

**IDEOLOGY AND FISCAL POLICY:
QUASI-EXPERIMENTAL EVIDENCE
FROM THE GERMAN STATES**

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Ideology and fiscal policy:
quasi-experimental evidence from the German States

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Abstract

Is government ideology important for fiscal policy? I study this question with data from all German States over the period 1975-2005. To identify the effect of ideology, I rely on a fuzzy regression discontinuity design. I find that left-wing state governments spend more than state governments with right-wing and mixed ideology. Deficits of left-wing governments are larger than those of right-wing governments but smaller than those of governments with mixed ideology. These results are robust to sensitivity tests.

Keywords: Government ideology, Fiscal policy, Fiscal federalism

JEL codes: D72, D78, E62, H72

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1 Introduction

Opinions differ on whether party ideology matters for fiscal policy. Some authors argue that parties converge to the position of the median voter (Downs, 1957; Wittman, 1983). According to this strand of the literature, observed differences in policies when different parties are in power should be attributed to unobserved differences in voter preferences. In contrast, the second strand of the literature argues that parties and their ideology are crucial for fiscal outcomes. Politicians are assumed to hold firm ideological convictions which, once elected, they implement into policy (Hibbs, 1977; Besley and Coate, 1997).

Which of these theories describes policy making in modern democracies? Does ideology matter for fiscal policy? Or are voter preferences the key to understanding differences in policy outcomes between governments with distinct ideologies?

The main difficulty in answering these questions is to separate the effect of government ideology from that of voter preferences and other unobserved variables. Since ideology is not allocated randomly to political jurisdictions, (unobserved) confounding variables might determine both government ideology and fiscal policy. Given that it is not feasible to conduct randomized experiments, quasi-experimental methods have to be used to identify the fiscal effects of ideology. A particularly credible quasi-experimental method that is increasingly applied to study the consequences of ideology is the regression discontinuity design. The regression discontinuity design uses the fact that a particular political bloc (consisting of left- or right-wing parties) can typically form the government once it receives 50% of the seats in parliament. There is hence a discontinuity in government ideology at

the 50% seat share threshold. Political jurisdictions where e. g. the left-wing party bloc has a seat share just below the 50% threshold should exhibit similar characteristics as jurisdictions where the left-wing party bloc has just above 50% of the seats, but government ideology in the two jurisdictions differs distinctively. The allocation of government ideology to political jurisdictions in the neighborhood of the threshold can therefore be perceived as random and any observed differences in policy outcomes can be ascribed to ideology.

The evidence from different regression discontinuity studies on the effects of ideology is so far ambiguous. Lee et al. (2004) find that party ideology matters for how members of the US House of Representatives vote. Similarly, Pettersson-Lidbom (2008) concludes that ideology affects fiscal and macroeconomic outcomes in Swedish municipalities. On the other hand, Ferreira and Gyorko (2009) and Gerber and Hopkins (2011) find that ideology has a negligible effect on policies in US cities. Furdas and Kis-Katos (2010) reach the same conclusion for German cities.

That no effects of ideology are found at the municipal level in the US and Germany is not surprising. Ferreira and Gyorko (2009) note that, for example, Tiebout competition may limit partisan politics at the local level in the US. Similarly, there is a lot of anecdotal evidence indicating that municipal councils in Germany focus on practical day-to-day issues rather than ideological battles. But in contrast to Sweden, Germany and the US possess a tier of government between the municipal and the federal level: the states. Ideology may be more important at this level of government in these two countries.

This paper contributes to the literature by studying with a regression discontinuity design the fiscal effects of government ideology at a subordinate yet powerful level of government.

More specifically, I study whether government ideology affects state expenditures and state deficits¹ using a dataset that covers all 16 German states over the period 1975-2005.² In contrast to municipalities which typically have little political or fiscal power vis-a-vis higher tiers of government, the German States have significant political and fiscal autonomy. Moreover, almost all states have witnessed both left-wing and right-wing governments during their histories, thereby providing a rich source of between and within-variation in government ideology even at such a high tier of government. The German States are therefore a compelling institutional laboratory to study the causal effects of ideology on fiscal policy.

The remainder of this paper is structured as follows. The next section provides a brief description of the political and fiscal system of Germany. 3 presents a graphical analysis of the relationship between ideology and fiscal policy and discusses for Germany the validity of the assumption that underly the regression discontinuity design. Section 4. introduces the empirical approach. The results are collected in Section 5. Section 6 concludes.

¹Given the system of fiscal federalism in Germany, these two fiscal variables are the ones under effective control of state governments. Revenues, on the other hand, are essentially exogenous. See below for a more comprehensive discussion.

² Applications of regression discontinuity designs at levels of government above municipalities are rare. One example is Leigh (2007) who studies US States and uses a regression discontinuity design in some specifications. There is of course a large number of studies investigating the effect of ideology on fiscal and economic policy using different estimation frameworks, notably Besley and Case (2003) and Reed (2006) for US States and Seitz (2000), Galli and Rossi (2002), Tepe and Vanhuyse (2008), Schneider (2010), and Potrafke (2012) for German States. Imbeau et al. (2001) offer a meta-analysis of studies for OECD countries. The role of ideology for budgetary reforms in Europe is studied by Fabrizio and Mody (2010). Ideological differences in macroeconomic policies is studied by Alesina et al. (1997) and Scruggs (2001).

2 The political and fiscal system of Germany

Germany is a peculiar federation. On the one hand, the German States are highly autonomous. They may act in many policy areas independently from the federal government. Yet subnational autonomy does not result in large institutional differences between states. This can be explained to some extent by a stipulation in the federal constitution that demands institutional homogeneity within the federation.³ All sixteen states are consequently constituted as unicameral parliamentary democracies.⁴ Each state is governed by its own state government (there are no federal territories). Since all states have parliamentary systems, a state government needs in practice the continuous support of at least 50% of the delegates in the state parliament to govern. In principle a government could organize majorities on an ad hoc basis while disregarding the party affiliations of delegates, but usually there is a distinct bloc of delegates (with specific party affiliations) supporting the government and another bloc that comprises the opposition.

The state parliament is normally elected after the end of a regular legislative period (four or five years depending on the state), but sometimes elections are called early if a government loses the support of the majority in the state parliament. The government loses majority support if, for example, coalitions break down. The specifics of the electoral rules differ between states, but the basic structure is similar.⁵ All states employ some

³Notably the so called homogeneity clause (Art. 28 Abs. 1 GG).

⁴Bavaria had a second chamber, the Senate, until 1999. However, the Senate had no meaningful political role and was abolished by a popular referendum.

⁵The following exposition draws on Freitag and Vatter (2008).

variation of a proportional electoral rule. Bremen, Hamburg, and Saarland use a pure proportional system. In this system, voters have one vote which they cast for their preferred party. Seats in the state parliament are allocated to the parties according to their vote share. Most states, however, employ a variant called personalized proportional system. This system works as follows. First, the state is divided into different electoral districts. Then voters are given (in most states) two votes. A fraction of the parliamentary seats (there is some variation between states but the fraction is typically 50%) is reserved to candidates who are elected in their electoral district. That is, voters in a given electoral district vote with their “first vote” for their favored candidate and the candidate with the most votes wins a seat (a *direct mandate*). In principle party affiliation does not matter for the seats allocated according to this procedure, but in practice candidates that actually win a direct mandate are affiliated with one of the major parties.

The other share of seats are allocated according to a proportional system in which voters choose with their “second vote” closed party lists.⁶ Candidates that occupy a more prominent spot on the list are more likely to receive a seat. The total number of seats that a party receives in the state parliament is mostly determined by its share of the second votes. That is, first the number of seats that should accrue to a party according to its second vote share is calculated. These seats are then filled with the candidates that have won a direct mandate. If any seats remain, these are given to the candidates who occupy the top places on the party list. If the number of direct mandates of a party exceeds the

⁶In some states, voters only have one vote. With this vote they choose a particular candidate in their district and simultaneously his party. See Freitag and Vatter (2008) for details.

number of seats that it should receive according to its second vote share, the party receives so called *Überhangmandate* i. e. additional seats that make up the difference between the number of its direct mandates and its seats according to the second vote share. In some states, the other parties also receive additional seats (so called *Ausgleichsmandate*) if there are any *Überhangmandate* in order to ensure that the relative seat shares in the state parliament reflects the relative second vote shares. Since the second vote essentially determines electoral outcomes, I will in the following imply the second vote when I refer to the “vote”.

Technically, the state parliament elects a state prime minister who then forms his cabinet. While the state prime minister and the parliament may appear to have an important role in determining the government, it is in reality the parties that are decisive. If after a state election a particular party has received more than 50% of the seats (not necessarily more than 50% of the votes), it typically forms the government i. e. elects the state prime minister and chooses the cabinet in internal negotiations. If no party has on its own more than 50% of the seats, the various parties engage in negotiations with each other to form a coalition. Usually, the parties manage to form some type of coalition. New elections almost never have to be called due to the inability to agree on a government.

State governments are typically either formed by a single party or by two parties. Coalitions involving three parties have been very rare and there have been no coalitions with more than three parties. Only five parties have been of relevance in Germany during the sample period: the CDU, the SPD, the FDP, the Green Party, and the PDS. The CDU is culturally conservative and free-market oriented. The SPD is the traditional social

democratic party of German and left-leaning. The Green Party is culturally liberal and tends to be left-leaning with respect to economic policy. The FDP is culturally liberal and pro-market. The PDS is the successor of the communist ruling party of the German Democratic Republic and is to the left of the SPD. The SPD and CDU were often referred to as “big” parties during the sample period because they each typically received 30% or more of the votes in each election. The other parties typically received less than 10% each and were therefore referred to as the small parties.

The CDU, SPD, and FDP are traditional parties that have existed at least since the founding of the Federal Republic in 1949.⁷ The Green Party was at the end of the seventies only a marginal element of the political spectrum and of little relevance. However, during the eighties it witnessed a spectacular rise and became well entrenched both at the state and federal level. The PDS emerged after 1990 and was only relevant in East-Germany (and Berlin) until 2005.

While the CDU is unambiguously right- and the SPD, Green Party, and PDS are unambiguously left-wing, it is not somewhat difficult to classify the FDP because it was sometimes involved in coalitions with the SPD (especially before 1982). I nevertheless classify the FDP as a right-wing party because that its defining feature is its pro-market stance: the FDP has always been to the right of the political spectrum with respect to economic policy.

⁷The SPD is much older and has a history that reaches back more than a hundred years.

While the political system is similar throughout the federation, there is a lot of ideological variation both within and between states. Figure 1 presents for each state the share of the 1975-2005 period ruled by a left-wing or right-wing government or by a government with mixed ideology. Left-wing governments are either sole SPD governments or SPD-Green Party coalitions. Right-wing governments are either sole CDU governments or CDU-FDP coalitions. Governments with mixed ideology are those that consist of at least one left-wing and one right-wing party. In many cases, these are “big” coalitions i. e. coalitions between the CDU and the SPD. These types of coalitions are usually only formed if the share of seats of either big parties in the state parliament combined with that of their preferred small party (FDP in the case of the CDU or the Green Party in the case of the SPD) is less than 50%. Except for big coalitions, only the so called traffic light coalition (i. e. SPD-Green Party-FDP⁸) in Bremen (1992-1994) and the SPD-FDP coalition in Berlin (1975-1980), Hesse (1975-1982), Lower-Saxony (1975), North Rhine-Westphalia (1975-1979) Rhineland-Palatinate (1991-2006) and Hamburg (1975-1977, 1988-1990) are treated as governments with mixed ideology. Figure 1 also shows that all states except Bavaria have witnessed changes in government ideology during the sample period. Table 1 shows the total number of government changes during the sample period in all 16 West-German States and also the specific transitions. There were altogether 49 government changes.

In addition to having an understanding of the political system, it is also important to be familiar with Germany’s variant of fiscal federalism to understand state level fiscal

⁸The name of this type of coalition is derived from the party colors of the parties involved. They resemble the traffic lights in Germany (SPD is red, the Green Party is green, and the FDP is yellow).

policies. The fiscal constitution of Germany gives the states significant expenditure but only minuscule tax autonomy. For all intents and purposes, the states can determine their expenditure policy without federal oversight. While all states have had balanced budget rules during the sample period, these were weak and effectively not binding.

States receive most of their revenues through shared taxes and transfers. The revenues from the most important taxes – in particular the income, value added, and corporate tax – that is collected within the territory of a state is shared with the federal government (and to a smaller extent with the municipalities). States cannot set rates or define bases for these taxes, both rates and bases are the same throughout the federation. There are also no differences in rates for most state taxes either i. e. taxes whose revenues accrues completely to the states.

There are, however, differences in the value of the existing tax bases and hence in tax revenues collected by states. To account for any differences in fiscal capacities, several transfer mechanisms have been instituted. First, a certain fraction of total value added tax revenues is siphoned off from the standard tax distribution system and given to states with below average tax revenues. In a second step, states with above fiscal capacity pay transfers to states with below fiscal capacities. Since the federal government is not involved at this stage of the equalization scheme, it is referred to as horizontal equalization (*Länderfinanzausgleich im engeren Sinn*). Finally, the federal government pays various vertical transfers to states with below average tax revenues (*Bundesergänzungszuweisungen*). Both horizontal and vertical transfers have the effect that available total revenues of states

are typically much closer to each other than initial tax revenues: there is a marked equalization of fiscal capacities.

The system of fiscal federalism in Germany implies that state governments can autonomously decide over expenditures and deficits but not over revenues. That revenues are essentially exogenous from the perspective of state governments is the reason why I focus in the following only on state expenditures and state deficits.

3 Graphical analysis

3.1 Discontinuities in outcome variables

As a precursor to the regression discontinuity regressions, this section presents a graphical analysis of the effects of ideology. Panel (a) of Figure 5 plots real expenditures per capita for all 16 states during the 1975-2005 period against the share of seats that left-wing parties won in the latest election.⁹ Panel (b) plots real deficits per capita against the left-wing seat share. The share of seats are centered at 50%, i. e. 0 indicates a 50% seat share of left-wing parties. There is a discontinuity at 0 in the *probability* that a left-wing government forms the the government. The discontinuity in ideology is thus only fuzzy and not sharp: in some cases, the SPD chose to govern with the CDU or the FDP even if there was a left-wing majority in the state parliament. However, in most cases a left-wing seat majority entails a left-wing government. Below the 0 threshold, governments are either right-wing

⁹ All fiscal variables are deflated to the year 2000 by the national CPI.

or of mixed ideology. These two types of governments comprise the control group in the graphs.

To the left and right of the threshold, I provide local polynomial plots with different bandwidths (1, 2, and 3). If left-wing ideology has a causal effect of fiscal policy, the plots should display a discontinuous jump at the threshold.¹⁰ As indicated in Figure 5, there is a marked jump at the threshold in expenditures and deficits for all bandwidths, indicating that left-wing governments spend more and have larger deficits than the control group (governments with right-wing and mixed ideology).

Are the discontinuities in the plots in reality non-linearities? Some non-linearities indeed seem to be present of expenditures in the neighborhood of the threshold if the bandwidth is 1, but with slightly larger bandwidths the plot is smooth. Also, the discontinuity at the threshold does not seem to be driven by non-linearities even if a bandwidth of 1 is chosen because the slope of the plot has the same sign (i. e. it is negative) both to the left and to the right of the threshold. For deficits, there are no significant non-linearities in the neighborhood of the thresholds for all bandwidths. Only at seat shares relatively far away from the threshold (above +5) non-linearities emerge, and only for a bandwidth of 1.

Figure 6 plots real expenditures per capita and real deficits per capita against the right-wing seat share. There is a discontinuity at 0 in the probability that right-wing parties form the government (i. e. the discontinuity is again fuzzy instead of sharp). Below the

¹⁰The plot uses the Epanechnikov kernel.

threshold, governments either have a left-wing or a mixed ideology. Above the threshold, the probability of right-wing government increases discontinuously.

As indicated by the local polynomial plots, there are discontinuous drop in both expenditures and deficits once the right-wing seat share crosses the threshold for all bandwidths. The plots indicate that right-wing governments appear to spend less and have smaller deficits than the control group (left-wing governments and governments with mixed ideology). All except the plot with a bandwidth of 1 are smooth and do not indicate significant non-linearities.

In summary, Figures 5 and 6 indicate that ideology has a significant effect on fiscal policy in the German States: left-wing governments spend more and have higher deficits than the control group whereas right-wing governments spend less and have lower deficits.

3.2 Validity of the regression discontinuity design assumptions

The validity of the regression discontinuity design relies on several assumptions. An important one is that agents do not have the ability to precisely manipulate the forcing variable. This assumption is most likely fulfilled in the current context. Parties have no ability to manipulate electoral outcomes given the strong democratic institutions in Germany. Coordination of voters is also impractical at the level of state elections.

One possibility to formally test the no-manipulation assumption formally is the McCrary test. The test relies on the idea that if there is precise manipulation, the assignment variable should exhibit discontinuities at the threshold. For example, the empirical density of left-

wing seat shares just below 50% should be much smaller than the density of left-wing seat shares above 50% if there is manipulation in favor of left-wing parties. Figure 2 and 3 provide the McCrary test for left-wing and right-wing seat shares, respectively. As noted by McCrary (2008), the test is sensitive to the choice of bandwidths and bin sizes. I construct for the left-wing and right-wing seat shares three graphs with different bandwidths and bin sizes in Figure 2 and 3. Using the default values for the bandwidth and bin size results in a discontinuity for the left-wing seat share. However, the discontinuity vanishes for smaller bandwidths and bin sizes. For right-wing seat share, the default values indicate no discontinuities at the threshold. However, there appear to be discontinuities for smaller bandwidths and bin sizes. The test appears to be sensitive to the choice bandwidths and bin sizes in the current case.

An alternative method to check for manipulation is to realize that if there is any manipulation at all, it is most likely to originate from the incumbent government. For example, a left-wing incumbent government might be capable to precisely manipulate close elections such that the left-wing seat share is just above 50% while the opposition cannot do so (Grimmer et al., 2011). Panel (a) and (b) of Figure 4 plot the left-wing and right-wing margins of victory/deafeat in a given election (normalized such that 0 is 50%) against the ideology of the current state government. This figure reveals that the left-wing seat share is more likely to be above 50% when the current incumbent is left-wing and that the right-wing seat share is more likely above 50% if the incumbent is right-wing. However, this pattern is expected and can be explained either by an incumbency advantage or the long-run propensity of a state to vote either for left-wing or right-wing parties. Conclusive

evidence for manipulation would require that close elections are much more likely to be won by the incumbent parties. Yet the figures provide offer no such evidence. Panel (a) shows that within a one to three percentage point bandwidths around 0, the number of close victories by left-wing parties is similar to the number of vicories of right-wing parties if the incumbent government is left-wing. The same conclusion can be reached on the basis of Panel (b) for right-wing incumbents.

Another critical assumption of the regression discontinuity design is that there are no discontinuities in pre-treatment variables at the threshold. If there are such discontinuities, the identification strategy could be questioned. Any effect associated with ideology could also be explained by the discontinuities in the pre-treatment variables.

The standard approach to establish whether this assumption holds is to plot pre-treatment control variables against the forcing variable. Figure 7 plots four pre-treatment control variables against the left-wing seat share. The four control variables are real state GDP per capita, state unemployment rate, the share of inhabitants over 65, and the share of inhabitants below 15.¹¹ Each data point in the four subfigures refers to the average value of the respective control variable in the previous legislative period.¹² As indicated in the figure, there are no significant discontinuities at the thresholds. The plots to the left and to the

¹¹The definition and source of all variables can be found in Table A.1. Summary statistics are provided in Table A.2. Both tables are in the appendix.

¹²More specifically, assume that the election takes place in year t and that the next legislative period runs from t to $t+5$. Assume furthermore that the previous legislative period ran from $t-5$ to $t-1$. Then the pre-treatment value of GDP per capita for the period t to $t+5$ is the average during the period $t-5$ to $t-1$.

right merge almost seamlessly. Figure 8 reports the corresponding plots for the right-wing seat share. As in the plots in Figure 7, no discontinuities are visible. In summary, therefore, these plots suggest that the discontinuities that were observed in Figure 5 and 6 are due to ideology and not due to other underlying pre-treatment variables.

4 Empirical model

The figures reported in the previous section give a first impression regarding the fiscal effects of ideology. In this section, I study the effect econometrically by estimating local linear regressions with bandwidths of different sizes. The basic model for left-wing governments is:

$$y = \beta_1 \text{Left}_{i,t} + \beta_2 \text{Left seat share}_{i,t} + \beta_3 \text{Left}_{it} \times \text{Left seat share}_{i,t} + \alpha_i + \gamma_t + \epsilon_{i,t}. \quad (1)$$

The corresponding model for right-wing governments is:

$$y = \beta_1 \text{Right}_{i,t} + \beta_2 \text{Right seat share}_{i,t} + \beta_3 \text{Right}_{it} \times \text{Right seat share}_{i,t} + \alpha_i + \gamma_t + \epsilon_{i,t}. \quad (2)$$

In these models y is either real state expenditures per capita or real state deficits per capita, *Left* and *Right* are dummies for either left-wing or right-wing state governments,

respectively. *Left vote share* and *Right vote share* are the share of seats obtained by left-wing or right-wing parties in the last election, respectively. $Left_{it} \times Left\ seat\ share_{i,t}$ and $Right_{it} \times Right\ seat\ share_{i,t}$ are interaction variables between the ideology dummy and the assignment variables. Consequently, the seat share of left-wing and right-wing parties is allowed to have different slopes below and above the threshold.

The variable of interest are the *Left* and *Right* dummies, which capture the the ideology of the state government. As indicated above, there is no deterministic relationship between the share of left-wing seats and *Left* and the share of right-wing seats and *Right*: sometimes the SPD chooses to form a government with the CDU or the FDP even if there is a left-wing majority and the CDU chooses to form a government with the SPD even if there is a right-wing majority. Consequently, I use a fuzzy regression discontinuity design. I instrument the *Left* dummy with a dummy variable that is 1 if the left-wing seat share is above 50% and 0 else. Similarly, I instrument the *Right* dummy with a dummy variable that is 1 when the right-wing seat share is above 50% and 0 else.¹³

While pre-treatment control variables are in principle not necessary in regression discontinuity designs, they can reduce the variance of the estimates and guard against bias in small samples (Hoxby, 2000). Therefore, I include in all regressions state (α_i) and year (γ_t) fixed effects. Finally, ϵ_{it} is the error term. For hypothesis tests, I always use heteroscedasticity robust standard errors and cluster at the level of the current legislative period. That

¹³Thus, I run two stage least squares on subsamples covering observations within specific bandwidths around the threshold. This approach is equivalent to local linear regressions with a rectangular kernel.

is, all observations on expenditures and deficits in a given legislative period are perceived as part of the same cluster.

5 Results

5.1 Baseline results

Table 2 presents the baseline results regarding the effect of left-wing governments on expenditures and deficits. The local linear regressions are calculated for bandwidths of 7, 5, 4, and 3 percentage points. In general, estimates obtained for larger bandwidths have lower variance but are potentially biased. In contrast, estimates with smaller bandwidths have higher variance but smaller bias. Since I employ a fuzzy regression discontinuity design, the Kleibergen-Paap Weak Identification F statistic is reported at the bottom of the regression table. For the regressions reported in Table 2, this test statistic is always very large, suggesting that the instrument is strong.

The results regarding expenditures confirm the graphical analysis in Section 3.1 for bandwidths smaller than 5. The results for a bandwidth of 5, while statistically insignificant, suggest that left-wing governments spend 153 Euros more than the control group: right-wing governments and governments with mixed ideology. Once the bandwidth is smaller than 5, the estimated effect increases to around 220 Euros and becomes statistically significant.

The results for real deficits per capita, on the other hand, are at first sight not in line with the graphical evidence presented in Section 3.1. The estimated coefficient is insignificant for all bandwidths. While left-wing governments spend more than right-wing governments, they do not appear to incur larger deficits. This must imply that they have higher revenues. This is a notable finding because, as indicated above, state governments have almost no tax autonomy in Germany. A possible explanation for this result might be that left-wing governments have received higher transfers during the sample period. I explore whether this possibility drives the results in a robustness check in the next section.

Table 3 presents the results for right-wing governments. Note that the Model IV in this table (using a bandwidth of 3) is estimated with OLS rather than TSLS because the relationship between the seat share of right-wing parties and government ideology is deterministic for this range of the assignment variable. That is, when the right-wing seat share is between 50% to 53%, the government is always right-wing. Thus, the regression discontinuity design is sharp rather than fuzzy for a bandwidth of 3. For the remaining bandwidths, the design remains fuzzy.

The results are largely consistent with the graphical analysis. Once the bandwidth is sufficiently narrow, the results indicate that right-wing governments spend less and have smaller deficits than the control group. Estimates using a bandwidth of three percentage points indicate an effect of around 277 Euros on expenditures and 372 Euros on deficits. Estimates with larger bandwidths suggest a significantly negative effect as well, even though the size is smaller.

5.2 Robustness tests

I conduct a number of robustness tests. First, I check whether a linear control function for the left-wing and right-wing seat share, respectively, is too inflexible. There might exist significant non-linearities even for relatively small bandwidths around the threshold. Thus, I re-estimate the baseline models for left-wing and right-wing governments after including a quadratic polynomial.

Second, I explicitly control for pre-treatment control variables to reduce both variability and possible bias. I focus on the variables already considered in Figures 7 and 8. More specifically, I include the average value in the previous legislative period of: the real GDP per capita, the unemployment rate, the share of below 15-year old, and the share of over 65-year old.

Third, I include transfer receipts as a control variable. This variable is defined as the sum of horizontal and vertical transfer receipts. For states that are net-payers into the horizontal equalization scheme in a given year, this variable is 0. Controlling for transfer receipts might be important because they are a crucial determinant of fiscal outcomes. At the same time, transfers might be affected by the ideology of the state government because they are ultimately decided in negotiations between the federal and state governments. The federal government (and other states) might be prepared to support higher transfers to states with the same ideology. Alternatively, the federal government might feel less compelled to grant transfers to states with the same ideology because it might take their political support as granted.

The results of the robustness tests for left-wing governments are collected in Table 4. I report for brevity only the estimates for the discontinuity dummy. The results are generally in line with the baseline estimates and suggest that left-wing governments spend more than the control group. The effect is consistently positive and significant once the bandwidth is sufficiently small. The effect is always positive and numerically large when pre-treatment control variables are included. This suggests that the use of control variables can mitigate the bias associated with a large bandwidth. An equally interesting finding is that explicitly controlling for transfer receipts does not affect the estimates in a significant way. Hence, the baseline findings were not driven by interactions between ideology and transfer receipts.

For deficits, the results are also in line with the baseline findings: the estimate is typically insignificant. For a bandwidth of 3, it is sometimes significantly negative. However, these estimates should be discounted as the coefficient changes signs between models and appears to be unstable.

Table 5 reports the results for right-wing governments. The results are again largely in line with the baseline findings. For expenditures, the estimates are generally negative and significant. The size of the estimates vary somewhat, but are on average around 200 to 400 Euros. However, some models suggest an even larger effect. For deficits, the estimates suggest a negative and significant effect for almost all robustness checks and bandwidths. The numerical value is on average around 200 to 300 Euros, even though some estimates are larger. Overall, these findings indicate that right-wing governments spend less and have lower deficits than the control group.

6 Conclusion

I study the effect of ideology on fiscal policy. To identify the effect of ideology, I use a fuzzy regression discontinuity design. The estimates suggest that left-wing governments spend more than their control group. With respect to deficits, however, there are no significant differences between left-wing governments and the control group. For right-wing governments, the estimates suggest that they spend less and have lower deficits than their control group.

The results indicate that ideology has an effect on the fiscal policy of German States. The findings are consistent with the notion that left-wing governments prefer higher spending than right-wing governments. With respect to deficits, the results are more ambiguous. Left-wing governments did not have significantly different deficits than their control group. Yet right-wing governments had lower deficits than their control group. This finding implicitly indicates that left-wing governments have larger deficits than right-wing governments but smaller deficits than governments of mixed ideology.

That ideology is important for fiscal outcomes is on the one hand reassuring. It indicates that by choosing different political parties, voters have the ability to change the fiscal trajectory of their state. On the other hand, it is also possible to interpret this finding in a negative light. That fiscal policy at the state level is subject to ideological considerations may indicate inefficient policy choices and sub-optimal fiscal outcomes.

These findings suggest that in Germany, ideological battles with respect to fiscal policy are fought at the state tier. The results by Furdas and Kis-Katos (2010) indicate, on the

other hand, that municipalities are to a lesser extent subject to ideological considerations than state (and presumably national) governments has interesting policy implications. It appears that one additional but somewhat neglected benefit of fiscal decentralization is the de-politization of fiscal policy. One avenue for future research is therefore to explore with cross-country data whether it is indeed the case is less subject to ideological considerations and thus produces presumably more efficient outcomes.

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Table 1: CHANGES OF GERMAN STATE GOVERNMENTS

Changes	Number
Total	49
Left to Left	6
Right to Right	8
Mixed to Mixed	1
Left to Right	7
Right to Left	6
Left to Mixed	5
Right to Mixed	5
Mixed to Left	7
Mixed to Right	4

This table presents the number and type of changes in German state governments during the 1975-2005 period. Left to Left government changes are, for example, a change from a sole SPD government to a SPD-Green Party government. A Right to Right government change could be change from a CDU-FDP government to a sole CDU government.

Table 2: IDEOLOGY AND FISCAL POLICY, GERMAN STATES 1975-2005, LOCAL LINEAR REGRESSIONS WITH TSLS, LEFT-WING GOVERNMENTS

	I BW=7	II BW=5	III BW=4	IV BW=3
Expenditures per capita				
Left	27.942 (119.341)	153.280 (147.037)	213.471** (87.397)	224.069** (102.822)
Left seat share	-43.967** (22.196)	-140.766*** (54.317)	-142.257*** (44.262)	-4.489 (52.804)
Left × Left seat share	7.860 (35.337)	159.139** (64.912)	95.413 (62.376)	-141.840 (96.913)
Kleibergen-Paap Weak ID F	18.141	51.363	56.635	80.225
Clusters	52	40	32	29
Observations	202	154	124	111
F	3.068	2.389	3.972	2.132
Deficits per capita				
Left	-46.175 (93.399)	2.333 (91.055)	-26.694 (104.678)	-27.228 (95.862)
Left seat share	34.793** (15.737)	39.863 (35.850)	52.172 (62.178)	-132.181** (54.684)
Left × Left seat share	-21.558 (19.779)	-51.603 (43.543)	-76.357 (73.385)	216.899** (109.843)
Kleibergen-Paap Weak ID F	19.337	76.766	55.371	75.191
Clusters	47	36	31	28
Observations	185	141	121	108
F	1.925	0.743	0.237	2.103

This table presents local linear regressions relating state real expenditures per capita and state real deficits per capita to whether the government is left-wing. Results for different bandwidths are reported: 7 percentage points (Model I), 5 percentage points (Model II), 4 percentage points (Model III), and 3 percentage points (Model IV). Standard errors are given in parentheses. Standard errors are clustered at the level of a legislative period (all years in a particular legislative period belong to the same cluster) and are robust to heteroscedasticity. Stars indicate significance levels at 10%(*), 5%(**) and 1%(***). All models include state and year fixed effects. All models are estimated with TSLS: the endogenous variable is whether a state government is left-wing. The exogenous instrument is whether the left-wing party seat share is over 50%. Weak identification is tested with the Kleibergen-Paap F statistic.

Table 3: IDEOLOGY AND FISCAL POLICY, GERMAN STATES 1975-2005, LOCAL LINEAR REGRESSIONS WITH TSLS, RIGHT-WING GOVERNMENTS

	I BW=7	II BW=5	III BW=4	IV BW=3
Expenditures per capita				
Right	-32.827 (97.582)	-136.215 (92.013)	-184.930*** (55.591)	-276.639*** (57.475)
Right seat share	16.750 (22.888)	-12.452 (17.451)	42.764* (22.637)	174.143*** (35.129)
Right × Right seat share	7.477 (28.947)	92.815 (57.244)	5.653 (33.556)	-182.691*** (56.235)
Kleibergen-Paap Weak ID F	27.233	33.602	151.108	-
Clusters	50	37	29	25
Observations	198	141	112	94
F	0.686	0.685	2.242	5.337
Deficits per capita				
Right	-103.276** (49.605)	-165.174*** (57.847)	-227.728*** (64.219)	-372.306*** (76.681)
Right seat share	9.870** (4.119)	22.151** (9.118)	40.348** (18.570)	190.459*** (35.898)
Right × Right seat share	-14.951 (9.250)	-10.026 (22.019)	1.418 (29.522)	-208.502*** (56.948)
Kleibergen-Paap Weak ID F	26.990	31.372	150.166	-
Clusters	46	34	29	25
Observations	183	130	111	93
F	4.614	2.273	2.946	5.227

This table presents local linear regressions relating state real expenditures per capita and state real deficits per capita to whether the government is right-wing. Results for different bandwidths are reported: 7 percentage points (Model I), 5 percentage points (Model II), 4 percentage points (Model III), and 3 percentage points (Model I). Standard errors are given in parentheses. Standard errors are clustered at the level of a legislative period (all years in a particular legislative period belong to the same cluster) and are robust to heteroscedasticity. Stars indicate significance levels at 10%(*), 5%(**) and 1%(***)). All models include state and year fixed effects. All models except Model (IV) are estimated with TSLS: the endogenous variable is whether a state government is right-wing. The exogenous instrument is whether the right-wing party seat share is over 50%. Weak identification is tested with the Kleibergen-Paap F statistic. Model IV is estimated with OLS.

Table 4: IDEOLOGY AND REVENUE SOURCES, GERMAN STATES 1975-2005, LOCAL LINEAR REGRESSIONS WITH TSLS, LEFT-WING GOVERNMENTS

		(I) BW=7	(II) BW=5	(III) BW=4	(IV) BW=3
Expenditures					
Quadratic polynomial	Left	85.846 (208.773)	76.520 (290.582)	391.560 (388.912)	447.845 (458.086)
Control variables	Left	118.050 (121.116)	192.585 (133.004)	146.652* (79.802)	210.143* (107.597)
Transfers per capita	Left	26.313 (117.490)	145.394 (145.445)	185.045** (78.456)	220.171** (104.051)
Deficits					
Quadratic polynomial	Left	50.158 (96.996)	70.456 (179.964)	36.430 (227.650)	-107.465 (305.698)
Control variables	Left	-70.453 (92.804)	-84.236 (115.138)	-73.868 (115.035)	-228.765* (134.257)
Transfers per capita	Left	-19.228 (54.268)	41.489 (48.583)	31.977 (46.208)	21.408 (53.040)

This table presents robustness checks using local linear regressions relating state real expenditures per capita and state real deficits per capita to whether the government is left-wing. Three sets of robustness tests are presented where the baseline model is appended with (i) a quadratic polynomials of the forcing variable, (ii) pre-treatment control variables, and (iii) real transfer receipts per capita. For further notes, see Table 2.

Table 5: IDEOLOGY AND REVENUE SOURCES, GERMAN STATES 1975-2005, LOCAL LINEAR REGRESSIONS WITH TSLS, RIGHT-WING GOVERNMENTS

		(I) BW=7	(II) BW=5	(III) BW=4	(IV) BW=3
Expenditures					
Quadratic polynomial	Right	-3.776 (126.665)	117.563 (255.158)	-1.2e+03 (733.878)	-457.406** (225.737)
Control variables	Right	-78.383 (68.575)	-104.161 (71.883)	-170.762*** (47.040)	-206.055*** (56.505)
Transfers per capita	Right	19.642 (80.828)	-120.470 (87.427)	-182.680*** (59.173)	-274.796*** (62.632)
Deficits					
Quadratic polynomial	Right	-192.715*** (63.357)	-478.282*** (167.632)	-856.060 (695.714)	-617.796* (354.293)
Control variables	Right	-86.699*** (32.681)	-105.834*** (38.412)	-133.227*** (46.175)	-292.511*** (84.165)
Transfers per capita	Right	-114.020** (50.860)	-168.683*** (61.154)	-251.145*** (77.236)	-409.195*** (88.602)

This table presents robustness checks using local linear regressions relating state real expenditures per capita and state real deficits per capita to whether the government is right-wing. Three sets of robustness tests are presented where the baseline model is appended with (i) a quadratic polynomials of the forcing variable, (ii) pre-treatment control variables, and (iii) real transfer receipts per capita. For further notes, see Table 3.

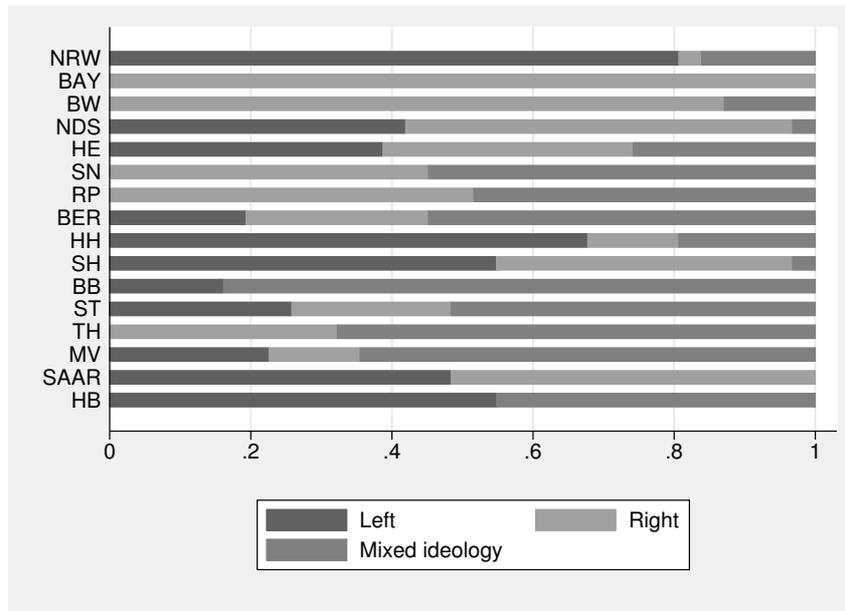
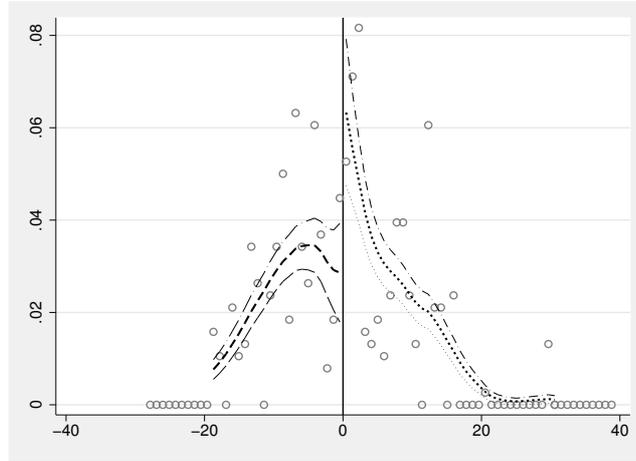
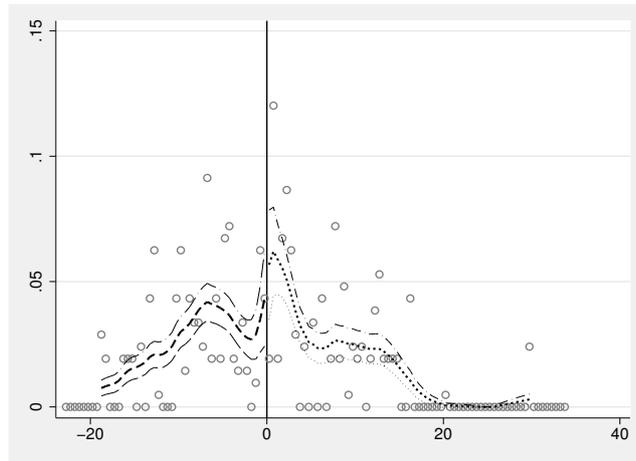


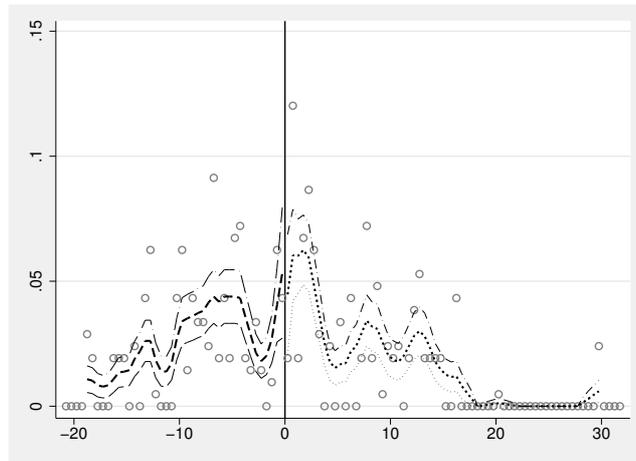
Figure 1: IDEOLOGY OF STATE GOVERNMENTS. This figure shows for each of the 16 German States the fraction of the 1975-2005 period in which either a left-wing or right-wing government or a government with mixed ideology was in power. The 16 states are North Rhine-Westphalia (NRW), Bavaria (BAY), Baden-Wuerttemberg (BW), Lower-Saxony (NDS), Hesse (HE), Saxony (SN), Rhineland-Palatinate (RP), Berlin (BER), Hamburg (HH), Schleswig-Holstein (SH), Brandenburg (BB), Saxony-Anhalt (ST), Thuringa (TH), Mecklenburg-Western Pomerania (MV), Saarland (SAAR), Bremen (HB).



(a) DEFAULT BANDWIDTH = 8.78, DEFAULT BIN SIZE = 0.91

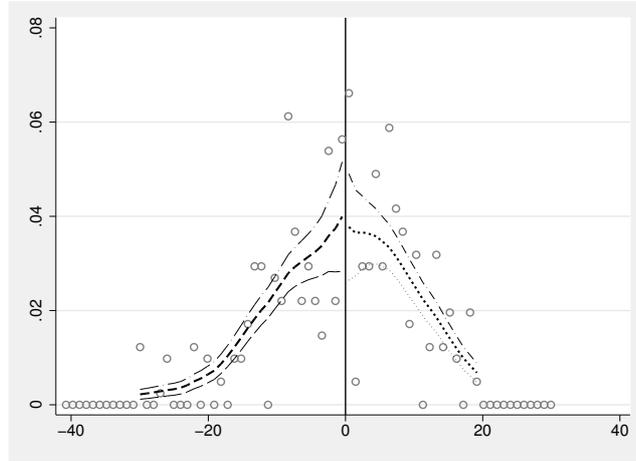


(b) BANDWIDTH = 4, BIN SIZE = 0.5

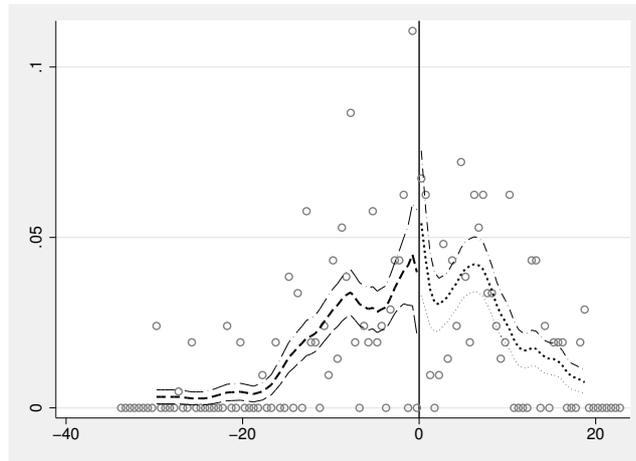


(c) BANDWIDTH = 2, BIN SIZE = 0.5

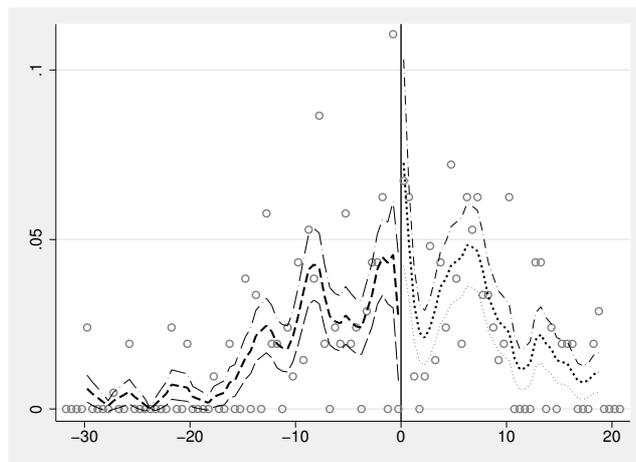
Figure 2: MCCRARY TEST FOR DIFFERENT BANDWIDTHS AND BIN SIZES FOR LEFT-WING SEAT SHARES. THIS GRAPH PROVIDES A KERNEL PLOT AND CONFIDENCE INTERVALS OF THE ASSIGNMENT VARIABLE FOR LEFT-WING GOVERNMENTS (LEFT-WING SEAT SHARE) AND ALLOWS FOR A DISCONTINUITY AT 0 (50% SEAT SHARE).



(a) DEFAULT BANDWIDTH = 10.68, DEFAULT BIN SIZE = 0.98

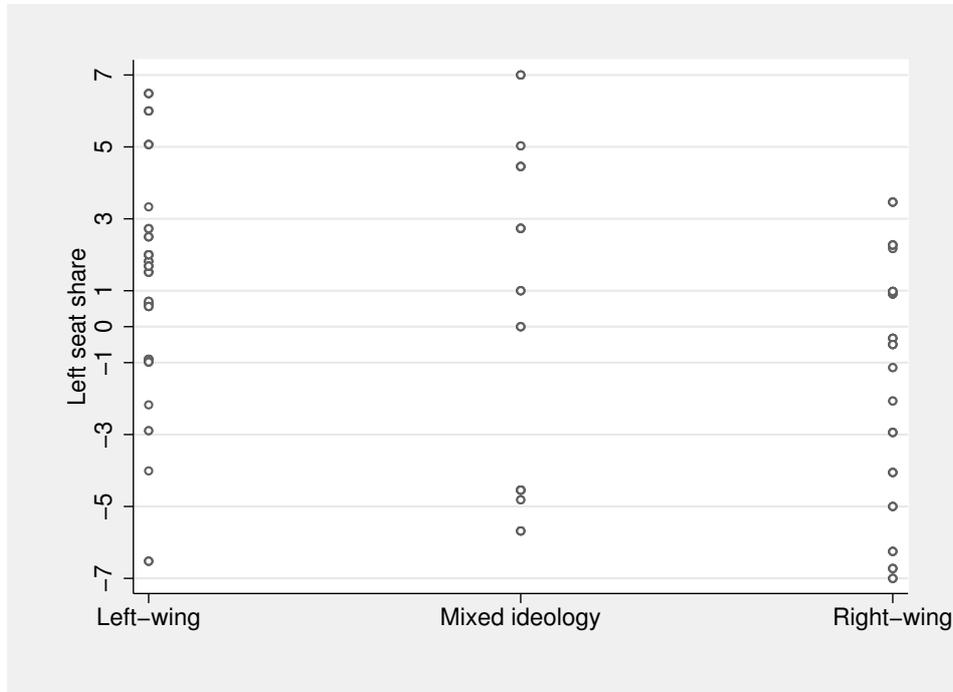


(b) BANDWIDTH = 4, BIN SIZE = 0.5

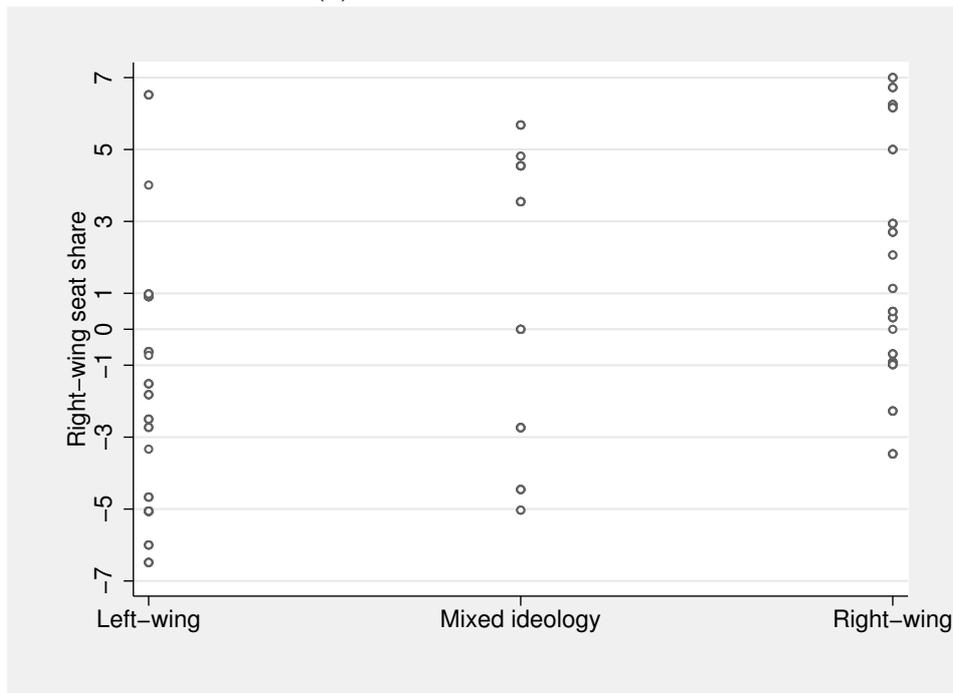


(c) BANDWIDTH = 2, BIN SIZE = 0.5

Figure 3: MCCRARY TEST FOR DIFFERENT BANDWIDTHS AND BIN SIZES FOR RIGHT-WING SEAT SHARES. THIS GRAPH PROVIDES A KERNEL PLOT AND CONFIDENCE INTERVALS OF THE ASSIGNMENT VARIABLE FOR RIGHT-WING GOVERNMENTS (RIGHT-WING SEAT SHARE) AND ALLOWS FOR A DISCONTINUITY AT 0 (50% SEAT SHARE).

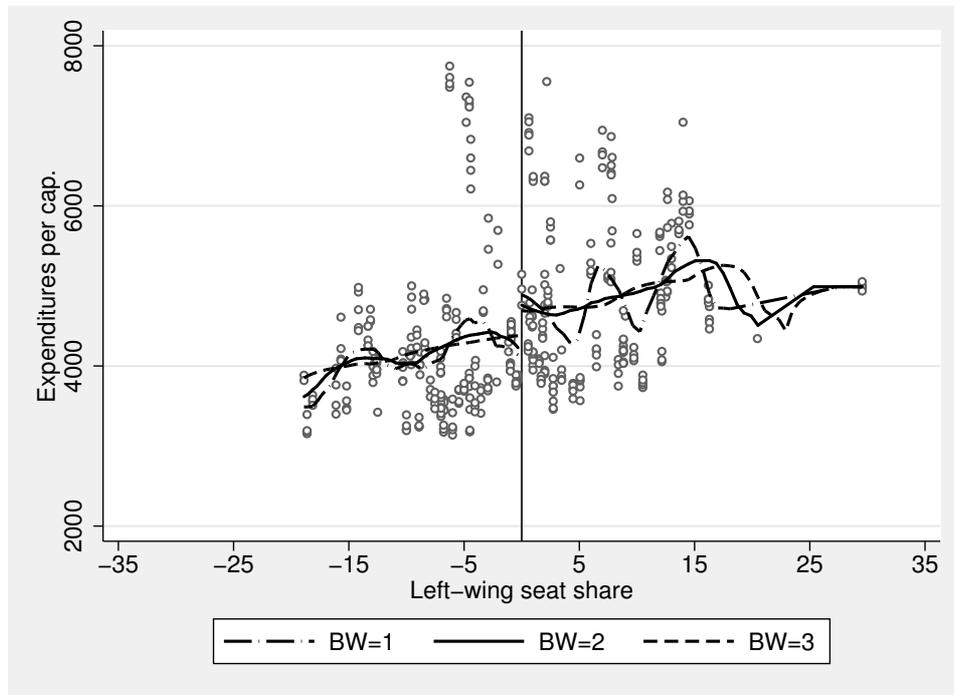


(a) LEFT-WING INCUMBENT

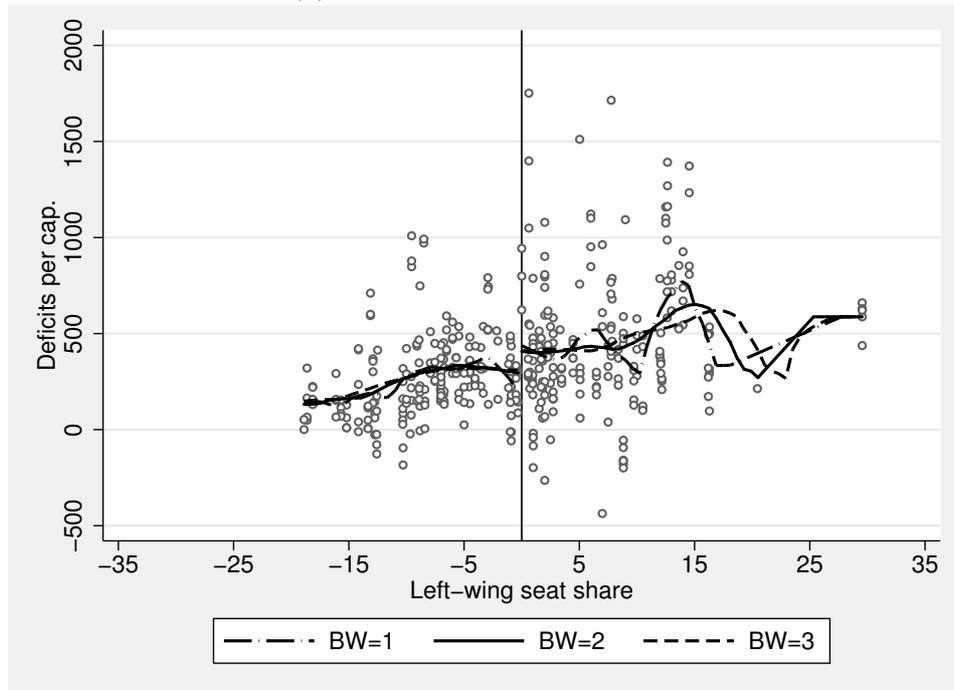


(b) RIGHT-WING INCUMBENT

Figure 4: IDEOLOGY OF INCUMBENT AND MARGIN OF VICTORY/DEFEAT THIS FIGURE DISPLAYS THE NORMALIZED SEAT SHARE OF LEFT-WING AND RIGHT-WING PARTIES CONDITIONAL ON THE IDEOLOGY OF THE INCUMBENT STATE GOVERNMENT.

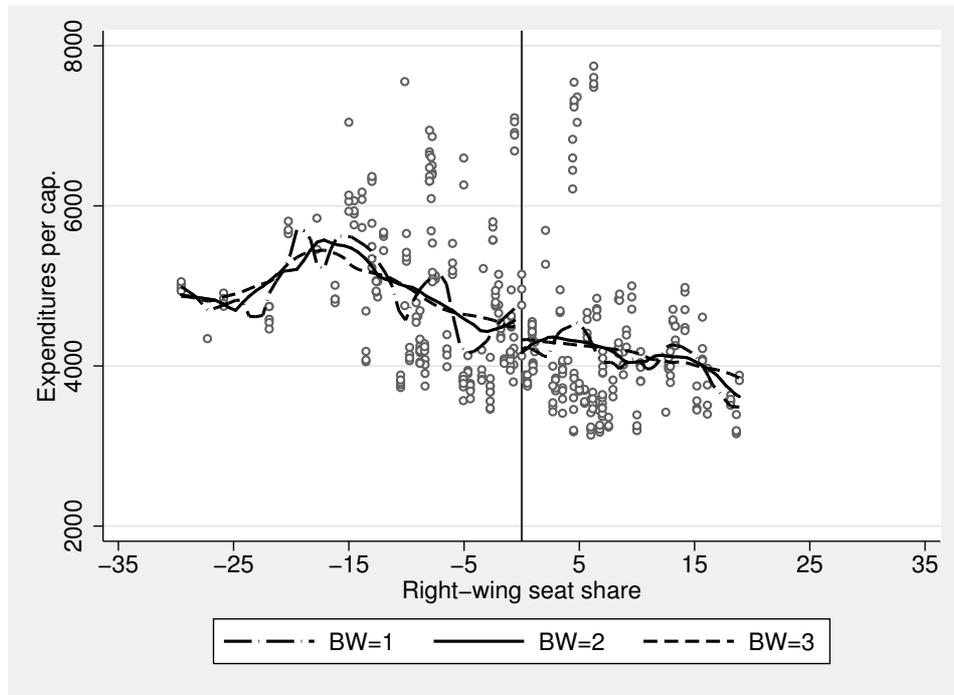


(a) EXPENDITURES PER CAPITA

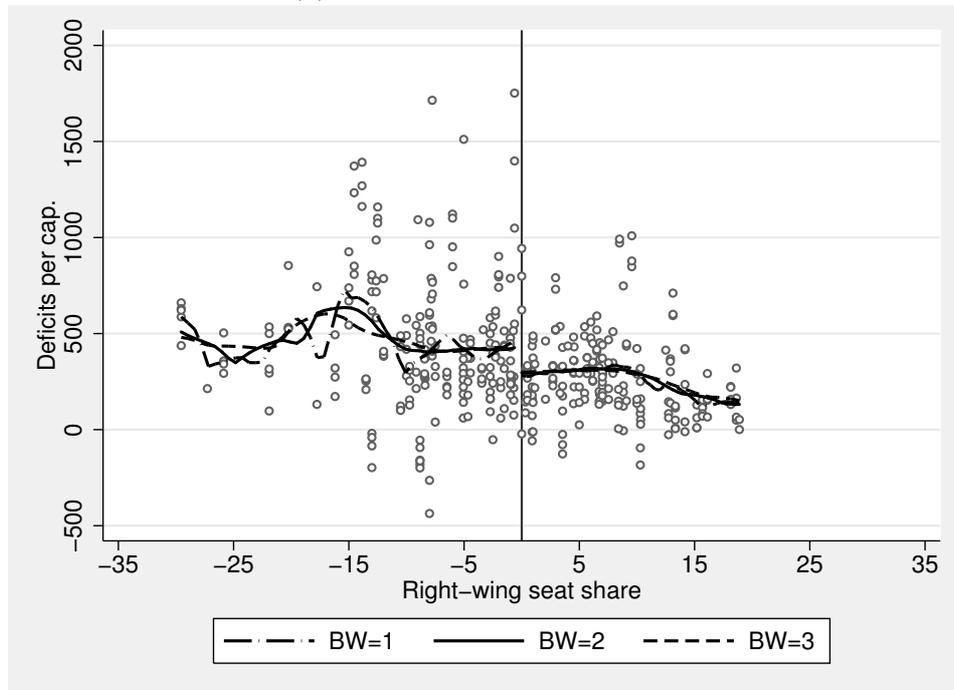


(b) DEFICIT PER CAPITA

Figure 5: SEAT SHARE OF LEFT-WING PARTIES AND STATE REAL EXPENDITURES PER CAPITA AND STATE REAL DEFICITS PER CAPITA. THIS GRAPH PRESENTS PLOTS OF EXPENDITURES AGAINST THE SHARE OF SEATS HELD BY LEFT-WING PARTIES IN STATE PARLIAMENTS. SEPARATE LOCAL POLYNOMIAL PLOTS ARE PRESENTED AT BOTH SIDES OF THE 50% THRESHOLD. PLOTS ARE CONSTRUCTED WITH DIFFERENT BANDWIDTHS: 3, 2, AND 1. BOTH PLOTS USE THE EPANECHNIKOV KERNEL.

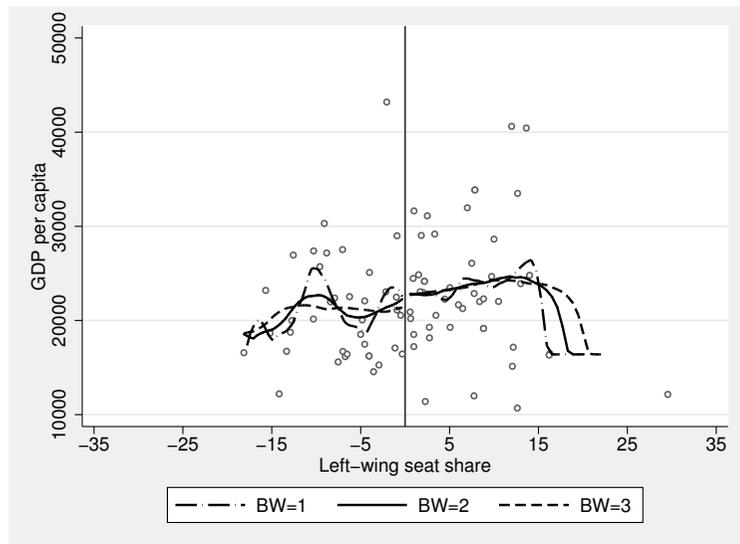


(a) EXPENDITURES PER CAPITA

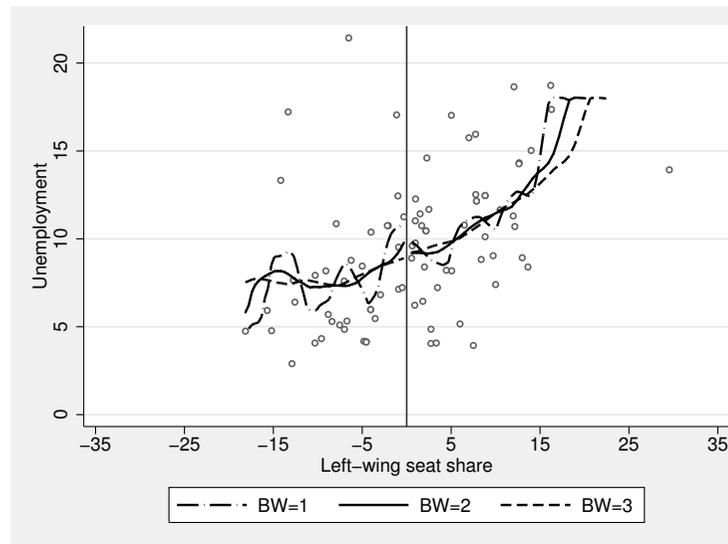


(b) DEFICIT PER CAPITA

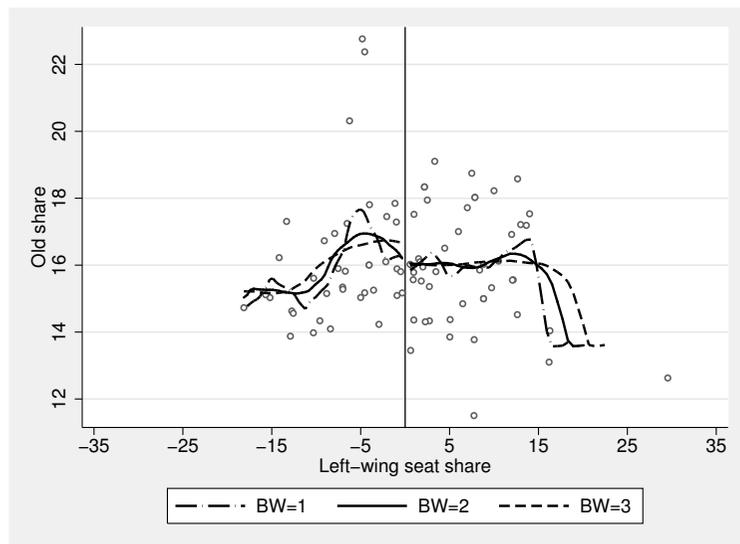
Figure 6: SEAT SHARE OF RIGHT-WING PARTIES AND STATE REAL EXPENDITURES PER CAPITA AND STATE REAL DEFICITS PER CAPITA. THIS GRAPH PRESENTS PLOTS OF EXPENDITURES AGAINST THE SHARE OF SEATS HELD BY RIGHT-WING PARTIES IN STATE PARLIAMENTS. SEPARATE LOCAL POLYNOMIAL PLOTS ARE PRESENTED AT BOTH SIDES OF THE 50% THRESHOLD. PLOTS ARE CONSTRUCTED WITH DIFFERENT BANDWIDTHS: 3, 2, AND 1. BOTH PLOTS USE THE EPANECHNIKOV KERNEL.



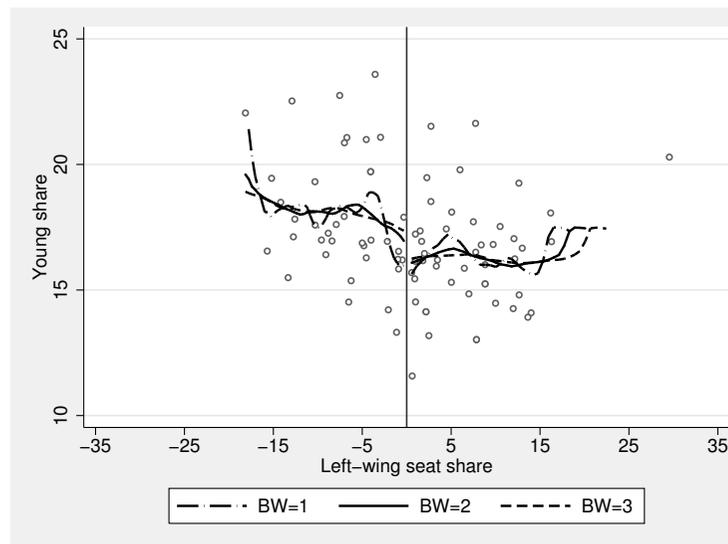
(a) GDP PER CAPITA



(b) UNEMPLOYMENT

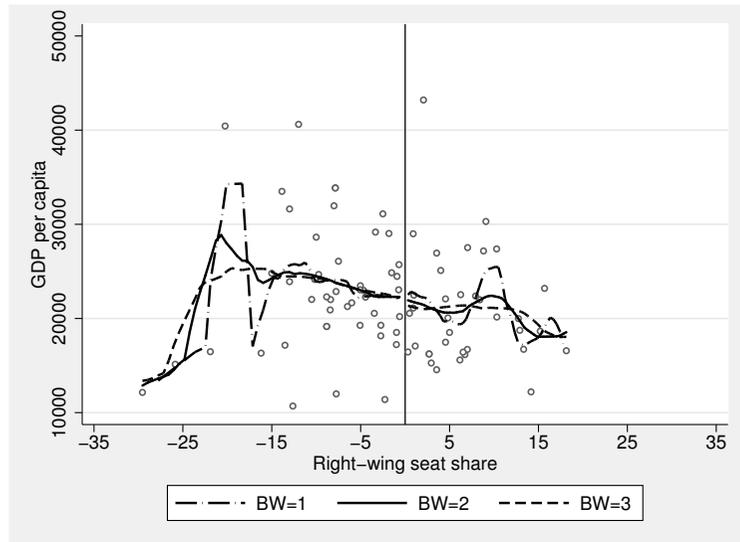


(c) OLD SHARE

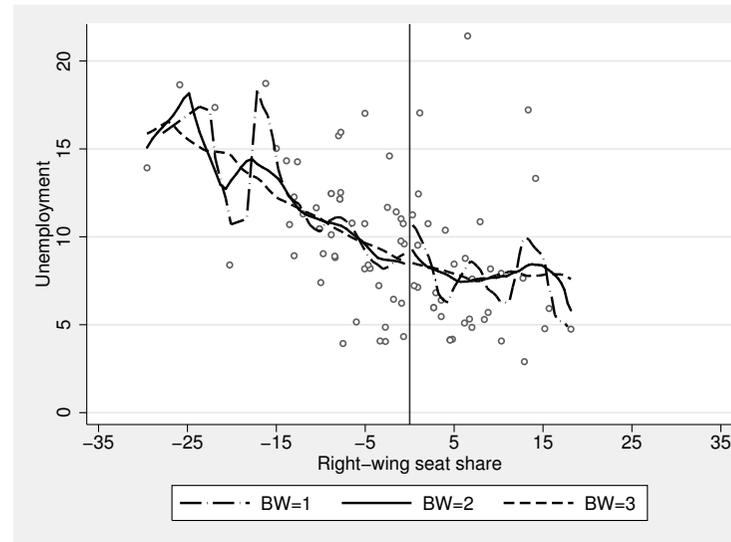


(d) YOUNG SHARE

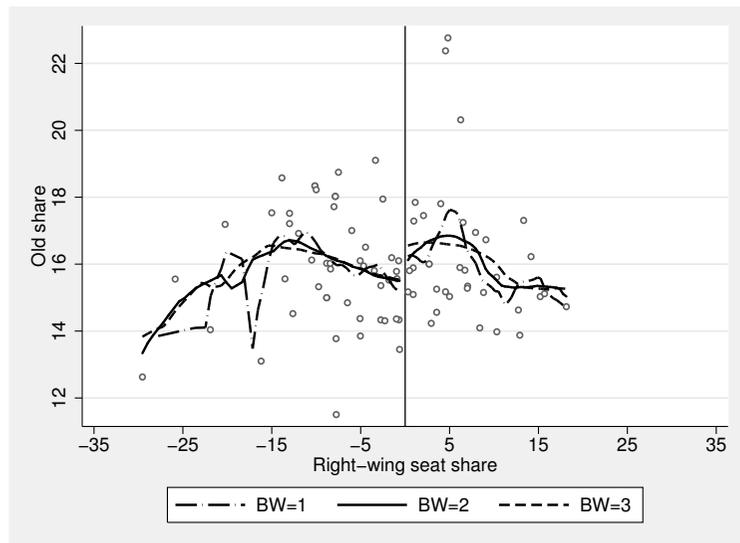
Figure 7: SEAT SHARE OF LEFT-WING PARTIES AND PRE-TREATMENT CONTROL VARIABLES. THIS GRAPH PRESENTS PLOTS PRE-TREATMENT CONTROL VARIABLES AGAINST THE SHARE OF SEATS HELD BY LEFT-WING PARTIES IN STATE PARLIAMENTS. SEPARATE LOCAL POLYNOMIAL PLOTS ARE PRESENTED AT BOTH SIDES OF THE 50% THRESHOLD. PLOTS ARE CONSTRUCTED WITH DIFFERENT BANDWIDTHS: 3, 2, AND 1. ALL PLOTS USE THE EPANECHNIKOV KERNEL.



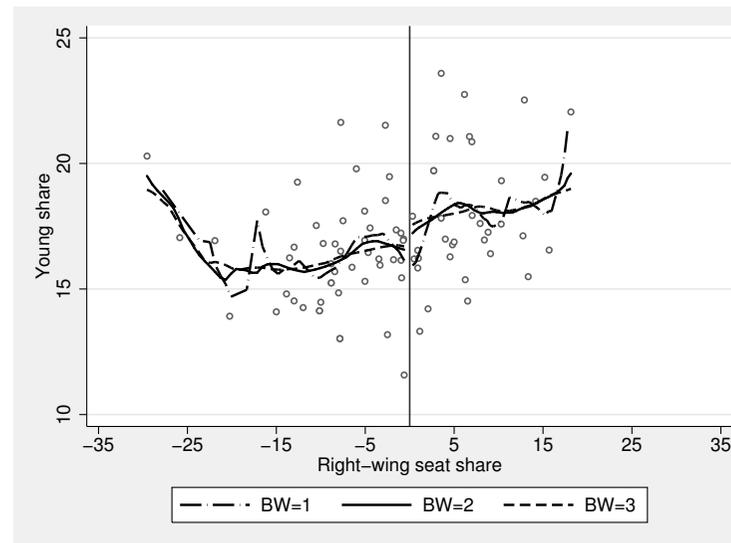
(a) GDP PER CAPITA



(b) UNEMPLOYMENT



(c) OLD SHARE



(d) YOUNG SHARE

Figure 8: SEAT SHARE OF RIGHT-WING PARTIES AND PRE-TREATMENT CONTROL VARIABLES. THIS GRAPH PRESENTS PLOTS PRE-TREATMENT CONTROL VARIABLES AGAINST THE SHARE OF SEATS HELD BY RIGHT-WING PARTIES IN STATE PARLIAMENTS. SEPARATE LOCAL POLYNOMIAL PLOTS ARE PRESENTED AT BOTH SIDES OF THE 50% THRESHOLD. PLOTS ARE CONSTRUCTED WITH DIFFERENT BANDWIDTHS: 3, 2, AND 1. ALL PLOTS USE THE EPANECHNIKOV KERNEL.

Appendix

Table A.1: DEFINITION AND SOURCE OF VARIABLES

Label	Description	Source
Left	Dummy = 1 if government is formed by left-wing parties (i. e. for sole SPD and SPD-Green Party governments).	Own calculations based on www.tagesschau.de
Right	Dummy = 1 if government is formed by right-wing parties (i. e. for sole CDU and SPD-FDP governments).	Own calculations based on www.tagesschau.de
Left seat share	Share of seats gained by left-wing parties in the election	Own calculations based on www.election.de
Right seat share	Share of seats gained by right-wing parties in the election	Own calculations based on www.election.de
Expenditures per cap.	Real expenditures per capita (deflated by federal CPI). Expenditures are consolidated between states and their localities.	German Federal Statistical Office
Deficit per cap.	Real deficit per capita, defined as state expenditures minus state revenues (deflated by federal CPI).	German Federal Statistical Office
GDP per cap.	Average real GDP per capita (deflated by federal CPI) in the previous legislative period.	German Federal and State Statistical Offices (Arbeitskreis VGR der Länder)
Unemployment	Average unemployment rate in the previous legislative period.	German Federal Agency of Employment
Old share	Average share of “old” (≥ 65 years) in state population in the previous legislative period.	German Federal Statistical Office
Young share	Average share of “young” (≤ 15 years) in state population in the previous legislative period.	German Federal Statistical Office
Transfers per cap.	Real horizontal transfers (<i>Länderfinanzausgleich, LFA</i>) + real vertical transfers (<i>Bundesergänzungszuweisungen, BEZ</i>) per capita (deflated by federal CPI).	German Federal Statistical Office & German Federal Finance Ministry

Table A.2: SUMMARY STATISTICS

Variable		Mean	Std. Dev.	Min.	Max.	N
Left	overall	0.294	0.456	0.000	1.000	496
	between		0.266	0.000	0.806	16
	within		0.376	-0.512	1.133	31.000
Left seat share	overall	-0.373	9.309	-18.889	29.545	416
	between		8.489	-14.391	19.976	16
	within		5.545	-12.012	12.997	26.000
Right	overall	0.361	0.481	0.000	1.000	496
	between		0.291	0.000	1.000	16
	within		0.389	-0.510	1.329	31.000
Right seat share	overall	-0.727	10.009	-29.545	18.889	416
	between		9.032	-22.303	14.391	16
	within		6.126	-19.763	14.590	26.000
Expenditures per cap.	overall	4517.300	1005.873	3137.541	7746.445	411
	between		880.162	3655.042	6769.678	16
	within		383.898	2501.780	5709.664	25.688
Deficit per cap.	overall	369.207	309.069	-436.368	1751.592	394
	between		237.014	103.095	1049.733	16
	within		231.372	-735.659	1092.430	24.625
GDP per cap.	overall	21827.800	6317.587	10700.760	43201.770	347
	between		5627.285	13977.650	34626.960	16
	within		3539.818	13282.320	30402.610	21.688
Unemployment	overall	9.886	4.311	2.900	21.425	347
	between		4.288	5.246	18.114	16
	within		2.496	3.044	17.115	21.688
Old share	overall	15.834	1.736	11.505	22.762	347
	between		1.274	13.220	17.780	16
	within		1.302	12.164	21.475	21.688
Young share	overall	17.118	2.399	11.576	23.588	347
	between		1.279	14.512	18.659	16
	within		1.993	12.585	22.047	21.688
Transfers per cap.	overall	294.682	457.217	0.000	2371.649	421
	between		310.344	0.000	994.844	16
	within		339.371	-640.392	1671.487	26.313

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