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To cite this article: Monika Köppl Turyna, Grzegorz Kula, Agata Balmas & Kamila Waclawska (2016) The effects of fiscal decentralisation on the strength of political budget cycles in local expenditure, *Local Government Studies*, 42:5, 785-820, DOI: [10.1080/03003930.2016.1181620](https://doi.org/10.1080/03003930.2016.1181620)

To link to this article: <http://dx.doi.org/10.1080/03003930.2016.1181620>



Published online: 23 May 2016.



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The effects of fiscal decentralisation on the strength of political budget cycles in local expenditure

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ABSTRACT

In this article we analyse the effects of political business cycles and fiscal decentralisation on the expenditure categories of Polish municipalities. We find convincing evidence demonstrating the impact of strong political business cycles in almost all expenditure categories, particularly for the categories of expenditure relevant to electoral success, such as infrastructure and social programmes. We find evidence that transfers to municipalities increase the strength of the electoral cycle.

KEYWORDS Local expenditure; political budget cycles; fiscal autonomy; decentralisation; Poland

1. Introduction

This work analyses political budget cycles in the local expenditures of Polish municipalities. Local budget cycles have recently been a subject of interest to researchers, and this work adds to the existing literature in several ways. First of all, this work looks at the topic of political budget cycles in a newly established democracy. As will be further described, previous research has focused mainly on the established Western European democracies. Additionally, most works have concentrated on federalist states, as opposed to a fairly centralised, unitary country such as Poland, in which municipalities heavily rely on block grants allocated by the central government.

This work primarily focuses on the interrelation between the level of transfers from the central government and the strength of the local political budget cycle. Existing literature has identified the problem of common resource nature of transfers into local entities. Important works in this vein have examined the possibility that representatives seek to externalise the costs of government expenditures in their jurisdiction onto citizens of other communities, turning public revenue into a common pool that quickly

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becomes overfished (see, e.g., Buchanan 1977; Weingast, Shepsle, and Johnsen 1981; Rodden 2003). The electoral incentives of mayors, combined with the constraints of legislative institutions, might lead them to tax and spend more or less than the median voter would prefer. As a consequence of the incongruence between spending and taxation that arises when geographically targeted expenditures are funded by general taxation, representatives misperceive the costs of spending and demand an 'excessive' amount, taking into account all of the benefits but only considering the share of taxes that falls on their constituents. This might lead to spending in excess of the socially optimal amount.

According to Wagner and Buchanan (1977), a further problem is that voters do not fully understand the relationship between current deficits and future taxes; they simply reward spending and punish taxation. Politicians face electoral incentives to take advantage of their 'fiscally illuded' voters with excessive deficit-financed spending, especially in election years. If the voters are, however, aware of the inefficient manipulation, they might actually 'punish' the incumbents at the polls (see Brender and Drazen 2008; Brender 2003, for empirical evidence). Yet, if a municipality is dependent on external revenue, part of the costs of the electoral fiscal manipulation are shifted outside the jurisdiction – to the central government and other constituencies. This creates an incentive for politicians to involve in more electoral manipulation of the budgets, and at the same time reduces the costs perceived by the electorate. Therefore, the combination of the standard 'common-pool problem' of incongruence between revenues and expenditures and fiscal illusion creates a perfect environment for electoral manipulation. Therefore, more dependence on transfers should lead to more electoral manipulation of the budgets. This is the main hypothesis of this study.

Extensive theoretical and empirical literature has tried to answer the question of whether fiscal autonomy decreases the size of the public sector. While most authors argue that fiscal autonomy leads to decreasing public expenditure, some strands of the literature identify the opposite possibility. There are some theoretical reasons for why centrally allocated grants might in fact reduce the size of the local public sector. As Oates (1990) argued, when the sub-national provision of services has cross-boundary or spillover effects, sub-national decision-making may not lead to the optimal nationwide provision of services. If that is the case, the central government could affect sub-national provision by subsidising services. Moreover, wherever economies of scale are an important factor, centrally allocated grants can, in fact, lead to efficiency improvements. As Bergvall et al. (2006) observed, giving financing grants for imposed programmes or based on minimum standards, such as those for basic sub-national services in the form of non-earmarked grants (general purpose or block grants), creates the best incentives for subnational jurisdictions to seek opportunities for cost savings.

Other economic, social and political effects of fiscal decentralisation have also been addressed in the literature. There is evidence that fiscal decentralisation may affect economic growth (compare, e.g., Feld, Kirchgässner, and Schaltegger 2004; Qiao, Martinez-Vazquez, and Xu 2008), fiscal sustainability (e.g., Rodden 2002; Baskaran 2010) or ability to counter macroeconomic shocks (e.g., Rodden and Wibbels 2010)¹. Indeed, as highlighted by Rodden and Wibbels (2010), intragovernmental transfers and revenue-sharing play a role in stabilising local finances and the ability of municipalities to smooth expenditure over the business cycle. In other words, more grants would be associated with less accentuated local business cycle.

The institutional setting of Polish municipalities reveals a clear pattern, as explained in more detail in the next subsection: most tasks, and therefore most expenditures, are decentralised, whereas centrally allocated subventions remain the main source of income. This combination of factors creates the above-mentioned ‘common-resource problem’ and offers an opportunity to test our hypotheses; local governments face strong incentives to extend their expenditure levels, possibly doing so inefficiently. Additionally, the competencies of a mayor facilitate manipulating the budget before elections. We expect the latter problem to be increasingly severe, as central funding takes an increasing share of a municipality’s revenue.

Our main results show that, the strength of the electoral budget cycle is positively related to the fraction of the local revenue originating from transfers from the central government. To our knowledge, this is the first study exploring the question of how electoral manipulation of the local budgets can be exaggerated by ill-designed fiscal decentralisation. With our results, we contribute to the broader discussion of the effects of fiscal decentralisation on the size of the public sector.

In the next subsection, we briefly describe the institutional and political setting of

Polish municipalities. In [Section 2](#), we present an overview of the literature on municipal expenditure and political budget cycles. [Section 3](#) describes the data set as well as the main hypotheses. [Section 4](#) presents the results and robustness checks. [Section 5](#) concludes.

1.1. Institutional background

Municipalities (Polish: *gmina*) are the principal units of administrative division in Poland. There are currently 2478 municipalities, varying in size between 1400 and 1.7 million inhabitants. The legislative and controlling body of each *gmina* is the elected municipal council (*rada gminy*) or, in a town, town council (*rada miasta*). Executive power is held by the directly elected mayor of the municipality. Since 2002, mayors in Poland are directly elected in a first-past-the-post electoral design. The municipal council is

elected in a proportional election²; the number of seats depends on the size of the municipality. It is important to note that election timing is entirely exogenous. With the exception of the very rare replacement elections (e.g., in case of deaths or recalls of mayors), election timing cannot be manipulated at the local level. This setting makes the electoral cycle entirely exogenous, simplifying the analytical methodology. Municipalities fulfil two types of tasks: own tasks and commissioned tasks. Own tasks serve to satisfy the needs of the community, which include local infrastructure management, waste removal, public transport, health care, public education, environmental protection, social support and cultural facilities. Commissioned tasks typically include the organisation of elections and some tasks of public administration, such as registration of civil affairs and migration recording. However, some of the own tasks are strictly regulated by law (e.g., education or social support) and the decisions of the central government, so municipalities do not have much freedom in managing them. This does not mean that municipalities cannot exhibit any of their own initiative in fulfilling these tasks, but such initiative is usually taken by wealthier units. Poorer units must restrict themselves to what they are required to do by law, using only the transfers they receive for this purpose from the central government.

Municipalities in Poland dispose of five major sources of financing: subventions from the central government, designated subsidies, participation in the centrally collected income and corporate taxes, local taxation and the management of municipal property. Municipalities' degrees of freedom in raising income differs among these diverse categories of financing. For the first three categories, municipalities have virtually no financial independence whatsoever. They have power only over the two latter categories, particularly their management of municipal properties. With respect to local taxes, they have limited autonomy, although local taxes, such as property taxes, have a substantially lower impact on the income of municipalities than the possibility of selling or letting local property (Hausner 2013). Subventions and designated subsidies are mostly transferred as formula-based non-earmarked grants: in 2004, 24.1% of total grants were earmarked, formula-based current grants, while 5.4% were earmarked, formula-based capital grants and the remaining 70.5% were general-purpose, formula-based, non-earmarked grants (Bergvall et al. 2006).

Intergovernmental transfers constituted in 2013 on average 62% of municipalities' revenues, with maximum values reaching even 90% in some cases. Figure A1 in the Appendix additionally shows that the share of transfers in the overall revenues of municipalities slowly but constantly increased over the analysed period. This process is due on one hand to continued decentralisation, with the central government transferring its tasks to lower levels of administration together with the resources to

allow local governments to fulfil these functions. On the other hand, due to the economic crisis and reduced revenues from income taxes, own revenues of municipalities have been decreasing. We also observe that the share of transfers varies greatly in our data set, representing between 20% and 90% of overall revenue. In general, we may assume that in smaller and poorer municipalities the share in municipal revenues represented by transfers was higher over the studied period than in bigger and richer ones. However, due to the transfers from the central government, the smallest units often have very high revenues per capita (Ministry of Administration and Digitalization 2013). Thus, we may treat a high overall revenue share of transfers as a signal that a particular municipality is relatively poor.

The mayor bears executive power in a municipality. According to Art. 30 of the Municipal Self-Governance Act, the mayor's tasks include: preparation for draft resolutions of the municipal council, specification of how to implement the council's resolutions, management of municipal property and implementation of the budget. The two latter responsibilities give the mayor relevant power over municipal finances, as management of municipal property is a substantial source of municipal revenue. This category of income is also the one most easily manipulated on the local level. Moreover, the responsibility to implement the budget as well as to prepare local resolutions also grants substantial power over expenditure into the hands of the mayor.

An important aspect of the analysis is the fiscal rules in place. According to Budina et al. (2012) and Blöchliger and Nettle (2015), there are statutory and constitutional fiscal rules imposed on the general government, e.g., in relation to the debt level. More specific provisions regarding local finances are stipulated in the Public Finances Act (PFA). In principle, according to this act, municipalities are obliged to run a balanced budget; however, Art. 242 of the PFA allows municipalities to run short-term deficits financed mostly from past budget surpluses and surpluses on current accounts. Municipalities are also allowed to issue bonds and incur debt (Art. 89 of the PFA). However, the newly incurred debt cannot exceed a yearly level of 15% of the revenue (Art. 169 of the PFA) and the overall quota of 60% (Art. 170 of the PFA)³. It can be, therefore, concluded that the provisions of the PFA do not preclude the existence of electoral cycles at the local level.

2. Evidence of electoral cycles at the local level and evidence of partisan effects

The existence of opportunistic budget cycles has been empirically tested both at the national level (Alesina and Roubini 1992; Alt and Lassen 2006; Klomp and De Haan 2013) and at lower levels of

government (see, e.g., Galli and Rossi 2002; Akhmedov and Zhuravskaya 2004; Veiga and Veiga 2007; Schneider 2010; Werck, Heyndels, and Geys 2008). The results obtained, however, have been mixed. A number of studies have confirmed the existence of pre-electoral fiscal cycles at the local level, evident particularly in an increase of total expenditures and budget deficits (Galli and Rossi 2002; Akhmedov and Zhuravskaya 2004; Veiga and Veiga 2007) as well as in declining public debt (Jochimsen and Nuscheler 2011). Other researchers, however, have not found political factors to be important factors in shaping the level of municipal public expenses⁴.

Additionally, it has been empirically shown that the occurrence of political budget

cycles may depend on numerous factors, such as the level of national development, and democracy, political system or government transparency (Alt and Lassen 2006; Klomp and De Haan 2013). In this study, we analyse one other institutional arrangement: the level of central transfers, which in turn reflect the strength of the common pool problem arising from the dependence of local governments on central funding.

Veiga and Veiga (2007) utilise a panel of observations for Portuguese municipalities over the years 1979–2000 to test for the existence of rational political business cycles. Using the generalized method of moments (GMM) estimator, the authors run a number of linear, dynamic panel data models which vary with respect to the dependent variable. More specifically, they use either the budget balance, real total expenditures, capital expenditures or investment expenditures (all expressed in real terms, per capita). The set of explanatory variables includes, among others, the lagged values of the explained variables, total (or capital) transfers received per capita, a dummy variable corresponding to the election year to control for electoral cycles, dummy variables related to the mayor's ideology and the geographic location of a municipality, and, finally, population density and age structure. Clear evidence for mayors' opportunistic behaviour was found, meaning pre-election expenditures for items such as overpasses, streets or rural roads that are highly visible to the society. What this implies is that, in view of upcoming elections, incumbent governments tend to manipulate fiscal policy instruments to help ensure they keep their office.

Furdas, Homolkova, and Kis-Katos (2015) analysed German cities, finding an increase in local spending and decrease in tax revenues before elections. Moreover, the study revealed that electoral cycles may be observed mainly in visible categories of expenditure. The authors observed an increase in building investments, accompanied by increasing intergovernmental grants for investment purposes and also a halt in the increase of local tax rates. The extent of these political budget cycles is more pronounced in municipalities that are politically aligned with their state governments and that are

politically more contested. It is worth mentioning that social-support spending was not found to be manipulated at the local level. Similarly, Hayo and Neumeier (2012), studying German *Länder*, find no evidence of political cycles in expenditures on social support, public safety, fire protection or public administration. Moreover, the composition of public expenditure is affected by the socioeconomic status of an incumbent: lower-class prime ministers spend more on public safety, education, research and development, social security, infrastructure and health. Weak governments (defined as coalition governments and minority governments) spend less on public administration, public safety and health, but more on social security.

There is mixed evidence regarding political cycles for other categories of expenditure. Castro and Martins (2016) found that expenditure components that increased during election periods tend to be related to highly visible items, such as general public services, social protection and health care, while defence and economic affairs are the biggest losers in election years. For the case of Italian cities, Dalle Nogare and Galizzi (2011) found a peculiar electoral cycle: mayors spend less on culture just before the elections. On the other hand, Benito, Bastida, and Vicente (2013) reported that Spanish mayors increase municipal cultural expenditures in election years reducing them in the second year after an election. Finally, Veiga and Veiga (2007) reported that Portuguese municipalities in pre-electoral periods display increasing expenditure on items such as roads, i.e., public infrastructure.

Theoretically, left-wing politicians would be expected to support spending increases, while the right-wing parties would rather prefer deficit reductions (Hibbs 1977) and are more concerned about decreasing expenses after elections (Castro and Martins 2016). Some empirical studies investigating this phenomenon can confirm the importance of a ruling party's ideology for the size and composition of public spending (see, e.g., Getzner 2004; Mink and De Haan 2006; Potrafke 2011), while others find no evidence of a partisan effect (Potrafke 2010; Jochimsen and Nuscheler 2011). We further analyse this puzzling discrepancy in our work.

3. Data, methodology and hypotheses

Our data comprises information about all urban municipalities in Poland⁵ for the period 2002–2013, which includes three periods in office and, thus three electoral cycles. The total number of observations is 3664. We have decided to focus only on urban municipalities, since they are on average bigger and richer than rural and urban-rural ones, and thus have more possibilities to conduct their own expenditures' policy. Rural municipalities, on the other hand, often provide only the minimum level of services, and do not have free financial means at their disposal. Additionally, restricting attention only to urban municipalities makes the sample more homogenous. It does not

bias the estimates, as the selection process is based on an exogenous factor (administrative status of a municipality), so cannot be deemed endogenous self-selection in the sense of Heckman (1979).

Economic and demographic variables have been collected from the Local Data Bank of the Polish Statistical Office and the Polish Ministry of Finance. Electoral and political data, as well as education level of mayors, have been collected from the records of the Electoral Commission, as from official websites of the local political parties and from press releases in certain cases.

The empirical analysis concerns the total expenditure of the municipalities. The estimated equation is

$$\log(\text{expenditure})_{it} = \beta_1 \text{trans}_{it} + \beta_2 \text{election}_{it} + \beta_3 \text{trans}_{it}^* \text{election} + \gamma \mathbb{X}_{it} + \mu_t + \nu_i + \varepsilon_{it},$$

where X_{it} is the vector of the control variables, μ_t are the time effects and ν_i are the municipality field effects. Inclusion of time effects is important to assure that the effect of the elections can be isolated from the effects of the business cycle, which as indicated in the Introduction, may be different depending on the access to grants (Rodden and Wibbels 2010). The dependent variables are the natural logarithms of per capita total municipal expenditure, as well as of categories of expenditures: health care, education, public administration, infrastructure, social protection and environmental protection. We have chosen these categories, as we believe that these are the types of expenditure most visible to the local voters. Moreover, other categories, i.e., expenditure on security and tourism, constitute only a small fraction of the overall spending, as visualised in Figure 1.

In the baseline model, we analyse total expenditure. For the models in which we look at categories of expenditure, we can interpret the results as changes in the composition of expenditure in (pre-)election years⁶.

As already mentioned in Section 2, correlated errors between the periods might be a concern. In order to deal with this, as well as other methodological issues, described later, we apply the System GMM method and estimate a dynamic panel. The major problem in a study analysing the expenditure levels is the strong autocorrelation of the dependent variable as well as of revenues. Data additionally show a strong upward trend throughout the sample, which needs to be included (Figure 2). Figure 2 presents the changes in the real (constant prices) levels of per capita total expenditure and expenditures in categories over time. Due to these issues, we believe that a dynamic panel approach is the correct methodology for this study. Moreover, our panel is a typical case of small T and large N , for which the GMM method performs better than other estimators. The number of lags included in each case has been chosen according to the information criteria. For comparison purposes, we also report the results of fixed effects (FE) estimations.

Composition of local budgets in 2013 (average)

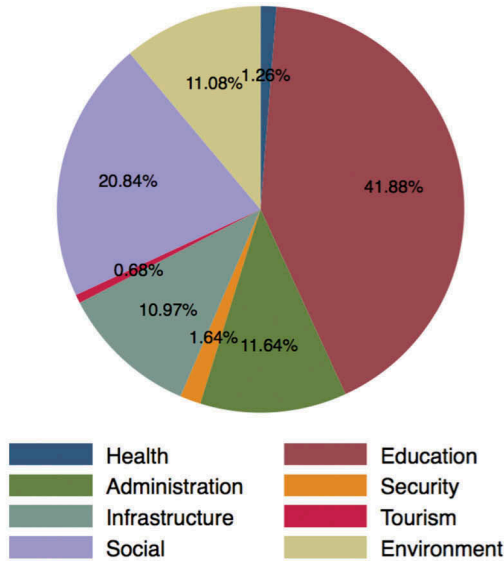


Figure 1. Average composition of local budgets in 2013.

Source: Calculations based on the Local Data Bank of the Polish Statistical Office.

As noted in the Introduction, the main goal of this work is to investigate the interrelation between the political budget cycle and the fiscal autonomy of municipalities. According to the common pool hypothesis, we expect a

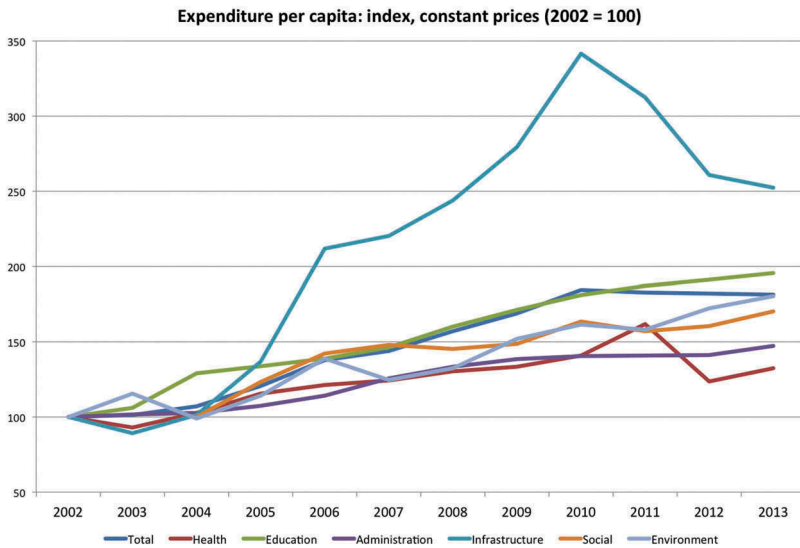


Figure 2. Average real expenditures per capita over time.

Source: Calculations based on the Local Data Bank of the Polish Statistical Office.

stronger budget cycle in municipalities that are financed by central government subventions.

Hypothesis 1. In (pre-)election years, the increase in the expenditure should be stronger in these municipalities which rely more on the transfers from the central government.

The main variable of fiscal autonomy is *the ratio of revenues other than own revenues to overall revenues*, denoted as *Transfers*. This variable therefore, includes sources of financing other than local taxation and property management, capturing direct transfers from regional and national governments, subventions and direct subsidies from national and EU funds. EU funds are included in this category, since they represent an inflow of resources from outside a particular municipality, although they require municipality's application and its own co-financing.

One aspect, which needs to be considered, is whether the main variable of interest, transfers, is exogenous to the elections. It is the ratio of transferred revenues to the overall revenues. As for the numerator, the problem is less severe, since, as mentioned in [Section 1.1](#), the vast majority of the assigned grants are formula-based, and thus hardly discretionary. The denominator, the revenues, on the other hand, theoretically could be manipulated by the municipalities in the short run. A crude way to test whether this is indeed the case would be to compare the values of the variable 'Transfers' in the election years and outside of them. We compare each election year with the following year to keep the comparability of the samples. The results of the *t*-tests are reported in [Table A1](#) in the Appendix. We can observe that the upward trend in transfers is reflected in the values of the test. Yet, there are no significant differences between the election years (2002, 2006 and 2010) and the years preceding and following them. This observation suggests that the potential for the manipulation of the transfers variable is limited.

Furthermore, empirical evidence suggests (compare, e.g., Holtz-Eakin, Newey, and Rosen 1989) that the Granger causality in local revenue–expenditure relationship only runs from revenues to expenditures. That is to say that past revenues help predict current expenditure, but not the other way around. This evidence supports the argument that the main variable of interest, transfers, does not suffer from endogeneity. Moreover, it suggests that the reduced-form model in which only expenditure levels are explained is sufficient for the purpose of this study. An alternative method, a structural VAR model, would be very costly in terms of degrees of freedom, in particular given the short length of the panel, and would likely not provide insights regarding the impact of expenditure on future revenues and transfers.

We include party effects by adding mayors' political affiliations as an independent variable. There are four major parties in Poland, as well as local committees. The SLD (Democratic Left Alliance) is a centre-left party, the PSL (Polish Peasants Party) is a typical centrist party, PO (Civil Platform) is a conservative centre-right party and PiS (Law and Justice) has a socially oriented economic programme. Local committees represent a large share of locally elected governments. In the regressions, a local committee is always a base value, and party effects are analysed accordingly. It is important to mention that local candidates often officially enter elections as independent politicians but are supported by one of the main parties. We have included information related to this fact while coding the data set. Additionally, we control for the vertical alignment with the party (or a coalition) having the majority in the national parliament (SLD until 2005, PiS between 2005 and 2007 and PO ever since).

We include a dummy variable for higher education of the mayor in accordance with the results of Hayo and Neumeier (2012), and we additionally test whether education of the mayor affects the composition of expenditure, whether through his or her own preferences or reflecting preferences of the median voter, who might be more likely to elect an educated candidate if doing so corresponds to the preferences of the community.

Finally, we include an incumbency variable, which takes the value 1 if the current mayor was elected in the previous electoral period. In fact, in 2010 in more than 90% of municipalities, stood for election to the next term in office; more than 60% accomplished this objective. This variable may affect expenditure in two ways. On the one hand, incumbent mayors might need to spend fewer resources to guarantee re-election. Additionally, continuity of governance might be associated with efficiency gains in expenditure. On the other hand, a mayor who knows the local institutional and political environment might have easier access to tools of budgetary manipulation and could be additionally more likely to have the support of the local council for his actions. Depending on the strengths of these effects, the sign of this dummy variable will be different.

Apart from political factors, public expenditures may also be determined by a vast number of demographic, socioeconomic and geographic variables. Therefore, we include a set of control variables for demographic and economic conditions. The standard set of explanatory variables utilised in most related empirical studies includes the size and age structure of the population, as well as a measure of the society's average income. The impact of population variables on the level of public spending cannot be easily predicted, however. For instance, the size of the population may have either positive or negative effects on public expenditure, depending on whether the demand for public goods, and hence also public expenses, grows faster or slower than the population (Werck, Heyndels, and Geys 2008). A number

of works have found the negative relation between this variable and the level of public spending in categories such as transport and communications, health care, defence and communal services (see, e.g., Costa-Font and Moscone 2008).

Population density, in turn, is supposed to reflect the degree of urbanisation. This variable plays an important role, especially in shaping the level of infrastructure expenditure. More sparsely populated areas might have higher demand for infrastructure, translating into a negative effect of population density on public spending. On the other hand, however, other goods display higher demand in the cities with higher level of population density. Sanz and Velázquez (2002) demonstrated a negative impact of population density on transport and communications, defence and public services, as well as a positive effect in the case of social security spending.

As for the age structure of a society, the variables most often utilised in analysis are the percentage shares of the young and the elderly in the population. The purpose of including these in the analysis is to test whether these two groups of electors benefit over-proportionately from the provision of particular public goods, such as health care or education, in comparison to the rest of the citizenry (Hayo and Neumeier 2012). Veiga and Veiga (2007), studying Portuguese municipalities, found that a higher share of the population under the age of 15 translates into lower levels of total expenditures, while at the same time tending to increase spending on infrastructure. Not surprisingly, positive influence of the percentage share of young population is often found on the level of public- education expenses (Sanz and Velázquez 2002).

Another variable often employed in studies concerning the determinants of public expenditure is the average or median level of income, which intends to capture the per capita wealth of a community and may reflect its demands for public goods and services. Most research has confirmed wealth's positive influence on the level of spending, both aggregated and for various categories. In our study, we use the *share of revenue from income taxation* received by the municipality as a proxy for the wealth of the community.

Finally, many authors have introduced the rate of unemployment in their models to control for economic situation. Another commonly introduced variable is the ratio of public debt to total revenues, as an indicator of the local government's budgetary situation. Our study additionally controls for effects of metropolitan areas (municipalities with a population higher than 500,000), the effect of the industrial region of Upper Silesia and potential effects of the 2009 financial crisis and the following years. Summary statistics of the dependent and independent variables are presented in Table A2 in the Appendix.

4. Results

Table 1 reports the results of the System GMM and FE estimations with and without the interaction between the (pre-)election years and fiscal decentralisation, as well as accounting for the possibility of a nonlinear relationship between the levels of transfers and expenditures. In the System GMM estimation, we have included up to two lags of the dependent variable to account for the possibility that expenditures on long run projects spillovers in later years.

Results, presented in **Table 1**, show that there are some differences in the estimated parameters between the GMM (Columns (1)–(4)) and FE estimations (Columns (5)–(8)). Specifically, the FE results do not account for the fact that lagged dependent variables are highly significant, nor do they account for generally upward trend in expenditures in our sample. These omitted variables, therefore, lead to spurious coefficients in the cases of lagged revenue and crisis years' dummy variables. These two coefficients reflect the autocorrelated structure of the errors and cannot be interpreted straightforwardly. On the other hand, the results of the GMM estimation presented in Columns (1)–(3) do not show such inconsistencies.

Grants from the central government are associated with decreased levels of municipal expenditure. This result opposes the literature suggesting that fiscal decentralisation may lead to a decrease in the size of the public sector. At least for the case of Poland, the opposite seems to be true. This result may rely on the specific form of competition present between Polish municipalities. Given that the municipalities in Poland only recently started real tax competition, with first municipalities reducing their property taxes to zero in order to attract investors, most of the competition between them has a form of competition on services. Providing higher standards of services above the legal minimum means improving the attractiveness of a municipality and can lead to increasing value of property, which in turn decreases the dependence of a municipality on central-government transfers. This suggests that the transfers-dependence variable might be endogenous to the 'attractiveness of the municipality'. Thus, rich municipalities can provide more public goods using both transfers and own resources, while poorer municipalities must rely mostly on transfers and experience problems with increasing the level of their services.

Throughout the sample, we can observe evidence of electoral cycles. Budget deficit rises on average by 5% one year before the election and by 3% in an election year⁷. One year after an election, the level of deficit drops by 4%. The positive effect of transfers on expenditure is visible for the case of (pre-)election years. **Figures 3** and **4** show the marginal effects of the increase in transfers in (pre-)election periods. There is no evidence that party effects play any role in determining the level of local expenditure, nor do



Table 1. Total expenditure.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	GMM	GMM	GMM	GMM	FE	FE	FE	FE
L.Expenditure	0.28*** (7.20)	0.27*** (7.21)	0.28*** (7.17)	0.27*** (7.37)				
L2.Expenditure	0.02 (0.97)	0.02 (0.86)	0.02 (0.95)	0.02 (0.83)				
Transfers	-0.39*** (-5.23)	-0.41*** (-5.65)	-0.37*** (-4.89)	0.80** (2.10)	-0.14** (-2.30)	-0.16*** (-2.77)	-0.12** (-1.97)	0.31 (1.11)
PIT revenue	0.17 (1.05)	0.18 (1.11)	0.16 (0.98)	0.12 (0.77)	-0.06 (-0.45)	-0.06 (-0.46)	-0.07 (-0.53)	-0.06 (-0.46)
Public debt	0.00*** (11.49)	0.00*** (11.39)	0.00*** (11.43)	0.00*** (11.18)	0.00*** (9.11)	0.00*** (9.07)	0.00*** (9.08)	0.00*** (8.90)
EU funds	0.00 (0.30)	0.00 (0.13)	0.00 (0.35)	0.00 (0.55)	-0.00 (-0.76)	-0.00 (-0.94)	-0.00 (-0.63)	-0.00 (-0.68)
1 year before	0.05*** (8.89)	-0.02 (-0.86)	0.05*** (9.01)	0.05*** (8.49)	0.06*** (14.46)	-0.01 (-0.64)	0.06*** (14.53)	0.06*** (14.47)
Election year	0.04*** (5.46)	0.04*** (5.49)	0.08*** (3.08)	0.04*** (5.25)	0.06*** (11.61)	0.06*** (11.67)	0.11*** (4.66)	0.06*** (11.61)
1 year after	-0.03*** (-7.01)	-0.03*** (-7.07)	-0.03*** (-7.07)	-0.03*** (-7.04)	-0.01** (-2.34)	-0.01** (-2.26)	-0.01** (-2.41)	-0.01** (-2.34)
Crisis	0.05*** (5.43)	0.05*** (5.49)	0.05*** (5.61)	0.05*** (5.56)	0.07*** (8.51)	0.07*** (8.51)	0.08*** (8.58)	0.08*** (8.49)
Pop density	0.00* (1.87)	0.00** (2.02)	0.00* (1.92)	0.00* (1.92)	0.00 (1.35)	0.00 (1.43)	0.00 (1.38)	0.00 (1.38)
Population under 18	0.25 (0.27)	0.20 (0.22)	0.20 (0.21)	0.35 (0.38)	-0.01 (-0.03)	0.07 (0.21)	-0.03 (-0.08)	0.07 (0.19)
Population over 65	-1.38* (-1.69)	-1.45* (-1.78)	-1.40* (-1.70)	-1.34 (-1.61)	-0.71* (-1.73)	-0.69* (-1.67)	-0.72* (-1.77)	-0.60 (-1.43)
Unemployment	-0.17 (-0.81)	-0.14 (-0.66)	-0.15 (-0.72)	-0.18 (-0.87)	0.10 (0.70)	0.11 (0.80)	0.11 (0.75)	0.10 (0.71)
Turnout	-0.04 (-0.46)	-0.01 (-0.14)	-0.02 (-0.24)	-0.04 (-0.46)	0.06 (0.99)	0.07 (1.09)	0.07 (1.10)	0.07 (1.09)

(Continued)

Table 1. (Continued).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	GMM	GMM	GMM	GMM	FE	FE	FE	FE
Education	-0.01 (-0.42)	-0.01 (-0.30)	-0.01 (-0.35)	-0.01 (-0.55)	0.00 (0.05)	0.00 (0.13)	0.00 (0.08)	0.00 (0.04)
Incumbent	0.00 (0.39)	0.00 (0.41)	0.00 (0.39)	0.00 (0.37)	0.00 (1.00)	0.00 (0.99)	0.00 (1.01)	0.00 (1.05)
PO	0.01 (0.69)	0.01 (0.68)	0.01 (0.67)	0.01 (0.65)	0.01 (0.99)	0.01 (0.98)	0.01 (0.99)	0.01 (0.96)
PIS	0.02 (1.63)	0.02 (1.61)	0.02* (1.65)	0.02 (1.50)	0.00 (0.52)	0.00 (0.48)	0.00 (0.52)	0.00 (0.54)
SLD	-0.01 (-0.76)	-0.01 (-0.62)	-0.01 (-0.68)	-0.01 (-0.80)	-0.00 (-0.15)	-0.00 (-0.08)	-0.00 (-0.10)	-0.00 (-0.15)
PSL	0.03 (0.62)	0.03 (0.66)	0.03 (0.66)	0.03 (0.46)	0.01 (0.44)	0.01 (0.45)	0.01 (0.45)	0.01 (0.45)
Vert. alignment	-0.01 (-1.13)	-0.01 (-1.19)	-0.01 (-1.14)	-0.01 (-1.18)	0.00 (0.45)	0.00 (0.42)	0.00 (0.44)	0.00 (0.48)
Transfers * 1 year before		0.11*** (2.82)						
Transfers * Election			-0.07 (-1.61)	-1.08*** (-3.13)			-0.07* (-1.88)	-0.41 (-1.60)
Transfers * Transfers			-0.77	-1.29*	1.41***	1.36***	1.43***	1.19***
Constant	-0.78	-0.77	-0.77	-0.77				
Observations	(-1.20)	(-1.20)	(-1.18)	(-1.87)	(4.38)	(4.16)	(4.42)	(3.38)
R ²	3040	3040	3040	3040	3043	3043	3043	3043
No. of instruments	32	32	32	32	0.93	0.93	0.93	0.93
Sargan p-value	0.16	0.11	0.07	0.10				
Hansen J p-value	0.36	0.27	0.29	0.27				

Robust standard errors, clustered at municipality level; z-Stats (1-4) and t-Stats (5-8) in parentheses; Significance: * 0.1, ** 0.05, *** 0.01.

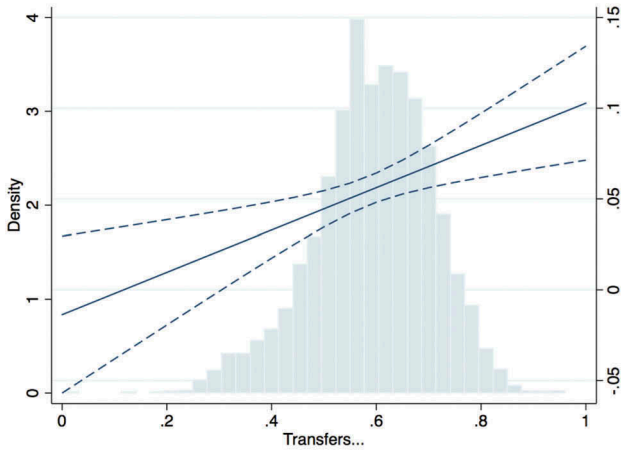


Figure 3. Marginal effects – one year before the election.

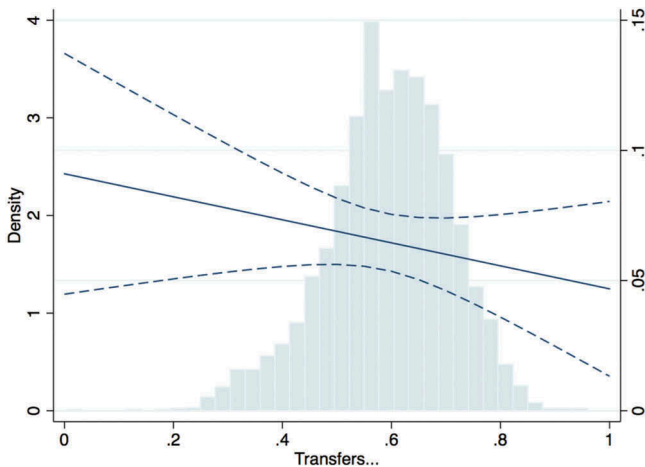


Figure 4. Marginal effects – election year.

incumbency advantage, education level of the mayor or turnout at the election. The positive sign of the crisis variable reflects the fact that expenditures grew constantly throughout the sample; this time effect might not have been fully captured by the trend variable and lagged dependent variables. It is important to remember that although Poland suffered from the 2009 financial crisis, it did not experience negative growth rates of GDP.

The main research question is answered in [Figures 3](#) and [4](#), which visualise the marginal effects of elections at different levels of the variable transfers. Inspection of [Figures 3](#) and [4](#) reveals that increase in transfers has

a significant effect on the strength of the budget cycle one year before the election, but not in the election year itself. [Figure 3](#) clearly shows that for up to a fraction of transfers to the overall revenue of 0.3, we do not observe higher spending one year before the elections. Above that point, the pre-election year has a positive impact on spending, which increases along with the fraction of transfers in the expenditure. At the level of transfers of 0.5, the expenditure increases by 5% one year before the elections; for the level of transfers of 0.9, the increase is almost 10%. On the other hand, in the election year ([Figure 4](#)), expenditure increases by around 5%, but the size of the effect along the increasing importance of transfers remains almost constant – the interaction term is hardly different from zero. Due to the relatively soft budget constraints, the deficit can be increased, and higher dependence on external financial leads to a comparatively stronger increase in deficit financing one year before the election. Moreover, the analysis of municipal budgetary data shows that on average urban municipalities save money in the year after the elections, or even two years after, achieving budget surpluses (we further analyse this spending pattern in the end of this section.). This allows mayors to accumulate resources for pre-election and election years. There is also some evidence that the central government may increase the level of transfers in the election periods trying to increase support for their candidates in local elections. Finally, [Figure 5](#) reveals that the relationship between the transfers and total expenditure might be non-linear, although for the vast part of the distribution, that is levels higher than 0.4, the relationship is negative.

Results presented in [Table 2](#) reveal that certain categories of expenditure are associated with an increase in spending in (pre-)election periods,

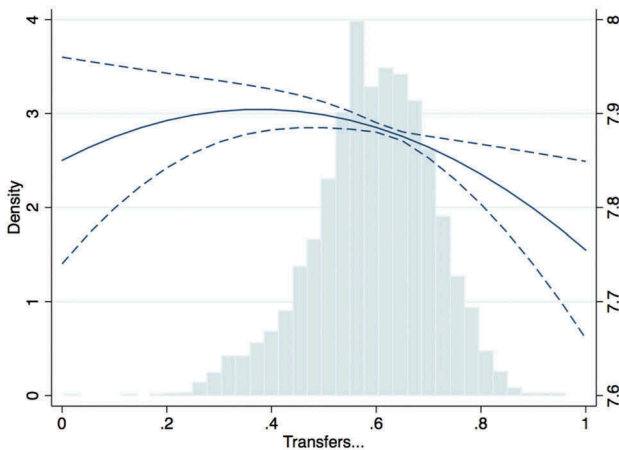


Figure 5. Transfers from the central government and expenditure.

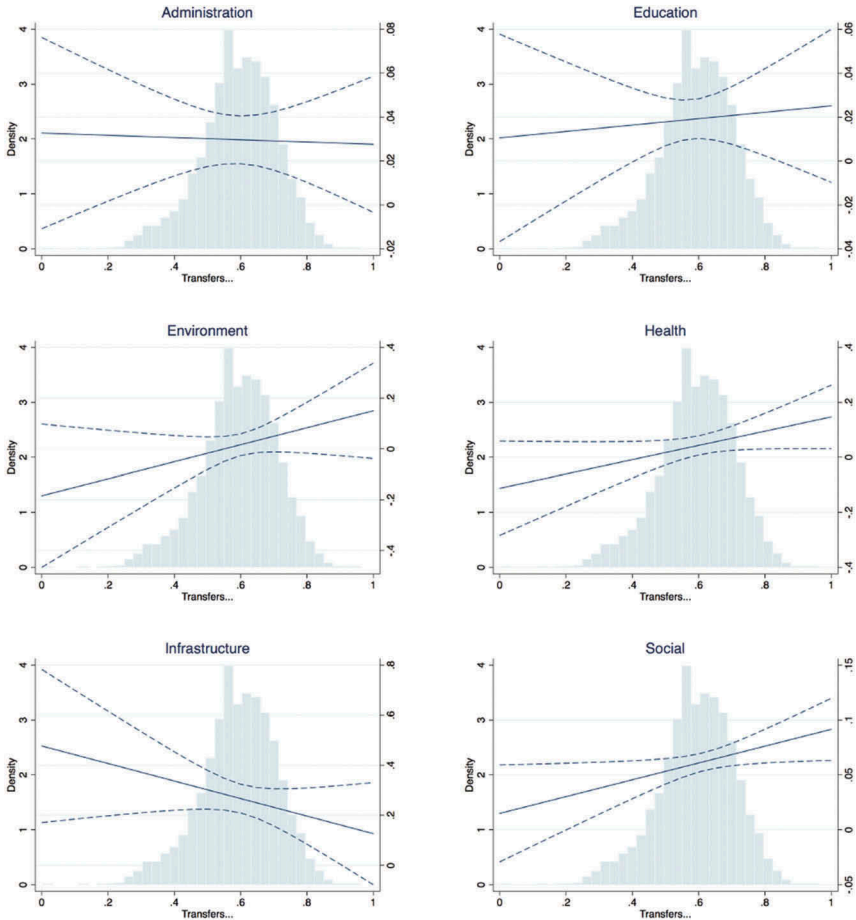


Figure 6. Marginal effects – One year before the election.

whereas we observe drops in others. In particular, in the (pre-)election period there is a significant increase in spending on public administration, infrastructure and social policies, as well as a slight increase in environmental-protection expenditure, while education seems to suffer a decrease in spending. The level of spending on infrastructure rises by an astonishing 23% one year before the election and 28% in the election year itself. Infrastructure and administrative spending rise already one year ahead of the election, since these categories involve investments that might need several months to reach conclusion, leading incumbents to start increasing these expenditures early. One year after the election, we observe a significant drop in expenditure on education and the environment. Increase in public administration expenditure might result from the mayor trying to influence the local bureaucrats e.g., by affecting their wages or by increasing

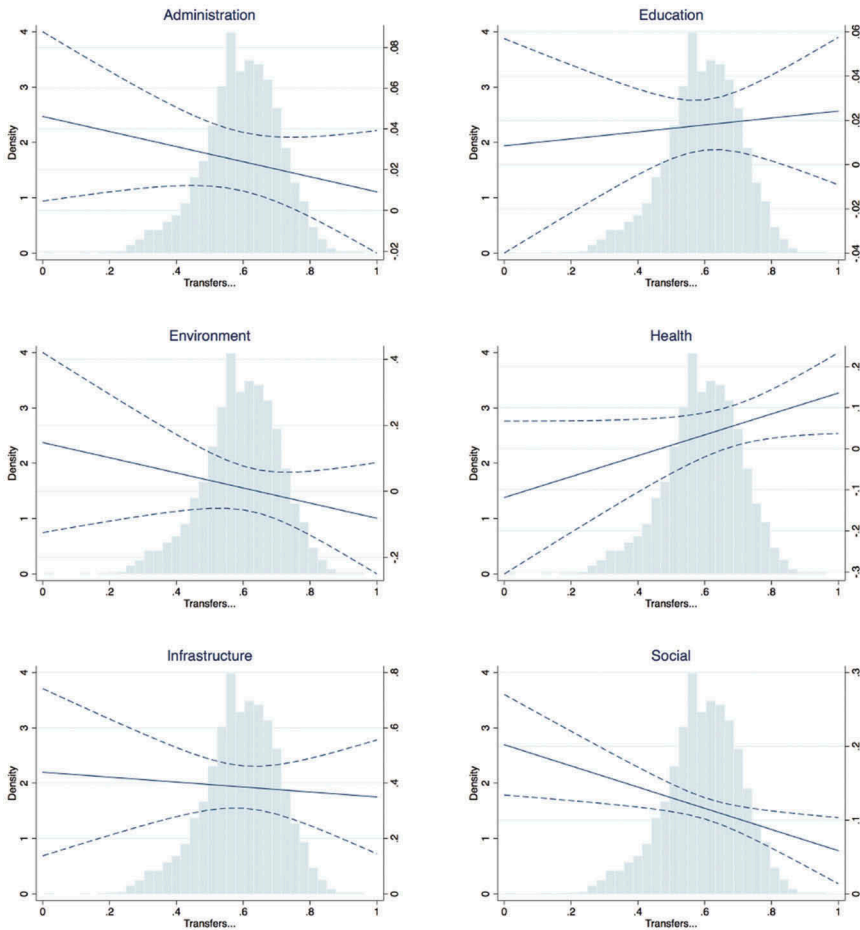


Figure 7. Marginal effects – Election year.

employment in the administration. Infrastructure and social expenditures display the highest increases in the (pre-)election period, which is consistent with the findings from previous studies. Expenditure on environmental protection, e.g., waste removal, is also a category that is highly visible to voters.

Other political variables do not seem to affect the levels of local expenditure. Party effects as well as vertical alignment are not associated with higher expenditures. In particular, unlike Veiga and Veiga (2007), we find no evidence that a mayor's ideology is an important factor determining expenditure levels, neither affecting total deficit nor in specific categories. Neither education level of the mayor nor continuity of governance explain the differences in expenditure levels. Turnout at the election does not correlate with the total deficit levels, though it is positively correlated with

Table 2. Expenditure categories.

	(1) Health	(2) Education	(3) Administration	(4) Infrastructure	(5) Social	(6) Environment
Transfers	-0.53 (-0.81)	-0.14** (-2.20)	0.20** (2.47)	0.21 (0.43)	-0.54* (-1.83)	0.53 (1.12)
PIT revenue	-1.52 (-1.44)	-0.66*** (-4.63)	0.08 (0.52)	-4.35*** (-6.11)	-0.87* (-1.92)	-2.98*** (-4.33)
Public debt	-0.00 (-0.54)	0.00*** (5.33)	0.00* (1.75)	0.00*** (4.53)	-0.00 (-1.17)	0.00*** (4.51)
1 year before	0.01 (0.64)	-0.02*** (-3.09)	0.02*** (3.79)	0.22*** (6.95)	-0.02 (-1.64)	0.04 (1.54)
Election year	-0.01 (-0.44)	-0.02*** (-3.34)	0.01 (1.21)	0.24*** (5.94)	0.01 (0.97)	0.04 (1.03)
1 year after	-0.03 (-1.39)	-0.04*** (-8.00)	-0.02*** (-3.01)	-0.03 (-0.80)	-0.01 (-0.73)	-0.10*** (-4.07)
Crisis	0.02 (0.42)	0.09*** (8.46)	0.06*** (4.79)	0.15** (2.15)	0.07*** (4.46)	0.07 (1.25)
Population density	0.00 (0.06)	0.00 (0.18)	0.00 (-1.85)	-0.00* (-1.54)	-0.00 (-1.02)	0.00 (0.71)
Population under 18	0.45 (0.22)	0.10 (0.11)	0.05 (0.07)	5.09 (0.99)	1.09* (1.76)	-2.33 (-0.61)
Population over 65	0.81 (0.43)	-1.54** (-2.48)	0.39 (0.54)	-14.56*** (-2.67)	1.46* (1.88)	7.90 (1.61)
Unemployment	-1.66* (-1.89)	0.17 (0.98)	-0.78*** (-3.60)	-6.01*** (-4.66)	0.48*** (3.60)	-3.60*** (-3.41)
Turnout	-0.22 (-0.68)	0.22 (3.13)	0.02 (0.23)	-1.44** (-2.22)	0.40** (2.15)	-0.38 (-0.68)
Education	-0.17*** (-2.65)	-0.01 (-0.68)	-0.01 (-1.53)	-0.03 (-0.23)	-0.02 (-0.97)	-0.06 (-0.54)
Incumbent	0.02 (0.69)	0.00 (0.66)	0.01 (0.83)	0.09** (2.13)	-0.01 (-0.80)	-0.01 (-0.17)
PO	0.02 (0.42)	0.00 (0.02)	0.00 (0.10)	0.08 (0.96)	0.10 (-0.98)	0.10 (1.26)
PIS	0.00 (0.09)	0.02 (0.61)	0.01 (0.82)	0.20** (2.41)	-0.07 (-1.48)	0.06 (0.75)
SLD	0.01	0.01	0.03	-0.06	-0.01	-0.07

(Continued)

Table 2. (Continued).

	(1) Health	(2) Education	(3) Administration	(4) Infrastructure	(5) Social	(6) Environment
PSL	(0.33) 0.26	(0.50) -0.01	(1.57) 0.03	(-0.55) 0.05	(-0.67) -0.06*	(-0.71) 0.33
Vert. alignment	(1.63) 0.02	(-0.48) 0.01	(1.30) -0.01	(0.13) -0.09	(-1.76) 0.01	(1.42) -0.05
L.Health	(1.06) 0.44***	(1.00)	(-0.48)	(-1.61)	(0.97)	(-1.14)
L2.Health	(6.35)					
L.Education	(1.59)	0.32*** (7.32)				
L2.Education		-0.07* (-1.89)				
L.Administration			0.48*** (8.59)			
L2.Administration			0.00			
L.Infrastructure			(0.13)	0.31*** (8.95)		
L2.Infrastructure				0.04	0.10* (1.82)	
L.Social				(1.28)	(-1.31)	
L2.Social						0.41*** (10.06)
L.Environment						-0.06*** (-2.06)
L2.Environment						2.33 (1.11)
Constant	2.24** (2.09)	5.08*** (14.09)	2.75*** (7.18)	7.59*** (4.40)	5.44*** (12.62)	27 3052
N	3052	3052	3052	3049	2440	27
No. of instruments	32	27	27	27	32	27
Sargan p-value	0.27	0.16	0.07	0.06	0.07	0.09
Hansen J p-value	0.12	0.92	0.27	0.42	0.33	0.23

Robust standard errors, clustered at municipality level; z-Stats in parentheses; Significance: * 0.1, ** 0.05, *** 0.01.

expenditure on education. This finding can be linked to an empirical observation that well-educated citizens vote more frequently (see, e.g., Gallego 2010), and thus can be an outcome of reverse causation. Increasing spending on infrastructure projects is associated with lower turnout, which might be a sign that more remote locations exhibit both lower turnout levels and a higher need for infrastructure expenditure. Arguably, it could be also a sign that in communities in which infrastructure investment is high, people do not see any need to go to the polls. Thus, this effect is unlikely to be causal.

Adding the interaction terms to the regressions (Tables 3–5) and evaluating marginal effects (Figures 6–7) provides some additional insight. One year before the election, increasing transfers from the central government are associated with higher expenditures on social support and environmental protection. Social support expenditure increases by merely 4% when the fraction of transfers in the overall revenue equals 0.4, and by 8% when the fraction of transfers is 0.8. In the election year itself, we do not observe a significant conditional effect of the transfers.

Analysis of the relation between transfers and different expenditure categories in Figure 8 shows, in particular, the impact of institutional setup and municipal wealth. In two cases of education and infrastructure, we can clearly observe a nonlinear effect. Regarding education, the subsidy is not sufficient to cover all the necessary expenditures; thus, municipalities must spend their own resources, which requires cutting other expenditures. The nonlinearity confirms that municipalities with lower share of transfers in total revenues are able to supplement transfers with their own resources, while municipalities with lower revenues and a higher share of transfers must reduce their expenditures on education. Infrastructure shows a similar pattern: municipalities with lower fiscal autonomy spent less on infrastructure, not being able to mobilise sufficient resources for new investments.

Expenditures on administration increased with the level of transfers from higher levels of government, since municipalities have to implement the tasks delegated to them, for which they need relatively more people and resources. However, this increase is not significant. Social expenditures fall with transfers, with more fiscally independent municipalities spending some of their own resources in this field, building apartments for the poor or funding meals for school children. Nevertheless, most social expenditures were financed by transfers from the central government. Finally, the effect of transfers on health expenditures was negligible, since health is mostly within the responsibility of counties, not municipalities.

We propose additional robustness checks for our results. For the first check, which at the same time allows us to further analyse expenditure behaviour outside of election periods, we created a set of artificial elections in the years 2004, 2008 and 2012, exactly in the middle of each electoral period. In the second check, which is the main falsification test, we created a

Table 3. Expenditure categories – 1 year before the election.

	(1)	(2)	(3)	(4)	(5)	(6)
	Health	Education	Administration	Infrastructure	Social	Environment
Transfers	-0.55 (-0.84)	-0.14** (-2.27)	0.20** (2.46)	0.29 (0.60)	-0.57* (-1.88)	0.46 (0.98)
PIT revenue	-1.54 (-1.45)	-0.66*** (-4.66)	0.08 (0.53)	-4.31*** (-6.08)	-0.91** (-1.99)	-3.02*** (-4.41)
Public debt	-0.00 (-0.56)	0.00*** (5.31)	0.00* (1.75)	0.00*** (4.66)	-0.00 (-1.22)	0.00*** (4.53)
1 year before	-0.08 (-0.87)	-0.04 (-1.52)	0.03 (1.10)	0.55*** (2.87)	-0.11*** (-2.70)	-0.22 (-1.41)
Election year	-0.01 (-0.47)	-0.02*** (-3.33)	0.01 (1.21)	0.24*** (6.00)	0.01 (0.91)	0.03 (0.92)
1 year after	-0.03 (-1.39)	-0.04*** (-8.00)	-0.02*** (-3.01)	-0.03 (-0.84)	-0.01 (-0.75)	-0.10*** (-4.10)
Crisis	0.02 (0.41)	0.09*** (8.47)	0.06*** (4.79)	0.15** (2.12)	0.07*** (4.41)	0.07 (1.22)
Population density	0.00 (0.03)	0.00 (0.19)	-0.00* (-1.85)	-0.00 (-1.49)	-0.00 (-0.97)	0.00 (0.72)
Population under 18	0.39 (0.19)	0.10 (0.11)	0.05 (0.08)	5.21 (1.01)	1.00 (1.61)	-2.65 (-0.69)
Population over 65	0.73 (0.39)	-1.54** (-2.48)	0.39 (0.56)	-14.37*** (-2.62)	1.43* (1.83)	7.52 (1.55)
Unemployment	-1.64* (-1.87)	0.17 (1.01)	-0.78*** (-3.62)	-6.07*** (-4.69)	0.51*** (3.82)	-3.53*** (-3.36)
Turnout	-0.18 (-0.57)	0.30*** (3.17)	0.02 (0.20)	-1.55** (-2.38)	0.36** (1.99)	-0.25 (-0.45)
Education	-0.17*** (-2.59)	-0.01 (-0.64)	-0.02 (-1.52)	-0.04 (-0.32)	-0.02 (-0.86)	-0.04 (-0.42)
Incumbent	0.02 (0.70)	0.00 (0.65)	0.01 (0.84)	0.09** (2.11)	-0.01 (-0.86)	-0.01 (-0.14)
PO	0.02 (0.42)	0.00 (0.02)	0.00 (0.10)	0.07 (0.93)	-0.02 (-1.14)	0.10 (1.27)
PiS	0.00 (0.08)	0.01 (0.61)	0.02 (0.82)	0.20** (2.38)	-0.08 (-1.53)	0.06 (0.74)
SLD	0.02 (0.41)	0.01 (0.54)	0.03 (1.55)	-0.07 (-0.66)	-0.01 (-0.58)	-0.06 (-0.62)
PSL	0.26 (1.62)	-0.01 (-0.48)	0.03 (1.31)	0.05 (0.13)	-0.04 (-1.26)	0.33 (1.42)
Vert. alignment	0.02 (1.03)	0.01 (0.96)	-0.01 (-0.48)	-0.09 (-1.55)	0.01 (0.97)	-0.05 (-1.19)
Transfers * 1 year before	0.16 (1.05)	0.04 (0.88)	-0.01 (-0.24)	-0.57* (-1.84)	0.14*** (2.58)	0.43* (1.71)
L.Health	0.44*** (6.37)					
L2.Health	0.05					
L.Education	(1.60)	0.32*** (7.35)				
L2.Education		-0.07* (-1.86)				
L.Administration			0.48*** (8.62)			
L2.Administration			0.00			
L.Infrastructure			(0.14)	0.31*** (8.92)		
L2.Infrastructure				0.04		
L.Social				(1.38)	0.11*	

(Continued)

Table 3. (Continued).

	(1) Health	(2) Education	(3) Administration	(4) Infrastructure	(5) Social	(6) Environment
L2.Social					(1.84)	
L.Environment					-0.03	
L2.Environment					(-1.20)	0.41***
						(10.03)
						-0.07**
						(-2.20)
Constant	2.26** (2.10)	5.07*** (14.11)	2.75*** (7.25)	7.50*** (4.25)	5.46*** (12.29)	2.48 (1.22)
Observations	3047	3047	3047	3044	2437	3047
No. of instruments	34	29	29	29	34	29
Sargan <i>p</i> -value	0.08	0.14	0.09	0.31	0.22	0.02
Hansen <i>J</i> <i>p</i> -value	0.50	0.83	0.64	0.35	0.83	0.07

Robust standard errors, clustered at municipality level; z-Stats in parentheses; Significance: * 0.1, ** 0.05, *** 0.01.

Table 4. Expenditure categories – election year.

	(1) Health	(2) Education	(3) Administration	(4) Infrastructure	(5) Social	(6) Environment
Transfers	-0.57 (-0.86)	-0.13** (-2.10)	0.22*** (2.61)	0.25 (0.50)	-0.52* (-1.86)	0.68 (1.47)
PIT revenue	-1.51 (-1.43)	-0.66*** (-4.67)	0.07 (0.50)	-4.36*** (-6.13)	-0.87* (-1.96)	-3.03*** (-4.46)
Public debt	-0.00 (-0.55)	0.00*** (5.32)	0.00* (1.76)	0.00*** (4.48)	-0.00 (-1.08)	0.00*** (4.67)
1 year before	0.01 (0.60)	-0.02*** (-3.11)	0.02*** (3.83)	0.22*** (7.01)	-0.02* (-1.70)	0.04 (1.63)
Election year	-0.13 (-1.27)	-0.01 (-0.34)	0.04* (1.79)	0.33 (1.61)	0.08** (2.04)	0.36** (2.14)
1 year after	-0.02 (-1.32)	-0.04*** (-7.86)	-0.02*** (-3.10)	-0.03 (-0.82)	-0.01 (-0.79)	-0.10*** (-4.19)
Crisis	0.01 (0.28)	0.09*** (8.59)	0.06*** (4.92)	0.16** (2.25)	0.07*** (4.58)	0.09 (1.50)
Population density	-0.00 (-0.03)	0.00 (0.20)	-0.00* (-1.80)	-0.00 (-1.54)	-0.00 (-1.09)	0.00 (0.73)
Population under 18	0.51 (0.25)	0.09 (0.10)	0.04 (0.07)	5.00 (0.96)	0.79 (1.17)	-2.61 (-0.69)
Population over 65	0.82 (0.44)	-1.54** (-2.48)	0.39 (0.54)	-14.63*** (-2.68)	1.30 (1.61)	7.82 (1.59)
Unemployment	-1.72* (-1.90)	0.18 (1.06)	-0.76*** (-3.56)	-5.96*** (-4.62)	0.46*** (3.45)	-3.41*** (-3.29)
Turnout	-0.26 (-0.84)	0.30*** (3.11)	0.04 (0.39)	-1.41** (-2.16)	0.36** (2.09)	-0.20 (-0.35)
Education	-0.18*** (-2.74)	-0.01 (-0.63)	-0.02 (-1.41)	-0.03 (-0.20)	-0.02 (-0.90)	-0.04 (-0.38)
Incumbent	0.02 (0.70)	0.00 (0.66)	0.01 (0.85)	0.09** (2.13)	-0.01 (-0.79)	-0.00 (-0.12)
PO	0.02 (0.42)	0.00 (0.02)	0.00 (0.10)	0.08 (0.96)	-0.02 (-1.16)	0.10 (1.27)
PiS	0.00 (0.08)	0.01 (0.61)	0.02 (0.84)	0.20** (2.43)	-0.07 (-1.50)	0.06 (0.78)
SLD	0.01 (0.24)	0.01 (0.54)	0.03 (1.63)	-0.05 (-0.52)	-0.01 (-0.57)	-0.06 (-0.59)

(Continued)

Table 4. (Continued).

	(1) Health	(2) Education	(3) Administration	(4) Infrastructure	(5) Social	(6) Environment
PSL	0.26 (1.62)	-0.01 (-0.47)	0.03 (1.30)	0.05 (0.13)	-0.05 (-1.58)	0.34 (1.47)
Vert. alignment	0.02 (1.10)	0.01 (0.99)	-0.01 (-0.50)	-0.09 (-1.62)	0.01 (1.15)	-0.05 (-1.16)
Transfers * election	0.19 (1.35)	-0.02 (-0.44)	-0.05 (-1.50)	-0.15 (-0.46)	-0.11 (-1.52)	-0.53** (-1.98)
L.Health	0.43*** (6.34)					
L2.Health	0.05					
L.Education	(1.61)	0.32*** (7.32)				
L2.Education		-0.07*				
L.Administration		(-1.88)	0.48*** (8.57)			
L2.Administration			0.00			
L.Infrastructure			(0.13)	0.31*** (8.72)		
L2.Infrastructure				0.04 (1.29)		
L.Social					0.09	
L2.Social					(1.58)	
					-0.05*	
L.Environment					(-1.69)	0.41***
L2.Environment						(10.12)
						-0.07**
						(-2.19)
Constant	2.29** (2.12)	5.06*** (13.96)	2.73*** (7.12)	7.57*** (4.42)	5.67*** (12.06)	2.20 (1.05)
Observations	3047	3047	3047	3044	2437	3047
No. of instruments	34	29	29	29	34	29
Sargan <i>p</i> -value	0.08	0.14	0.09	0.31	0.22	0.02
Hansen <i>J</i> <i>p</i> -value	0.50	0.83	0.64	0.35	0.83	0.07

Robust standard errors, clustered at municipality level; *z*-Stats in parentheses; Significance: * 0.1, ** 0.05, *** 0.01.

Table 5. Expenditure categories – a non-linear specification.

	(1) Health	(2) Education	(3) Administration	(4) Infrastructure	(5) Social	(6) Environment
Transfers	-0.61 (-0.39)	0.75** (2.52)	-0.58* (-1.86)	0.61 (0.29)	-0.62 (-0.80)	1.35 (0.55)
PIT revenue	-1.51 (-1.48)	-0.75*** (-5.57)	0.16 (0.96)	-4.40*** (-5.93)	-0.86** (-1.98)	-3.06*** (-4.71)
Public debt	-0.00 (-0.54)	0.00*** (5.44)	0.00* (1.74)	0.00*** (4.51)	-0.00 (-1.16)	0.00*** (4.56)
1 year before	0.01 (0.66)	-0.02*** (-3.35)	0.02*** (3.84)	0.22*** (6.99)	-0.02* (-1.68)	0.04 (1.49)
Election year	-0.01 (-0.43)	-0.02*** (-3.60)	0.01 (1.31)	0.23*** (5.96)	0.01 (1.03)	0.03 (1.00)
1 year after	-0.02 (-1.38)	-0.04*** (-8.17)	-0.02*** (-2.92)	-0.03 (-0.81)	-0.00 (-0.73)	-0.10*** (-4.10)
Crisis	0.02 (0.42)	0.09*** (8.61)	0.06*** (4.47)	0.15** (2.17)	0.07*** (4.53)	0.07 (1.27)
Population density	0.00 (0.05)	0.00 (0.46)	-0.00** (-1.97)	-0.00 (-1.53)	-0.00 (-1.03)	0.00 (0.72)

(Continued)

Table 5. (Continued).

	(1) Health	(2) Education	(3) Administration	(4) Infrastructure	(5) Social	(6) Environment
Population under 18	0.48 (0.23)	0.22 (0.24)	-0.03 (-0.04)	5.01 (0.98)	1.08* (1.75)	-2.29 (-0.60)
Population over 65	0.87 (0.46)	-1.44** (-2.33)	0.33 (0.47)	-14.77*** (-2.71)	1.46* (1.86)	7.89 (1.60)
Unemployment	-1.66** (-1.97)	0.10 (0.59)	-0.72*** (-3.35)	-6.03*** (-4.60)	0.48*** (3.56)	-3.66*** (-3.53)
Turnout	-0.22 (-0.68)	0.30*** (3.13)	0.01 (0.14)	-1.44** (-2.23)	0.40** (2.14)	-0.38 (-0.68)
Education	-0.17*** (-2.65)	-0.01 (-0.83)	-0.02 (-1.37)	-0.03 (-0.23)	-0.02 (-0.97)	-0.06 (-0.57)
Incumbent	0.02 (0.69)	0.01 (0.72)	0.01 (0.80)	0.09** (2.14)	-0.01 (-0.80)	-0.01 (-0.16)
PO	0.02 (0.41)	0.00 (0.09)	0.00 (0.08)	0.08 (0.97)	-0.02 (-0.98)	0.10 (1.26)
PiS	0.00 (0.10)	0.01 (0.62)	0.02 (0.86)	0.20** (2.40)	-0.07 (-1.48)	0.06 (0.73)
SLD	0.01 (0.33)	0.01 (0.55)	0.03 (1.61)	-0.06 (-0.55)	-0.01 (-0.67)	-0.07 (-0.72)
PSL	0.26 (1.64)	-0.02 (-0.67)	0.04 (1.51)	0.04 (0.11)	-0.05* (-1.79)	0.33 (1.38)
Vert. alignment	0.02 (1.06)	0.01 (0.85)	-0.01 (-0.44)	-0.09 (-1.62)	0.01 (0.98)	-0.05 (-1.15)
Transfers * transfers	0.08 (0.08)	-0.80*** (-2.96)	0.70** (2.22)	-0.36 (-0.21)	0.06 (0.12)	-0.74 (-0.37)
L.Health	0.44*** (6.37)					
L2.Health	0.05					
L.Education	(1.60)	0.33***				
L2.Education		(7.50)				
		-0.07*				
L.Administration		(-1.76)	0.49***			
			(8.96)			
L2.Administration			0.01			
L.Infrastructure			(0.25)	0.31***		
				(8.95)		
L2.Infrastructure				0.04		
L.Social				(1.28)	0.11*	
					(1.79)	
L2.Social					-0.04	
L.Environment					(-1.30)	0.41***
L2.Environment						(10.07)
						-0.06**
						(-2.06)
Constant	2.24* (1.82)	4.74*** (12.76)	2.90*** (7.25)	7.55*** (4.07)	5.46*** (11.87)	2.11 (0.94)
Observations	3047	3047	3047	3044	2437	3047
No. of instruments	34	29	29	29	34	29
Sargan <i>p</i> -value	0.08	0.14	0.09	0.31	0.22	0.02
Hansen <i>J</i> <i>p</i> -value	0.50	0.83	0.64	0.35	0.83	0.07

Robust standard errors, clustered at municipality level; z-Stats in parentheses; Significance: * 0.1, ** 0.05, *** 0.01.

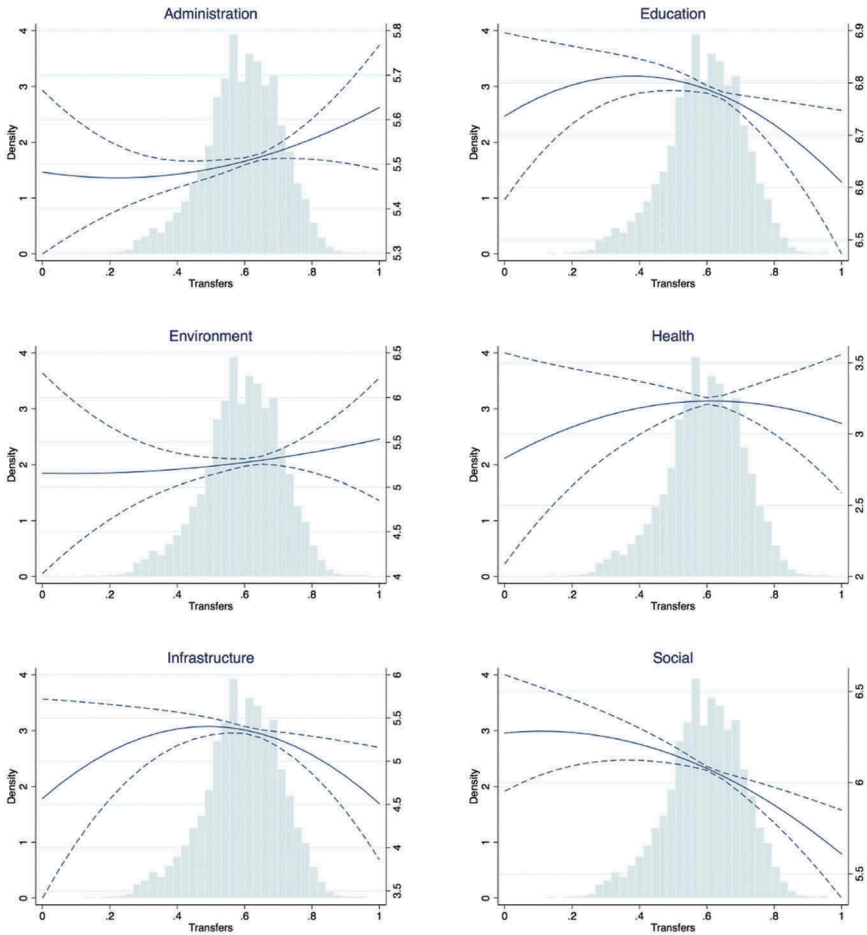


Figure 8. Transfers and expenditure categories.

random indicator variable that produces for each municipality a randomly positioned electoral cycle. Results presented in [Table A3](#) in the Appendix show that in the years 2004, 2008 and 2012, at mayoral mid-term, the budget deficits drop even further. The evidence can be thus summarised as follows: we observe a sharp increase in the budget deficit one year before and during an election year, followed by a sharp drop one and two years after the election.

As an additional robustness check, we proposed a falsification test. [Table A4](#) in the Appendix presents the results. Coefficients of the variables identified in the literature as impacting local expenditure kept their signs and significance, while the false electoral cycle had no impact on the level of expenditure. These results further suggest that the existence of electoral cycles in our data is not a mere coincidence.

5. Conclusions

This work investigated the effects of fiscal decentralisation on the political budget cycle. We found that municipalities with higher levels of central funding are associated with a stronger budget cycle. These findings add to the discussion of the effects of fiscal decentralisation on government size. Not only may fiscal decentralisation reduce the size of government, it also may make it less likely that politicians will affect budgets in election periods. This is an important argument, which additionally shows that fiscal autonomy can lead to more efficient use of public resources. Moreover, we find that in the Polish institutional setup, a higher dependence on central funding is not associated with lower municipal expenditure. This finding is linked to the fact that the main source of Polish municipal funding other than transfers is property management. Rather than being involved in tax competition, Polish municipalities are hypothesised to be involved in competition in quality by increasing their provision of local services above the minimum required standards. This is hypothesised to lead to an increase in the attractiveness of the municipalities, which in turn would positively affect the value of public property and decrease dependence on central funding. Within this study, we cannot test the latter hypothesis directly, but this interesting empirical observation will be pursued in future research.

Notes

1. Since these topics are not the focus of this work, an interested reader should consult a recent survey by Martinez-Vazquez, Lago-Peñas, and Sacchi, and Sacchi et al. (2015).
2. Starting from 2014, the municipal council will also be elected in a first-past-the-post electoral design.
3. These provisions were in force until the end of fiscal year 2013.
4. In this work, we focus on opportunistic electoral cycles; therefore, this literature review does not mention the entirety of the literature on ideological aspects of local economic policies.
5. Currently in Poland there are 307 urban, 602 urban-rural and 1571 rural municipalities.
6. We have additionally tested specifications controlling for total revenue. Such specifications would allow to interpret the results as changes in budget deficits, since the municipalities, besides obtaining transfers and using own sources of revenues, are allowed to incur debt, issue bonds and run short-run deficits (Art. 217 of the Public Finances Act). The main conclusions remain unchanged.
7. Note that the elections are held in November.

Acknowledgements

Grzegorz Kula gratefully acknowledges the support of the Polish National Science Centre, grant 2014/13/B/HS4/03204. All opinions expressed are those of the authors

and have not been endorsed by the NSC. The authors greatly appreciate suggestions by the editor and two anonymous referees on previous versions of this manuscript. They also acknowledge helpful comments from Hans Pitlik, Konstantinos Pilpilidis, participants at the 32nd EALE Annual Conference in Vienna, the 24th Silvaplane Workshop in Political Economy, and the Fourth Polish Law and Economics Conference in Warsaw.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

Grzegorz Kula gratefully acknowledges the support of the Polish National Science Centre [grant number 2014/13/B/HS4/03204].

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Appendix

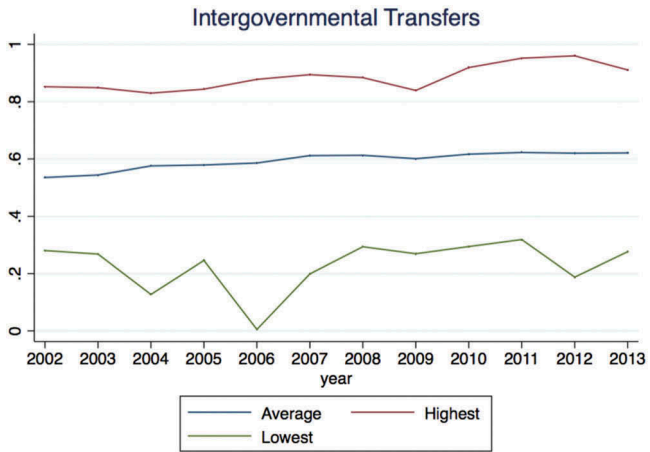


Figure A1. Share of intergovernmental transfers in the overall revenues of municipalities.

Source: Calculations based on the Local Data Bank of Polish Statistical Office.

Table A1. Equality of the variable *Transfers* over the years.

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
2002	0											
2003	-0.009	0										
2004	-0.041***	-0.032***	0									
2005	-0.045***	-0.036***	-0.004	0								
2006	-0.053***	-0.044***	-0.012	-0.008	0							
2007	-0.077***	-0.068***	-0.036***	-0.032***	-0.024***	0						
2008	-0.079***	-0.070***	-0.038***	-0.034***	-0.026***	-0.002	0					
2009	-0.066***	-0.057***	-0.025***	-0.021**	-0.013	0.011	0.013	0				
2010	-0.082***	-0.073***	-0.041***	-0.037***	-0.029***	-0.005	-0.003	-0.016*	0			
2011	-0.088***	-0.079***	-0.047***	-0.043***	-0.035***	-0.011	-0.009	-0.022**	-0.006	0		
2012	-0.085***	-0.077***	-0.045***	-0.041***	-0.032***	-0.009	-0.006	-0.019**	-0.003	0.003	0	
2013	-0.086***	-0.077***	-0.045***	-0.042***	-0.033***	-0.009	-0.007	-0.020**	-0.004	0.002	-0.001	0

Differences defined as column-line; Satterthwaite's degrees of freedom correction; Significance: * 0.1, ** 0.05, *** 0.01.

Table A2. Summary statistics.

	No. of Obs.	Mean	SD	Min	Max
Total expenditure	3664	2622.513	1334.261	972.05	42739.14
Health	3664	31.4697	44.07571	1.195099	1530.459
Education	3664	859.233	322.0114	282.1004	3013.129
Administration	3664	254.578	143.7223	91.48753	2620.752
Infrastructure	3664	281.7521	356.2384	0	7763.141
Social	3053	453.9098	158.3657	108.5428	3174.461
Environment	3664	250.0596	426.7444	17.19618	14178.99
PIT revenue	3664	.2003997	.0692873	.0068974	.5842756
Public debt	3058	786.8987	617.2475	0	4610.336
Transfers	3664	.5937042	.1135899	.0048334	.9598033
Unemployment	3359	.0997827	.042939	.01	.32
Population density	3664	1238.809	774.9065	12	4256
Population size	3664	61793.62	134446.1	1318	1724404
Population under 18	3664	.1920223	.0258299	.1199905	.2842254
Population over 65	3664	.1593297	.0280393	.0642798	.2753344
Turnout	3666	.4406257	.0825475	.2027434	.7239465

Table A3. Behaviour of expenditure in years 2004, 2008 and 2012.

	(1) Sys GMM	(2) FE
L.Expenditure	0.37*** (11.25)	
L2.Expenditure	0.05** (2.81)	
Public debt	0.00*** (18.79)	0.00*** (9.71)
Transfers	-0.33*** (-5.91)	-0.16** (-2.79)
PIT revenue	0.00 (1.69)	-0.00 (-1.68)
1 year before	-0.07*** (-13.06)	-0.07*** (-14.84)
Election year	-0.02*** (-3.97)	-0.06*** (-11.94)
1 year after	0.01* (2.34)	-0.03*** (-6.15)
Crisis	0.05*** (5.29)	0.07*** (9.05)
Population density	0.00 (1.36)	0.00 (1.45)
Population under 18	-0.18 (-0.31)	-0.42 (-1.31)
Population over 65	-3.22*** (-5.39)	-1.23** (-3.22)
Unemployment	-0.54** (-3.17)	0.27* (2.19)
Turnout	0.07 (0.76)	0.05 (0.86)
Education level	-0.01 (-0.53)	0.00 (0.28)
Incumbent	-0.00 (-0.20)	-0.00 (-0.26)
PO	-0.00 (-0.02)	0.01 (1.43)
PiS	0.02 (1.27)	0.00 (0.53)
SLD	-0.02 (-1.44)	0.00 (0.45)
PSL	0.03 (0.93)	0.01 (0.42)
Const.	0.37	0.50*

Robust standard errors, clustered at municipality level; z-Stats (1) and t-Stats (2) in parentheses; Significance: * 0.1, ** 0.05, *** 0.01.

Table A4. Falsification test – random elections.

	(1) Sys GMM	(2) FE
L.Expenditure	0.24 ^{***} (8.10)	
L2.Expenditure	-0.02 (-1.33)	
Public debt	0.00 ^{***} (17.34)	0.00 ^{***} (9.03)
Transfers	-0.36 ^{***} (-6.67)	-0.24 ^{***} (-4.07)
PIT revenue	0.00 (0.07)	-0.00 ^{**} (-3.02)
1 year before	0.00 (0.06)	-0.00 (-0.47)
Election year	0.01 (0.76)	0.00 (0.78)
1 year after	-0.01 (-0.88)	-0.00 (-0.19)
Crisis	-0.00 (-0.03)	0.01 (1.51)
Population density	0.00 (0.39)	0.00 (1.03)
Population under 18	-0.14 (-0.26)	-0.86 ^{**} (-2.80)
Population over 65	-5.98 ^{***} (-11.56)	-2.05 ^{***} (-5.28)
Unemployment	-0.31 [*] (-1.97)	0.03 (0.27)
Turnout	-0.10 (-1.20)	0.10 (1.91)
Education level	-0.01 (-0.78)	0.00 (0.26)
Incumbent	-0.01 (-0.99)	0.01 (1.32)
PO	-0.01 (-0.76)	0.01 (1.88)
PiS	0.01 (0.97)	0.01 (0.78)
SLD	-0.02 (-1.20)	0.00 (0.39)
PSL	0.04 (1.12)	0.01 (0.43)
Const.	1.48 ^{***}	0.48 [*]

Robust standard errors, clustered at municipality level; z-Stats (1) and t-Stats (2) in parentheses;
Significance: * 0.1, ** 0.05, *** 0.01.