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POLITICAL BUSINESS CYCLES IN PUBLIC GOODS EXPENDITURES IN POLAND AND SPAIN

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Abstract

In this work the discussion is focused on the empirical test of the presence of opportunistic cycles in municipal budgets of Poland and Spain. In the view of progressive decentralization of public sector, the research is extended by the examination of fiscal autonomy effect. Panel data analysis provides an evidence on electoral cycles in the categories of spending considered in the literature as invisible to the electorate. In particular, local incumbents seeking re-election signal higher competence through manipulation of spending policies associated with social support, environmental protection, public safety and administration. Further research indicates that electoral cycles in Spain are intensified by limited authority of councillors determined by transfers from the central government. The main findings suggest that distribution of fiscal power to sub-national governments may mitigate the effects of political budget cycles.

JEL classifications: H72, D72
Keywords: public spending, political business cycles, fiscal decentralization, fiscal autonomy

Resumo

Neste trabalho a discussão centra-se no teste empírico à presença de ciclos oportunistas nos orçamentos municipais de Espanha e Polonia. Com base na progressiva descentralização do sector publico, a investigação estende-se também ao tratamento dos efeitos da autonomia fiscal. A analise de dados de painel fornece evidencias da existência de ciclos eleitorais nas categorias de gastos públicos consideradas na literatura como invisíveis ao eleitorado. Em particular, governos locais que procurem a reeleição apresentam uma maior evidência de manipulação de politicas de gastos públicos associados atividades como apoio social, proteção ambiental, segurança publica e administração. A investigação indica ainda que os ciclos eleitorais em Espanha são intensificados em concelhos com autonomia limitada e determinada por transferências vindas da administração central. Os principais resultados sugerem que a transferência de poder para os governos locais pode mitigar os efeitos dos ciclos políticos nos respetivos orçamentos.

JEL classificações: H72, D72
Palavras-chave: gastos públicos, ciclos políticos, descentralização fiscal, autonomia fiscal

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Introduction

Political business cycles are the phenomena observed frequently in developed and developing countries over the last decades. Although the first theoretical foundations of the model of dependence between economic policies and electoral timing were established in the seminal work by Nordhaus in 1975, the issue of political business cycles is constantly examined in the literature.

In particular there is an overwhelming evidence confirming the notion that opportunistic incumbents manipulate local government policies using the myopia of the voters. As a consequence policymakers, primarily motivated by keeping the office, signal higher competence in the pre-election period through the change in the pattern of spending in favour of the services easily observed by the citizenry. Moreover, the studies indicate the compensation of expansive policies by a simultaneous decrease in expenditure on the services considered as not visible for the electorate or alternatively by a subsequent reduction of spending size after the election. However, the level of manipulation of spending policies in local governments may be determined by the scope of their autonomy. Nowadays the common trend in the economies is fiscal decentralization defined as the process of transferring more competences to lower tiers of government and justified by higher efficiency in the provision of public goods.

On these grounds one may argue that local governments in more decentralized economies are expected to tailor spending pattern to local tastes and subsequently gain more efficient allocation of resources regardless of political preferences of the authorities. Nevertheless, the existing literature indicates the presence of political business cycles even in highly decentralized countries. In this work the discussion is centred on the investigation of the existence of opportunistic cycles in Spain and Poland. These two countries are relevant laboratory to test business cycles in public spending since both are highly fiscally decentralized after the transition from centrally planned economy to free-market state and also have similar electoral systems. The empirical research is based on the spending pattern with respect to different categories of public services, considered as not visible to the electorate, and provided by the governments of the lowest level of administrative division. Such detailed study undoubtedly contributes to the literature since the issue of political business cycles is not explored in the case of Polish municipalities, whereas Spanish sample is not well examined in the categories regarded as invisible to the voters.

The purpose of this work is twofold. Firstly, it aims at the empirical testing of the hypothesis of the absence of political budgetary cycles in Spanish and Polish local spending in the categories of public services considered as invisible to the electorate. Additionally, it verifies the hypothesis about strengthening influence of fiscal dependence of municipalities on the electoral cycles. However, the obtained results do not confirm the economic theory. Although no significant impact of political factors on spending pattern was expected, the empirical analysis reveals the presence of business cycles in invisible categories of public expenditures in Spain and Poland. What is more, the magnitude of the cycles turns out to be intensified as fiscal authority of municipalities is limited.

The work is organized as follows. The first section provides the theoretical foundations of fiscal federalism and presents the principles of the decentralization of tasks and resources in Spain and Poland. The review of the literature on political business cycles is reported in the second section. The next section describes the datasets and the results of the empirical research. Final section concludes the work and points out the main findings.

I. Fiscal decentralization in theory and practice.

1.1 What is fiscal decentralization?

The process of fiscal decentralization may be defined as devolving more competence and spending responsibilities to sub-national governments. More specifically, one may distinguish decentralization of tasks and resources. The first one is characterized by transmission of expenditure functions, whereas the latter corresponds to the level of independence from central government in financing local activities. Such ways of distribution of fiscal power is observed in many developing and developed countries during last decades.

Originally, decentralization mechanism was motivated by strengthening of regional identity in the countries which were characterized by high diversity of their regions, for instance in terms of language or tradition. However, recent experience indicates mostly economic grounds of fiscal power distribution. In particular, it may result in better adjustment of public services to the needs of local communities. Such solution provides more efficient allocation of resources than centralized decision-making, especially if regions differ with respect to preferences and fiscal structure. Yet, state is not eligible to tailor spending pattern to local tastes and expectations. Among other economic benefits of decentralization one may mention natural competition between sub-national governments in terms of social efficiency of public services allocation. Higher competition may provide more reasonable decisions and better performance of local governments and subsequently, support regional development. Finally, decentralization gets closer local authorities to their electorate reducing barriers which hamper proper understanding of local needs. It may translate into higher transparency of local policies. However, central government is not always motivated by welfare of local communities and higher efficiency of public sector. In particular during the period of crisis it seeks for savings in state budget through transferring more tasks to sub-national governments. As a result, lower tiers of public sector are forced to finance additional responsibilities, which in the view of insufficient support from central government implies an increase in local debt. On the other hand, central government saves own resources and demonstrates opportunistically better management of state budget.

Despite common opinion that decentralization promotes efficiency of public spending and increases regional economic growth, particular incentives to distribute fiscal competences depend on the level of development of a country. More precisely, developing countries introduce decentralization in order to achieve macroeconomic stability and enter the path of

growth of more developed counterparts. Especially transition countries (case of Poland in 1989) expect higher efficiency of government activity due to rejection of centrally-planned system. Developed countries, in turn, tend to move more power to sub-central governments since it allows to provide the best combination of public services which matches the needs of local communities.

1.2 Theory of fiscal federalism.

In general, the analysis of decentralization cannot omit mentioning of the associated theory of fiscal federalism. This term is defined as a sphere which examines the links between different levels of public government in terms of collecting revenues and allocating resources. Basic theoretical background of fiscal federalism emerged nearly 50 years ago in order to answer the question which competences and instruments should be assigned to central government and which should be under control of decentralized governments. Fiscal federalism theory provides two-side insight to the issue of the existence diversified governments, namely positive and normative.

The traditional foundation of fiscal federalism is called First-Generation Theory of Fiscal Federalism (FGT). The normative framework (the Decentralization Theorem) of public sector structure was established by seminal works of Samuelson (1945,1955), Musgrave (1959) and Oates (1972). Generally speaking, FGT states that competences related to the macroeconomic stability and income redistribution should be in hands of central government. Moreover, state should deliver to the whole population public goods of national nature such as internal and external defence. This approach is based on the assumption that in the absence of perfect information, centrally planned provision of public goods has uniform character for all regions and localities. Hence, it does not guarantee optimal allocation of outputs. Yet, the authors notice that other (non-national) public goods and services should be provided by sub-central governments since they are closer to local residents. They possess the information about possible costs of particular allocation strategy and may adjust the pattern of public spending to the preferences and needs of citizens. Hence, economic policies are diversified according to local units decisions matched with local conditions. Under centrally planned system the government would not conduct discriminatory policies with respect to different regions since such activity is considered as a contradiction to the sense of equal treatment. Thus, decentralized allocation of resources is more efficient and what is more, it promotes national and regional welfare compared to the system based on centralism. However, the efficiency of

provision of public goods by local units may differ between localities since they vary in terms of local needs and costs . Thus, in order to provide sustainable development of the regions and increase social welfare, the pattern of public goods should be diversified across local governments. The theory expects that the higher is a price inelasticity of demand for public goods, the greater are welfare benefits coming from the variation of demand between jurisdictions, keeping costs equal across decentralized units. Interestingly, the existing literature indicates high level of price inelastic demand for public goods so one may expect that decentralized governments do provide welfare gains.

Positive approach to the problem of fiscal federalism was proposed by Tiebout (1956). The model known as fiscal migration theory is based on the assumption of free and costless mobility of individuals across jurisdictions and perfect information on the package of public goods and the level of taxes in all local communities. Mobile inhabitants may change, with no cost, the place of residence in favour of localities which match to their demands in terms of the pattern of public goods provision. This way they reveal their preferences towards specific economic policies and behave as consumers-voters. Tiebout indicates that individuals concentrate in homogenous groups with respect to their local services preferences, thereby forming communities of optimal population size. It results in Pareto-optimal allocation of resources and efficient output of public goods by local governments. However, the model turns out to be justified mainly in the case of rural and suburban areas which are characterized by high diversity of local communities.

Special attention deserves also public-choice view on fiscal federalism which is an opponent to FGT approach. This theory assumes self-interest of individuals including policymakers and voters. Using fundamentals of public-choice framework, Buchanan and Tullock (1962) proposed to consider public sector as an agent which acts in such a way to maximize its utility. Thus, legislators try to obtain the most possible level of revenues through taxing power and monopolistic control over the resources of the economy. Such activity of state is costly for population and reduces social welfare. Although good central management in order to gain favour of public interest seems to be reasonable, public choice approach assumes ignorance of electorate with respect to political issues. Therefore central government does not have any incentive to execute efficient and socially beneficial policies since voters do not monitor its performance. Thus, policymakers may abuse their rights and privileges while setting economic strategies which control resources of other agents, not their own. However, the authors propose the solution to the failures coming from monopolistic behaviour of central government. They indicate fiscal decentralization as effective tool which reduces

expansionary incentives of government. In particular, competition between sub-central units should work similarly to competition existing in private sector. This way public-choice approach introduces new insight into the beneficial effects of decentralization process as a limit on growth of government unlike the FGT, which assumes legislators seeking common wealth.

The abundant existing theories concerning fiscal decentralism became an incentive to develop new Second-Generation Theory (SGT) based on the combination of some assumptions made in previous works. This framework accepts the issue of self-interest behaviour of agents assumed in abovementioned public-choice approach. It states that electorate and policymakers seek to maximize their own utilities but their incentives are limited under the executed economic policy. On the other hand, SGT adopts the microeconomic theory of imperfect information and takes into account that some agents possess better knowledge on the level demand for specific goods and services and cost functions than other individuals. Thus, SGT investigates the efficiency of different fiscal systems in the view of self-interested agents and asymmetric information. This approach promotes decentralized governments as more beneficial to local growth and social welfare under the assumption of increasing level of revenues collected during this process. However, the authors consider financing through subsidies and grants as a disincentive to foster local development. Thus, higher level of taxing decentralization results in larger independency of collecting revenues and efficiency of public spending, which in turn supports regional prosperity.

Summing up, fiscal federalism framework provides various approaches to the problem of decentralized governance. Although these theories differ in terms of assumptions concerning the asymmetry of information, mobility of people or self-interest of agents, they all indicate beneficial role of subnational governments in the process of local economic development rather than centrally planned economy.

1.3 Fiscal decentralization in Spain.

1.3.1 Decentralization process over time.

Spain is currently considered as a highly decentralized country. However, it is a result of a gradual process which has been evolving for four decades. Similarly to Poland, Spain transformed its structure and organization from centrally planned to democratic and regionally decentralized economy.

The evolution of Spanish administrative system and accompanying decentralization has been initiated by the Constitution issued in 1978. It established a new system, which can be defined neither as fully federal nor as centrally planned but Cooperative Federalism characterized by lower levels of governments divided into Autonomous Communities and Local Corporations (also called Local Entities or Local Public Sector). Interestingly, the reasoning behind the decentralization in Spain was more political than economic. First of all, decentralization aimed at providing a solution to the problem of significant diversity of Spain in terms of language, history, tradition and culture. Spain has been highly heterogeneous since 18th century and reached its peak with the release of Statute of Autonomy of Catalonia in 1931. Subsequent dictatorship of General Franco in the period 1939-1975 intensified the centralism of the state and set Castilian (official Spanish) as dominant unique language in Spain, rejecting autonomous movements in particular regions. The second political incentive to decentralize the country appeared together with the fall of Franco regime and his death. Keeping in mind the demands for autonomy raised by non-Spanish speaking countries, namely the Catalans and Basques, there was a need to take control of the process of democratization and regionalization free of disruption. Moreover, among other reasons of decentralization one may find the requirements imposed by integration under the European Economic Community, transformed later to the European Union. More specifically, state government has to share its power with the European institutions but also give some empowerment to regional governments.

1.3.2 Expenditure competences of decentralized governments.

Gradual process of decentralization in Spain is often called asymmetric since it does not provide equal responsibilities and privileges to local governments. The administrative division distinguishes state as central government and seventeen Autonomous Communities and Local Corporations as lower levels of government. Central government has exclusive decision-making power in the fields of national defence, relations and trade with other countries, social security and macroeconomic policy and strategy. The Autonomous Communities, in turn, may be divided into two groups depending on their responsibilities and the way they become communities. According to Article143 of Spanish Constitution the first class of Autonomous Communities is slow track with low level of responsibilities allowed. These are the ten Communities and two autonomous cities (Ceuta and Melilla) with limited competences provided for the first five years and gaining more independency in the subsequent period

through the negotiations with the central government.[1] The second group consists of regions with historical background and is called fast track. These are seven remaining regions with high level of competences.[2] The competences of slow track Communities are regulated by the Article148 of Spanish Constitution and cover common responsibilities such as: self-government institutions, housing, agriculture, fishing, maintenance of forests, farmlands, roads and transportation facilities (airports, ports) as well as protection of environment and local traditions (culture). All abovementioned competences are also attributed to the second group of Communities but their set of responsibilities is extended by categories related to education, health system, social care, courts and working issues (e.g. public works). Despite the fact that initially the fast track group got higher independency and became more decentralized, the competences gap between them and the first group of Autonomous Communities has been diminishing gradually. The pace of this process was not as fast as anticipated and provided by law, since it did not finish within five years after the issue of the Constitution. However, nowadays the first group is also empowered to be responsible for social care and education. Medical system and courts, in turn, still remain beyond their competences.

Moving to the lower level of government, Local Corporations cover mainly provinces and municipalities. However, there are also other categories of local entities such as islands, metropolitan areas or *comarcas*.[3] Among Autonomous Communities one may distinguish six single-province Communities and remaining eleven multi-province regions. One-province Communities (Asturias, Cantabria, Madrid, Murcia, Navarra and La Rioja) are not governed by province governments but regional governments instead. In contrast, provinces within multi-province regions are governed by provincial authorities. In sum, there exist fifty provinces in Spain and their differentiation remains similar to their origins dated back to 1833. According to Constitutional legacy provided in Articles 31.2 and 36.1, Spanish provinces are obliged to support solidarity and balanced development for lower tiers of administrative division they are composed of, namely towns, municipalities etc. Provinces competences cover also necessary aid to municipalities in order to provide local public services and guarantee equality of services delivered in subordinate municipalities. Finally, provinces are intended to collaborate with other forms of government – state and Autonomous Communities.

[1] These are: Aragon, Asturias, Baleares, Cantabria, Castile-La Mancha, Castile and León, Extremadura, La Rioja, Madrid and Murcia.
[2] These are: Andalusia, Canary Islands , Catalonia, Galicia, Navarre, Valencia and Bask Country.
[3] Comarca is a group of municipalities. Comarcas are particularly popular in Catalan part of Spain.

Besides provinces, Spanish Local Entities consist also of over 8 100 municipalities (called *municipios*) which differ substantially in terms of the number of inhabitants. Madrid is the largest *municipio* with the population size exceeding three millions , whereas the least populated is Illan de Vacas located in the province of Toledo with solely three inhabitants in 2014. Due to wide diversity of municipalities, their competencies are assigned according to their population size. However, all municipalities are obliged to provide basic services to their inhabitants regardless the number of inhabitants. These competences cover: public cleaning and lighting, trash collection, sewer management, water and electricity supply, cemeteries as well as maintenance of roads and urban territory. When it comes to the municipalities with the number of inhabitants exceeding 5000, their responsibilities are related to public parks and libraries, markets and trash management. Among services supplied by municipalities habited by more than 20 000 one may distinguish citizen protection and fire safety, social work as well as culture and sport. Finally, public transportation and environment protection are the tasks of municipalities with more than 50 000 citizens. It is also worth mentioning that all municipalities are allowed to finance and provide services which are assigned to more populated units if it is consistent with their local policy.

1.3.3 Financing local governments.

When it comes to financing the Communities, state government covers part of their financial needs, whereas two of the Communities (Navarra and Pais Vasco) keep financial independence from the central government. These two Communities set tax base and collect tax revenues but also transfer its particular share to the central government in order to finance general services provided by state. The rest of the Communities have had different sources of financing their performance over time. For the first five years starting from 1987 these provinces were financed mainly by the central government but their taxing power has been increasing gradually from 1992 to 2002. Finally, central government empowered these Communities to collect some taxes, mainly in the categories related to heritage, wealth, donation, gamble and gave them permission to introduce new taxes. Communities treasure is also filled with the share of income tax transferred from the central government. This share is diversified and ranges between 15 and 30% depending on the level of competences assigned to the regions.

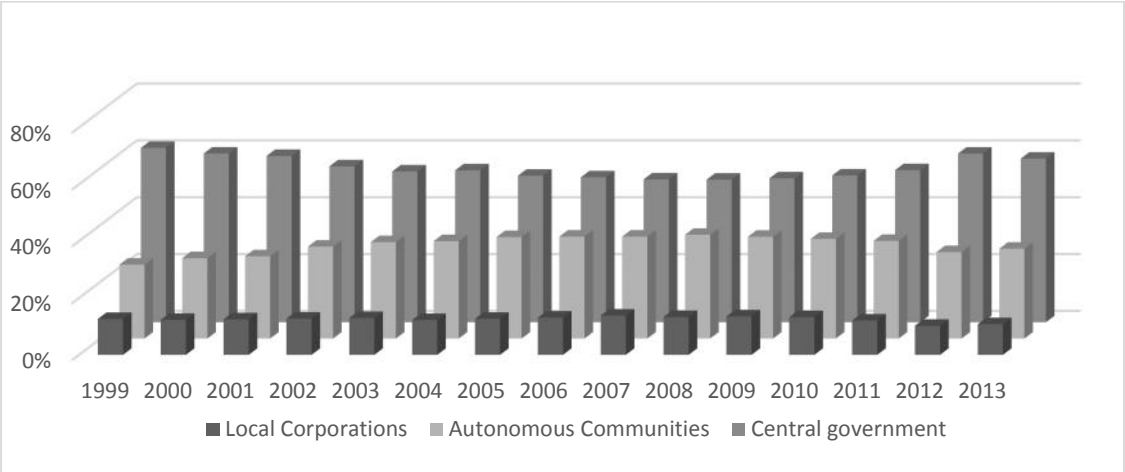
Municipalities treasures are completed by the EU funds, share in the local taxes and those collected by Communities and state, grants, revenues from the assets they possess and finally by public transportation fares and credit measures.

1.3.4 Consequences of decentralization in Spain.

Decentralization process in Spain aimed at empowerment of local governments in decision-making, revenues collecting and transferring higher level of competences regarding public expenditure. The results of gradual decentralization are observed in Figure1. It displays the contribution of each of the levels of government to total public expenditure in the period 1999-2013. According to the presented graphic one may observe slight diminishing importance of central government in total spending. Its share decreased from 61% in 1999 to 50% in 2008 and subsequently grew slightly to 58% in 2013. Such evolution of decentralization is beneficial for lower levels of government. However, this effect is more significant and noticeable in the case of regional than local governments. In the period of the analysis, governments in Autonomous Communities gained contribution to total expenditure higher by 10 p.p. (from 26% in 1999 to 32% in 2013). Local Corporations share, in turn, is quite stable and does not exceed the range of 10-14%.

Summing up, four decades of decentralization process which divided Spain into 17 Autonomous Communities which consist of 50 provinces and over 8000 municipalities may be considered as successful. The evolution of decentralization results in significant decrease of importance of central government share in total expenditure in favour of lower levels of governments. Furthermore, the scope of competences and tax powers of regional and local authorities has been substantially expanded over this period.

Figure 1. Percentage share in public expenditure by levels of government in Spain. 1990-2013.



Source: Own elaboration from the data available in OECD Fiscal Decentralization Database.

1.4 Fiscal decentralization in Poland.

1.4.1 Evolution of decentralization.

Poland, similarly to other Central and East European countries, has experienced structural changes of the economy since the beginning of the 1990s. The period of transition was a clear response to the collapse of the Soviet Union and meant the opposition to the former central-planned market system.

The economic reasoning behind the change to free market system was based on inefficiency of centralized state and on expected benefits coming from decentralization. However, the process of transition and accompanying decentralization was also motivated by political matters. More specifically, Poland aspirated to become a member of the European Union in order to be integrated in global trade and strengthen economic and political ties with other European countries. What is more, possible accession to the EU was associated with potential inflow of European funds supporting economic development and regional cohesion. Thus, fiscal decentralization and democratization efforts of Poland were even more intensified due to the political and strategic factor. One of the most important results of this process is undoubtedly a reform and development of local governments system.

Process of transition and democratization began with the changes in legislation and administrative division. In 1989, Polish Parliament (chosen in partially-free elections) modified the Constitution from 1952, forming local governments as a basic and legally relevant public administration unit. Subsequent set of acts issued in 1990 established dual system of government and guaranteed governing power to local governments (called *gminas*). This stage was completed with the first free elections to municipal councils, which took place on 27th of May 1990. As a result of new territorial division, Poland was decentralized into 49 voivodeships (higher-tier of local governments) and over 3000 municipalities (lower-tier governments). Local governments competences and relationships with legislative and executive authorities in Poland were redefined and guaranteed again through the establishment of Small Constitution on 17th of October 1992. It provided municipalities a legal personality, divided the tasks of *gminas* into own and delegated from upper-tier governments and identified legal categories of municipal revenues. The next stage of local government regulations was initiated by the issue of new Constitution of the Republic of Poland on 12th October 1997 (still in force). According to the Constitution, local governments activity is specified by three main principles: subsidiarity (local governments units satisfy the

needs of inhabitants, whereas upper-tier units support municipalities in provision of services), independency (local governments units have guaranteed legal protection and are independent from state and each other) and presumption of competence (if it is not clearly stated in legal regulation which of the government units are responsible for particular issue, then it is the competence of a municipality). Further modifications were introduced with the issue of set of acts related to the structure of local governments. Finally, since the 1st of January 1999, under the new legal rules the administrative division of Poland is based on three levels of subdivision. Consequently, it has been constituted 2489 municipalities (*gminas*) as basic unit of local government, 373 counties (*powiats*) and 16 provinces (*voivodeships*).[4] Until the year 2014 the number of counties in Poland increased to 379, whereas the number of municipalities decreased and now there exist 2479 *gminas*.

Finally, it is worth mentioning which authorities have legislative and executive power in local government units. Legislative bodies in municipalities, counties and voivodeships are municipal council, county council and provincial council. The members of councils – councillors - are elected in direct and general elections for 4 year terms. Executive power in municipalities, in turn, is delegated to mayors. However, in the case of counties and voivodeships it is entitled to collective boards which are represented by foreman and marshal respectively.

1.4.2 Competences of lower-tier governments.

Since central government cannot predict the level of demand for public goods and services raised by inhabitants in many fields of economic activity, provision of services to local community is a basic right and obligation of local government units. Although state has exclusive responsibilities related to, among others, public order, internal security, international relations, external security and national defence; the majority of public services is provided by central state in cooperation with local governments.

The main purpose of decentralization in Poland was delegation of more competences to the lowest tiers of government units and subsequent regional development. To this end, legal regulations do not assign many responsibilities to voivodeships since they constitute the highest level of administrative subdivision. Thus, among tasks attributed to voivodeships one may distinguish signing provincial contracts related to projects which take place on the

[4] There are also 66 cities with county status.

voivodeship territory and are co-financed by central government or the EU funds. Voivodeships are also responsible for promotion of their regions, fighting against the problem of unemployment, urban planning, higher education system, environmental protection, provincial public transport, maintenance of provincial roads and cultural facilities. Moreover, they are eligible to establish agreements with foreign partners. Counties, in turn, are mainly assigned to provide services related to social issues, namely upper secondary schooling, medical care in county hospitals, social support facilities (e.g. family or disabled aid centre), employment support and maintenance of cultural facilities. Moving to other categories of competences given to counties, it is worth mentioning the responsibility for county roads and public transport as well as civil defence. In terms of environmental tasks, counties ought to control agriculture, forestry and fishing. When it comes to municipalities, their list of competences is evidently long since according to the Constitution they are the most essential type of government subdivision. Primary task of a municipality in Poland is satisfying all basic needs of local community. First of all, municipalities provide primary education, basic medical care, social support (including homeless assistance programmes), housing and cultural facilities. In the category of social security, municipalities are obliged to support public order and ensure fire protection. Moreover, among services associated with environment and urban area one may mention urban planning, maintenance of cemeteries and local markets as well as protection of arable lands and natural environment. Finally, municipalities respond to the needs related to road construction and conservancy, public transport, waste collection as supply of electricity, water and gas. Besides all abovementioned tasks (called own competences), municipalities exercise administrative tasks or those assigned by other tiers of government (called commissioned competences).

1.4.3 Financing of local governments performance.

Polish Constitution guarantees independence of local governments which is reflected also in the sphere of financing their performance. According to legal regulations, among revenues of local governments one may distinguish own revenues, general subsidies and grants from central government to finance specific activities.

Own revenues of local governments cover tax revenues collected from local communities which are taxes imposed on agriculture, forests, property, inheritances and gifts as well as having a dog. Another source of revenues are these received through sales, rents and dividends. Local treasures are completed with charges and fees such as stamp duties, visitor's

tax, service charge or market fees. Finally, own revenues are increased by share in personal and corporate income tax collected by central government. Second category of source of local budgets is general subsidy. This measure is transferred from state budget according to specific regulations which state that each level of local government receives proper amount of money under three different categories of subsidies. Namely, municipalities and counties obtain educational, compensatory and balancing part, whereas voivodeships may count on educational, compensatory and regional subsidies. The level of particular subsidy is calculated with respect to objectively set criteria such as unemployment rate, number of pupils, revenues per capita etc. And last but not least type of revenues are grants obtained for specific purposes but after proper application for that in central government. In this case, the criteria which determine whether grant is provided are based on subjective evaluations and the condition of the budget. Moreover, beneficiary of grants in particular year is obliged to return unused part of money.

The scope of independency of local governments is determined by share of own sources in total revenues. Thus, the higher the amount coming from subsidies and grants, the lower independency of a local government. Moving further, such method of financing local activity may be considered to some extent as a realization of policy set by unit which subsides instead of execution of own local strategy. In this sense the independency of local governments is limited by subsidies. However, due to significant diversity of revenues portfolio in different regions of Poland, local activity cannot be fully financed by own funds. Thus, in order to provide balanced development of local regions, their treasures are enriched by compensatory subsidies.

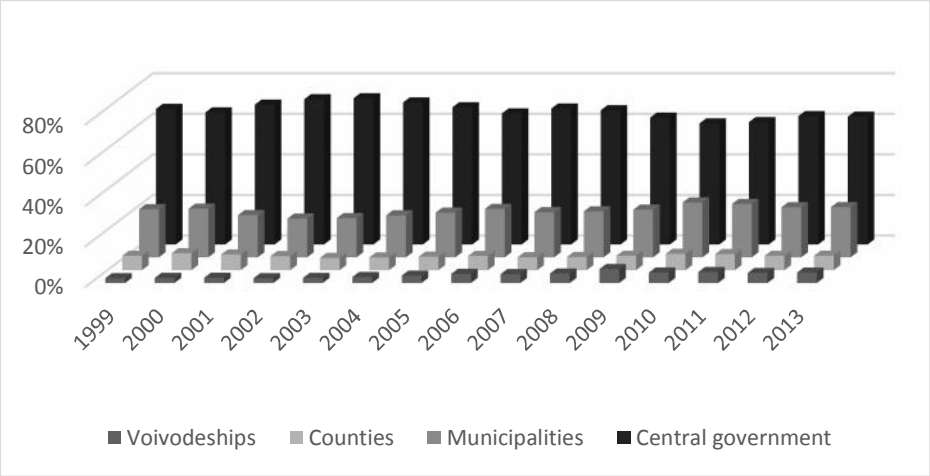
1.4.4 Outcomes of decentralization in Poland.

Decentralization process began over 25 years ago and results in highly diversified set of local governments with many competences assigned in order to provide all basic services to local communities. The transition from centrally planned economy to the system based on free market mechanisms limited the importance of state in determining regional policies and strategies. New three-level administrative subdivision assumes territorial distinction of Poland into 16 voivodeships, 379 counties and 2479 municipalities.

In spite of the fact that empowerment of all lower-tiers of government aimed at strengthening of regional sustainable development, local governments do not accomplish their development functions. The analysis of share in total expenditure for each of government level shown in

Figure2. clearly points out dominant position of central government with the share above 60%. In spite of limited role of voivodeships and counties, share of non-central government spending in total expenditures grew from 33% in 1999 to 37% in 2013 whereas it reached its peak in the period 2010-2011 with the value equal to 40%. Such trend indicates gradual strengthening position of local governments.

Figure 2. Percentage share in public expenditure by levels of government in Poland. 1990-2013.

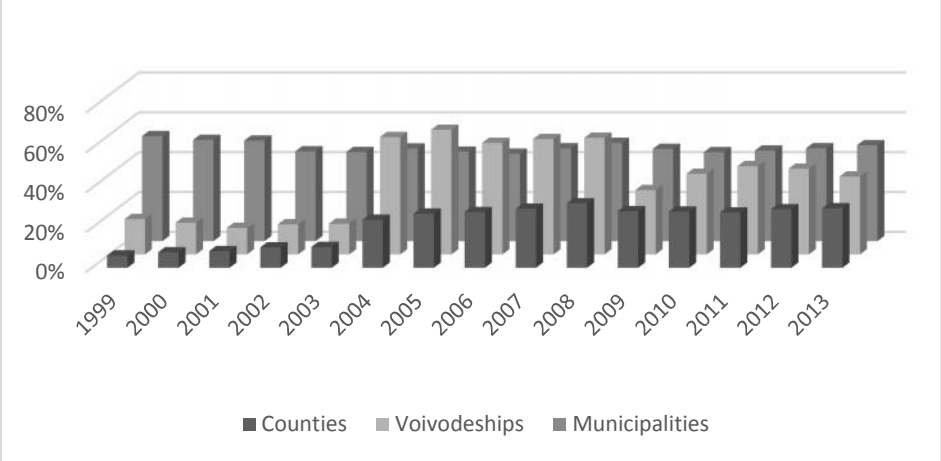


Source: Own elaboration from the data available in Local Data Bank of Central Statistical Office of Poland.

When it comes to the issue of revenues presented in Figure3., local governments budgets are strongly dependent on financial support given by higher levels of government, mainly subsidies and grants. According to the graphical representation of the structure of local governments revenues, one may conclude that voivodeships gained the highest independence and increased their share of own resources in total revenues by 20 p.p. in 2013 compared to the year 1999. Municipalities, in turn, experience quite stable decomposition of revenues with share of own sources close to 50%. Such result indicates low efficiency of decentralization and clear dependency of local governments on state. Interestingly, counties may be considered as the biggest losers of decentralization. Even if the growth of share of own sources in total revenues is taken into account, their financial independence in terms of revenues structure is still solely at the level of 30%. Hence, limited role of own resources and the methods of distribution of the EU funds established by state result in concentration of regional development policy in central government hands. Thus, decentralization covered mainly public administration issues neglecting development practices. Indeed, nowadays Polish regions become more diversified in terms of development and rely on financial support

provided by state. And even if the dynamics of divergence is moderated by the inflow of the European funds, state must be aware that this influx will be gradually decreasing.

Figure 3. Percentage share of own revenues in total revenues by sublevels of government in Poland. 1990-2013.



Source: Own elaboration from the data available in Local Data Bank of Central Statistical Office of Poland.

II. Theory and empirics on political budget cycles.

2.1. Theoretical background

The problem of mutual dependence between political decisions and economic strategies was raised by Downs (1957) and then became a subject of interest for many researchers. Their main concern was to understand how the electoral timing and political ideologies represented by governors as well as the extent of the competition between parties may affect macroeconomic characteristics. Noteworthy seminal studies capturing the problem in question were conducted by Nordhaus (1975) and Hibbs (1977).

The theory founded by Nordhaus (1975) assumes the existence of the political business cycles stressing the opportunistic behaviour of politicians characterized by the lack of ideological preferences. He argues that due to the adaptive expectations of the electorate based on the assessment of past policy, the policy makers have incentives to manipulate monetary and fiscal policy in order to be favoured by myopic voters. Hence, the office-seeking politicians adopt stimulating policies resulting in satisfactory economic performance in the pre-election period. However, in order to neutralize the emerged unbalance, they implement contrary strategies after the election. As the economic environment analysed by Nordhaus has the Phillips curve properties, political business cycles occur through low levels of unemployment and inflation before the elections and the demand-driven recession afterwards. The approach suggested by Nordhaus has been then developed by Rogoff and Sibert (1988) in the framework of rational voters who evaluate economic performance prospectively. The rational opportunistic model provided by the authors indicates that electorate cannot be involved permanently in repeating electoral cycle game. However, incumbents may manipulate the efficiency of financing public spending for political gains as long as voters have imperfect information about the governors' goals and competences. Therefore, the office-seeking politicians may exhibit their efficiency by the provision of new services or transfers before the election. They signal high competences lowering taxes or increasing the benefits payments and cover any economic consequences by borrowing activity. This way less-visible indebtedness and more-perceivable acting feign a prosperity and affects voter behaviour.

Alternatively, Hibbs (1977) proposed a theory of partisan motivations of policy makers in political business cycles framework. The researcher indicates the heterogeneity of the ideological preferences toward the method of overstimulation of the economy. Specifically, the theory assumes a distinction between right- and left-wing oriented political parties in

terms of different policy objectives. The rightists policy makers are averse to higher inflation remaining indifferent to unemployment growth, whereas their left oriented counterparts are concerned about unemployment control and are relatively more callous with reference to inflation. As both policy strategies have redistributive consequences, the voters' preferences toward them vary across socioeconomic classes. Thus, incumbents may behave in a partisan manner being aware that upper middle class favours the Conservatives (right-wing parties) and lower-income electorate supports the Socialists (left-wing parties), since recession is more harmful for the latter group. Therefore, political business cycles occur as a result of the actions undertaken by governors. Firstly, due to the willingness of incumbents to preserve electoral support at a sufficient level. And secondly, in the view of consequent necessity to provide a policy consistent with their ideological and distributional preferences. Similarly to the opportunistic model, the partisan theory was also adjusted to the framework of rational voters and prospective evaluation of policies. The further modelling, stressing electoral unpredictability and uncertain expectations, was adopted by Alesina (1987) and Alesina and Sachs (1988). More specifically, employment of unanticipated political strategies by the governors induces shift in voters' expectations. For instance, consider a recent winner in the election rightist party introducing new policy fighting the level of inflation. Supposing that the electorate assumed a possible victory of a less inflationary averse left oriented party, expectations formulated by voters about the rate of inflation exceed the real current level. As a result, economic strategies implemented in pre-election period (and taking into account rational expectations), cannot be redefined instantly after the policy changes. Thus, subsequent change in output and scope of unemployment is corrected only after the adjustment of the expectations to the new policy.

2.2 Empirical evidence on political business cycles

The determinants of public expenditures have been a subject of interests for the researchers for decades. Although there is an abundant literature investigating the presence of political business cycles, the authors tried to explore also non-political factors which may be relevant in explaining public spending policies.

In the beginning of 70's. Bodkin and Conklin (1971) made an attempt to examine the variation of per capita spending in municipalities located in Canadian province Ontario. Employing the data for the timespan 1961-1966 the authors analysed the determinants of public expenditures in total terms and with respect to several categories of public services.

The quantitative analysis revealed the importance of population size and density in determining level of local spending. Namely, total as well as the expenditures associated with the provision of public safety and public works increase with the number of inhabitants, whereas the ratio of population to the area of municipality turned out to decrease general expenditures. The authors suggested to include the average family income in order to capture the positive effect of wealth of a society, since it may represent the demand for municipal goods. Moreover, the study indicates that geographical location of a municipality matters in terms of the size of public spending in category related to water supply, meaning that northern regions spend more. Then Kushner *et al*. (1996) conducted detailed analysis for the same province in Canada for the year 1991 using multiple regression techniques. They confirmed that regionalization of local governments has no significant impact on spending pattern.[5] However, population density as well as the ratio of young and elderly people tend to decrease general administration expenditures. The spending on social protection in turn goes up with the higher ratio of population aged below 20. It seems to be a natural consequence of not advanced ageing process in a society, which implies that most of social protection expenditure covers transfers to families with children.

As pointed out by Coffe and Geys (2005) social capital may also play a significant role in determining budgetary policies of local governments. Indeed, civic involvement in public situation used as an indicator of social capital turned out to affect positively the financial management of local budgets. The authors proposed to utilize the electoral turnout in municipal elections as a proxy for the participation of a community in local affairs. Two-stage least squares regression techniques applied for over 300 Flemish municipalities in Belgium for the year 2000 confirmed beneficial influence of social capital on local performance.

The special attention in the existing literature was also paid towards the importance of political business cycles in determining the budgetary policies of local governments. Firstly, Blais and Nadeau (1992) found empirical evidence on short-electoral cycles in Canadian provinces for the timespan 1951-1984. The authors argued that government total spending and deficit go up in election year with the emphasis put on visible categories of service, namely social protection and infrastructure. Hence, expansive budgetary policy is compensated by increase in public debt and allows to avoid taxation growth. Interestingly, the incumbents tend to follow not only re-election motives but also act with respect to the ideological

[5] Regionalization of local governments means that among cities and towns one may distinguish lower- and upper-tier counties or regions since they differ in terms of services they are forced to provide. For more detail, see Kushner et al. (1996).

preferences represented by the party they belong to. What is more the results clearly support the view that the partisan effect overpasses the electoral cycle effect. In turn, McGarva's (2010) study on municipal expenditures in Canadian province Ontario in 2000-2006 revealed strong electoral manipulation of taxation and spending pattern. Namely, estimation for the dummy corresponding to the election years indicates the real taxes collected for own purposes are lower in years of election, while the capital expenditures are significantly higher compared to the other years. Similar pattern of electoral cycles occurs in German cities according to the research by Furdas *et al*. (2015). The analysis conducted for the period 1976-2006 confirms the expansion of public debt and corresponding tax cuts in favour of the size and structure of public expenditures. More specifically, the incumbents focus more on social and infrastructural categories of services provided by local governments. Interestingly, the cycle is noticeably stronger if local incumbents belong to the state ruling party since the incentives to be re-elected are even higher.

Akhmedov and Zhuravskaya (2004) examined theory of opportunistic cycles for the period 1996-2003 in young democracy – Russia. The authors argue that use of monthly data allows to detect short-lived budget cycles, since the most distinctive shift in expenditure pattern is observed within one up to two months before the election time. Interestingly, they point out that such opportunistic manipulation of budgetary policy cannot be obtained by fiscal changes but through monetary direct transfers to voters. Thus, political cycles occur mainly in visible for electorate services such as public assistance, health or educational programs. Moreover, the authors noticed that the magnitude of cycles lowers over time as the economy becomes more democratic and voters are more aware of mechanisms that rule the economy. The phenomenon of strong business cycles occurring in developing countries was also stressed by Drazen and Eslava (2005). Similarly to Akhmedov and Zhuravskaya (2004), the strength of cycles is also found to fade out as the economy matures. The analysis of electoral cycles in Colombian municipalities revealed that local governments manipulate not only the size of public spending but first and foremost the structure of spending pattern. Thus, in election years incumbents put emphasis on preferred by voters categories of services due to the re-electoral incentives. Also, the clear evidence on rational opportunistic behaviour of incumbents in Portuguese municipalities was found by Veiga and Veiga (2006). This advanced analysis over the period 1979-2001 investigates not only the existence of electoral cycles but also partisan behaviour of local authorities. First, one or two years before the election local budgets suffer due to decrease in tax and corresponding increase in expenditures and deficit. Furthermore, distinction between several categories of spending allowed to

indicate the exact shift in budgetary policies. More specifically, in the pre-election time incumbents tend to spend more on investment categories of services visible to the voters, such as buildings or rural roads, overpasses etc. Thus, the mayors devote less to categories observed not easily by electorate. What is more, the study concludes more opportunistic behaviour of left-wing oriented authorities but ideological influences are observed solely in capital expenditures.

Noteworthy, there exists also abundant literature on political business cycles and opportunistic behaviour of local authorities with respect to individual services interesting from the view point of this research – social support, public safety and public administration. Interestingly, the findings are not consistent across studies since some confirm the existence of business cycles or partisan preferences whereas others do not find any evidence on their presence in local budgetary policies. For instance, the research by Hayo and Neumeier (2012) for German Laender over the period 1992-2008 reveals that local expenditures on social support, public safety and public administration are affected neither by electoral cycles, nor by the ideology of incumbents. These results are partially confirmed by the analysis conducted by Galli and Rossi (2002) among West German cities, since no pre-electoral expansion of spending size on administration was found. However, partisan behaviour of left-wing oriented governors was detected in spending pattern on services which are in favour of working class. Meaning that they spend significantly more on social support category than their rightist counterparts. In contrast, there are many studies indicating the presence of budgetary and partisan cycles within the categories in question. The majority of studies stresses the importance of political cycles in determining the level of social security spending. For instance, Veiga and Veiga (2004) find strong pre-electoral rational opportunistic cycles in Portuguese municipal budgetary policy, what is proven by the research also conducted for Portugal by Castro and Martins (2015). The authors conclude that electoral cycles effect overpasses the partisan one. Interestingly, regardless the ideology preferences of authorities, they usually decide to increase expenditures in visible categories such as social support. In turn, the analysis by Castles (2008) provides slightly different findings, since according to the results left-wing oriented authorities tend to spend more on social support than those associated with rightist ideology. Party affiliation seems to play role in determining also administration expenditures. Kalseth and Rattso (1998) found a significant relation between social oriented local mayors and their spending preferences towards public administration. To the best of my knowledge, there is no relevant literature exploring possible factors

determining the last category of interests for this research, namely environmental expenditures.

2.3. Empirics on political budgetary cycles in Poland and Spain

The relationship between budgetary policies and political preferences or electoral cycles is not well-explored in the current literature on Spanish municipalities. However, there exists the evidence on the positive effect of expansionary spending policy on the probability of municipal re-election of local governments in Spain (Balaguer-Coll *et al*., 2014). Hence, it provides an additional incentive to investigate whether local authorities take advantage of manipulation of a budgetary policy in order to keep the office. Noteworthy, the problem in question is partially covered by Bastida *et al*. (2013) in the recent research among the municipalities with the population size greater than 1000 for the year 2005. By isolating different categories of public expenditures the authors obtained seven dependent variables, which are spending in the following areas of local performance: total expenditures, education, culture, disposal of garbage, public housing, public safety and water supply. Despite the fact that the study aimed at detecting the influence of neighbouring municipalities spending on expenditures in a given administrative entity, it includes also urban, demographic and what is interesting from the viewpoint of this research – political factors. The models based on the spatial two-step least squares method revealed that population density has a negative impact on the level of total spending. It means that there exist economies of scale in the provision of public services. When it comes to political aspects of the analysis, it controls for the political ideology of incumbents, political fragmentation (political strength) and the dummy for local parties. Interestingly, no clear ideological (partisan) effect was found, since in the case of total expenditure it turns out to be insignificant and in the coefficients for the remaining categories to alternate in sign. However, strong majority reached by parties in local governments translates into higher spending. Finally, independent local parties tend to have slightly positive impact on the level of public expenditures with the exception of solid waste and public safety, where this effect appears with stronger intensity. The results obtained for the political affiliation of local authorities are confirmed by the study by Casal *et al*. (2013) analysing financial performance of Spanish municipal governments inhabited by more than 20 000 citizens in the year 2009. The authors identified 8 financial dimensions and sub-dimensions of municipals' condition. To this end, they adopted over 39 indicators of financial performance focusing on the short- and long-term solvency, financial dependence of

a municipality on other institutions in provision of public goods and services and finally on the balanced budget. As a result, the partisan alignment effect was not found among any of the dimensions taken into consideration. Nevertheless, less clearly positioned political parties in terms of political ideology, seem to manage debt and short-term solvency more efficiently than parties classified as progressive or conservative.

Surprisingly, the problem of relation between budgetary policies and political preferences of local authorities and electoral cycles is neglected in the literature related to spending in Polish municipalities. Thus, the current research may fill the gap in the literature, whereas in the case of Spanish municipalities the study may explore the problem in more detailed way and provide more informative results.

2.4. Summary

Summing up, four main theories emerged in the political business cycle framework. They may be classified with respect to the motivation of the incumbents and taking into account the formulation of expectations and evaluation of policies by the electorate. Thus, one may distinguish policy makers behaving in a partisan manner or seeking office, as well as voters with adaptive or rational expectations and retrospective or prospective assessment of governance. As a result these theories may be classified as political business cycle theory, partisan theory and their rational versions. Nevertheless, the existing researches provide mixed results . The studies which find an evidence on the presence of political business cycles and partisan effect in local public spending stress the fact that they occur mainly in the categories of expenditure visible for the electorate. As the problem is not well-explored in the case of Polish and Spanish municipal budgetary policies, the current research has a potential to shed some light on the issue of electoral cycles.

III. Empirical framework.

3.1. Model specification and variables.

This research aims at investigating the differences and similarities of the determinants of public expenditures *per capita* between Polish and Spanish municipalities stressing the role of political factors. Besides the analysis of total spending the study examines also four different categories of expenditures that are expected to not be influenced by the political characteristics, namely social support, public safety and fire protection, environmental protection and public administration.

The estimated spending equation is specified as follows for each of the models for Poland and Spain:

$$Y_{i,t} = \alpha_i + \beta * fiscal\ variables_{i,t} + \gamma * socio\text{-}economic\ variables_{i,t} + \delta * demographic\ variables_{i,t} + \zeta * regional\ variables_{i,t} + \theta * political\ variables_{i,t} + \mu_t + \varepsilon_i \quad (1)$$

where Y is the dependent variable, i denotes the municipality in Poland or Spain (depending on the model), t stands for the year, α_i is a municipality-specific intercept, μ_t a time-varying parameter constant across the municipalities and ε_i is an error term.

Dependent variables. As it was mentioned above, among the dependent variables (***Y*** in the estimated equation) one may distinguish total spending *per capita* (*exp_tot*) as well as *per capita* expenditures on four different local competences respectively: and social support (*exp_social*), public safety and fire protection (*exp_safe*), environmental protection (*exp_envir*) and public administration (*exp_adm*).

Independent variables. Explanatory variables, in turn, may be divided into five blocks, namely fiscal, socio-economic, demographic, regional and political.

First, the fiscal factors are revenues (*revenues*) and public debt (*pub_debt*) of a municipality. Revenue is a basic determinant of spending stressed in the existing literature since it influences the size of local budget, similarly to the management of the public debt. It is worth mentioning that all fiscal dependent and independent variables are expressed in *per capita* terms and as for the currency, they are given in current Polish zlotys and euros, respectively in the sample for Poland and Spain. The source of these data is Central Statistical Office of Poland, Local Data Bank and Polish Ministry of Finance database, whereas those related to Spain are taken from Spanish Ministry of Finance and Public Administration webpage.

Second, socio-economic determinants are represented by several factors. As the first one may mention the unemployment rate (*unemployment*) measured as a ratio of the registered unemployed inhabitants in the economically active (working age) population. The inclusion of such factor may be relevant especially from the viewpoint of spending on social support due to the possible positive impact on the demand for social benefits in a municipality. Again, data are derived from the Central Statistical Office of Poland (Local Data Bank), whereas in the case of Spanish data set it comes from *La Caixa Economic Yearbook 2013*. In addition, the study verifies the importance of the social capital taking into account the electoral turnout (turnout) as a proxy following Coffe and Geys (2005). The voter turnout is a rate reported in the first round of local election and is taken from the National Election Commission in Polish sample and from The Ministry of the Interior in the case of Spanish municipalities. Due to unavailability of the data among the socio-economic determinants there are also two variables included solely in the model estimated for Poland. Namely, personal income tax revenues (*pit_revenues*) *per capita* and transfers (eu_funds) *per capita* from the European Union.[6] Mentioned as the first PIT revenues provide an approximation of the wealth of the population, which may influence the demand for public services. The latter variable in turn corresponds to the influx of the European Union funds that have been crucial for Polish municipalities since Poland became a member of the EU in 2004. Especially cohesion and development transfers play a significant role in determining local expenditures since they constitute a substantial share in total revenues and force municipalities to co-finance the EU programs and projects. Similarly to the other fiscal variables, data related to both, PIT revenues and the EU transfers, come from the Central Statistical Office of Poland (Local Data Bank). Besides the inflow of the abovementioned European funds it is worth to capture the effect of the accession of Poland to the European Union on the local spending pattern also in general context. Hence, the sample includes the dummy for the years of membership (*eu_membership*), which is equal to 1 for the years 2004-2012. And last but not least, potential socio-economic factor is the dummy reflecting the years of economic crisis started in the last decade. This binary variable *crisis* takes value 1 in the years 2007-2013 and 2007-2014 in the case of Poland and Spain respectively. Therefore, it is assumed that economic downturn differs in terms of the timeframes between the countries. Additionally, among the economic factors of the municipal

[6] The data related to personal income tax revenues and the EU funds reported for Spanish sub-national governments are available on the website of Spanish Ministry of Finance and Public Administration. However, the data are incomplete in the case of majority of municipalities in the sample. In the case of EU funds the data are not complete since these funds are transferred to higher levels of government and then distributed among municipalities in the form of transfers and grants.

spending the issue of local governments' freedom in the disposal of budget cannot be omitted. It is expressed the municipal fiscal dependence index (*mun_dependence*), constructed as a share of subventions and grants obtained from the entities at the higher levels of administrative division in total revenues. Thus, the interpretation of the coefficients related to this variable is based on the assumption that positive (negative) sign of the parameter means higher (lower) spending as a result of higher dependency (higher autonomy). All the components come from the same sources as other fiscal variables in the dataset.

Third, the demographic variables are related to the population characteristics. Here, population density (*pop_dens*) per 1 square kilometre is considered as a proxy of the level of urbanization. It allows to investigate the existence of economies of scale in the process of the provision of goods and services by local governments. The data are obtained from the Central Statistical Office of Poland (Local Data Bank) and Spanish Ministry of Finance and Public Administration. Additionally, in order to capture the effect of different needs represented by various age groups of population, the variable set includes also the dependency ratio. Namely the ratio of population under the compulsory education - population under 16 (*pop_16under*) and population under 18 (*pop_18under*) in the whole population size, respectively in Spain and Poland and the percentage share of post-working age - population over 65 years old (*pop_65over*) in total population in both samples. Those factors are mostly relevant in the measurement of provision of social support, since greater proportions of population in pre- and post-working age force governments to provide transfers for large families or elderly care facilities. The necessary data are taken from the Central Statistical Office of Poland (Local Data Bank) and Spanish National Institute of Statistics.

Next, regional dummies are taken into account by testing whether specific regions put an emphasis on particular categories of spending. For instance, one may distinguish capital cities of Spain and Poland (*capital_city)*, metropolitan areas (*metropolis*), which are the cities with the number of inhabitants exceeding 500 000), as well as Autonomous Community of Catalonia (*aut_reg_catalonia)* and Autonomous Community of Galicia (*aut_reg_galicia*) in Spain or Upper Silesian Metropolitan (*uppersilesia*) area in Poland.[7] Those regions may demand some specific services in bigger extent than others. All of abovementioned binary variables take value 1 if a municipality belongs to the respective category of regionalization. What is more, due to the corruption scandals in the housing and real estate market in the period of this analysis, local governments' spending in Spain could be distorted (Loures and

[7] Among the metropolitan areas in Polish sample are: Kraków, Łódź, Poznań, Warszawa, Wrocław; and in Spanish sample: Barcelona, Madrid, Malaga, Sevilla, Valencia, Zaragoza.

Orueta, 2006). Therefore, the study controls for the impact of location of municipalities in the Mediterranean Coast of Spain (*medit_coast_reg*) on spending pattern by including the binary variable which takes value 1 for the municipalities belonging to the following Autonomous Communities: Andalucia, Catalonia, Murcia and Valencia.

Finally, the last but not least group of explanatory variables includes political factors. In order to examine the existence of the political business cycles three binary variables related to municipal election periods are considered. Namely, variables denoting year before election (*bc_bef*), year of election (*bc_elect*) and year after election (*bc_aft*) of the mayor.[8] The inclusion of those variables may shed some light on the issue of opportunistic behaviour of incumbents which manifests itself by an increase in local spending in the pre-election period in order to gain a broader electorate, whereas the expenditures tend to decrease after the election. Moreover, the research verifies the relevance of "Partisan theory" in Polish and Spanish local spending at the municipal level. More precisely, it evaluates the influence of mayors' party affiliation in the spending decision making process. According to Hibbs (1997), the economic performance of incumbents differs depending on the political ideology of the party represented by the councillor. Thus the variable corresponding to the party affiliation is constructed as a set of binary variables, where each of them relates to the particular party or party orientation. The composition of the variable in question varies between the samples for Poland and Spain due to the differences in the political systems in the countries. Namely, in Spain one may distinguish strong polarization of the ideology of political parties, therefore they may be classified as right-wing, left-wing, central or politically independent. These four dummy variables take value 1 if the mayor of a municipality belongs to the party categorized respectively as right-wing (*right*), central (*central*), left-wing (*left*) or politically independent (*independent*) and 0 otherwise. The latter category (*independent*) contains small, local parties and those not classified as any of the previously mentioned. Political party affiliation of the elected councillor in Polish sample, in turn, cannot be captured in similar way since political sphere in Poland is not noticeably polarized and in most of the cases the parties represent the ideologies close to the centre. Thus, party association is displayed in the form of five different binary variables referring to four main parties governing in Poland, which are Civic Platform (*po*), Law and Justice (*pis*), Democratic Left Alliance (*sld*), Polish People's Party (*psl),* and

[8] All those variables take values 1 in respective years, meaning that for instance: if the municipal election in Spain was in the year 2007, then the value of the variables *bc_bef*, *bc_elect* and *bc_aft* is equal to 1 in the years 2006, 2007 and 2008 respectively.

additionally politically independent (*independent*) parties.[9] Although these parties cannot be clearly assigned to the central, left or right oriented, their economic preferences indicate that some are closer to the right (Civic Platform), centre (Polish People's Party) or to the left (Law and Justice, Democratic Left Alliance). All these variables take value 1 if the mayor elected in recent elections was a member of a given political party and 0 otherwise. It is also worth mentioning that due to the difficulties related to the assigning some of the mayors to the particular party, Polish sample includes some simplifications.[10] However, these simplifications are not expected to distort the results of the analysis since they are related to less than 10% of the sample of Polish municipalities.

Moreover, in order to explore the importance of the continuity of governance (*cont_gov*) of the mayors, respective binary variables were added to the models. They take value 1 if the councillor ruling in a given year was also elected in the previous cycle of election, whereas 0 otherwise. Additionally, in order to control for the reasonability of disposal of the budget, which determines the level of spending on particular services, the human capital of the mayors is expressed in the level of the education (*edu_level*) of incumbents. Since the necessary data were available solely for Polish mayors, this variable is included only in the model estimated for municipalities in Poland. It is constructed as a discrete variable divided into four levels and takes value either 0, 1, 2 or 3 if the mayor elected in the last elections has a higher, secondary, secondary technical, or a primary education respectively. All political variables related to Polish municipalities are taken from National Election Commission, whereas those referring to Spanish municipalities come from The Ministry of the Interior of Spain.

Additionally, the model contains interaction variables supposing to capture the marginal effect of fiscal dependence on the electoral cycle power. To this end, there are three variables constructed as the interaction between the municipal dependence index and particular political business cycle variables, namely year before election, year of election and year after election of the mayor.

[9] The independent parties are defined similarly to the case of Spanish sample. Therefore, independent parties are those which cannot be classified as central, right- or left-wing.

[10] If there is not available any information about a mayor's affiliation in a particular year, the mayor is assigned in accordance to the affiliation declared in the next elections. What is more, some mayors elected in 2002 in Polish municipalities were affiliated to the parties which do not exist anymore. However, their affiliation may be detected since these parties subsequently joined one of the main four parties or were characterized by similar political preferences. Thus, Solidarity Electoral Action (AWS), The Christian National Union (ZChN), Self-Defence of the Republic of Poland (SRP), The Right Wing of the Republic (PR) or The League of Polish Families (LPR) can be assigned to the members of the Law and Justice party, whereas the members of Labour United (UP) are classified as affiliated to Democratic Left Alliance.

3.2. Data description.

The empirical implementation of the models has been carried out by employing annual panel data sets of 307 Polish urban municipalities (called *gminas*) and 1231 Spanish municipalities (called *ayuntamientos* or *municipios*). For the purpose of this research, the sample of Spanish municipalities includes only those with more than 5000 residents, since approximately 90% of entities is characterized by the population size lower than 5000 and constitute only 5% of total Spanish citizenry.[11] Moreover, as it was mentioned in the first section, the entities with less than 5000 are forced to finance solely basic services. Additionally, the availability as well as the reliability of the data referring to the municipalities habited by less than 5000 are limited. In Poland in turn there are nearly 2500 municipalities, where approximately 12% is defined as urban, since they contain a city within the administrative boundaries. As a result, in order to facilitate the comparison between countries, the sample for Poland is composed of 307 urban municipalities.[12] In reference to the timespan of the study, it covers the years 2002-2013 for Poland and 2005-2014 in the case of Spain.[13] The years of the analysis differ between samples mainly due to the availability of budgetary data disaggregated by functions and sub-functions for Spain. However, the timespan in the case of Polish municipalities is intentionally longer in order to capture the effect of the accession to the European Union in 2004 and to consider the subsequent influx of the European funds.[14] Additionally, the timeframe of the research terminates at the year 2013 because the data referring to the year 2014 have not been published yet. As a result the datasets consists of 3 664 and 11 989 observations in the Polish and Spanish samples respectively.[15]

[11] The municipalities belonging to the Autonomous Communities of Ceuta and Melilla were eliminated from the database due to the differences in the administrative systems comparing to the rest of Spanish Autonomous Communities.

[12] The database includes the municipalities considered as urban starting from the year 2002. Only one municipality in the sample changed its status during the period of the analysis. Namely Szczawnica, which became the urban-rural municipality in 2008.

[13] Due to the unavailability of the data, the variable related to the registered unemployment rate in Spanish municipalities covers the timespan 2005-2012 and 2003-2013 in the Polish sample. Public debt in Polish communities, in turn, is reported for the years 2004-2013.

[14] In order to investigate the impact of influx of the EU funds on performance of Polish local governments, the regressions for Polish municipalities contain the EU funds variable. However, the data corresponding to the size of these funds are available since 2006. Thus, the models for Poland miss some observations. Notwithstanding, the results are very similar in the scenario with the EU funds variable and in the case of omission of this determinant. Therefore, the final models contain the EU funds variable especially given the fact that it turns out to be statistically significant in most of the cases.

[15] As a result of legislative changes corresponding to the reporting of grants and transfers in Polish local governments, the computation of municipal dependence index has been distorted and this index takes value over one in the case of twenty observations. Thus, they were removed from the database.

3.3. Preliminary data analysis.

The preliminary analysis of the models begins with the examination of the descriptive statistics presented in the Appendix in Table B1 for Spain and Table B2 for Poland (including mean, minimum and maximum value as well as standard deviation). Subsequently, the normal distribution of the variables is examined using the histograms with the theoretical line of density in normal distribution. Since the graphical representation (Figures A1 and A2 for Spain and Poland respectively) executed for each of the continuous variables in the database indicates not normal distribution, all continuous variables are expressed in logarithm, so the results may be interpreted as elasticities. The respective histograms of variables taken in logarithms are presented in the Appendix in Figures A3-A4. Moreover, time trend (t) variable is added to each regression in order to determine whether time influences the level of public spending since the line plots drawn for each of the category of expenditures indicate upward trend in the size of spending.

On the next stage of the analysis the proper method of the estimation must be identified. In order to decide whether the panel data model with random (RE) or fixed effects (FE) is appropriate, Hausman test was adopted in each of the models. According to the results of the tests (Tables B3-B4, Appendix), in all spending models for both countries the estimations with the fixed effects should be applied.[16] Such an outcome means that the models are not sensitive to the gaps in the data, which may be pointed out as their basic advantage, but on the other hand they do not yield the regression coefficients related to the regressors constant over time. Subsequently, given the frequency of autocorrelation issue in panel data models, Wooldridge test is adopted. This test run for each of the regressions (Tables B3-B4, Appendix) detected the problem of autocorrelation, which causes that standard errors are biased.[17] Further data analysis investigates the presence of heteroscedasticity, which means that variance of explained variable is not equal over data. Heteroscedasticity hampers the research since constant variance is required in most of the regression techniques. Thus, modified Wald test is applied to all fixed effects models with the null hypothesis stating homoscedasticity in the data. The results displayed in Tables B3-B4 in the Appendix indicate the presence of heteroscedasticity, since in all of the cases the null is rejected. Thus, all estimators in the models are robust with cluster option, which takes into account non-

[16] In all the cases p-value is lower than the adopted alpha-level equal to 0.05, so the null stating not correlated unique errors and regressors is rejected.

[17] In all of the cases p-value is lower than adopted alpha-level equal to 0,05, so the null stating no first-order autocorrelation is rejected.

independency of standard errors between municipalities in the sample for Poland and Spain, respectively.

3.4. Methodology.

In order to capture the influence of different categories of independent variables on the results of the estimations, the models for Poland and Spain were applied in five steps of regressions. The only differences are additional variables added each time to the basic regression. The first step is an analysis of basic determinants of total and particular categories of public spending, which includes fiscal, socio-economic, demographic and regional variables. The results are presented in Column (1) of each table representing regressions for Spain and Poland, respectively. In order to investigate the presence of political business cycles and the influence of human capital of the councillors and continuity of ruling, Column (2) includes the variables corresponding to electoral periods as well as continuity of governance and level of the education of incumbents (solely in regressions related to Poland). In Column (3) dummies related to the political party affiliation are introduced. Next, the estimation of the models with the municipal fiscal dependence index can be found in Column (4). In the last step of the research, in Column (5) interactions between the variables referring to the political business cycles and the municipal fiscal dependence index are introduced. Each of the estimations is fixed effects and robust. What is more, all variables expressed in currencies are *per capita,* whereas all the continuous variables are taken in logarithm.

3.5 Empirical results.

3.5.1 Estimation of the parameters for Spanish sample.

Total municipal expenditure

The results of all estimations depicted in Table 1 indicate positive and significant impact of municipal revenues. This outcome is expected since the level of inflows to municipal treasure defines the capacity of resources and budgetary limits of local expenditure policies. The economic downturn which severely hit Spanish economy also turned out to raise total spending in the period of the analysis. It may be explained by higher needs to provide social support to local communities, especially through unemployment, family or housing benefits, which usually constitute significant part of total spending size (OECD, 2012). Interestingly,

according to the results the higher the number of unemployed inhabitants, the lower the level of municipal spending. Also population density lowers local public expenditure. The latter outcome confirms the existence of economies of scale in provision of public services in Spanish municipalities, which means that higher density leads to a delivery of services with lower per unit cost. This outcome also confirms previous literature by Bodkin and Conklin (1971) and Bastida e*t al*. (2013). When it comes to the analysis of political business cycles in aggregate spending in Spanish municipalities, the empirical analysis reveals significant link between electoral timing and spending size. In particular, municipalities experience expansionary budgetary policies in the year before local elections which is in line with the results obtained by Nordhaus (1975), Blais and Nadeau (1992), Veiga and Veiga (2006) and McGarva (2010). However, when interactions are introduced to the model, the drop of spending size is reported in the year before election. In addition, the level of spending decreases in the year of elections and in the subsequent year. It suggests that previous opportunistic behaviour of politicians is compensated by austerity policies set in the new electoral term. Additionally, the study does not find any evidence of partisan effect in local aggregate spending. Such outcome, meaning that ideological preferences of local authorities do not determine total expenditure, agrees with previous studies on Spanish case by Casal e*t al*. (2013) and Bastida e*t al*. (2013). Concerning the degree of decentralization measured by municipal dependence index (ratio of transfers and grants in total municipal revenues), the data show its significant positive impact on total spending. Thus, the size of spending increases with the higher the level of dependency. It may be interpreted as a sign of excessive control by central rules over local tasks which results in too expansionary policies in Spanish municipalities.

Finally, the inclusion of interactive terms between municipal dependence index and electoral cycles dummies allows to conclude that the scope of fiscal dependency weakens the impact of electoral cycles on total expenditure size (see Figure 4). In particular, in a year before and year of elections, total spending increases solely in the municipalities with low fiscal dependence. It means that high autonomy encourages local authorities to raise a size of expenses, whereas high degree of dependence implies decrease in spending size by local governments.

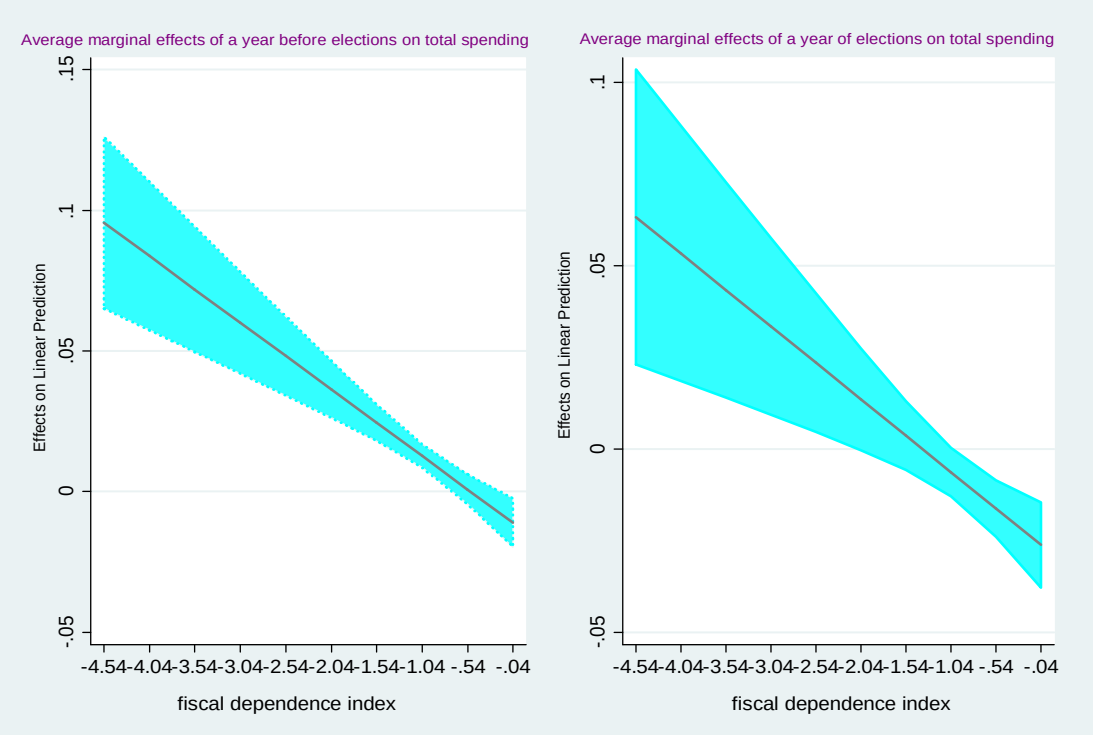
Table 1. The results of regressions of the determinants of total expenditures in Spanish municipalities. 2005-2014.

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

Source: Own elaboration in STATA.

Note: The upper values are the coefficient, whereas the T-statistics are between parentheses. Significance level for which the null hypothesis is rejected is ***, ** and *, which denotes 1%, 5% and 10% respectively.

Figure 4. Marginal effects of a year before and a year of elections on total spending in Spain.



Source: Own elaboration in STATA.

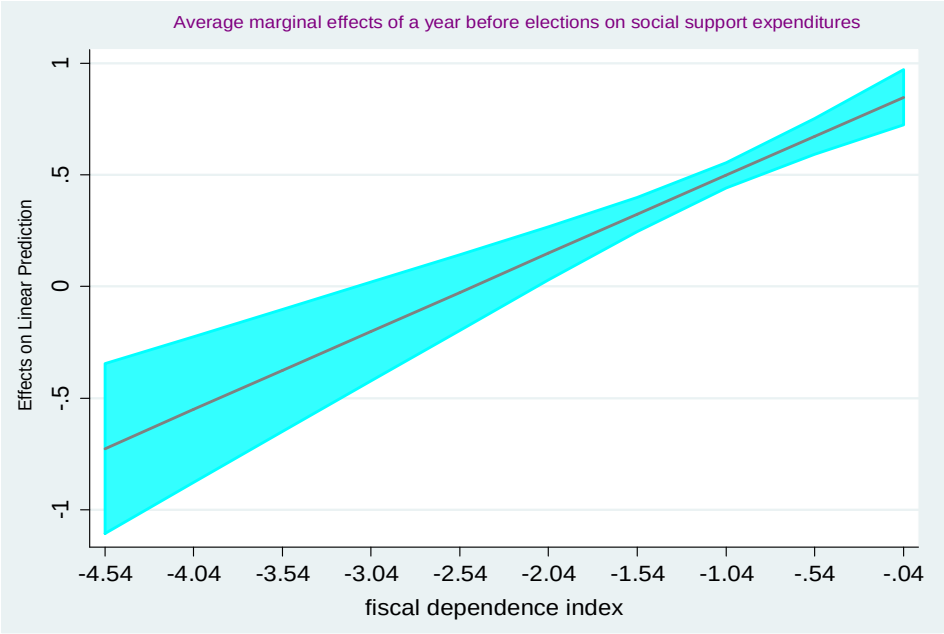
Social expenditures

The estimation results obtained for the category of public spending related to social assistance are presented in Table 2. The outcomes of the regressions stress the importance of unemployment rate in determining the size of social support expenditures. Such a result is in line with existing literature and expresses that local governments tend to satisfy municipal needs in terms of benefits transferred to unemployed inhabitants. However, any of dependency ratio variables turned out to be statistically significant in explaining the patter of social spending in Spanish municipalities. Since even the ratio of post-working age population in total size of municipality does not influence expenditures in the category of social services, then the impact of unemployment rate is indeed expected to be positive. Among other determinants of social assistance expenditure one may distinguish the level of revenues (in all of the regressions following the inclusion of political business cycle variables), public debt, economic crisis occurred in 2007 and population density. All of the abovementioned factors turn out to lower the level of spending in the category in question. Again, similarly to the analysis of total spending, an evidence on economies of scale in provision of public services is found in the case of social support spending category. Public debt in turn indicates that higher liabilities force municipalities to reduce spending size. Interestingly, the results

corresponding to electoral cycles indicate that social spending raise in the pre-election period and in the year of municipal elections which is supported by the outcomes obtained by Blais and Nadeau (1992), Akhmedov and Zhuravskaya (2004) and Furdas e*t al*. (2015). The increase in social transfers in the election year is not surprising since municipal election in Spain take place in May. Thus, local authorities may be motivated to signal high competence in the months prior to election. Nevertheless, the coefficients assigned to political affiliation are not significant, therefore there is no partisan effect detected in the data related to social support category. The influence of municipal dependence index in turn is negative and significant, which means that local authorities decrease social spending if their fiscal dependency rises.

Finally, the investigation of marginal effects (see Figure 5) reveals that higher ratio of transfers in total revenues of a municipality (higher dependence) intensifies the impact of electoral cycles in a year before the elections. More specifically, higher degree of fiscal freedom in the hands of local governments translates into greater decrease in social spending. The municipalities characterized by low autonomy in turn, increase expenditures on social assistance before the elections.

Figure 5. Marginal effects of a year before elections on social support spending in Spain.



Source: Own elaboration in STATA.

Table 2. The results of regressions of the determinants of social support expenditures in Spanish municipalities. 2005-2014.

Variable name	***Social support expenditures***				
	(1)	(2)	(3)	(4)	(5)
Revenues	-0.05 (-0.70)	-0.14** (-1.97)	-0.14* (-1.95)	-0.15** (-2.06)	-0.14* (-1.91)
Public debt	-0.02* (-1.89)	-0.02* (-1.79)	-0.02* (-1.79)	-0.02* (-1.79)	-0.02* (-1.68)
Crisis	-0.55*** (-12.64)	-0.42*** (-8.08)	-0.41*** (-7.38)	-0.41*** (-7.21)	-0.44*** (-7.56)
Electoral turnout	0.21 (1.13)	0.25 (1.35)	0.25 (1.36)	0.25 (1.36)	0.24 (1.34)
Unemployment rate	0.18** (2.35)	0.37*** (3.37)	0.37*** (3.36)	0.37*** (3.36)	0.35*** (3.16)
Population density	-1.06*** (-2.69)	-1.38*** (-3.48)	-1.37*** (-3.45)	-1.29*** (-3.23)	-1.25*** (-3.03)
Population ratio under 16	0.55 (1.04)	0.40 (0.76)	0.40 (0.76)	0.40 (0.76)	0.38 (0.73)
Population ratio over 65	0.14 (0.30)	-0.05 (-0.11)	-0.05 (-0.11)	-0.06 (-0.12)	-0.09 (-0.18)
Time trend	0.35*** (19.78)	0.31*** (12.99)	0.31*** (12.76)	0.31*** (12.74)	0.31*** (12.89)
Year before election		0.48*** (18.47)	0.48*** (17.91)	0.48*** (17.79)	0.86*** (14.13)
Year of election		0.33*** (8.52)	0.33*** (8.33)	0.32*** (8.06)	0.41*** (5.69)
Year after election		-0.01 (-0.26)	-0.01 (-0.27)	-0.02 (-0.44)	0.03 (0.33)
Continuity of governance		-0.06 (-1.45)	-0.05 (-1.36)	-0.05 (-1.37)	-0.05 (-1.37)
Left-wing party			-0.13 (-1.21)	-0.13 (-1.22)	-0.14 (-1.24)
Right-wing party			-0.15 (-1.31)	-0.15 (-1.31)	-0.14 (-1.29)
Central party			-0.14 (-0.87)	-0.14 (-0.88)	-0.16 (-1.00)
Fiscal dependence index				-0.04 (-0.68)	-0.16** (-2.19)
*Year before election * dependence index*					0.35*** (6.81)
*Year of election * dependence index*					0.07 (1.28)
*Year after election * dependence index*					0.04 (0.67)
Constant	10.30*** (3.67)	12.51*** (4.38)	12.57*** (4.41)	12.16*** (4.23)	11.59*** (3.95)
Number of observations	9153	9153	9149	9149	9149

Source: Own elaboration in STATA.

Note: The upper values are the coefficient, whereas the T-statistics are between parentheses. Significance level for which the null hypothesis is rejected is ***, ** and *, which denotes 1%, 5% and 10% respectively.

Safety expenditures

Table 3 presents the coefficients of possible determinants of size of spending on public safety and fire protection. Not surprisingly security category is positively influenced by municipal revenues. In addition, level of unemployment and crisis raise the expenditures supporting local safety since both issues may result in higher crime and subsequently affect social climate. In the case of security provision services, the economies of scale are not found. In particular, higher population density translates into greater spending on safety tasks. There is also no evidence on expansionary policies in safety category in the pre-election period. Interestingly, local governments tend to lower security spending in the period starting from one year before election until one year after which is a contradictory finding compared to the outcomes obtained by Veiga and Veiga (2004). Such result suggests that this category may be considered as invisible for the electorate, therefore local authorities reduce expenditure on safety in favour of other categories which are more evident for local community. Again, no partisan effect is detected in the data. Higher share of subventions in total revenues in turn translates into higher safety spending if interactive terms are introduced to the model.

Finally, if the electoral cycles are taken into consideration in interaction with the dependence index, municipal fiscal dependency turns out to intensify the electoral cycles effect in security services (see Figure 6). More precisely, safety spending decreases with higher degree of fiscal dependency of local authorities. The size of expenditures on this type of public services is increased if autonomy is high, whereas in the year when the elections are held secutity spending raises solely in municipalities characteruzed by considerably high autonomy.

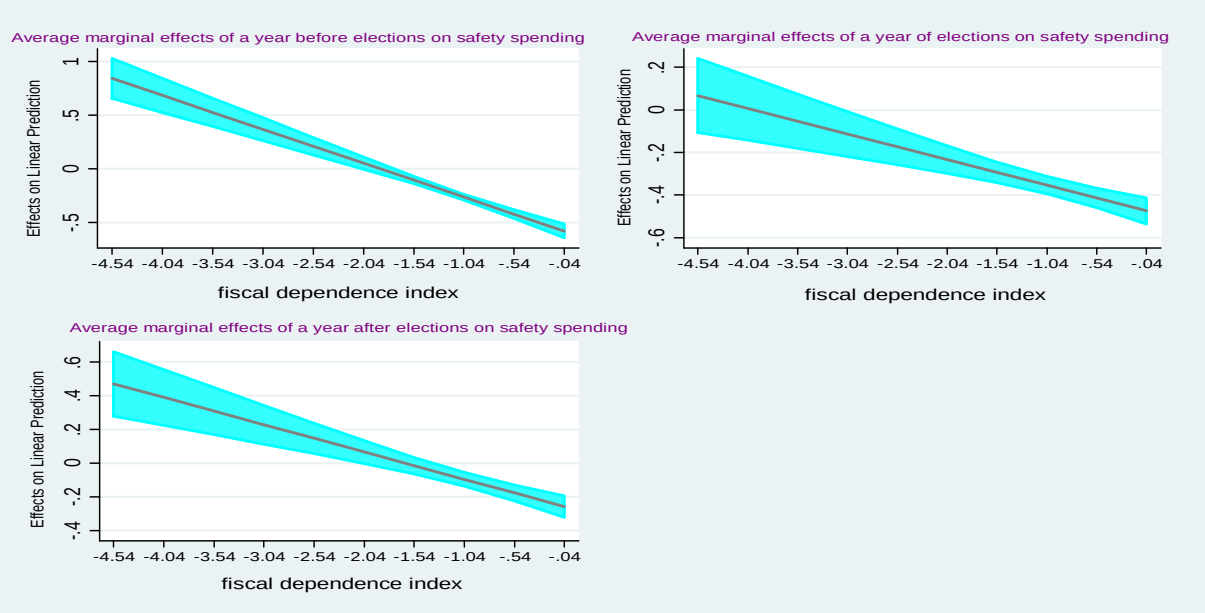
Table 3. The results of regressions of the determinants of public safety and fire protection expenditures in Spanish municipalities. 2005-2014.

Variable name	***Public safety and fire protection expenditures***				
	(1)	(2)	(3)	(4)	(5)
Revenues	0.20*** (5.82)	0.17*** (4.95)	0.17*** (4.94)	0.19*** (5.01)	0.18*** (4.80)
Public debt	0.01 (0.82)	0.00 (0.71)	0.00 (0.67)	0.00 (0.68)	0.00 (0.64)
Crisis	0.63*** (31.69)	0.67*** (28.29)	0.67*** (26.21)	0.66*** (25.06)	0.67*** (25.32)
Electoral turnout	0.06 (0.85)	0.03 (0.40)	0.03 (0.40)	0.03 (0.39)	0.03 (0.38)
Unemployment rate	0.08** (2.15)	-0.20*** (-3.42)	-0.20*** (-3.43)	-0.20*** (-3.43)	-0.18*** (-3.12)
Population density	0.38* (1.86)	0.50** (2.33)	0.50** (2.32)	0.41* (1.78)	0.24 (1.01)
Population ratio under 16	-0.02 (-0.05)	0.21 (0.66)	0.23 (0.71)	0.23 (0.70)	0.22 (0.68)
Population ratio over 65	-0.29 (-1.33)	-0.08 (-0.34)	-0.07 (-0.31)	-0.06 (-0.29)	-0.08 (-0.35)
Time trend	-0.24*** (-24.41)	-0.20*** (-15.86)	-0.20*** (-15.29)	-0.20*** (-15.18)	-0.20*** (-15.25)
Year before election		-0.24*** (-20.31)	-0.25*** (-20.00)	-0.24*** (-19.98)	-0.59*** (-19.05)
Year of election		-0.36*** (-19.25)	-0.35*** (-18.87)	-0.35*** (-18.20)	-0.48*** (-16.36)
Year after election		-0.10*** (-5.37)	-0.10*** (-5.29)	-0.09*** (-4.76)	-0.26*** (-8.41)
Continuity of governance		0.01 (0.36)	0.00 (0.21)	0.00 (0.22)	0.00 (0.23)
Left-wing party			0.04 (0.63)	0.04 (0.64)	0.04 (0.68)
Right-wing party			0.06 (0.88)	0.06 (0.88)	0.06 (0.88)
Central party			0.03 (0.30)	0.03 (0.33)	0.04 (0.41)
Fiscal dependence index				0.05 (1.64)	0.21*** (5.77)
*Year before election * dependence index*					-0.32*** (-12.43)
*Year of election * dependence index*					-0.12*** (-5.36)
*Year after election * dependence index*					-0.16*** (-6.45)
Constant	1.42 (0.97)	1.03 (0.66)	1.04 (0.67)	1.52 (0.95)	2.69* (1.66)
Number of observations	9156	9156	9152	9152	9152

Source: Own elaboration in STATA.

Note: The upper values are the coefficient, whereas the T-statistics are between parentheses. Significance level for which the null hypothesis is rejected is ***, ** and *, which denotes 1%, 5% and 10% respectively.

Figure 6. Marginal effects of a year before, year of elections and year after elections on safety spending in Spain.



Source: Own elaboration in STATA.

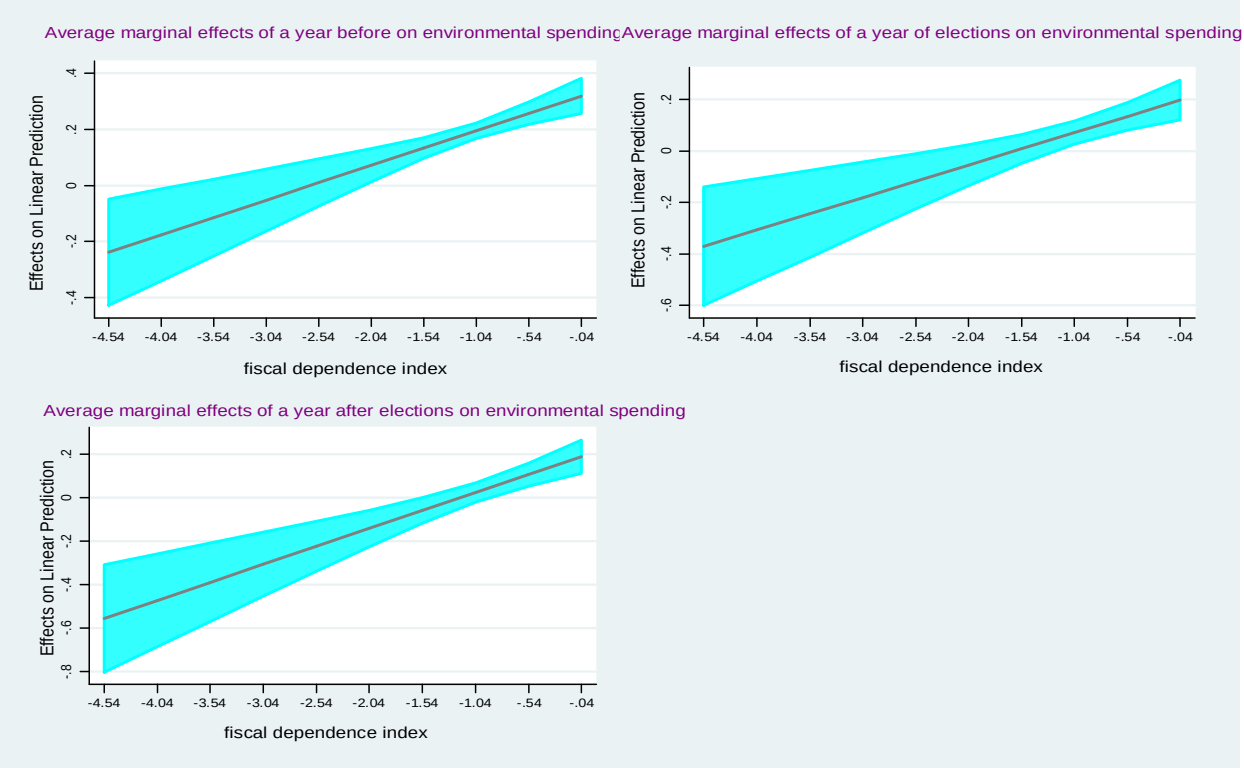
Environmental protection expenditures

The results of estimation for environmental protection spending are depicted in Table 4. According to the outcomes, among basic variables only population density influences positively the level of spending no matter the regression. Thus, in this case economies of scale also do not exist. When only primary socio-economic and fiscal variables are considered in the model (Column 1), then revenues and crisis turn out to influence the size of spending on protection of municipal natural environment. More specifically, revenues raise expenditure level, whereas crisis seems to force local authorities to support other areas of local performance which may be more beneficial from the viewpoint of economic stability of the regions. On the other hand, there is an evidence on increased spending in pre-election time and in the year of election. Therefore, environment protection may be considered by local governments as visible category for electorate and they may seek for manipulative actions in this category of spending in order to convince voters about the efficiency of their policies. (Drazen and Eslava, 2005; Veiga and Veiga, 2006) Interestingly, if interactive terms are included in the model, spending size on environmental protection grows also in the post-election period. It may be seen as a consequence of execution of pre-election promises or continuity of projects started prior to the election. Moreover, the results of the last regression

indicate that municipalities with higher level of dependency spend less on environmental protection services than their more fiscally autonomous counterparts.

However, the inspection of marginal effects demonstrates that the influence of electoral cycles is strengthen by solely the highest levels of dependency, since municipalities with high degree of dependency increase spending size on this category (see Figure7). In contrast, local governments enjoying high fiscal autonomy lower the size of expenses devoted to environmental protection programmes.

Figure 7. Marginal effects of a year before, year of elections and year after elections on environmental protection spending in Spain.



Source: Own elaboration in STATA.

Table 4. The results of regressions of the determinants of environmental protection expenditures in Spanish municipalities. 2005-2014.

Variable name	***Environmental protection expenditures***				
	(1)	(2)	(3)	(4)	(5)
Revenues	0.06**	0.00	0.00	0.01	0.01
	(2.11)	(0.03)	(0.06)	(0.17)	(0.17)
Public debt	-0.00	-0.00	-0.00	-0.00	-0.00
	(-0.35)	(-0.50)	(-0.57)	(-0.57)	(-0.73)
Crisis	-0.08***	0.00	0.01	0.00	0.01
	(-3.65)	(0.08)	(0.20)	(0.11)	(0.44)
Electoral turnout	-0.03	-0.02	-0.02	-0.02	-0.01
	(-0.35)	(-0.21)	(-0.22)	(-0.22)	(-0.15)
Unemployment rate	0.02	0.07	0.07	0.07	0.06
	(0.52)	(1.26)	(1.22)	(1.22)	(1.09)
Population density	0.79***	0.63***	0.63***	0.61***	0.80***
	(3.70)	(2.84)	(2.86)	(2.63)	(3.24)
Population ratio under 16	-0.04	-0.04	-0.05	-0.05	-0.03
	(-0.17)	(-0.16)	(-0.24)	(-0.25)	(-0.14)
Population ratio over 65	-0.15	-0.17	-0.17	-0.16	-0.12
	(-0.67)	(-0.76)	(-0.76)	(-0.75)	(-0.56)
Time trend	0.09***	0.08***	0.08***	0.08***	0.07***
	(10.42)	(6.30)	(6.28)	(6.28)	(6.12)
Year before election		0.19***	0.19***	0.19***	0.32***
		(14.78)	(14.80)	(14.74)	(10.65)
Year of election		0.07***	0.07***	0.07***	0.20***
		(3.51)	(3.36)	(3.35)	(5.40)
Year after election		0.02	0.02	0.02	0.20***
		(0.80)	(0.74)	(0.83)	(5.17)
Continuity of governance		-0.01	-0.01	-0.01	-0.01
		(-0.45)	(-0.32)	(-0.32)	(-0.31)
Left-wing party			-0.04	-0.04	-0.04
			(-0.77)	(-0.76)	(-0.81)
Right-wing party			-0.04	-0.04	-0.05
			(-0.81)	(-0.81)	(-0.87)
Central party			-0.01	-0.01	-0.00
			(-0.16)	(-0.15)	(-0.04)
Fiscal dependence index				0.01	-0.10**
				(0.43)	(-2.56)
*Year before election * dependence index*					0.12***
					(4.81)
*Year of election * dependence index*					0.13***
					(4.15)
*Year after election * dependence index*					0.17***
					(5.12)
Constant	-0.82	0.53	0.53	0.66	-0.38
	(-0.53)	(0.33)	(0.33)	(0.39)	(-0.22)
Number of observations	9078	9078	9074	9074	9074

Source: Own elaboration in STATA.

Note: The upper values are the coefficient, whereas the T-statistics are between parentheses. Significance level for which the null hypothesis is rejected is ***, ** and *, which denotes 1%, 5% and 10% respectively.

Public administration expenditures

The results of first set of models related to public administration determinants presented in Table 5 indicate that crisis caused austerity in the category of administration. There is also an evidence on positive impact of higher population density on administration expenditures, hence the economies of scale are not found in this category. Surprisingly the outcomes reveal positive and significant influence of electoral cycles in the pre-election period and in the year of municipal election. Interestingly, a positive impact of post-election year on spending size in this category is detected if the interactions are introduced to the model. These results are different than those obtained by Galli and Rossi (2002) and Hayo and Neumeier (2012) since these authors do not find any evidence of policies manipulating spending size on administration in electoral period.

In turn, higher freedom of local governments (lower share of subventions in total revenues) increases spending on administration. However, marginal effects computed for the interactive terms indicate that electoral cycles are strengthen solely by high levels of fiscal dependency (see Figure 8). More precisely, local governments characterized by greater degree of fiscal dependency turn out to devote more budgetary resources on administration, whereas spending on this category lowers as the autonomy of municipalities grows. However, the influence of electoral periods may be explained by the fact that among municipal tasks one may distinguish the organization of local elections. Thus, if a municipality is small, then the election may become a significant financial burden for the part the local budget devoted to administration services.

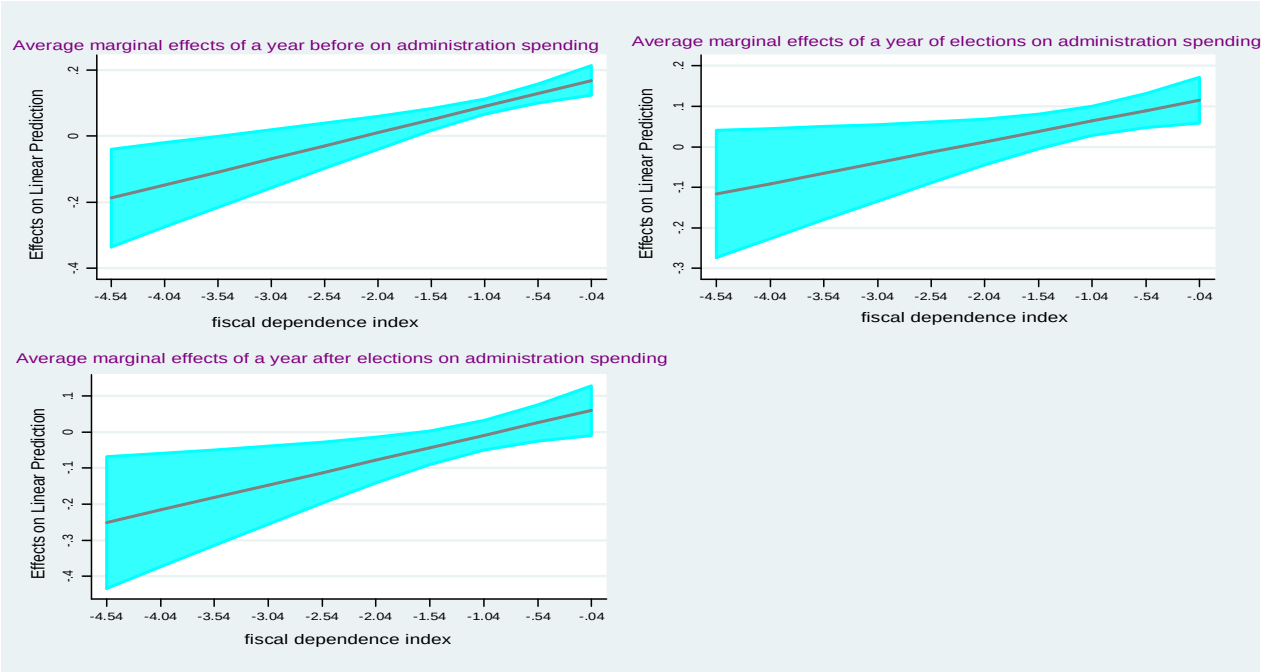
Table 5. The results of regressions of the determinants of public administration expenditures in Spanish municipalities. 2005-2014.

Variable name	***Public administration expenditures***				
	(1)	(2)	(3)	(4)	(5)
Revenues	0.01 (0.32)	-0.01 (-0.30)	-0.01 (-0.31)	-0.01 (-0.40)	-0.01 (-0.35)
Public debt	-0.00 (-1.02)	-0.00 (-0.88)	-0.00 (-0.79)	-0.00 (-0.79)	-0.00 (-0.84)
Crisis	-0.08*** (-4.90)	-0.06*** (-3.33)	-0.06*** (-2.90)	-0.06*** (-2.85)	-0.06*** (-2.80)
Electoral turnout	0.01 (0.10)	0.01 (0.22)	0.01 (0.20)	0.01 (0.21)	0.02 (0.23)
Unemployment rate	-0.04 (-1.14)	-0.00 (-0.07)	-0.00 (-0.04)	-0.00 (-0.04)	-0.01 (-0.13)
Population density	0.35** (2.57)	0.30** (2.15)	0.30** (2.13)	0.32** (2.07)	0.39** (2.39)
Population ratio under 16	0.11 (0.65)	0.08 (0.46)	0.07 (0.42)	0.07 (0.43)	0.08 (0.48)
Population ratio over 65	0.01 (0.07)	-0.03 (-0.20)	-0.04 (-0.24)	-0.04 (-0.25)	-0.03 (-0.16)
Time trend	0.10*** (11.86)	0.10*** (7.74)	0.09*** (7.49)	0.09*** (7.51)	0.09*** (7.44)
Year before election		0.08*** (7.92)	0.09*** (7.81)	0.09*** (7.66)	0.17*** (7.96)
Year of election		0.07*** (4.00)	0.06*** (3.92)	0.06*** (3.69)	0.12*** (4.29)
Year after election		-0.01 (-0.51)	-0.01 (-0.57)	-0.01 (-0.61)	0.06* (1.86)
Continuity of governance		-0.01 (-0.69)	-0.01 (-0.60)	-0.01 (-0.61)	-0.01 (-0.60)
Left-wing party			0.03 (0.75)	0.03 (0.75)	0.03 (0.73)
Right-wing party			0.02 (0.41)	0.02 (0.41)	0.01 (0.39)
Central party			0.03 (0.52)	0.03 (0.51)	0.03 (0.53)
Fiscal dependence index				-0.01 (-0.39)	-0.06** (-2.08)
*Year before election * dependence index*					0.08*** (4.09)
*Year of election * dependence index*					0.05** (2.49)
*Year after election * dependence index*					0.07*** (2.80)
Constant	2.59** (2.55)	2.88*** (2.70)	2.85*** (2.67)	2.77** (2.44)	2.32** (1.96)
Number of observations	9116	9116	9112	9112	9112

Source: Own elaboration in STATA.

Note: The upper values are the coefficient, whereas the T-statistics are between parentheses. Significance level for which the null hypothesis is rejected is ***, ** and *, which denotes 1%, 5% and 10% respectively.

Figure 8. Marginal effects of a year before, year of elections and year after elections on public administration spending in Spain.



Source: Own elaboration in STATA.

3.5.2 Estimation of the parameters for Polish sample.

Total expenditures

Regression results for total spending in Polish municipalities may be found in Table 6. Based on the outcomes of the estimation, one may conclude a positive impact of the level of revenues and public debt on the volume of total spending. Interestingly, the period of economic downturn forces local authorities to raise the amount of general expenditure associated with the provision of public services. The reason may be found in the necessity of transferring social benefits to local community. If only basic variables are taken into account in the model (Table 6, Column 1), then unemployment rate in a municipality as well as electoral turnout tend to work in favour of higher total spending. The latter finding may be interpreted as the influence of social capital on local governments performance. (Coffe and Geys, 2005) Thus, it seems to not determine the level of general spending if the model considers also possible political factors. The results indicate anticipated positive impact of the influx of the EU funds on total spending. In particular, local governments are obliged to contribute financially to the majority of investments made with the support of the EU grants.

When it comes to the demographic determinants, only population ratio over 65 turns out to affect the level of spending, since it lowers local expenditure. It may be explained by the fact that in general pensioners in Poland do not live in poverty, therefore local governments are not forced to support them as much as other age groups. This in turn, is confirmed by the result corresponding to the wealth of the community. In particular, there is a clear evidence that the more affluent local community is, the lower is the cost of provision of public services. Hence, the demand for public services varies as population of a municipality earns more. (Bodkin and Conklin, 1971). Further analysis associated with the introduction of political variables reveals the existence of political business cycles in total spending in Polish municipalities. More precisely, local governments increase the level of general expenditure in the three-year period which begins one year before election. However, the magnitude of this effect varies across periods since local authorities find the most powerful incentives to raise spending size in the year when councillors are elected (especially that local elections in Poland are held in November), whereas their motivation is lower in the following year. Although the effect of post-election period becomes negative if the model includes interactive terms, political business cycles are clearly detected in the remaining regressions. Similarly to the results obtained by Bastida e*t al*. (2013) and Casal e*t al*. (2013) total spending size is not influenced by ideological preferences of local incumbents. Municipal fiscal dependence in turn, increases the need to cover higher costs of provision of public services but only if interactive terms are not taken into consideration.

Finally, the investigation of marginal effects shows the strengthening impact of higher autonomy (lower dependency) on the magnitude of post-electoral cycles (see Figure 9). More precisely, total spending size drops more with lower fiscal dependence in the year after the election.

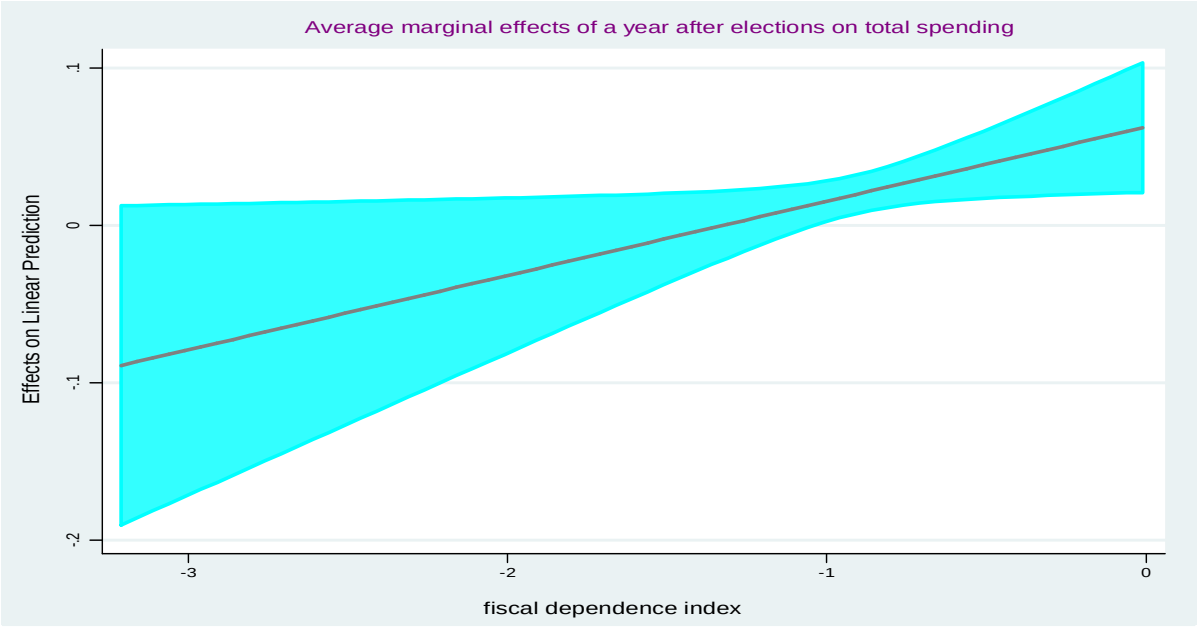
Table 6. The results of regressions of the determinants of total expenditures in Polish municipalities. 2002-2013.

Variable name	***Total expenditures***				
	(1)	(2)	(3)	(4)	(5)
Revenues	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)
Crisis	0.05*** (4.36)	0.06*** (4.79)	0.06*** (4.75)	0.06*** (4.68)	0.06*** (4.66)
Electoral turnout	0.09** (2.03)	0.06 (1.32)	0.06 (1.30)	0.06 (1.35)	0.06 (1.24)
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)
Population ratio under 18	-0.14 (-1.33)	-0.09 (-0.86)	-0.10 (-0.91)	-0.10 (-0.99)	-0.15 (-1.44)
Population ratio over 65	-0.21*** (-2.65)	-0.16** (-2.07)	-0.16** (-2.05)	-0.17** (-2.18)	-0.17** (-2.18)
PIT revenues	-0.24*** (-5.18)	-0.13*** (-2.77)	-0.13*** (-2.77)	-0.12** (-2.55)	-0.12** (-2.45)
EU funds	0.01*** (6.67)	0.01*** (5.43)	0.01*** (5.49)	0.01*** (5.30)	0.01*** (5.85)
Time trend	0.00 (0.51)	-0.00 (-0.12)	-0.00 (-0.14)	-0.00 (-0.31)	-0.00 (-0.60)
Year before election		0.03*** (5.89)	0.03*** (5.88)	0.03*** (5.88)	0.00 (0.08)
Year of election		0.05*** (6.17)	0.05*** (6.13)	0.05*** (6.14)	0.08*** (3.60)
Year after election		0.01** (2.35)	0.01** (2.33)	0.01** (2.38)	0.06*** (3.19)
Education of councilor		0.03 (1.30)	0.04 (1.40)	0.04 (1.33)	0.04 (1.38)
Continuity of 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 dependence index				0.06** (2.31)	0.04 (1.37)
*Year before election * dependence index*					-0.03 (-1.52)
*Year of election * dependence index*					0.04 (1.49)
*Year after election * dependence index*					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)
Number of observations	2139	2139	2139	2139	2139

Source: Own elaboration in STATA.

Note: The upper values are the coefficient, whereas the T-statistics are between parentheses. Significance level for which the null hypothesis is rejected is ***, ** and *, which denotes 1%, 5% and 10% respectively.

Figure 9. Marginal effects of a year after elections on total spending in Poland.



Source: Own elaboration in STATA.

Social support expenditure

Empirical results related to social category are depicted in Table 7. Generally speaking, basic variables turn out to influence social assistance spending according to the expectations. Municipal revenues enhance local governments capability to provide social support to inhabitants. Economic downturn and higher ratio of population under 18 and over 65 increase the demand for social benefits and provision of elderly care facilities. Not surprisingly the size of social support spending decreases as local community is wealthier. However, the influx of the EU funds seems to lower the need of financing social support demands raised by inhabitants. Possible explanation may be found in the stimulation and mobilization of local labour market as well as economic development of municipalities due to the inflow of EU funds. Similarly to the findings obtained in the case of social expenditure in Spain, the economies of scale are not present in this category of social services. Similarly to Blais and Nadeau (1992) and Furdas (2015), the results confirm the presence of political business cycles, namely before and in the year of election local governments spend more on social support in order to be re-elected. However, the first effect disappears in the model with interactive terms. Although no partisan effect is found in the models, there is an ambiguous influence of continuity of governance since it turns out to be statistically significant solely in

the third regression (Table 7, Column 3). When it comes to the issue of fiscal freedom of a municipality, the outcomes confirm that higher degree of municipal fiscal dependence implies greater spending on social support.

Table 7. The results of regressions of the determinants of social support expenditures in Polish municipalities. 2002-2013.

Variable name	***Social support expenditures***				
	(1)	(2)	(3)	(4)	(5)
Revenues	0.18* (1.96)	0.17* (1.86)	0.17* (1.85)	0.29** (2.16)	0.29** (2.17)
Public debt	0.00 (0.94)	0.00 (0.85)	0.00 (0.93)	0.00* (1.72)	0.00* (1.85)
Crisis	0.02*** (2.61)	0.04*** (4.34)	0.04*** (4.38)	0.04*** (3.73)	0.04*** (3.89)
Electoral turnout	0.12* (1.87)	0.07 (1.14)	0.07 (1.13)	0.08 (1.39)	0.07 (1.33)
Unemployment rate	0.00 (0.19)	-0.00 (-0.15)	-0.00 (-0.20)	-0.02 (-0.89)	-0.01 (-0.72)
Population density	-0.22 (-1.46)	-0.31* (-1.91)	-0.30* (-1.82)	-0.28* (-1.78)	-0.28* (-1.79)
Population ratio under 18	0.14 (1.38)	0.21** (2.00)	0.21** (2.01)	0.18* (1.65)	0.15 (1.37)
Population ratio over 65	0.10 (1.29)	0.14* (1.85)	0.14* (1.81)	0.10 (1.30)	0.10 (1.28)
PIT revenues	-0.13*** (-2.94)	-0.05 (-1.28)	-0.05 (-1.27)	-0.01 (-0.48)	-0.01 (-0.19)
EU funds	-0.00* (-1.74)	-0.00*** (-2.74)	-0.00*** (-2.92)	-0.01*** (-4.19)	-0.01*** (-4.03)
Time trend	0.04*** (6.96)	0.04*** (6.55)	0.04*** (6.57)	0.03*** (5.03)	0.03*** (4.65)
Year before election		0.01** (1.97)	0.01** (1.97)	0.01* (1.88)	-0.01 (-0.79)
Year of election		0.04*** (5.86)	0.04*** (5.87)	0.04*** (5.96)	0.07*** (2.67)
Year after election		0.00 (0.48)	0.00 (0.49)	0.00 (0.65)	0.01 (0.71)
Education of councilor		-0.01 (-0.47)	-0.02 (-0.76)	-0.02 (-0.81)	-0.02 (-0.81)
Continuity of governance		-0.01 (-1.62)	-0.01* (-1.73)	-0.01 (-1.49)	-0.01 (-1.46)
PO			-0.02 (-1.48)	-0.01 (-1.27)	-0.02 (-1.34)
PiS			-0.02 (-1.08)	-0.02 (-1.00)	-0.02 (-1.00)
PSL			-0.01 (-0.31)	-0.01 (-0.51)	-0.01 (-0.38)
SLD			0.00 (0.20)	0.00 (0.09)	0.00 (0.09)
Fiscal dependence index				0.24** (2.26)	0.24** (2.26)
*Year before election * dependence index*					-0.01 (-1.36)
*Year of election * dependence index*					0.03 (1.23)
*Year after election * dependence index*					0.01 (0.51)
Constant	7.20*** (5.56)	7.51*** (5.50)	7.44*** (5.41)	6.24*** (3.80)	6.17*** (3.72)
Number of observations	2139	2139	2139	2139	2139

Source: Own elaboration in STATA.

Note: The upper values are the coefficient, whereas the T-statistics are between parentheses. Significance level for which the null hypothesis is rejected is ***, ** and *, which denotes 1%, 5% and 10% respectively.

Safety expenditure

The outcomes of regressions associated with public safety and fire protection expenditures shown in Table 8 reveal that this category of spending is positively affected by municipal revenues and the influx of the EU funds. Higher level of public debt in turn, reflecting the financial situation of a municipality, lowers spending size in the field of public security. Not surprisingly crisis is found as a positive determinant of safety expenditure. Such result was also obtained in the case of Spanish sample and may be explained in the same way. Namely, the period of recession is usually associated with social tensions and higher crime rate so the need to support safety of local community is intensified. Hence one may argue that the next result is also intuitive meaning that the level of spending on security decreases as the population in a municipality is wealthier. Interestingly, the outcomes related to electoral cycles variables are consistent with those obtained by Veiga and Veiga (2004). More specifically, there is a significant increase in safety spending level reported one year before election and it is still valid but less powerful in the year when election is held. In turn, spending size on safety decreases in the year after the councillors are elected. However, the influence of post-electoral cycle is not detected if interactive terms are included in regression. What is more, local authorities spend more on safety if they are more fiscally dependent on transfers for higher levels of government.

Table 8. The results of regressions of the determinants of public safety and fire protection expenditures in Polish municipalities. 2002-2013.

Variable name	***Public safety and fire protection expenditures***				
	(1)	(2)	(3)	(4)	(5)
Revenues	0.36** (2.50)	0.37*** (2.68)	0.37*** (2.65)	0.61*** (3.48)	0.60*** (3.47)
Public debt	-0.03** (-2.09)	-0.03* (-1.91)	-0.03* (-1.90)	-0.02* (-1.77)	-0.02* (-1.79)
Crisis	0.18*** (3.73)	0.31*** (5.56)	0.31*** (5.55)	0.30*** (5.41)	0.30*** (5.46)
Electoral turnout	0.34 (1.02)	0.28 (0.86)	0.28 (0.87)	0.30 (0.94)	0.30 (0.94)
Unemployment rate	-0.04 (-0.41)	-0.06 (-0.66)	-0.06 (-0.66)	-0.09 (-0.96)	-0.08 (-0.88)
Population density	1.19 (1.54)	1.14 (1.51)	1.14 (1.51)	1.17 (1.57)	1.17 (1.56)
Population ratio under 18	-0.80 (-1.44)	-0.68 (-1.21)	-0.69 (-1.21)	-0.75 (-1.32)	-0.73 (-1.31)
Population ratio over 65	0.02 (0.03)	0.10 (0.19)	0.10 (0.19)	0.02 (0.04)	0.03 (0.05)
PIT revenues	-0.56*** (-3.79)	-0.31* (-1.81)	-0.31* (-1.81)	-0.24 (-1.37)	-0.22 (-1.23)
EU funds	0.02** (2.05)	0.00 (0.29)	0.00 (0.29)	0.00 (0.03)	0.00 (0.03)
Time trend	0.02 (0.89)	0.02 (0.71)	0.02 (0.71)	0.01 (0.40)	0.01 (0.36)
Year before election		0.04* (1.89)	0.04* (1.87)	0.04* (1.84)	0.10 (1.34)
Year of election		0.12*** (3.86)	0.12*** (3.83)	0.13*** (3.98)	0.18* (1.79)
Year after election		-0.08*** (-2.77)	-0.08*** (-2.75)	-0.08*** (-2.70)	-0.06 (-0.53)
Education of councilor		-0.05 (-0.35)	-0.04 (-0.32)	-0.05 (-0.34)	-0.05 (-0.34)
Continuity of governance		-0.03 (-0.72)	-0.03 (-0.73)	-0.02 (-0.60)	-0.02 (-0.60)
PO			-0.00 (-0.04)	0.00 (0.07)	0.00 (0.06)
PiS			0.01 (0.08)	0.01 (0.12)	0.01 (0.12)
PSL			-0.05 (-0.92)	-0.05 (-0.84)	-0.05 (-0.88)
SLD			0.03 (0.33)	0.03 (0.28)	0.02 (0.27)
Fiscal dependence index				0.48*** (3.13)	0.45*** (2.73)
*Year before election * dependence index*					0.07 (1.01)
*Year of election * dependence index*					0.05 (0.61)
*Year after election * dependence index*					0.02 (0.27)
Constant	-5.44 (-1.00)	-6.51 (-1.22)	-6.53 (-1.23)	-8.90* (-1.67)	-8.94* (-1.67)
Number of observations	2139	2139	2139	2139	2139

Source: Own elaboration in STATA.

Note: The upper values are the coefficient, whereas the T-statistics are between parentheses. Significance level for which the null hypothesis is rejected is ***, ** and *, which denotes 1%, 5% and 10% respectively.

Environmental protection expenditures

In all of the regressions presented in Table 9 environment protection expenditure turns out to be influenced positively by level of revenues and public debt. The unemployment rate and population ratio under 18 decrease spending size in this category. In addition, basic version of the model (Table 9, Column 1) indicates negative impact of wealthier community. When it comes to the analysis of electoral cycles, again there is a significant increase in environmental protection spending level in pre-election period and in the year of election. However, when interactive terms are included, the year of election has an opposite effect, whereas post-election time is found to determine negatively this category of expenditure. Hence, tasks related to protection of natural environment may be perceived by electorate as visible. Interestingly only one regression (Table 9, Column 5) indicates the presence of partisan effect in the case of PSL political party but at 10% significance level. What is interesting, the authorities with a secondary education level tend to spend more on supporting environmental policies compared to policymakers who graduated from a university.

The additional analysis of interactive terms confirms that the effect of electoral cycles is stronger with respect to the year of election if fiscal dependence is higher, whereas the impact of the post-election period is intensified by lower dependence (see Figure 10). More precisely, local authorities with high degree of fiscal dependence increase spending on envirionemntal protection in the year when elections take place as well as year after. Their more fiscally independent counterparts in turn decrease level of expenditures in this category of public services.

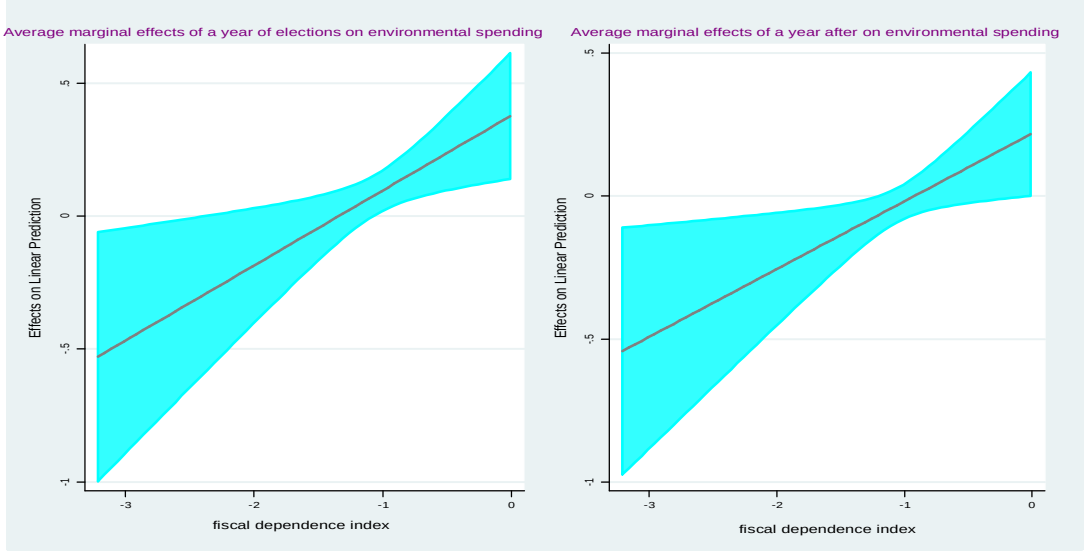
Table 9. The results of regressions of the determinants of environmental protection expenditures in Polish municipalities. 2002-2013.

Variable name	***Environmental protection expenditures***				
	(1)	(2)	(3)	(4)	(5)
Revenues	1.34*** (6.12)	1.41*** (6.31)	1.41*** (6.29)	1.38*** (5.90)	1.38*** (5.92)
Public debt	0.10*** (3.48)	0.11*** (3.37)	0.11*** (3.39)	0.11*** (3.38)	0.11*** (3.45)
Crisis	-0.10 (-1.58)	-0.06 (-0.90)	-0.06 (-0.94)	-0.06 (-0.92)	-0.05 (-0.79)
Electoral turnout	0.14 (0.41)	0.18 (0.52)	0.16 (0.46)	0.15 (0.45)	0.12 (0.37)
Unemployment rate	-0.12 (-1.33)	-0.19** (-2.01)	-0.20** (-2.11)	-0.19** (-2.08)	-0.16 (-1.63)
Population density	0.32 (0.49)	0.76 (1.09)	0.78 (1.15)	0.77 (1.14)	0.76 (1.14)
Population ratio under 18	-1.35** (-2.09)	-1.42** (-2.20)	-1.45** (-2.24)	-1.44** (-2.23)	-1.66** (-2.58)
Population ratio over 65	0.03 (0.05)	0.06 (0.12)	0.10 (0.21)	0.11 (0.23)	0.11 (0.24)
PIT revenues	-0.33* (-1.80)	-0.09 (-0.43)	-0.10 (-0.47)	-0.11 (-0.51)	-0.03 (-0.14)
EU funds	0.00 (0.43)	-0.01 (-1.12)	-0.01 (-0.93)	-0.01 (-0.86)	-0.01 (-0.69)
Time trend	-0.04 (-1.62)	-0.06** (-2.16)	-0.06** (-2.25)	-0.06** (-2.23)	-0.07** (-2.57)
Year before election		0.14*** (6.03)	0.14*** (6.09)	0.14*** (6.08)	0.11 (1.58)
Year of election		0.09*** (2.59)	0.09** (2.54)	0.09** (2.54)	0.38*** (3.37)
Year after election		-0.02 (-0.73)	-0.02 (-0.74)	-0.02 (-0.75)	0.22** (2.13)
Education of councilor		0.22** (2.04)	0.24** (2.14)	0.24** (2.14)	0.24** (2.16)
Continuity of governance		-0.05 (-1.48)	-0.05 (-1.36)	-0.05 (-1.37)	-0.05 (-1.34)
PO			0.08 (1.15)	0.08 (1.14)	0.07 (1.04)
PiS			0.05 (0.55)	0.05 (0.54)	0.05 (0.53)
PSL			0.53 (1.64)	0.53 (1.63)	0.55* (1.65)
SLD			0.03 (0.33)	0.03 (0.33)	0.03 (0.32)
Fiscal dependence index				-0.05 (-0.34)	-0.20 (-1.17)
*Year before election * dependence index*					-0.03 (-0.45)
*Year of election * dependence index*					0.28*** (2.79)
*Year after election * dependence index*					0.24** (2.53)
Constant	-8.00 (-1.54)	-13.22** (-2.37)	-13.37** (-2.44)	-13.10** (-2.38)	-13.84** (-2.55)
Number of observations	2139	2139	2139	2139	2139

Source: Own elaboration in STATA.

Note: The upper values are the coefficient, whereas the T-statistics are between parentheses. Significance level for which the null hypothesis is rejected is ***, ** and *, which denotes 1%, 5% and 10% respectively.

Figure 10. Marginal effects of a year of elections and year after on environmental protection spending in Poland



Source: Own elaboration in STATA.

Public administration expenditure

The results related to public administration expenditure are presented in Table 10. According to them, spending on administration increases as revenues and the EU funds rise. Also crisis influences positively this category of spending. In addition, the empirical analysis reveals economies of scale in provision services related to administration in a municipality with the exception of third regression (Table 10, Column 3). Again, higher wealth of a community lowers size of administration spending. As for the electoral cycles, expenditure on administration tasks increase in pre-electoral period and in the year of election. However, the significance of these factors changes in the last two regressions (Table 10, Column 4-5), whereas there is no evidence on political business cycles if interactive terms are introduced to the model. Thus, the effect of election timing is ambiguous and cannot be clearly compared to the work by Galli and Rossi (2002), which does not confirm the presence of political business cycles in public administration category of spending. Interestingly, the model indicates that political ideology matters in determining the level of expenditure on administration. Namely, if local authorities belong to PO or PSL party, they spend more on administration than their counterparts. This result is in contrast to the research by Hayo and Neumeier (2012), which does not find any evidence on partisan effect in administration expenditure, and is to some extent inconsistent with the results of the research by Castro and Martins (2015), which

stresses that left-wing parties spend more on administration. Here the parties closer to right (PO) and centre (PSL), in terms of economic preferences, turn out to favour this category of spending. In addition, municipal fiscal dependence decreases the level of spending.

Table 10. The results of regressions of the determinants of public administration expenditures in Polish municipalities. 2002-2013.

Variable name	***Public administration expenditures***				
	(1)	(2)	(3)	(4)	(5)
Revenues	0.14*** (4.12)	0.14*** (4.21)	0.14*** (4.18)	0.10** (2.50)	0.09** (2.47)
Public debt	0.01 (0.79)	0.01 (0.85)	0.01 (0.88)	0.01 (0.82)	0.01 (0.81)
Crisis	0.07*** (4.83)	0.08*** (4.70)	0.07*** (4.62)	0.08*** (4.76)	0.08*** (4.76)
Electoral turnout	0.08 (0.98)	0.08 (0.93)	0.07 (0.79)	0.06 (0.75)	0.06 (0.75)
Unemployment rate	-0.02 (-1.04)	-0.03 (-1.38)	-0.04* (-1.67)	-0.03 (-1.43)	-0.03 (-1.32)
Population density	-0.37** (-2.02)	-0.34* (-1.83)	-0.31 (-1.65)	-0.32* (-1.69)	-0.32* (-1.71)
Population ratio under 18	-0.02 (-0.15)	-0.02 (-0.12)	-0.04 (-0.27)	-0.03 (-0.18)	-0.02 (-0.17)
Population ratio over 65	-0.05 (-0.44)	-0.05 (-0.40)	-0.03 (-0.29)	-0.02 (-0.16)	-0.02 (-0.16)
PIT revenues	-0.10** (-2.53)	-0.07 (-1.63)	-0.07* (-1.76)	-0.09** (-2.09)	-0.08* (-1.94)
EU funds	0.01*** (4.31)	0.01*** (3.47)	0.01*** (3.72)	0.01*** (4.12)	0.01*** (4.09)
Time trend	0.03*** (5.92)	0.03*** (5.62)	0.03*** (5.52)	0.03*** (5.72)	0.03*** (5.69)
Year before election		0.01*** (2.92)	0.02*** (3.02)	0.02*** (3.03)	0.03 (1.64)
Year of election		0.01* (1.77)	0.01* (1.67)	0.01 (1.51)	0.02 (1.21)
Year after election		-0.00 (-0.09)	-0.00 (-0.12)	-0.00 (-0.18)	-0.01 (-0.43)
Education of councilor		-0.00 (-0.07)	0.00 (0.10)	0.00 (0.13)	0.00 (0.11)
Continuity of governance		-0.01 (-1.19)	-0.01 (-1.15)	-0.01 (-1.27)	-0.01 (-1.27)
PO			0.04* (1.91)	0.03* (1.82)	0.03* (1.81)
PiS			0.00 (0.15)	0.00 (0.11)	0.00 (0.12)
PSL			0.18*** (2.84)	0.18*** (2.74)	0.18*** (2.73)
SLD			0.03 (0.87)	0.03 (0.89)	0.03 (0.88)
Fiscal dependence index				-0.10*** (-2.63)	-0.10*** (-2.78)
*Year before election * dependence index*					0.01 (0.75)
*Year of election * dependence index*					0.01 (0.68)
*Year after election * dependence index*					-0.01 (-0.39)
Constant	7.10*** (5.50)	6.64*** (5.06)	6.44*** (4.79)	6.92*** (5.11)	6.92*** (5.11)
Number of observations	2139	2139	2139	2139	2139

Source: Own elaboration in STATA.

Note: The upper values are the coefficient, whereas the T-statistics are between parentheses. Significance level for which the null hypothesis is rejected is ***, ** and *, which denotes 1%, 5% and 10% respectively.

3.5.3 Comparison of the results between Spain and Poland.

The empirical analysis of determinants of public total spending as well as expenditure in several categories, namely social support, security and fire protection, environmental protection and public administration in Spanish and Polish municipalities revealed that although to some extent these two countries experience similar pattern of spending policies, they also differ substantially in many aspects.

First of all, in most of the cases revenues affect positively all spending categories. Also economic downturn translates into higher level of expenditure in Poland, besides environmental protection category. In Spain in turn, crisis causes increase in total and safety spending, whereas remaining three public services experience lower spending size due to the recession. Similarities between countries may be found in the presence of economies of scale in general and social support spending. In Polish case there is also negative impact on administration expenditure resulting from higher population density. Interestingly, none of categories related to Spanish public spending turned out to be age dependent, whereas Polish local governments spend more on social assistance as the ratio of population under 18 and over 65 increases. These age groups have also negative impact on environmental protection and total expenditures respectively. Another difference is detected in the way how total spending is influenced by rate of unemployment. Namely, in Polish municipalities total expenditure increases as the number of unemployed inhabitants raise, whereas Spanish presents the opposite impact. Moreover, according to the expectations, spending on social assistance and security services raise with the unemployment rate but solely in Spanish municipalities. Additional variables introduced to the analysis of determinants of public spending in Polish municipalities allow to conclude that as the local community is wealthier, its demand for all considered public services is lower since the level of spending declines in such situation. Interestingly, social capital measured by electoral turnout turns out to not influence local budgetary policies.

Special attention should be paid to the issue of political business cycles. According to the results opportunistic behaviour of local authorities was found in the case of total spending in Spanish municipalities, whereas Polish local governments support security services. It means that in order to be re-elected, policymakers increase size of expenditure on these categories in pre-election time and in the year of election. But since the need to keep balanced budget forces them to compensate it by lowering spending after the election. Similar pattern of spending policy is detected in both countries in expenditures on social support, environmental

protection and public administration. However, in these categories the statistically significant impact of post-election period was not found. The investigation of the presence of business cycles revealed also interesting result related to total spending size in Polish local governments as well as on safety services in Spanish case. Namely, Polish councillors tend to increase total expenditure during three-year period which begins one year before the election. Such an outcome may be interpreted as the realization of pre-election promises or continuity of investments and projects started prior to the election. On the other hand, completely opposite pattern of manipulation of local spending policy is discovered in public safety category in Spanish municipalities. More specifically, the level of expenditure on public security is constantly reduced in the electoral period. Thus, it may suggest that local incumbents perceive the provision of this service as invisible for electorate and as a result decrease expenditure on it in favour of more evident categories. Interestingly, although existing literature on business cycles raises the issue of partisan effect, it is not found in considered categories in the case of Spain. However, in Polish sample there is an evidence on a positive influence on spending size on environmental protection and public administration resulting from political ideology of incumbents assigned to centrally or right-wing oriented party. Finally, additional analysis of continuity of governance of Polish councillors revealed its negative and significant importance in determining social support expenditure, what may be explained by efficiency gains in spending due to continuous incumbency.

As for the problem of decentralization and the level of freedom of local governments in setting and executing their own fiscal policies, the empirical analysis provides interesting results. In particular municipal dependence turns out to affect positively total and safety spending in both countries, whereas in Poland it increases also social support spending. Higher degree of fiscal autonomy in turn works in favour of spending size in Spanish municipalities with respect to social support, environmental protection and administration, whereas the latter finding is observed also among Polish local governments. Noteworthy, the investigation of marginal effects associated with fiscal dependence and electoral budget cycles revealed that the scale of political business cycles is strengthen by fiscal dependence on transfers from higher levels of government. This effect is observed in all analysed categories of spending in Spanish municipalities and in environmental serives in Polish units. However if total expenditures are taken into consideration, then higher fiscal dependency weakens budget cycles in Spain and Poland.

Summing up, the analysis suggests that political factors matter in determining spending policies in Polish and Spanish municipalities. As for the political business cycles, in both

countries local authorities manipulate to the greatest extent total spending and safety expenditures. However, they also increase spending on social, environmental protection and public administration services in pre-election period and in the year when councillors are elected. Thus, the main research hypothesis is not confirmed since local authorities manipulate spending policies in the analysed categories what suggests that they consider these services as visible to electorate. Further investigation indicates stronger political business cycles in public spending on all categories due to higher fiscal dependency of Spanish municipalities, whereas in Polish case this effect is observed solely in the category of environmental protection. Total spending in turn, increases as the autonomy of local authorities is extended in both countries. Therefore, fiscal decentralization, even if translates into larger expenditures, may be a relevant tool for reducing the strength of budget cycles in particular categories of public spending. Yet, subsequent higher intensity of electoral cycles in total expenses should be expected.

Conclusions

The present work aimed at investigating the presence of political business cycles in spending policies of municipal governments in decentralized economies on the examples of Spain and Poland. Special attention was paid to the categories of public services which are considered as invisible to the electorate and as a result are not expected to be influenced by political factors. According to the economic theory and existing literature, in order to be re-elected, incumbents tend to demonstrate higher competence and efficiency through expansive policies with respect to the services easily observed by the citizens. Thus, scarce empirics on the existence of electoral cycles in the remaining types of public services provided was an incentive to conduct detailed analysis in this area. Apart from that, it is the predominant study exploring the presence of political business cycles in public spending in Poland, whereas Spanish local expenditure is not well examined in terms of the presence of electoral cycles in spending on services not visible to the voters.

At the beginning the work explains the concept of fiscal decentralization as a process of transferring competences to lower levels of government in order to increase the efficiency of the allocation of resources in the economy. Moreover, it presents various approaches to the problem of decentralized governance under the theory of fiscal federalism, stressing the beneficial role of sub-national governments in the process of local economic development rather than centrally planned economy. This section is complemented by the description of the process of fiscal decentralization in Spanish and Polish economies. Subsequently, the article presents the overview of the literature on electoral cycles in municipal spending policies. According to the existing theory and empirics on political business cycles, emerged the main research hypothesis stating the absence of electoral cycles in the categories of spending considered as invisible to the electorate, namely social support, public safety, environmental protection and public administration. Additionally, the study investigates the impact of autonomy of local governments on the magnitude of manipulation of fiscal policies.

The results of the empirical part of the study are not consistent with the existing literature and economic theory. The outcomes confirm the existence of electoral cycles in invisible categories of public spending in both countries. In particular, Spanish and Polish councillors tend to introduce expansive policies in total spending, whereas the categories related to social support, environment protection and public administration are also slightly manipulated. These effects are stronger as the authority of incumbents is limited. Thus, the results suggest

beneficial role of decentralization in reduction of opportunistic budget cycles, except of total spending.

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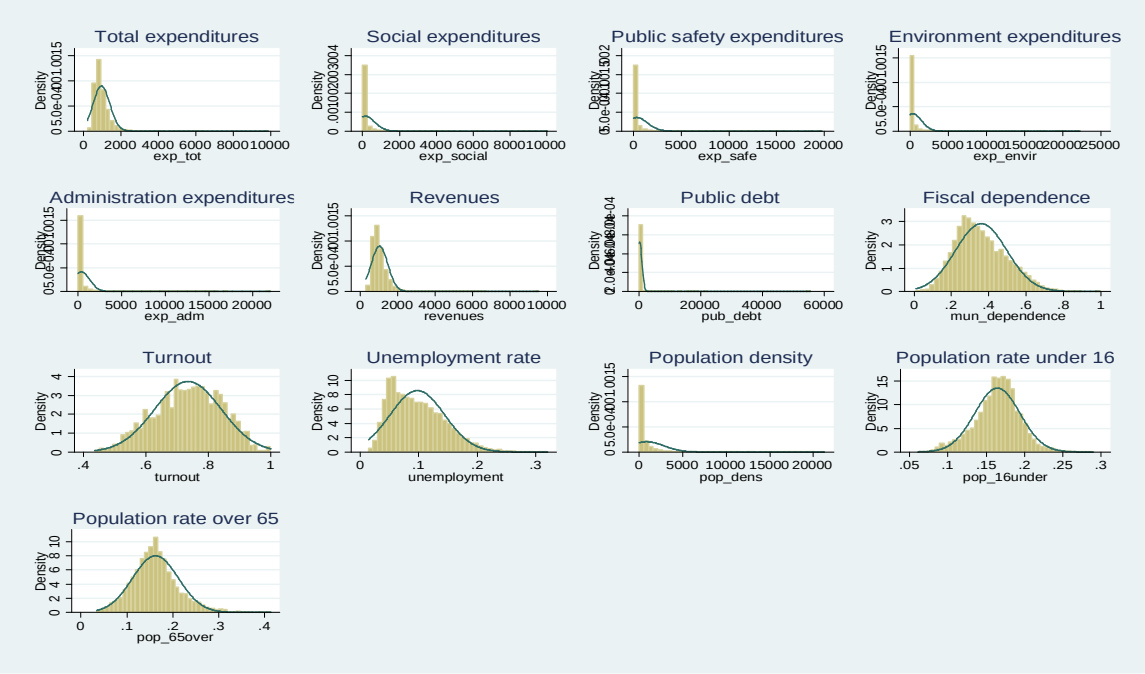
Appendix

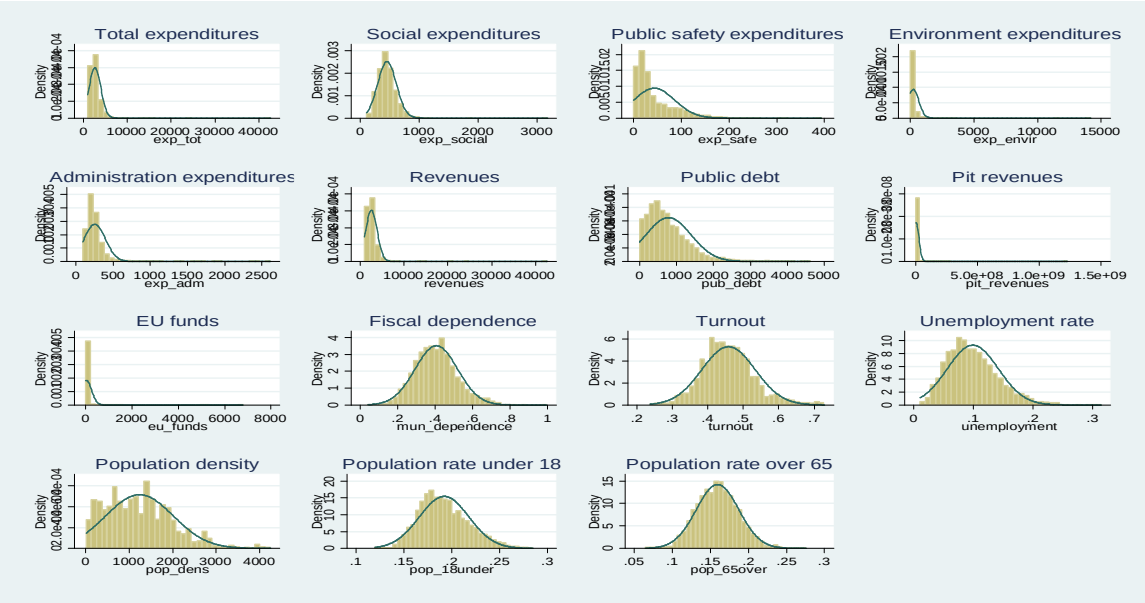
A. Figures

Figure A1. Histograms of the continuous variables used in the models for Spain.



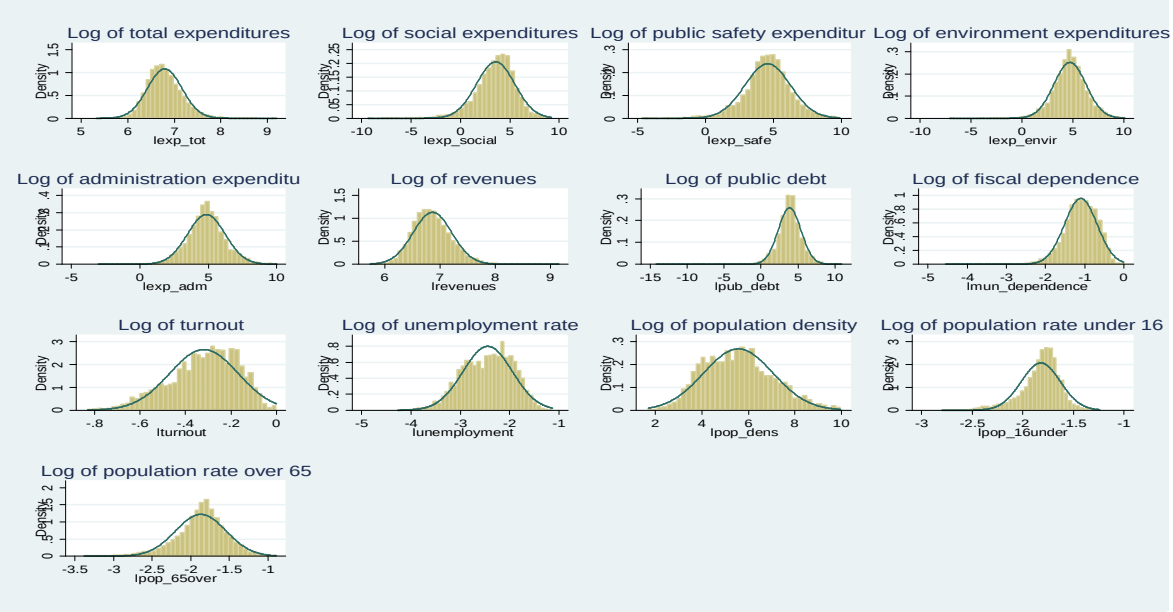
Source: Own elaboration in STATA.

Figure A2. Histograms of the continuous variables used in the models for Poland.



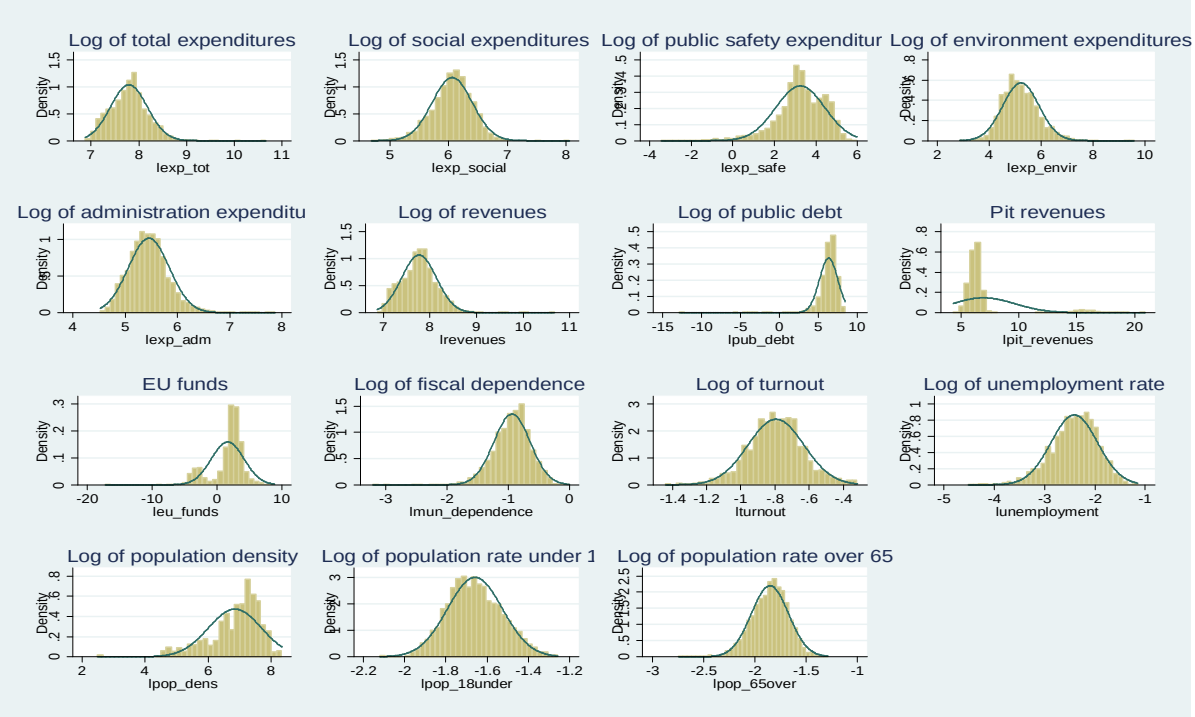
Source: Own elaboration in STATA.

Figure A3. Histograms of the continuous variables taken in logarithms in the models for Spain.



Source: Own elaboration in STATA.

Figure A4. Histograms of the continuous variables taken in logarithms in the models for Poland.



Source: Own elaboration in STATA.

B. Tables

Table B1. Descriptive statistics of the variables used in the models for Spain. 2005-2014.

Variable	*Descriptive statistics*			
	Mean	Standard deviation	Minimum value	Maximum value
Total expenditure	962.69	445.65	206.32	9869.51
Administration expenditure	356.81	968.04	0.05	22055.64
Environmental expenditure	383.02	1123.82	0.00	22226.43
Public safety expenditure	361.89	1112.06	0.00	19762.67
Social expenditure	160.41	508.04	0.00	10037.84
Revenues	1028.77	443.23	311.44	9536.37
Public debt	161.16	758.78	0.00	55484.41
Capital city	0.00	0.03	0.00	1.00
Metropolis	0.00	0.07	0.00	1.00
Catalonia	0.16	0.37	0.00	1.00
Galicia	0.10	0.30	0.00	1.00
Medit. Coast	0.52	0.50	0.00	1.00
Crisis	0.81	0.40	0.00	1.00
Electoral turnout	0.73	0.11	0.44	1.00
Unemployment rate	0.10	0.05	0.01	0.32
Population density	850.10	1958.69	5.44	21262.14
Population ratio under 16	0.16	0.03	0.06	0.29
Population ratio over 65	0.16	0.05	0.03	0.41
Fiscal dependence index	0.36	0.14	0.01	0.99
Year before election	0.30	0.46	0.00	1.00
Year of election	0.20	0.40	0.00	1.00
Year after election	0.20	0.40	0.00	1.00
Continuity of governance	0.47	0.50	0.00	1.00
Left-wing party	0.66	0.48	0.00	1.00
Right-wing party	0.29	0.45	0.00	1.00
Central party	0.03	0.18	0.00	1.00
Independent party	0.02	0.14	0.00	1.00

Source: Own elaboration in STATA.

Table B2. Descriptive statistics of the variables used in the models for Poland. 2002-2013.

Variable	*Descriptive statistics*			
	Mean	Standard deviation	Minimum value	Maximum value
Total expenditure	2622.51	1334.26	972.05	42739.14
Administration expenditure	254.58	143.72	91.49	2620.75
Environmental expenditure	250.06	426.74	17.20	14178.99
Public safety expenditure	43.23	42.48	0.03	394.10
Social expenditure	453.91	158.37	108.54	3174.46
Revenues	2551.81	1310.82	968.40	42765.04
Public debt	784.31	613.58	0.00	4610.34
PIT revenues	1738439.89	23125215.50	74.96	1.23e+09
EU funds	32.94	219.74	0.00	6793.57
EU membership	0.83	0.37	0.00	1.00
Capital city	0.00	0.06	0.00	1.00
Metropolis	0.02	0.13	0.00	1.00
Uppersilesia	0.06	0.24	0.00	1.00
Crisis	0.58	0.49	0.00	1.00
Electoral turnout	0.46	0.08	0.24	0.73
Unemployment rate	0.10	0.04	0.01	0.31
Population density	1238.81	774.91	12.00	4256.00
Population ratio under 18	0.19	0.03	0.12	0.28
Population ratio over 65	0.16	0.03	0.06	0.28
Fiscal dependence index	0.41	0.11	0.04	1.00
Year before election	0.25	0.43	0.00	1.00
Year of election	0.25	0.43	0.00	1.00
Year after election	0.25	0.43	0.00	1.00
Education of councillor	0.07	0.26	0.00	2.00
Continuity of governance	0.66	0.48	0.00	1.00
PO	0.17	0.37	0.00	1.00
PiS	0.10	0.30	0.00	1.00
PSL	0.03	0.16	0.00	1.00
SLD	0.14	0.34	0.00	1.00
Independent party	0.57	0.50	0.00	1.00

Source: Own elaboration in STATA.

Table B3. The results of the tests for the models for Spain.

Name of the test	Test statistic/ p-value	*Total expenditure*	*Public administration expenditure*	*Environmental protection expenditure*	*Public safety and fire protection expenditure*	*Social support expenditure*
Hausman test	Chi2	1475.36 (16)	-252.04 (16)	446.56 (16)	-41.59 (16)	458.69 (16)
	p-value	0.0000	0.0000	0.0000	0.0000	0.0000
Wooldridge test for autocorrelation	F	32.717 (1,1071)	190.762 (1,1071)	30.842 (1,1071)	432.130 (1,1070)	234.337 (1,1070)
	P-value	0.0000	0.0000	0.0000	0.0000	0.0000
Modified Wald test for groupwise heteroskedasticity	Chi2	9.0e+30 (1224)	1.2e+33 (1224)	3.0e+32 (1224)	5.4e+31 (1223)	1.9e+06 (1222)
	p-value	0.0000	0.0000	0.0000	0.0000	0.0000

Source: Own elaboration in STATA.

Table B4. The results of the tests for the models for Poland.

Name of the test	Test statistic/ p-value	*Total expenditure*	*Public administration expenditure*	*Environmental protection expenditure*	*Public safety and fire protection expenditure*	*Social support expenditure*
Hausman test	Chi2	222.18 (20)	-1880.23	67.67 (20)	587.82	117.37 (20)
	p-value	0.0000	0.0000	0.0000	0.0000	0.0000
Wooldridge test for autocorrelation	F	40.428 (1,300)	51.512 (1,300)	87.751 (1,300)	21.762 (1,300)	7.450 (1,300)
	P-value	0.0000	0.0000	0.0000	0.0000	0.0067
Modified Wald test for groupwise heteroskedasticity	Chi2	5.0e+28 (306)	5.5e+29 (306)	45866.93 (306)	4.7e+05 (306)	1.5e+32 (306)
	p-value	0.0000	0.0000	0.0000	0.0000	0.0000

Source: Own elaboration in STATA.