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**Conference Paper**

## Do Political Parties Matter? - Evidence from German Communities

Beiträge zur Jahrestagung des Vereins für Socialpolitik 2016: Demographischer Wandel -  
Session: Fiscal Policy, No. E08-V2

**Provided in Cooperation with:**

Verein für Socialpolitik / German Economic Association

*Suggested Citation:* Wittrock, Christian; Riedel, Nadine; Simmler, Martin (2016) : Do Political Parties Matter? - Evidence from German Communities, Beiträge zur Jahrestagung des Vereins für Socialpolitik 2016: Demographischer Wandel - Session: Fiscal Policy, No. E08-V2, ZBW - Deutsche Zentralbibliothek für Wirtschaftswissenschaften, Leibniz-Informationszentrum Wirtschaft, Kiel und Hamburg

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# Do Political Parties Matter? - Evidence from German Communities

N.N.

March 1, 2016

The paper aims to test whether partisanship affects policy outcomes at the local level. While the literature has presented comprehensive evidence for partisan effects on policy outcomes at the state and federal level, recent findings suggest that partisan effects may be absent at the city and municipality level. Using detailed data on public goods and service spending, we assess the link between the partisanship of local councils and the composition of public good spending of German localities. Firstly, we estimate panel data models assessing whether changes in partisanship impact per-capita-spending in different spending-categories. Secondly, we investigate whether left-wing or right-wing communities differ in their spending response to exogenous revenue shocks during their legislative term (among others induced by changes of the personal income tax base assigned to communities). Using propensity score matching and weighting, the approach compares responses in comparable municipalities, which differ in the partisan composition of their local council. Based on both strategies, we find moderate partisan effects only.

JEL-Classification: H7, H4, R5

Keywords: partisan effects, local governments, public spending

# 1 Introduction

Do political parties matter? A growing body of empirical research suggests that the answer to this question is 'yes', presenting evidence that political partisanship impacts on various policy outcomes, including per-capita spending, spending composition and tax choices (see e.g. Besley et al. 2003; or Lee et al. 2004). Existing studies on partisan effects are, however, largely restricted to state and national governments and legislative bodies. In a recent paper, Ferreira et al. (2009) present evidence suggesting that partisan effects are absent at the level of US cities. The authors assign their results to the fact that the local environment significantly differs from the national and state level, suggesting that, firstly, high levels of interjurisdictional mobility tend to create homogenous local units (see Tiebout 1956), hence diminishing the role of partisanship; secondly, intensive competition of localities for locally mobile residents and capital may limit the scope for partisan politics and thirdly, a smaller number of information channels for voters might prohibit politicians to communicate extreme positions.

Following Ferreira et al. (2009), we empirically test for effects of political partisanship on the spending composition of German localities, which are the lowest government tier in Germany. The analysis relies on comprehensive data on the public spending of German municipalities between 1998 and 2006, allowing us to identify detailed spending categories, including (mandatory and non-mandatory) spending for e.g. social services, culture and infrastructure. The data is linked to information on local council elections and the party composition of the council. As Germany hosts around 12,000 municipalities, the data allows us to exploit rich variation in the partisanship of the local legislature. At the same time, German communities operate in a homogenous institutional environment and have the same policy instruments at hand.

The empirical analysis is split in two parts. The first part determines the effect of changes in the partisanship of the local council on average policy outcomes across localities. Specifically, we estimate fixed effects models and assess whether changes in the partisan composition of local councils affect the spending pattern of German localities (as determined by non-mandatory spending in different categories, e.g. social services or infrastructure), conditional on a comprehensive set of socio-economic control variables for the locality. The results point to mild partisan effects at best, with right-wing councils exhibiting slightly larger per-capita spending for recreation and sports and less spending for social services. The quantitative effects turn out to be moderate though.

The second part of the analysis investigates whether left-wing and right-wing councils differ in their spending response to exogenous income shocks, i.e. we assess whether one additional Euro of revenues is spent differently in left-wing and right-wing communities. To do so, we implement an instrumental variable approach, which relies on two sources of exogenous variation in localities' revenues. Firstly, we follow the observation that localities in Germany are to

a significant extent funded by grants of higher government tiers. Previous research has shown that incumbent federal or state governments engage in electoral targeting, i.e. that they try to persuade voters to vote for their party or candidate in local elections by promising to provide transfers and other types of targetable benefits upon victory (see e.g. Cox (2010) for a survey and Hilber et al. (2011) for recent evidence). As our sample period has seen several changes in the partisan composition of the German state governments, we exploit related variation in electoral targeting of grants to the local level for empirical identification, constructing an instrument for the partisan alignment of community councils and the state government. A second instrument moreover exploits that 15% of the German personal income tax revenues are distributed to localities based on a distribution key that changes every three years. The corresponding changes create exogenous variation in local revenues that is exploited for empirical identification. To identify similar communities which only differ in the partisan composition in their local council, we moreover make use of propensity score matching and weighting. The results again suggest that party composition only mildly impacts the spending of additional local revenues.

The rest of the article is structured as follows. Section 2 describes the institutional background and the data. The empirical analysis is presented in Sections 3 and 4. Section 5 concludes.

## **2 Institutional Background and Data**

The empirical analysis to come will assess partisan effects using the spending composition and level of German localities as a testing ground. In the following, we describe the institutional background and the dataset used for the empirical analysis.

### **2.1 Institutional Background**

According to the German constitution, German communities have elected legislative bodies and governments and have the right to solve any local matters autonomously (Article 28 of the German constitution). Localities generate income from two main sources. Firstly, a fraction of the personal income tax and the value added tax revenue administered at the federal and state level are distributed to German communities based on fiscal rules. Communities may also receive special grants by higher government tiers. Secondly and importantly, localities have two (major) own revenue instruments at hand: firstly, they can autonomously set the local business tax rate, levied on business income earned within their borders and secondly, they choose the local property tax. The majority of tax revenues from these two sources remains

with the locality. Only a minor fraction is redistributed by fiscal equalization schemes.<sup>1</sup> Note that the own tax revenue instruments generate a significant fraction of local income (on average about 20% in 2006).

German communities moreover provide various local public goods and services (PIGS), e.g. related to the construction and maintenance of roads, sewerage, kindergartens and primary schools. Further, communities have to provide social benefits to the unemployed and social welfare recipients. Additionally, public goods and services related to culture and sport facilities, tourism, and public transport may be provided. Note that while some expenditures are mandatory, including administration, social security and financing liabilities, others are optional, including e.g. spending for theatres, youth centers, the promotion of science, healthcare, sport and recreation facilities. As sketched in the introduction, the empirical analysis to come will investigate whether *voluntary* spending of localities is affected by the partisanship of the local council (which is the legislative body that, with a majority vote, decides on the local budget and hence on the localities' revenue and spending policies).

## 2.2 Data

Our analysis relies on rich data for PIGS spending of German localities between 1998 and 2006. Namely, we draw on communities' accounting information provided in the *Jahresrechnungsstatistik* that allows us to construct spending items for detailed and disaggregated expenditures categories. Since we are interested in the effect of partisanship on local spending, we restrict our view to spending items that localities can plausibly affect, i.e. we disregard mandatory spending, for example social expenditures for the unemployed or social welfare recipients.

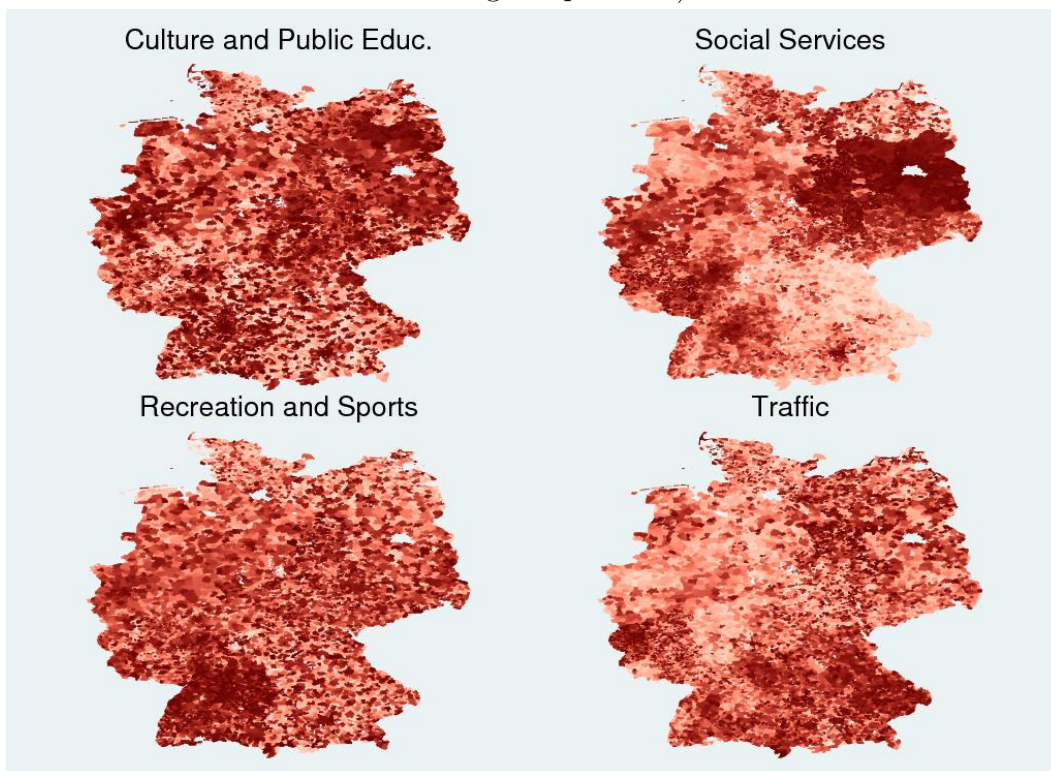
In what follows we will concentrate on PIGS expenditures in four categories: 1) culture and public education, 2) social services, 3) recreation and sports and 4) traffic and infrastructure. Expenditures for culture and public education e.g. include community spending for theatres and museums. Social services includes expenditures for e.g. child care places or youth centres. Expenditures for recreation and sports includes PIGS spending for e.g. sport facilities, public parks or swimming pools.<sup>2</sup> Lastly, expenditures for traffic and infrastructure covers spending related to streets and parking. Expenditures will be expressed in per capita expenditures with

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<sup>1</sup>Communities may also levy other minor local taxes (e.g. a 'dog tax').

<sup>2</sup>Specifically, the spending items comprise the following subcategories (consumption as well as investment spending (i.e. both, 'Verwaltungshaushalt' and 'Vermögenshaushalt): 1) culture and public education: a) museums, exhibitions and collections b) theatres, concerts, music c) other arts d) public education e) fostering of regional values and tradition; 2) social services: a) institutions for social assistance and welfare benefits for war victims b) youth welfare c) institutions for youth work, youth residents, pupil residents and trainee residents d) mother support e) daycare for children f) youth and family counselling g) institutions for the education of young adults h) education of public employees; 3) recreation and sports: a) sports promotion, b) own sports facilities, c) public swimming d) public parks and e) other recreational facilities; 4) traffic: a) municipality streets, 2) county streets, 3) street lighting and cleaning 4) parking

**Figure 1:** 1% quantiles of mean per capita spending for PIGS in German communities (darker red colors are associated with higher quantiles).



population fixed at year 1997. Descriptive statistics are presented in Table 1 and show that per-capita PIGS spending varies significantly across localities. Figures 1 and 2 moreover show that PIGS spending levels do not show regional clusters but tend to be regionally dispersed. Figure 3 shows per-capita expenditures for the four categories, indicating significant time variation in all four variables.

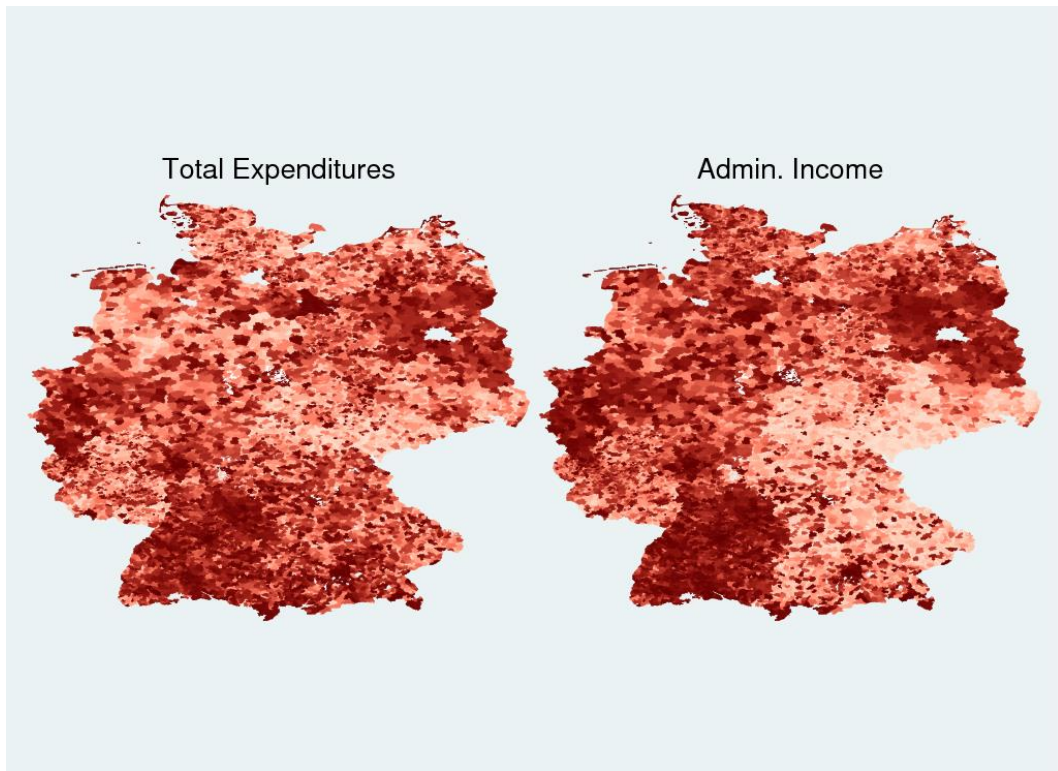
**Table 1:** Descriptive statistics of per capita PIGS spending and administration income (Mean, Standard Deviation, 25% Quantile and 75% Quantile).

	mean	sd	p25	p75
Culture and Public Education	31.80	49.37	13.81	34.19
Social Services	150.90	96.60	86.99	188.31
Recreation and Sports	51.36	85.47	10.71	63.72
Traffic	166.16	167.43	79.81	192.72
Debt Repayment	80.47	156.49	31.31	87.27
Administration Income	1928.14	4297.51	1610.68	2069.49

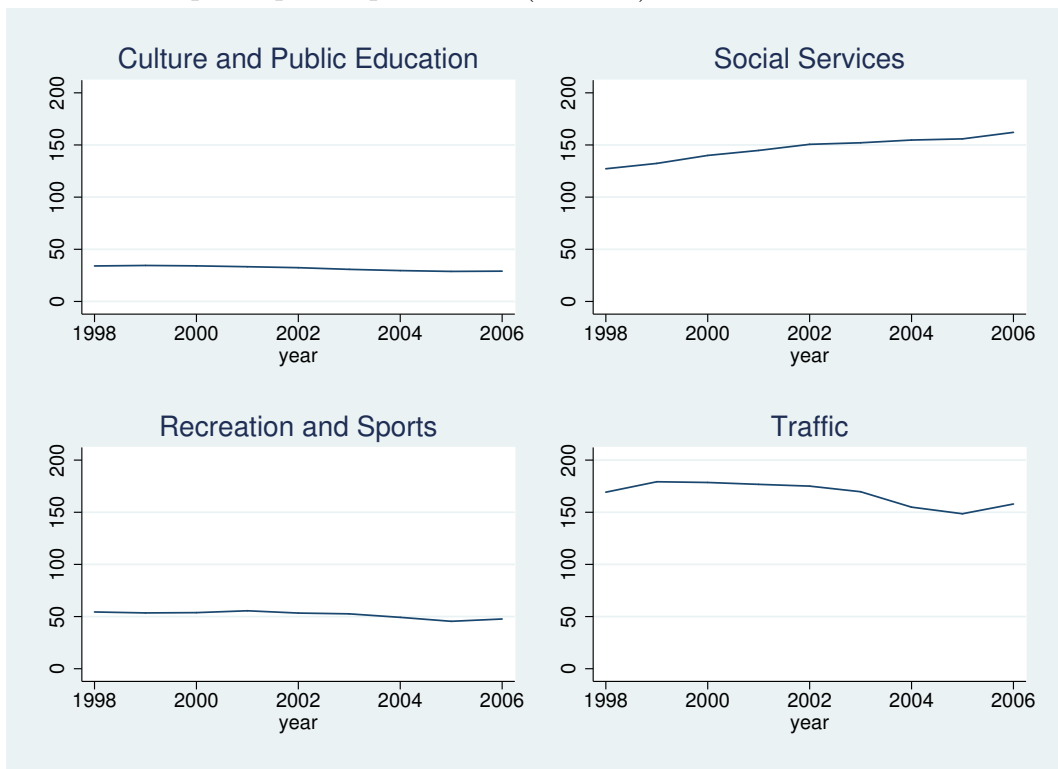
Note moreover that German communities are organized in higher units, namely counties (*'Kreise'*) and municipality associations (*'Gemeindeverbände'*).<sup>3</sup> Neither *Kreise* nor *Gemeindeverbände*

<sup>3</sup>While the first is mandatory and every community belongs to a given county, the second is voluntary.

**Figure 2:** 1% quantiles of mean total expenditures and administration income per capita in German communities (darker red colors are associated with higher quantiles).



**Figure 3:** Mean per-capita expenditures (in Euro) for PIGS between 1998 and 2006.



have own sources of income and are fully funded by participating communities. This organisational structure is relevant for our analysis as a fraction of community spending is moved to these higher organisational levels. In the analysis to come, we will add expenditures of Kreise and Gemeindeverbände to locality spending according to the locality's population share in the total unit in 1997.

The data on public spending is linked to information on the party composition of the local council obtained from the German Federal Statistical Offices. German politics on the state and national level is dominated by five parties: the conservative Christian Democratic Union (Union)<sup>4</sup>, the liberal party of the Free Democratic Party (FDP), the leading left-wing Social Democratic Party (SPD), the Greens (B90/Grüne) and the far-left party 'Die Linke.' We follow prior research and classify the CDU/CSU and FDP as right-wing parties and the SPD, Greens and 'Die Linke' as leftist parties. Our baseline analysis will classify local councils to be dominated by right-wing (left-wing) parties if the respective groups hold more than 50% of council seats.<sup>5</sup> Note, however, that German politics at the local level are characterised by the presence of a large number of civil parties that may play a quite prominent role in local politics (partly related to the absence of minimum vote share requirement to enter the local council). These civil parties are difficult to classify on a left-right-scale and are subsumed in a residual category ('others') in the following. Figure 4 depicts the number of communities where either right or left wing parties had a dominant position (more than 50% seat share) in a given sample year. 'Other' refers to councils where neither the left-wing parties nor the right-wing parties have a dominant position (more than 50% of the seat share). While there is a significant number of localities with a left-wing and right-wing majority, many communities have councils with no clear political dominance. In the following, we will assess the robustness of findings to different definitions of council partisanship.

We furthermore add control variables for socio-economic community characteristics, including information on population, age groups, local business and property tax rates (as tax factors) and land usage as provided by the Federal Statistical Offices. Finally note that the city states of Hamburg, Bremen and Berlin are dropped from the analysis as they are communities and federal states at the same time. See Table 2 for descriptive statistics.

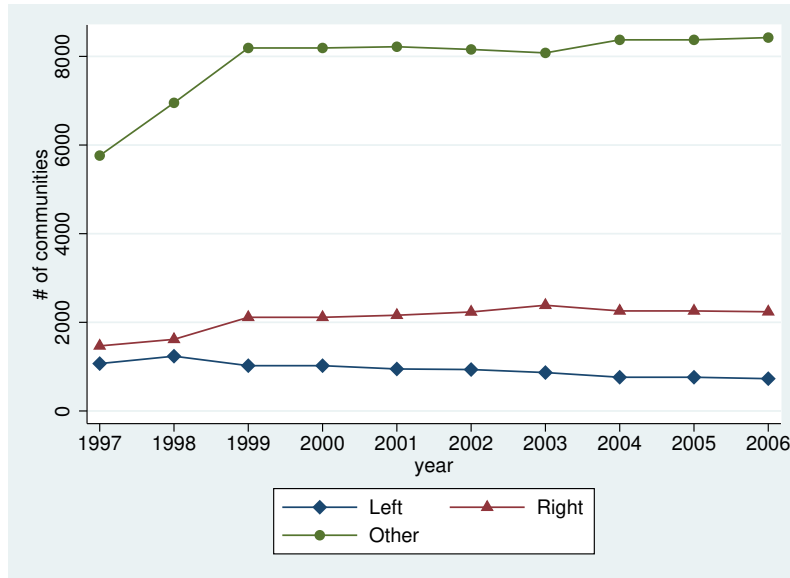
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<sup>4</sup>In Bavaria the CDU is represented by its sister party the CSU.

<sup>5</sup>Note that the data does not allow us to identify actual coalitions within local councils. Hence, we assume that if the respective party groups hold at least 50% of seat shares that they form a coalition - which matches with anecdotal evidence.



**Figure 4:** Number of communities that are dominated by left/right wing coalitions or where no dominant position can be identified.



**Table 2:** Descriptive statistics of control variables (Mean, Standard Deviation, 25% Quantile and 75% Quantile).

	mean	sd	p25	p75
Population	6232	26712	587	4584
Population Density	175	260	50	184
Population <6	0.06	0.02	0.04	0.07
Population 6-20	0.14	0.03	0.13	0.16
Population >65	0.22	0.05	0.19	0.26
Unemployment Rate	0.086	0.066	0.046	0.115
Tax Factor Tradetax	326.11	35.68	300	347.11
Tax Factor Proptax A	281.44	60.57	250	306.67
Tax Factor Proptax B	311.37	41.70	296.67	329.78
Overall Area (in km <sup>2</sup> )	28.66	34.15	8.16	35.49
Housing Area (in km <sup>2</sup> )	1.84	4.43	0.29	1.74
Recreation Area (in km <sup>2</sup> )	0.22	0.82	0.03	0.17
Traffic Area (in km <sup>2</sup> )	1.38	2.21	0.34	1.51
Agricultural Area (in km <sup>2</sup> )	15.47	18.47	4.33	19.15

# 3 Baseline Analysis - Partisan Effects on Localities' Spending Composition

In a first step, we assess the impact of party composition of local councils of average spending in the PIGS categories cited above.

## 3.1 Empirical Strategy

The baseline modelling strategy reads

$$EXP_{i,t} = \beta_0 + \beta_1 LEFT_{i,t} + \beta_2 RIGHT_{i,t} + \beta_3 X_{it} + \lambda_i + \varepsilon_t + \nu_{i,t}. \quad (1)$$

where  $LEFT_{it}$  and  $RIGHT_{it}$  depict the seat share of left-wing and right-wing parties, relative to the base category of 'other' - mainly civil - parties. The coefficients of main interest are  $\beta_1$  and  $\beta_2$ . Significant coefficient estimates would imply that the spending of right-wing and left-wing parties significantly differs from that of other (civil) parties. The model accounts for community fixed effects  $\lambda_i$  and time fixed effects  $\varepsilon_t$ , hence absorbing time constant heterogeneity across localities and common shocks to community spending in given categories over time. The approach consequently resembles a difference-in-difference analysis, comparing adjustments in the spending of localities with changing seat shares in the course of elections to localities where seat shares remained constant. Note in this context that local council elections vary across German states (see Foremny et al. 2014 for details). The vector  $X_{it}$  moreover comprises socio-economic control variables for our sample jurisdictions, including the natural logarithm of the localities' population as well as age composition of the locality as determined by the population shares aged below 6, between 6 and 20 and above 65, the unemployment rate and property and local business tax rates in community  $i$  at time  $t$ .

## 3.2 Empirical Results

Following Equation (1), Table 3 presents regressions of PIGS spending in a given category on the share of left-wing and right-wing parties in the local council, controlling for community and year fixed effects and the regressors described above. In doing so, Specifications (1), (2), (3) and (4) employ per-capita spending for culture and public education, social projects (mainly child and youth care), recreation plus sports and infrastructure as dependent variables. The estimates point to no significant or only mild partisan effects, with higher seat shares of right-wing parties raising spending on recreation and sports (relative to other (mainly civil) parties). The effects turn out quantitatively moderate though. An increase in the seat share of right-wing

**Table 3:** Linear regression of political position shares on expenditures.

	(1)	(2)	(3)	(4)	(5)
	Culture and Public Edu.	Social Services	Recreation and Sports	Traffic	Debt Repayment
	b/se	b/se	b/se	b/se	b/se
Left Wing	-0.005 (0.043)	-0.009 (0.021)	0.011 (0.059)	-0.018 (0.050)	0.036 (0.050)
Right Wing	0.048 (0.035)	-0.023 (0.018)	0.122** (0.052)	-0.004 (0.035)	-0.111*** (0.039)
N	95086	95086	95086	95086	95086
R <sup>2</sup> (within)	0.04	0.15	0.02	0.02	0.08
F Statistic	55.48	319.14	33.88	42.06	151.94
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Community Fixed Effects	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes

\* p&lt;0.10, \*\* p&lt;0.05, \*\*\* p&lt;0.01

**Table 4:** Linear regression with a dummy indicating whether the community had a dominant left wing government (shares of CDU/CSU and FDP >50%).

	(1)	(2)	(3)	(4)	(5)
	Culture and Public Edu.	Social Services	Recreation and Sports	Traffic	Debt Repayment
	b/se	b/se	b/se	b/se	b/se
Left Majority (Dummy)	-0.008 (0.012)	-0.003 (0.007)	-0.013 (0.019)	-0.017 (0.016)	-0.020 (0.018)
N	95086	95086	95086	95086	95086
R <sup>2</sup> (within)	0.04	0.15	0.02	0.02	0.08
F Statistic	58.02	333.90	35.34	44.13	159.53
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Community Fixed Effects	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes

\* p&lt;0.10, \*\* p&lt;0.05, \*\*\* p&lt;0.01

**Table 5:** Linear regression with a dummy indicating whether the community had a dominant right wing government (shares of CDU/CSU and FDP >50%).

	(1)	(2)	(3)	(4)	(5)
	Culture and Public Edu.	Social Services	Recreation and Sports	Traffic	Debt Repayment
	b/se	b/se	b/se	b/se	b/se
Right Majority (Dummy)	0.017* (0.010)	-0.010* (0.006)	0.003 (0.015)	0.008 (0.011)	-0.019 (0.014)
N	95086	95086	95086	95086	95086
R <sup>2</sup> (within)	0.04	0.15	0.02	0.02	0.08
F Statistic	58.27	332.99	35.29	44.08	159.60
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Community Fixed Effects	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes

\* p&lt;0.10, \*\* p&lt;0.05, \*\*\* p&lt;0.01

parties by 10 percentage points raises spending for recreation and sports by 1.2%.

Further, we test if the results are confirmed if we regress the spending per PIGS category on a dummy variable indicating that the local council is dominated by a left-wing and right-wing majority (cf. Tables 4 and 5). Using dummy variables we are not able to confirm the results of Table 3. Although the significance is low, the results in 5 suggest that right-wing majorities spend more for culture and public education and less for social services (relative to communities with left-wing or no dominant council majority).

Finally, Specification (5) of Tables 3-5) moreover tests for partisan effects in debt repayment of localities. Interestingly, the regression suggests that debt repayments tend to decline when right-wing seat shares increase.

Summarizing, using simple fixed effects regressions we can not identify a major impact of partisanship in German communities. Hence, our results would be in line with the results of Ferreira et al. (2009).

## 4 Partisan Effects on Spending Responses to Exogenous Income Shocks

To assess the robustness of our findings, we in a second step investigate whether communities with right-wing and left-wing dominated councils systematically differ in their response to exogenous revenue shocks, i.e. whether they spend an additional Euro of income differently. To address obvious endogeneity concerns, we run instrumental variables approaches where exogenous revenue shocks on local budgets are modelled by instrumental variables (which will be described in detail below). We moreover make use of propensity score matching to identify communities with right-wing and left-wing dominated local councils that are comparable in other observable characteristics.

### 4.1 Empirical Strategy

Specifically, we estimate a model of the following form

$$EXP_{i,t} = \alpha_0 + \alpha_1 INC_{i,t} + \alpha_2 PARTY_{i,t} \times INC_{i,t} + \alpha_3 PARTY_{i,t} + \alpha_4 X_{it} + \lambda_i + \varepsilon_t + \nu_{i,t}. \quad (2)$$

where  $EXP_{i,t}$  again depicts expenditures in a given spending category by community  $i$  in year  $t$ .  $INC_{it}$  indicates community income,  $PARTY_{i,t} \in \{LEFT_{it}, RIGHT_{it}\}$  are dummy variables indicating left-wing and right-wing majorities in the local council. The coefficient

estimate for the interaction between the party indicator  $PARTY_{i,t}$  and community revenues  $\alpha_2$  hence captures differences in spending responses to income shocks by left-wing and right-wing localities relative to all other communities respectively. Note that the estimation model again controls for municipality and year fixed effects and socio-economic control variables.

To compare spending responses to revenue shocks in communities which differ in the partisanship of the local council but are otherwise comparable, we make use of propensity score matching and weighting techniques to adjust the sample in the above regression.

Specifically, to match the sample we run the matching procedure separately for all local council elections within our sample frame (- note that local council elections are aligned within states, but not across states). Specifically, we in a first step identify communities with left-wing majorities in a given legislative term and match them to comparable localities within the same state and legislative term that have right-wing or no clear council majorities. The propensity score is determined based on characteristics in the pre-election year, including the community size, its socio-economic characteristics as described above (e.g. age composition and unemployment rate) as well as the stock of public goods provided as determined by information drawn from German Federal Statistical Offices on the land use within communities, e.g. for streets and recreation. An analogous matching procedure is implemented to find comparable municipalities for localities with right-wing council majorities. As matching algorithm, we use nearest neighbour matching with replacement (where the results are not sensitive to using other algorithms though).

Propensity score weighting (see e.g. Hirano and Imbens 2001) is performed analogous to propensity score matching. However, propensity score weighting allows us to keep all observations (also not matched communities) within the sample. The idea is that a community with a low probability of being treated receives a high weight in the regression if it is found in the treatment group. Note that using estimated propensity scores to construct weights is efficient relative to using true propensity scores of covariates (see Hirano, Imbens, and Ridder 2003), but at the same time dropping information can lead to smaller or larger standard errors.<sup>6</sup> Precisely, with  $PS$  the propensity score and  $\mu$  the proportion of communities receiving treatment, treated observations ( $j = 1$ ) receive a weight  $w_{j=1} = \frac{\mu}{(1-\mu)}$ , while non-treated observations ( $j = 0$ ) receive a weight  $w_{j=0} = \frac{PS}{(1-PS)}$ .<sup>7</sup> Thus, the distribution of observable characteristics of untreated observations is reweighted to be like that of the treated group.

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<sup>6</sup>This is an active research area.

<sup>7</sup>Note that this is only one possible weighting scheme. For additional weighting choices see e.g. Nichols (2008).

## 4.2 Instruments for Community Revenues per Capita

Exogenous shocks to local government revenues per capita are modelled using two instruments.

The construction of the first instrument follows previous papers (see e.g. Dahlberg et al. 2002) providing evidence that grants to the local level increase if the partisanship of local governments is aligned with higher tier governments and legislatures ('partisan alignment'). Baskaran et al. (2014) presents estimates for the effect of partisan alignment on localities' revenues in Germany. Following this evidence, we construct an instrumental variable for the partisan alignment of local councils, by collecting information on the partisanship of state governments and defining dummy variables that indicate their political position (left or right wing). Precisely, state governments are coded as left-wing if they were governed by either SPD, a coalition of SPD and Greens or SPD and 'Die Linke'. State and federal governments are, in turn, coded as right-wing if they were governed by either CDU/CSU or a coalition of CDU/CSU and FDP. Table 6 lists the partisanship of the federal state government. Variation within federal states is low, we have four federal states with no change in the partisanship of the state-level government within our sample period.<sup>8</sup> The literature suggests higher administration income in communities with governments whose partisanship is aligned with the federal state government (see Dahlberg et al. 2002). Baskaran et al. (2014) qualifies this finding for Germany, pointing to differences in this alignment effect between left-wing and right-wing state governments. Following this evidence, we construct two partisan alignment dummies

$$PA_{i,t}^{left} = StateL_{i,t-1} * (SPD_{i,t-1} + Greens_{i,t-1} + Left_{i,t-1})$$

$$PA_{i,t}^{right} = StateR_{i,t-1} * (CDU/CSU_{i,t-1} + FDP_{i,t-1})$$

where  $StateL_{i,t-1}$  and  $StateR_{i,t-1}$  indicate a left-wing and right-wing government at the state level.  $SPD_{i,t-1} + Greens_{i,t-1} + Left_{i,t-1}$  depicts the seat shares of the left-wing parties SPD, Greens and 'Die Linke' in the local council,  $CDU/CSU_{i,t-1} + FDP_{i,t-1}$  depicts the seat share of conservative parties in the local council. Further, we construct a variable indicating the share of communities aligned with state governments. Following Baskaran et al. (2014) we expect the interaction of the partisan instrument with the share of aligned communities to have a positive effect on communities income. Note that we will control for the lagged political partisanship of states, the partisan instruments and the share of aligned communities.

Our second instrument draws on the fact that German personal income tax revenues are collected on the federal state level and distributed to the federal, state, and community levels according to a predetermined key. Precisely, the shares assigned to each government level are fixed by law. Communities receive 15% of the tax revenue (42.5% Länder and 42.5% state).

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<sup>8</sup>Rhineland-Palatine, Baden Württemberg, Bavaria and Brandenburg.

**Table 6:** Political Partisanship of Federal State Governments (L left wing, R right wing, O other (with the latter mainly indicating coalitions between left-wing and right-wing parties)).

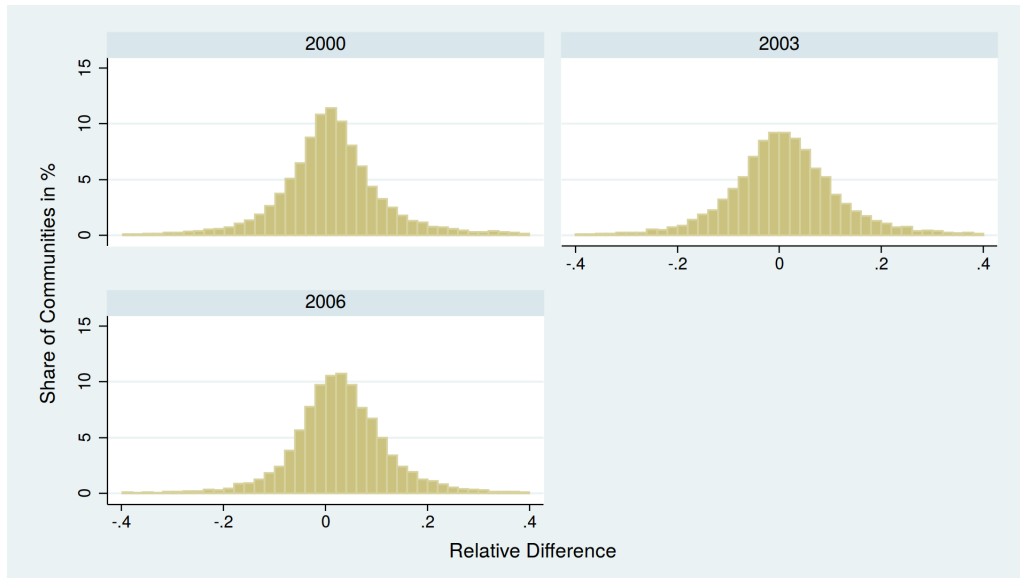
Federal State	year									
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
SH	L	L	L	L	L	L	L	L	O	O
NI	L	L	L	L	L	L	R	R	R	R
NRW	L	L	L	L	L	L	L	L	R	R
HE	L	L	L	L	L	L	R	R	R	R
RP	O	O	O	O	O	O	O	O	O	L
BW	R	R	R	R	R	R	R	R	R	R
BY	R	R	R	R	R	R	R	R	R	R
SL	L	L	R	R	R	R	R	R	R	R
BB	O	O	O	O	O	O	O	O	O	O
MV	O	L	L	L	L	L	L	L	L	O
SN	R	R	R	R	R	R	R	O	O	O
SA	L	L	L	L	L	R	R	R	R	O
TH	O	O	R	R	R	R	R	R	R	R

SH Schleswig-Holstein, NI Lower Saxony, NRW North Rhine-Westphalia, HE Hesse, RP Rhineland-Palatinate, BW Baden-Württemberg, BY Bavaria, SL Saarland, BB Brandenburg, MV Mecklenburg-Vorpommern, SN Saxony, SA Saxony-Anhalt, TH Thuringia

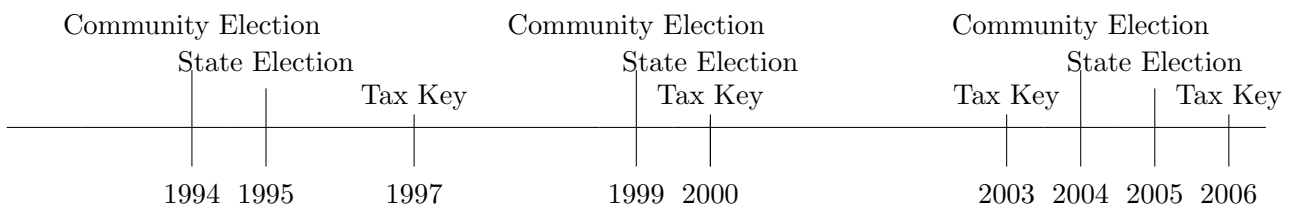
The precise share assigned to each community is calculated based upon a tax key that changes every 3 years. The tax key is calculated by taking the share of personal income tax revenues collected in one community divided by the share of personal income tax revenues collected in the federal state. In our sample period the tax key changed three times (in 2000, 2003 and 2006). Hence, the share of the personal income tax that a community received was fixed in-between these time periods. Based on information for the personal income tax revenues of all communities within a federal state, we are able to calculate the tax key for each year. Hence, we are able to calculate the difference in the personal income tax revenue related to a change of the tax key by calculating the difference between the revenue a community would have received if the tax key would not have changed and actual received personal income tax revenues. Thus, we have either a negative value indicating a loss or a positive value indicating a gain due to the change in the tax key for the years 2000, 2003 and 2006 and zero otherwise. The relative differences due to changes in the tax key vary significantly. Figure 5 shows the distribution of the ratio of the difference in tax revenue a community would have received without a change in the tax key and the actual assigned income tax revenue. As can be seen, a large share of communities has been substantially affected by an unanticipated change in the tax key. To log-transform the variable, we calculate the personal income tax instrument for each year by perpetuating the income tax revenue of 1998 with the differences related to the changes in the distribution key of each subsequent year.

Note that the two instruments induce time variation in the locality revenues which are chronologically disentangled. To illustrate that, Figure 6 shows the timing of local council elections and state elections, which trigger variation in the partisan alignment instrument, and the tim-

**Figure 5:** Histograms (by year) of the ratio of the difference in tax revenue a community would have received without a change in the tax key and the actual assigned income tax revenue.



**Figure 6:** Time line of elections and changes in the instruments in North Rhine-Westphalia.



Note: Changes in the Partisan Instrument can be induced by community elections and state elections.



ing of adjustments in the distribution key for the personal income tax, which trigger changes in the personal income tax instrument for the federal state of North Rhine-Westphalia. Note that while our sample comprises the years 1998 to 2006, the construction of the policy variables exploits information on community council elections and state elections before 1998 (to determine alignment in 1998 and later years up to the next elections). Note moreover that we have at least one change of the instruments within each legislative period for our community governments, implying that variation in community revenues within our sample is sufficient to identify effects of partisanship on community spending.

### 4.3 Empirical Results

**Table 7:** Seat shares of political parties and (uninstrumented) community revenue.

	(1)	(2)	(3)	(4)	(5)
	Culture and Public Edu.	Social Services	Recreation and Sports	Traffic	Debt Repayment
	b/se	b/se	b/se	b/se	b/se
Adm. Income per Capita (log)	0.331*** (0.035)	0.347*** (0.036)	0.373*** (0.063)	0.337*** (0.040)	0.426*** (0.050)
Left Wing $\times$ Adm. Income	-0.038 (0.086)	-0.148** (0.065)	0.054 (0.160)	0.129 (0.117)	0.084 (0.145)
Right Wing $\times$ Adm. Income	-0.191*** (0.073)	0.044 (0.053)	0.271** (0.129)	0.074 (0.083)	0.113 (0.119)
N	95086	95086	95086	95086	95086
R <sup>2</sup> (within)	0.05	0.16	0.02	0.02	0.09
F Statistic	56.50	307.55	34.80	45.43	142.18
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Community Fixed Effects	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

Table 7 presents estimations of Equation (2) in the unmatched/unweighted sample. In line with the prior estimates, the results in Table 7 point to mild partisan effects. An increase in administration income raises spending in all categories. Further, the results suggest that the responsiveness of per-capita social spending due to changes in (uninstrumented) community income decreases with the seat share of left-wing parties in the local council. This results would be surprising as one would expect left-wing parties to increase spending for social services following an increase in community revenue (see e.g. Potrafke 2011b). Spending for culture and public education due to changes in (uninstrumented) community income decreases with the seat share of right-ring parties while spending for recreation and sports increases (the last result is in line with the result of Table 3).

Tables 8 and 9 present results from matched samples, where left-wing and right-wing communities are matched to localities with comparable observable characteristics but with no or the opposing majority in the local council. Community revenues are moreover instrumented

**Table 8:** Left majority and instrumented community revenue with community fixed effects (in a matched sample).

	(1)	(2)	(3)	(4)	(5)
	Culture and Public Edu.	Social Services	Recreation and Sports	Traffic	Debt Repayment
	b/se	b/se	b/se	b/se	b/se
Adm. Income per Capita (log)	0.877** (0.351)	0.565*** (0.177)	-0.266 (0.457)	0.182 (0.414)	0.402 (0.557)
Left Majority $\times$ Adm. Income	-0.034 (0.228)	0.249*** (0.091)	-0.234 (0.278)	0.024 (0.250)	-0.203 (0.302)
N	10975	10975	10975	10975	10975
F Statistic	8.64	69.80	5.64	10.03	18.83
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Community Fixed Effects	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

**Table 9:** Right majority and instrumented community revenue with community fixed effects (in a matched sample).

	(1)	(2)	(3)	(4)	(5)
	Culture and Public Edu.	Social Services	Recreation and Sports	Traffic	Debt Repayment
	b/se	b/se	b/se	b/se	b/se
Adm. Income per Capita (log)	0.872*** (0.236)	2.411*** (0.171)	1.284*** (0.337)	2.292*** (0.306)	-0.363 (0.389)
Right Majority $\times$ Adm. Income	0.147 (0.102)	-0.300*** (0.075)	0.267* (0.139)	0.207 (0.134)	0.401** (0.174)
N	23029	23029	23029	23029	23029
F Statistic	15.05	82.04	10.76	15.48	55.69
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Community Fixed Effects	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

with the partisan alignment and personal income tax distribution key changes as described above. All specifications moreover include a full set of community and year fixed effects and the control variables described above. The results suggest that the responsiveness of social spending to exogenous revenue shocks is positive (negative) for left-wing (right-wing) majorities. Analogously, the responsiveness for spending for recreation and sports and debt repayment to exogenous revenue shocks is positive for right-wing majorities (although estimates seem to be imprecise).

**Table 10:** Left majority and instrumented community revenue with community fixed effects (in a weighted sample).

	(1)	(2)	(3)	(4)	(5)
	Culture and Public Edu.	Social Services	Recreation and Sports	Traffic	Debt Repayment
	b/se	b/se	b/se	b/se	b/se
Adm. Income per Capita (log)	0.875**	0.360	-0.621	-0.596	1.721***
	(0.414)	(0.222)	(0.697)	(0.412)	(0.472)
Left Majority $\times$ Adm. Income	0.211	0.282**	-0.514	-0.242	-0.540*
	(0.231)	(0.121)	(0.359)	(0.261)	(0.293)
N	47311	47311	47311	47311	47311
F Statistic	10.94	103.02	6.90	12.18	32.22
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Community Fixed Effects	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

**Table 11:** Right majority and instrumented community revenue with community fixed effects (in a weighted sample).

	(1)	(2)	(3)	(4)	(5)
	Culture and Public Edu.	Social Services	Recreation and Sports	Traffic	Debt Repayment
	b/se	b/se	b/se	b/se	b/se
Adm. Income per Capita (log)	1.047***	2.496***	1.409***	2.308***	-0.232
	(0.270)	(0.210)	(0.420)	(0.315)	(0.510)
Right Majority $\times$ Adm. Income	0.018	-0.780***	-0.198	-0.435***	0.154
	(0.139)	(0.113)	(0.198)	(0.157)	(0.274)
N	54732	54732	54732	54732	54732
F Statistic	16.21	53.15	5.42	14.15	51.55
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Community Fixed Effects	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

Repeating the estimation in a weighted sample (using the weighting mechanism as described above) supports these results. Tables 10 and 11 show that (taking into account significant coefficients) spending in all categories increases due to an increase in (instrumented) community income. Additionally, the results show that left-wing (right-wing) majorities increase (decrease) spending for social services due to an increase in (instrumented) community income. Further, a negative impact on spending for traffic using the right-wing majority sample and a negative

impact on debt repayment using the left-wing sample can be identified. This results support findings of the regressions using a matched sample.

As mentioned, the propensity scores are estimated for each election year and federal state separately. Hence, the number of observations for the estimation of the propensity score is equal to the number of communities within each federal state. Small errors in estimating the propensity score are likely to be carried on into the regression (see DiNardo 2002). Therefore, we reestimate the propensity score using all election years and including federal state fixed effects. Tables 12 and 13 present the results. They support prior findings that left-wing majorities tend to increase spending for social services due to an increase in (instrumented) administration income, while right-wing majorities governments spend less. All other effects of Tables 10 and 11 do not prevail using this alternative propensity score estimation.

**Table 12:** Left majority and instrumented community revenue with community fixed effects (in a weighted sample) - federal state fixed effects used to estimate the propensity score.

	(1)	(2)	(3)	(4)	(5)
	Culture and Public Edu.	Social Services	Recreation and Sports	Traffic	Debt Repayment
	b/se	b/se	b/se	b/se	b/se
Adm. Income per Capita (log)	1.104*** (0.380)	1.039*** (0.157)	0.447 (0.361)	-0.263 (0.309)	0.267 (0.431)
Left Majority $\times$ Adm. Income	0.040 (0.161)	0.181** (0.075)	-0.335 (0.220)	0.082 (0.178)	-0.007 (0.238)
N	49768	49768	49768	49768	49768
F Statistic	10.25	142.18	7.25	13.04	47.26
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Community Fixed Effects	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

**Table 13:** Right majority and instrumented community revenue with community fixed effects (in a weighted sample) - federal state fixed effects used to estimate the propensity score.

	(1)	(2)	(3)	(4)	(5)
	Culture and Public Edu.	Social Services	Recreation and Sports	Traffic	Debt Repayment
	b/se	b/se	b/se	b/se	b/se
Adm. Income per Capita (log)	1.210*** (0.206)	2.475*** (0.160)	0.975*** (0.289)	1.843*** (0.233)	-0.328 (0.380)
Right Majority $\times$ Adm. Income	0.164 (0.110)	-0.425*** (0.082)	0.113 (0.146)	-0.054 (0.125)	0.017 (0.190)
N	49768	49768	49768	49768	49768
F Statistic	14.91	95.94	10.82	18.73	47.62
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Community Fixed Effects	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

Summarizing, all results suggest that there are no or only mild effects of partisanship on public

spending present within our sample. Only spending for social services seems to be affected by partisanship as significant coefficients can be found in (almost) every specification.<sup>9</sup>

## 5 Conclusion

The aim of this paper was to assess the role of the partisanship of German local councils on spending for public goods, inputs and services of municipalities. In doing so the paper adds to a flourishing empirical literature on the identification of partisan effects. Existing studies are, however, largely restricted to the state and national government level (see e.g. Potrafke (2009), Potrafke (2011a) and Potrafke (2011b) for evidence for Germany). A recent paper by Ferreira et al. (2009) fails to find partisan effects at the local level of US cities though, assigning this discrepancy to specifics of the local environment, mainly to competition of localities for mobile people. In line with the results in Ferreira et al. (2009), we find evidence for (at all) mild partisan effects on per-capita spending of German localities in various PIGS dimensions only.

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<sup>9</sup>This would support results by Potrafke (2011b).

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