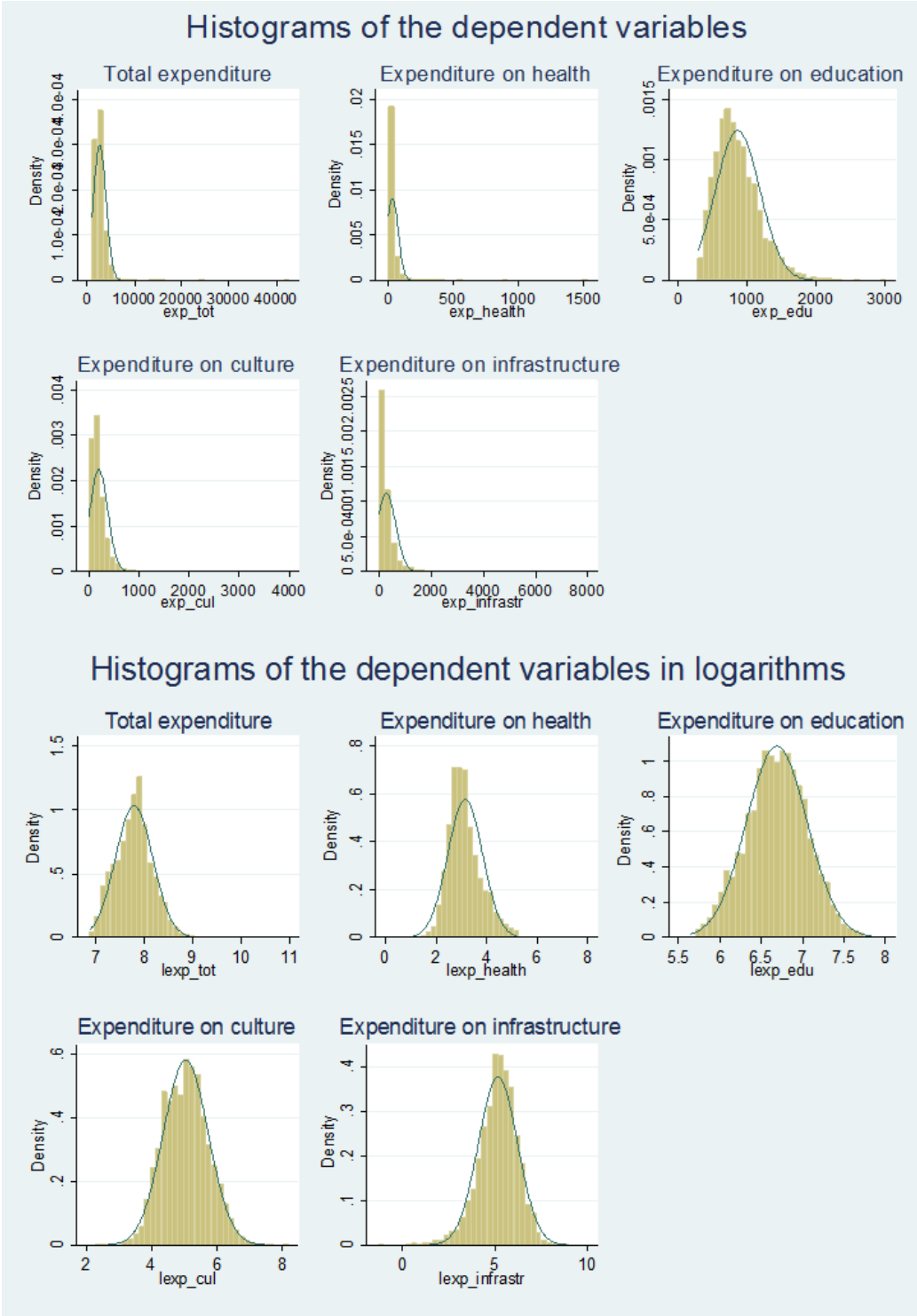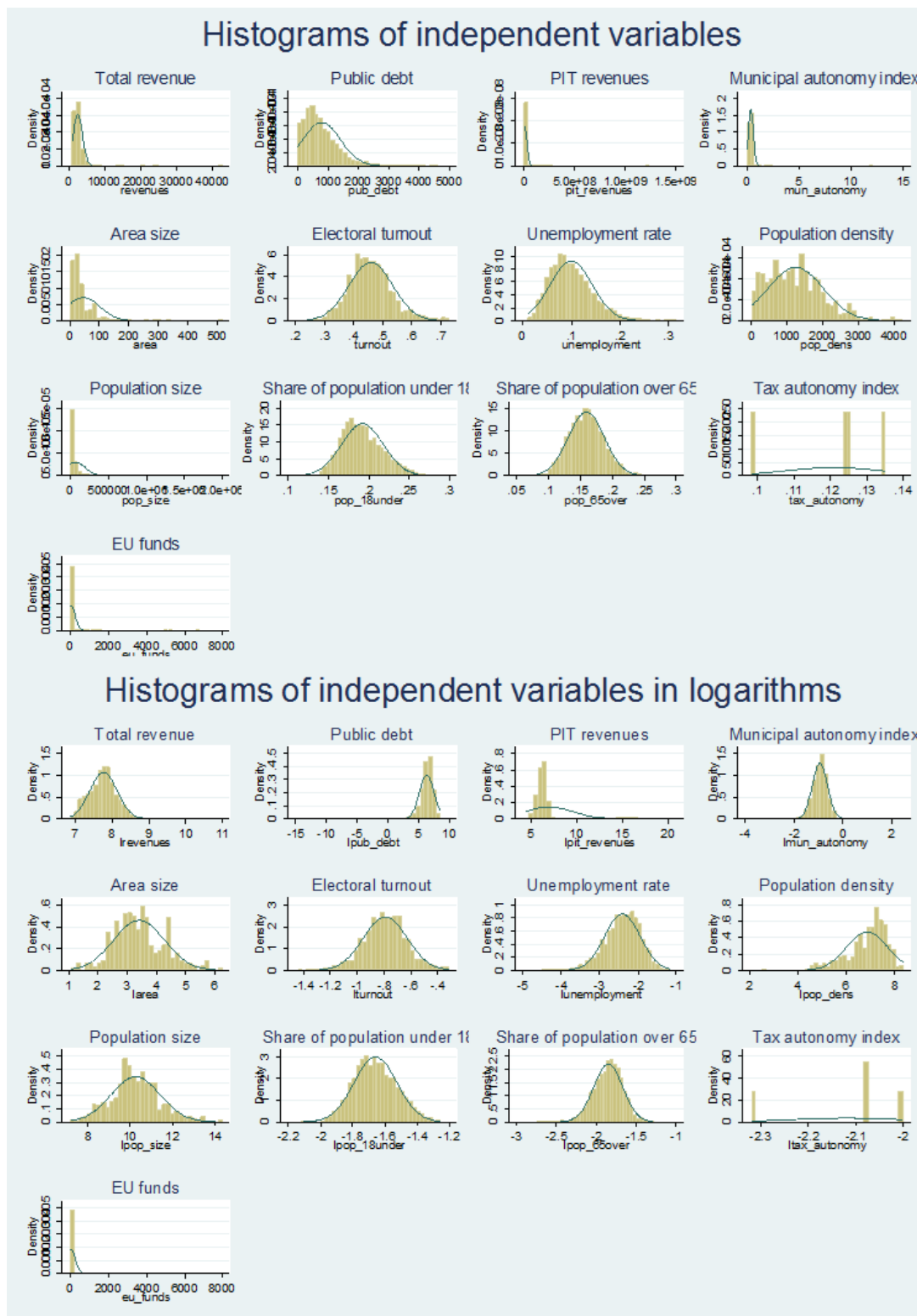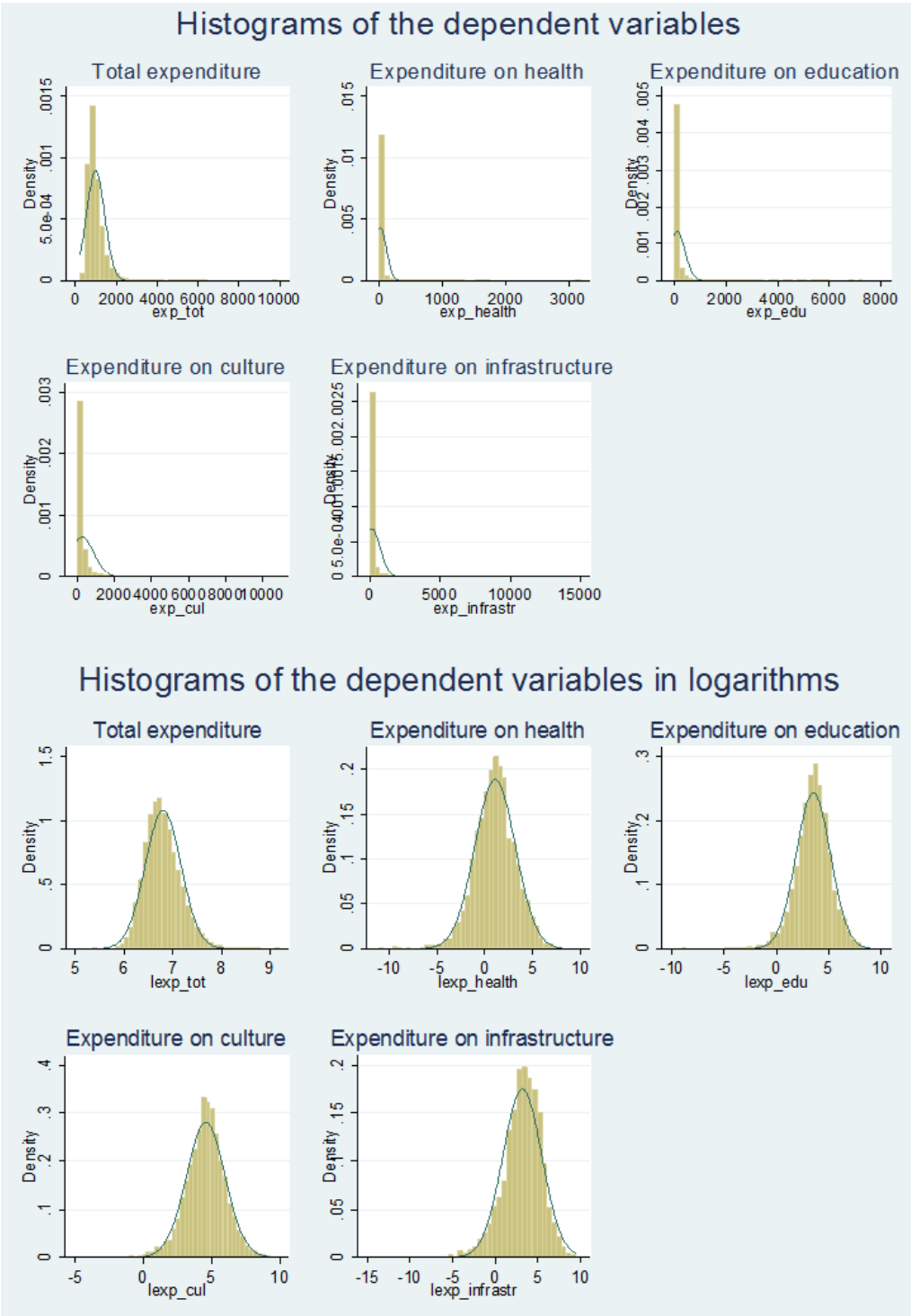

Source: Own compilation.

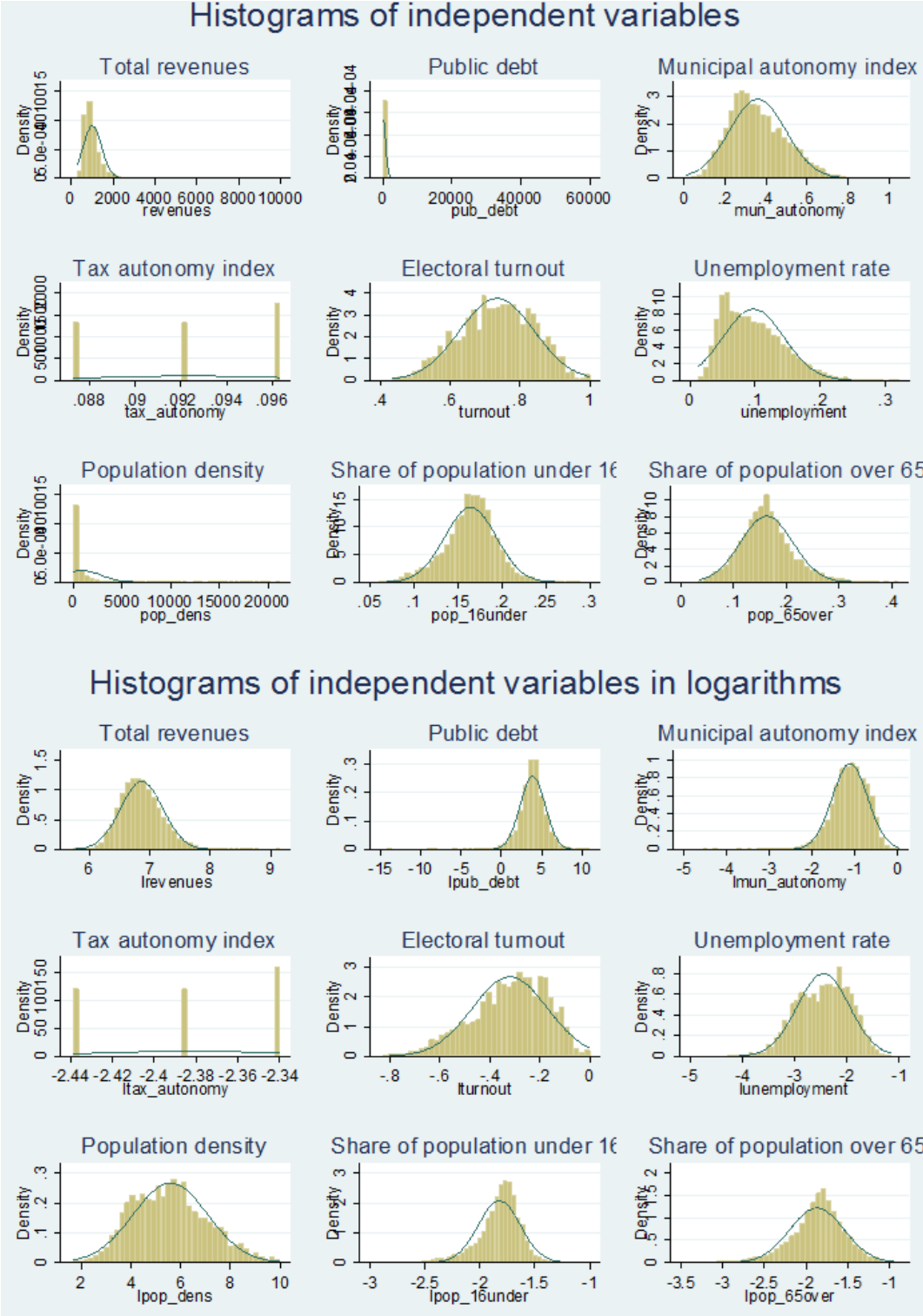**Figure A2. Histograms of independent variables and their logarithmic form for Poland.**

Source: Own compilation.

Figure A3. Histograms of dependent variables and their logarithmic form for Spain.

Source: Own compilation.

Figure A4. Histograms of independent variables and their logarithmic form for Spain.

Source: Own compilation.

Table A1. Basic summary statistics for Polish sample.

Variable	No. of observations	Mean	Standard Deviation	Min	Max
Total expenditure	3664	2622.482	1333.602	972.05	42739.14
Health expenditure	3664	31.40807	43.96752	1.195099	1530.459
Education expenditure	3664	858.8385	321.541	282.1004	3013.129
Culture expenditure	3635	198.8519	177.0853	0	3705.226
Infrastructure expenditure	3664	282.1714	356.6865	0	7763.141
Total revenue	3664	2551.402	1309.045	968.3984	42765.04
PIT revenues	3664	1731283	2.31e+07	74.96117	1.23e+09
Public debt	3052	785.3683	616.8877	0	4610.336
EU funds	2441	32.83826	219.0758	0	6793.57
EU membership	3664	.8333333	.3727286	0	1
Crisis	3664	.5833333	.4930736	0	1
Population density	3664	1236.115	774.5288	12	4256
Share of population under 18	3664	.1921106	.0258097	.1199905	.2842254
Share of population over 65	3664	.1593027	.0280007	.0642798	.2753344
Electoral turnout	3664	.4583834	.0752276	.2364787	.7288227
Unemployment rate	3359	.09943	.0429258	.011	.315
Upper Silesia	3664	.0618893	.240987	0	1
Metropolis	3664	.0162866	.1265928	0	1
Capital city	3664	0.0032751	0.0571426	0	1
Year before elections	3664	.25	.4330715	0	1
Election year	3664	.25	.4330715	0	1
Year after elections	3664	.25	.4330715	0	1
Education level	3664	.0694897	.2585548	0	2
Continuous governance	2441	.6547231	.4755553	0	1
Fiscal autonomy	3664	.4062958	.1135899	.0401966	0.9951666
PO	3664	.1672096	.3732135	0	1
PiS	3664	.1031488	.3041944	0	1
PSL	3664	.0249729	.1560635	0	1
SLD	3664	.1378936	.3448351	0	1
Independent	3664	.5667752	.4955883	0	1

Source: Own compilation.

Table A2. Basic summary statistics for Spanish sample.

Variable	No. of observations	Mean	Standard Deviation	Min	Max
Total expenditure	11804	962.6919	445.6487	206.3248	9869.51
Health expenditure	11804	21.79669	92.44057	0	3183.391
Education expenditure	11816	113.1102	300.5515	.000117	7299.135
Culture expenditure	11834	263.0806	626.6253	.0416914	10914.89
Infrastructure expenditure	11804	162.0968	589.3828	0	13815.88
Total revenue	11989	1028.766	443.2328	311.4427	9536.366
Public debt	11840	161.1634	758.7793	0	55484.41
Crisis	11989	.8059888	.395454	0	1
Population density	11804	850.0974	1958.686	5.443834	21262.14
Share of population under 16	11804	.1645678	.0294748	.0608354	.2892151
Share of population over 65	11804	.1622328	.0498385	.0339918	.4133827
Electoral turnout	11949	.7345892	.1066843	.436392	1
Unemployment rate	9527	.0975805	.0464972	.014	.32
Capital city	11989	.0008341	.0288699	0	1
Metropolis	11989	.0046709	.0681874	0	1
Catalonia	11989	.15998	.3666028	0	1
Galicia	11989	.0984236	.2978989	0	1
Mediterranean Coast	11989	.5181416	.4996916	0	1
Year before elections	11989	.2982734	.4575192	0	1
Election year	11989	.2011844	.4009023	0	1
Year after elections	11989	.1982651	.3987095	0	1
Continuous governance	11989	.4737676	.4993322	0	1
Fiscal autonomy	11989	.3590465	.1370851	.0105845	.9936816
Left-wing	11959	.655406	.4752556	0	1
Right-wing	11959	.2894891	.4535442	0	1
Central	11959	.034451	.1823923	0	1
Independent	11959	.0206539	.1422287	0	1

Source: Own compilation.

Table A3. Tests statistics and p-values for Polish sample.

		Total expenditure	*Health expenditure*	*Education expenditure*	*Culture expenditure*	*Infrastructure expenditure*
Hausman test	Test statistic	**187.56**	**72.04**	**358.59**	**47.53**	**408.97**
	p-value	**0.0000**	**0.0000**	**0.0000**	**0.0029**	**0.0000**
Wald heteroscedasticity test	Test statistic	**4.3e+28**	**4.5e+05**	**3.5e+27**	**1.2e+30**	**6.9e+29**
	p-value	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**
Woolridge autocorrelation test	Test statistic	**37.603**	**17.086**	**83.853**	**73.572**	**55.834**
	p-value	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Source: Own compilation.

Table A4. Tests statistics and p-values for Spanish sample.

		Total expenditure	*Health expenditure*	*Education expenditure*	*Culture expenditure*	*Infrastructure expenditure*
Hausman test	Test statistic	**1311.98**	**127.41**	**7581.51**	**-194.97**	**74.58**
	p-value	**0.0000**	**0.0000**	**0.0000**	**-**	**0.0000**
Wald heteroscedasticity test	Test statistic	**1.4e+29**	**9.4e+28**	**2.1e+33**	**6.1e+32**	**1.5e+06**
	p-value	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**
Woolridge autocorrelation test	Test statistic	**32.530**	**222.808**	**184.279**	**59.212**	**158.306**
	p-value	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Source: Own compilation.