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Abstract

Since 2007 the German state governments have been allowed by a constitutional reform to set real estate transfer tax rates. We exploit this reform and investigate whether government ideology predicts the levels and increases in the real estate transfer tax rates. The results show that leftwing and center governments were more active in increasing the real estate transfer tax rates than rightwing governments. Many voters were disenchanted with the policies and platforms of the established German parties. Disenchantment notwithstanding, real estate transfer tax policies show that the established political parties are still prepared to offer polarized policies.

JEL code: D72, H20, H71, P16, R38

Keywords: Real estate transfer tax, reform, partisan politics, government ideology, fiscal federalism

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1. Introduction

Partisan theories hold that government ideology influences economic policy-making: leftwing governments are expected to implement more expansionary economic policies than rightwing governments (Hibbs, 1977; Chappell and Keech, 1986; Alesina, 1987), and as a result, the size and scope of government is larger under leftwing than rightwing governments. A large size and scope of government includes, for example, pronounced public expenditure, taxes, debt and regulation of labour and product markets. Partisan politicians gratify the needs of their constituencies. Leftwing politicians are inclined to gratify the needs of low-income citizens (the working class), while rightwing politicians are inclined to gratify the needs of high-income citizens (traditionally the self-employed). Partisan politicians are therefore also expected not just to increase or decrease the size and scope of government; they will also design individual policy measures such as taxes to reward their constituencies. For example, leftwing governments are likely to tax capital to a larger extent than labour. We use the reform of the German real estate transfer tax to examine ideology-induced tax policies.

Many empirical studies have examined whether government ideology predicts individual economic policies (for new studies see, for example, Jäger, 2017 and Schmitt and Zohlnhöfer, 2018). Scholars use panel data for OECD countries and for states within federal countries, univariate time series for individual countries, as well as data for municipalities in particular, to derive causal effects (by employing, for example, Regression Discontinuity Designs – RDD – for close vote margins between leftwing and rightwing politicians). The evidence is mixed as to whether parties influence economic policy-making. For surveys on partisan politics, see Potrafke (2017, 2018) and Zohlnhöfer et al. (2018).

Investigating whether parties matter in economic policy-making is important because in many industrialized countries, the platforms and (individual) policies of established parties have converged since the 1990s. It is conceivable that many voters are disenchanted with the policies of the established parties, desire more polarised policies, and in turn, have started to

support new parties entering the political arena. Examples include the populist leftwing SYRIZA in Greece (in the 2000s the social democratic PASOK and the conservative New Democracy won a combined total of around 80 percent of the votes, while in 2015 PASOK and New Democracy won a combined total of just 30 percent of the votes) and the populist rightwing Freedom Party in Austria (the Freedom Party was founded many decades ago, but has won significant electoral support since the 1990s).

Another example is Germany. When he took office in 2002 (his second term) the then chancellor Gerhard Schröder moved his Social Democratic Party (SPD) towards the middle of the political spectrum. Since the mid-2000s, the voting share of the leftwing SPD has decreased in federal elections (see, for example, Debus, 2008). The rightwing Christian Conservative Union (CDU) moved towards the middle of the political spectrum when it formed a grand coalition with the SPD in 2005. Examples for policy convergence at the federal level in Germany, include Zohlnhöfer (2003), Potrafke (2012), and Kauder and Potrafke (2016).

The policy convergence at the federal level notwithstanding, there have been studies showing that the SPD and the CDU, being part of leftwing and rightwing governments, pursued different policies in the German states. For instance, rightwing governments spent more on universities and cultural affairs, were more active in introducing tuition fees and dragnet-controls, hired more policemen, and promoted greater economic freedom than leftwing governments (Oberndorfer and Steiner, 2007; Potrafke, 2011; Kauder and Potrafke, 2013; Tepe and Vanhuysse, 2013; Potrafke, 2013 and 2019). By contrast, public debt policies hardly differed between leftwing and rightwing state governments (Jochimsen and Nuscheler, 2011; Jochimsen and Thomasius, 2014; Potrafke et al., 2016).[1]

Ideology-induced tax policies in the German states have not yet been examined. The reason is that German state governments have had basically no authority to set tax policies.[2]

[1] On ideology-induced policies at the local level see, for example, Roesel (2017) and Garmann (2018).
[2] See Herwartz and Theilen (2014) for the extent to which state government ideology predicted efforts to collect tax revenues (for taxes set at the federal level). Koester (2009) investigates determinants of the tax policy on the

Empirical tests of ideology-induced policies in the German states require, of course, examining policies that are influenced by the state governments (and not determined by the federal government).

In the course of the reform of the German fiscal constitution in 2006, the allocation of rights and duties between the federal and the state governments was realigned.[3] German state governments were allowed to set the real estate transfer tax rates. Before the reform the states had no means to design individual tax policies. The real estate transfer tax thus became the first tax for which the state governments have the authority to set own tax rates.[4] Some state governments began to increase the real estate transfer tax rate immediately in 2007. Other states have not increased the tax rate ever since. Allowing the German state governments to determine the real estate transfer tax rates provides an excellent laboratory for investigating the predictions of partisan theories.

Rightwing politicians are generally more hesitant to increase tax rates and view the purchase of real estate as worthy of support.[5] Leftwing politicians, by contrast, are more in favour of income redistribution and are thus likely to tax high-income citizens to a larger extent than low-income citizens. Governments that are in favour of income redistribution are, for example, also likely to tax capital more than labour since high-income citizens often hold capital incomes. It is not quite clear how the real estate transfer tax influences citizens with high and low incomes. On the one hand, the real estate transfer tax is likely to influence citizens who

federal level. While normative approaches are mostly unable to explain tax reforms, political economic reasons influence tax policy on the federal level. However, the author does not find evidence for ideology-induced tax policies at the federal level.

[3] Hildebrandt (2016) portrays the implications of the federalism reforms on the state fiscal policies.

[4] Scholars investigate the economic consequences of the real estate transfer tax in Germany. Buettner (2017) examines welfare effects of the real estate transfer tax. Buettner and Krause (2018a, 2018b) examine the extent to which the fiscal equalization scheme affects states' tax policy. Fritzsche and Vandrei (2019) investigate how the real estate transfer tax influences the number of real estate transactions in Germany. Petkova and Weichenrieder (2017) investigate the effect of the real estate transfer tax on prices of single-family houses and apartments. Fritzsche and Krause (2018) provide a short historic introduction to the real estate transfer tax in Germany and an overview of studies dealing with the economic consequences of increases in the tax rates.

[5] Studies on ideology-induced tax policies include Quinn and Shapiro (1991), Beramendi and Cusack (2006), Beramendi and Rueda (2007), Angelopoulos et al. (2012), Osterloh and Debus (2012).

own property – usually high-income citizens – and therefore seems suitable for redistributing income from the rich to the poor. Citizens with very low income who will never buy property will not pay any real estate transfer tax. On the other hand, personal circumstances of the taxpayers are not considered when paying the tax. When a house is sold for some 200,000 euros and the real estate transfer tax is 5%, for example, the buyer needs to pay 10,000 euros in real estate transfer tax, the personal circumstances of the taxpayer notwithstanding. Citizens such as young families who can hardly afford the 200,000 euros are relatively more affected by paying 10,000 euros real estate transfer tax than, for example, millionaires would be. Moreover, very high-income citizens may find it easier to work around the tax. In any event, we believe that many (leftwing) politicians and voters regard increases in the real estate transfer tax rates as a suitable instrument to redistribute income. The states in Germany had hardly any means to use tax instruments for redistribution for a long time. The reform of the real estate transfer tax changed this situation.

The hypotheses to be tested empirically are: leftwing governments are more active in increasing real estate transfer tax rates than rightwing governments, and as a result, real estate transfer tax rates are higher under leftwing than rightwing governments. We use state-year data for the 16 German states over the period 2007–2017.

2. Institutional Background

2.1 State Governments in German Federalism

In Germany, the federal structure defines different rights and duties for the federal level, the states and the municipalities. In general, the state governments are responsible for dealing with the tasks of the states (including legislation) and executing the laws. The states are mostly also responsible for the financing of these tasks because the administrative and financial responsibilities are linked according to the constitution. In any event, in some specific cases, the federal government helps the state governments to finance interests of the states. To fulfil

the financial responsibilities the state governments have different revenue sources. The main part of the states' tax revenues are shared taxes. Those taxes cover over three quarters of overall states' tax revenues (Statistisches Bundesamt, 2018). Revenues of the shared taxes include the revenues of the value-added tax (VAT), the income tax, and the corporate tax and are shared among the federal, state and local governments. The states also obtain revenues from state taxes, whose amounts are exclusively for the states. The real estate transfer tax is part of the state taxes. Moreover, a fiscal equalization scheme with horizontal and vertical stages redistributes revenues among the different levels and between the states. In 2006, a reform of the German fiscal constitution realigned legislative powers between the federal and the state governments. The reform aimed to improve the efficiency within the federal system and to deconcentrate financial responsibilities between the federal level and the states. The reform also strengthened the tax autonomy of the state level by allowing the states to set the tax rate of the real estate transfer tax. In general, federal law determines the tax bases and tax rates of the most important taxes – the real estate transfer tax being the first exception.

2.2 The German Real Estate Transfer Tax

The German real estate transfer tax has to be paid on the price of the real estate determined in the contract between the selling and the purchasing party. The German real estate transfer tax law describes that both seller and buyer are held responsible for the liability of the tax (§ 13 No. 2 GrEStG). The amount of tax will be transferred to the authorities by the contracting party that has been declared the taxpayer in the contract, which is usually the buyer of the real estate. Purchases of less than 2,500 euros or real estate transfers due to inheritance or donation are exempt from the tax (§ 3 GrEStG).

Since 2007, 14 out of the 16 states have increased real estate transfer tax rates to levels of up to 6.5 percent (Brandenburg, North Rhine-Westphalia, Saarland, Schleswig-Holstein, Thuringia). Bavaria and Saxony are the only two states where the tax rate has remained at its

pre-reform level of 3.5 percent. The real estate transfer tax revenue collected by the federal states has risen from 4.8 in 2005 to 13.14 billion euros in 2017, amounting to an increase of 174 percent according to the Federal Ministry of Finance. In 2017 the real estate transfer tax was the most important state tax. The share of the real estate transfer tax with regard to the overall state taxes, whose amounts are exclusively for the states, was 59.2 percent. However, the real estate transfer tax amounts to only 4.4 percent of the total amount of taxes received by federal states, which includes the shared taxes as well as transfers from the German federal government to the states.

3. Empirical Analysis

3.1 Unconditional Correlations

Table 1 shows the real estate transfer tax rates and the ideology of the government implementing tax increases in the individual states. A leftwing government is SPD (single party government), SPD/Greens, Greens/SPD, SPD/LINKE, SPD/LINKE/Greens, SPD/FDP/Greens, or LINKE/SPD/Greens. A center government is CDU/SPD, SPD/CDU, CDU/Greens, CDU/SPD/Greens, CDU/Greens/FDP, or Greens/CDU. A rightwing government is CDU or CSU (single party government) and CDU/FDP or CSU/FDP. We follow related studies such as Potrafke et al. (2016) in coding the ideology of government. The real estate transfer tax rate was increased 26 times over the period 2007–2017: three times by a rightwing government, eleven times by a center government and twelve times by a leftwing government. No state government decreased the tax rate over the period 2007–2017. Bavaria and Saxony, two German states with quite conservative electorates (and governments), did not increase the real estate transfer tax rate. We use data on increases in the real estate transfer tax rate from state law and ordinance gazettes, in which the states typically codify adjustments in the tax rate

of the real estate transfer tax, to analyse unconditional and conditional correlations between government ideology and the real estate transfer tax rate.[6]

The average yearly increase in the real estate transfer tax rate was 0.09 percentage points under rightwing governments, 0.18 percentage points under center governments and 0.22 percentage points under leftwing governments (figure 1). A t-test on means shows that increases under rightwing governments were significantly different from increases under center and leftwing governments (statistically significant at the 10 percent level). The results thus indicate that rightwing governments increased the real estate transfer tax rates to a lower extent than center and leftwing governments. The average real estate transfer tax rates were thus lower under rightwing governments than under center and leftwing governments (statistically significant at the 1 percent level). In fact, the average real estate transfer tax rate was 3.6 percent under rightwing governments, 4.5 percent under center governments and 4.9 percent under leftwing governments (figure 2). The averaged tax rates and t-tests are computed for a sample of 176 observations (annual data for 16 states over the period 2007–2017). The descriptive statistics in figure 2 thus consider years in which governments did not increase the real estate transfer tax rates.

Ideology-induced effects may well differ across the East German and West German states (e.g., Potrafke, 2013; Tepe and Vanhuysse, 2014). It is conceivable that the West German states have had established party systems with leftwing and rightwing parties and cleavages between voters were more pronounced in the West than in the East. We expect the effect of government ideology on real estate transfer tax rates to be larger in the West than East German states. In the West German states, the average yearly increase in the real estate transfer tax rate was 0.11 percentage points under rightwing governments, 0.26 percentage points under center governments and 0.18 percentage points under leftwing governments. A t-test on means shows

[6] We discuss the tax increases of the individual governments in detail in the working paper version.

that increases under rightwing governments were not significantly different from increases under their center and leftwing counterparts. The average real estate transfer tax rate for the sample of the West German states was 3.6 percent under rightwing governments, 5.1 percent under center governments and 4.8 percent under leftwing governments. The sample includes 121 observations from eleven states. A t-test on means shows that the real estate transfer tax rates were significantly lower under rightwing than under center and leftwing governments (statistically significant at the 1 percent level). In the West German states, leftwing governments increased the tax rates 9 times, center governments 7 times and rightwing governments only 3 times.

In the East German states, the average yearly increase in the real estate transfer tax rate was 0 percentage points under rightwing governments, 0.13 percentage points under center governments and 0.41 percentage points under leftwing governments. Rightwing governments in the East German states thus did not increase the real estate transfer tax rate. A t-test on means shows that increases under leftwing governments were significantly higher than increases under their center and rightwing counterparts (statistically significant at the 5 percent level). The average real estate transfer tax rate in the East German states was 3.5 percent under rightwing governments, 4.2 percent under center governments and 5.3 percent under leftwing governments. The sample includes 55 observations from five states. Real estate transfer tax rates in the East German states were significantly lower under rightwing than under center and leftwing governments (statistically significant at the 1 percent level). The effect of government ideology on the real estate transfer tax rates is thus more pronounced in the East than in the West German states.

3.2 Panel Data Model

We investigate the correlation between government ideology and real estate transfer tax rates conditional to other variables. The baseline panel-data model has the following form:

$$Tax\ rate_{i,t} = \beta\ Leftwing\ governments_{i,t\text{-}1} + \gamma\ Center\ governments_{i,t\text{-}1} +$$

$$\delta\ Voter\ preferences_{i,t} + \varepsilon\ Debt\ per\ capita_{i,t\text{-}1}$$

$$+ \zeta\ Shared\ taxes\ per\ capita_{i,t\text{-}1} + \eta_i + \tau_t + u_{i,t}$$

with i=1,…,16; t=1,…,11

where $Tax\ rate_{i,t}$ measures the tax rate of the real estate transfer tax in state *i* and year *t*. To measure ideology-induced effects we include dummy variables for leftwing and center governments (reference category: rightwing governments). Dummy variables allow for a non-linear relationship between the different types of government ideology. We use the dummy variables measured in period *t*-1 because decisions on the tax rates are usually taken in the year before the adjustment takes place.[7] We use the variable $Voter\ preferences_{i,t}$, which measures the share of rightwing voters (CDU/CSU and FDP) in federal elections. We do so to disentangle the effect of government ideology and voter preferences on tax policy (see, e.g. Elinder and Jordahl, 2013; Liang, 2013; Freier and Odendahl, 2015). We use the vote shares of the last federal election for each state. It is conceivable that governments use the possibility to increase tax rates for budget consolidation – especially with regard to fulfilling the German debt brake in 2020.[8] An indicator to evaluate the budgetary situation of the states with regard to the debt brake is the level of debt per capita. We therefore include a variable $Debt\ per\ capita_{i,t\text{-}1}$, which measures the amount of debt per capita of the respective state from the previous year. The lion's share of the states' tax revenues are shared taxes (*i.e.*, income taxes, corporate taxes and the value added taxes). The state governments have basically no authority to design the tax policies of the shared taxes and may thus have an incentive to increase the real estate transfer tax rate

[7] In some cases, the decision on and the adjustment of the tax rate took place in the same year. We always consider the government which decided on the tax adjustment.

[8] A new law on German debt brakes implemented in 2009 states that the state governments are not allowed to run structural deficits after 2020. The states can choose different consolidation strategies to fulfil the debt brake after 2020. One possibility is to increase the revenues of the state by increasing the tax rates of the real estate transfer tax (Potrafke et al., 2016).

when the share of the shared taxes decreases. We therefore include the amount of the shared taxes per capita as another explanatory variable (*Shared taxes per capita*$_{i,t-1}$). The variables *Debt per capita*$_{i,t-1}$ and *Shared taxes per capita*$_{i,t-1}$ are measured in period t-1. We also include fixed time and fixed state effects and estimate the fixed-effects model with standard errors robust to heteroskedasticity (Huber/White/sandwich standard errors – see Huber, 1967 and White, 1980).

Table 2 shows descriptive statistics of the individual variables. Table 3 shows the correlation coefficients between our variables. The dummy variables for leftwing and center governments and the real estate transfer tax rates are positively correlated, while the correlation coefficient for the rightwing governments variable is negative. The coefficients for the leftwing and rightwing governments variables are statistically significant at the 1 percent level. The real estate transfer tax rates are also positively correlated with *Debt per capita* and *Shared taxes per capita*, but negatively with the variable measuring the share of rightwing voters in federal elections.

Table 4 shows the regression results. The coefficient of the variable *Leftwing governments* is positive and statistically significant at the 1 percent level, indicating that the real estate transfer tax rate is 0.59 percentage points higher under leftwing than under rightwing governments. The coefficient of *Center governments* is also positive and statistically significant at the 10 percent level. The difference in the coefficients of leftwing and center governments does not turn out to be statistically significant at conventional levels. The other control variables, especially the coefficients of *Debt per capita* and *Shared taxes per capita* do not turn out to be statistically significant. The results thus show that tax rates are higher under leftwing than under rightwing governments. Other variables such as per-capita debt do not seem to be correlated with the real estate transfer tax rates.

3.3 Robustness Tests

We submitted our results to rigorous robustness tests to control for omitted variable bias concerns or measurement problems in our variables. We investigate the correlations between the dummy variables measuring government ideology and the first difference in the real estate transfer tax rates conditional to other variables. The conditional correlation between the dummy variable for leftwing governments in period *t*-1 and the first difference in the real estate transfer tax rates is positive and statistically significant at the 5 percent level, when we condition on the vote shares for the CDU/CSU and the FDP in federal elections (*Voter preferences*), the debt per capita ratio, the shared taxes per capita ratio and fixed time and state effects. The coefficient for the variable *Center governments* is also positive, but does not turn out to be statistically significant.

Buettner and Krause (2018a, 2018b) show that the fiscal equalization scheme in Germany also influences increases in the real estate transfer tax rates. To deal with omitted variable bias concerns, we control for the fiscal equalization effect by including the main explanatory variable of Buettner and Krause (2018a), *i.e.*, the degree of fiscal redistribution, in our model (table 5). The degree of fiscal redistribution measures the share of an increase in tax revenues (due to a higher tax base) that is lost through equalization. Following Buettner and Krause (2018a), we use the increases in the tax rates as our dependent variable. The results show that the coefficients of the leftwing and center dummy variables are positive and the leftwing dummy variable being statistically significant at the 5 percent level when including the degree of fiscal redistribution variable. The coefficient of the degree of fiscal redistribution is also positive and statistically significant at the 1 percent level.

We also condition the correlations between the dummy variables measuring government ideology and the real estate transfer tax rate on demographic variables by taking into account the share of young citizens up to 20 years and the share of old citizens above 60 years (results

not shown).[9] The real estate transfer tax might affect age classes in different ways depending on whether they already own property. Thus, state governments may well consider the age distribution within a state when deciding on tax rates. The correlation between the dummy variables for leftwing and center governments (reference: rightwing governments) and the real estate transfer tax rate is positive and statistically significant at the 5 (leftwing governments) and 10 (center governments) percent level. Focusing on the demographic variables, the coefficient for the share of young citizens is negative and statistically significant at the 10 percent level. The share of young citizens is thus negatively correlated with the real estate transfer tax rates. It is conceivable that young citizens are more likely to buy a house in the future and might suffer more from high tax rates than old citizens.

We also include the share of leftwing voters (SPD, Greens, and Left Party) instead of the share of rightwing voters in federal elections. Inferences do not change regarding the dummy variables measuring government ideology. The coefficient of the share of leftwing voters is positive but does not turn out to be statistically significant. The results show that government ideology is significantly correlated with the real estate transfer tax rates also when conditioning on other variables.

We also examine the increases in the real estate transfer tax rates under leftwing, center, and rightwing governments on the basis of legislative periods, instead of an annual basis, to account for possible methodological concerns regarding the standard state-year periodization. There were 35 full legislative periods between 2007 and 2017. The average increase in the real estate transfer tax rate is 0.31 percentage points lower under rightwing than under leftwing governments. The difference in the increases of the tax rates under leftwing and rightwing governments is statistically significant at the 1 percent level. We also examine the increases in the real estate transfer tax rates on the basis of cabinet periods (Schmitt, 2015) to take into

[9] The shares of young and old citizens are only available up to the year 2015 and thus reduce the sample size.

account the duration of the respective governments in each state. There were 62 cabinets in the time period between 2007 and 2017. The average increase under leftwing governments was significantly higher than under rightwing and center governments (statistically significant at the 10 percent level). In fact, the average increase based on cabinet periods was 0.08 percentage points under rightwing governments, 0.14 percentage points under center governments and 0.24 percentage points under leftwing governments.

Governments may choose to postpone tax rate increases until after elections for electoral motives.[10] We examine electoral cycles in relation to the timing of the decision on tax rate increases. The real estate transfer tax rate was increased 26 times over the period 2007–2017. Out of the 26 decisions, five decisions on tax rate increases took place in an election year; another three decisions took place in the pre-election year, while eleven decisions were taken after an election year.[11] To examine the effect of electoral motives on real estate transfer tax rate increases in more detail, we include dummy variables for the individual types of years in the regressions (pre-election year, election year, post-election year). The coefficient of the pre-election year dummy variable is negative, but lacks statistical significance when we use the increases in the real estate transfer tax rates as the dependent variable. This holds also true for the election year dummy variable. The coefficient of the post-election year variable is positive and statistically significant at the 10 percent level, indicating that governments postpone tax rate increases until after elections. Inferences with regard to the election dummy variables do not change when we include all election dummy variables at the same time. By including the election variables, the coefficients of the government ideology dummy variables for leftwing

[10] The political business cycle theories describe that election-motivated politicians pursue expansionary policies before elections. For example, politicians may increase public spending or decrease taxes or manipulate fiscal forecasts (Nordhaus, 1975; Rogoff and Sibert, 1988; Rogoff, 1990; Kauder et al., 2017; Klarin, 2019; see De Haan and Klomp, 2013 for a survey on studies dealing with political business cycles).

[11] Decisions on increases in the real estate transfer tax rate in an election year always took place after the election. In case of early elections, we consider the decision on the tax rate increase only as belonging to the pre-election year when early elections were known at that point of time.

and center governments (reference: rightwing governments) remain positive, but do not turn out to be statistically significant at conventional levels.

We also examined whether our results are driven by individual years or individual states. When we exclude individual years or states, one at a time (jackknife test), the results still show a positive and significant correlation between the government ideology dummy variables and the real estate transfer tax rates.

4. Conclusion

In 2006, the German fiscal constitution was reformed. The reform allowed the German state governments to set the real estate transfer tax rates (the tax rate was 3.5 percent at the end of 2006). The reform lends itself to an examination because German state governments have had hardly any tools for determining tax rates before the reform. The real estate transfer tax is the only tax for which state governments can individually design tax policies. Allowing the German state governments to set the rates of the real estate transfer tax is an excellent case in point to investigate whether government ideology predicts economic policy-making. There has been no study to date examining ideology-induced tax policies in the German states.

The results show that rightwing governments were less active in increasing the real estate transfer tax rates than leftwing and center governments. Over the period 2007–2017, the real estate transfer tax rate was increased 26 times: three times under rightwing governments, eleven times under center governments and twelve times under leftwing governments. The average tax rate was 3.6 percent under rightwing governments, 4.5 percent under center governments and 4.9 percent under leftwing governments. Bavaria and Saxony, two German states with quite conservative electorates (and governments), did not increase the real estate transfer tax rate over the period 2007–2017. In Baden-Wuerttemberg and North Rhine-Westphalia the newly-elected leftwing governments increased the real estate transfer tax rates when following rightwing governments. We also examine the correlation between government

ideology and real estate transfer tax rates conditional to other variables. The results show that government ideology is still correlated with the real estate transfer tax rates when taking into account other variables such as fixed state and time effects, public debt per capita, shared taxes per capita, voter preferences and demographic variables. Rightwing and leftwing governments are thus still prepared to offer polarized policies at the state level in Germany.

Estimating the causal effects of government ideology on real estate transfer tax rates is not possible in our small sample. We have dealt with issues such as reverse causality and omitted variable bias by using lagged government ideology variables and controlling for quite some variables that are likely to be correlated with government ideology and the real estate transfer tax rates. Government ideology does, however, not change frequently from one year to the next and we cannot rule out that there are still omitted variables. Issues such as reverse causality and omitted variable may well be addressed by using instrumental variables or regression discontinuity designs. Suitable instrumental variables for government ideology are hardly available (Lind, 2019 uses rainfall as an instrumental variable for the leftwing party vote share in Norwegian local elections). Our sample is just too small to focus on tight elections to be exploited in quasi-experimental settings like regression discontinuity designs. The sample includes 35 legislative periods in total and many of the cabinets enjoyed comfortable majorities in parliament. New studies have just started to exploit tight political majorities in the German states, but using larger samples than ours. An example is Potrafke and Roesel (2019) who use data for the West German states over the period 1950–2014. Challenges in estimating causal ideology-induced effects are discussed in greater detail in the surveys of Potrafke (2017, 2018).

We have conjectured that supporters of leftwing parties are more inclined to increase the real estate transfer tax rates than voters of rightwing parties. Future research may well compile survey evidence describing the nexus between political ideologies and voters' preferences regarding the real estate transfer tax.

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Table 1: *Real estate transfer tax rate by states and type of government, 2007–2017*

State	Tax rate since 1998 (in percent)	Tax rate increase since	To a tax rate of (in percent)	Type of government implementing the tax rate increase
Baden-Wuerttemberg	3.5	05-11-2011	5.0	leftwing
Bavaria	3.5	No increase		(rightwing)
Berlin	3.5	01-01-2007	4.5	leftwing
		01-04-2012	5.0	center
		01-01-2014	6.0	center
Brandenburg	3.5	01-01-2011	5.0	leftwing
		01-07-2015	6.5	leftwing
Bremen	3.5	01-01-2011	4.5	leftwing
		01-01-2014	5.0	leftwing
Hamburg	3.5	01-01-2009	4.5	center
Hesse	3.5	01-01-2013	5.0	rightwing
		01-08-2014	6.0	center
Mecklenburg-Western Pomerania	3.5	01-07-2012	5.0	center
Lower Saxony	3.5	01-01-2011	4.5	rightwing
		01-01-2014	5.0	leftwing
North Rhine-Westphalia	3.5	01-10-2011	5.0	leftwing
		01-01-2015	6.5	leftwing
Rhineland-Palatinate	3.5	01-03-2012	5.0	leftwing
Saarland	3.5	01-01-2012	4.5	center
		01-01-2013	5.5	center
		01-01-2015	6.5	center
Saxony	3.5	No increase		(rightwing and center)
Saxony-Anhalt	3.5	02-03-2010	4.5	center
		01-03-2012	5.0	center
Schleswig-Holstein	3.5	01-01-2012	5.0	rightwing
		01-01-2014	6.5	leftwing
Thuringia	3.5	07-04-2011	5.0	center
		01-01-2017	6.5	leftwing

Note: Dates are listed in DD-MM-YYYY.
Source: State law gazettes.

Table 2: *Descriptive statistics*

	Obs.	Mean	Std. Dev.	Min	Max	Source
Real estate transfer tax rate	176	4.418	0.958	3.5	6.5	State law gazettes
Rightwing governments (*t*-1)	176	0.25	0.434	0	1	State election offices; own calculations
Leftwing governments (*t*-1)	176	0.392	0.490	0	1	State election offices; own calculations
Center governments (*t*-1)	176	0.358	0.481	0	1	State election offices; own calculations
Share of rightwing voters (CDU/CSU and FDP) in federal elections	176	43.14	6.929	27.5	58.7	State statistical offices and state election offices
Share of leftwing voters (SPD, Greens and Left) in federal elections	176	48.92	7.840	32.2	67.5	State statistical offices and state election offices
Debt per capita (*t*-1)	176	9899.85	6879.15	1375.98	35181.1	Federal statistical office
Shared taxes per capita (*t*-1)	176	2349.85	367.11	1770.83	3580.77	Federal statistical office
Share of young citizens (younger than 21)	144	31.94	3.793	25.22	38.6	Federal statistical office
Share of old citizens (older than 60)	144	49.58	5.435	40.1	64.4	Federal statistical office
Degree of fiscal redistribution (tax base) (*t*-1)	176	0.845	0.181	0.405	1.398	Buettner and Krause (2018a)
Pre election	176	0.188	0.391	0	1	State election offices; own calculations
Election	176	0.199	0.400	0	1	State election offices; own calculations
Post election	176	0.222	0.417	0	1	State election offices; own calculations

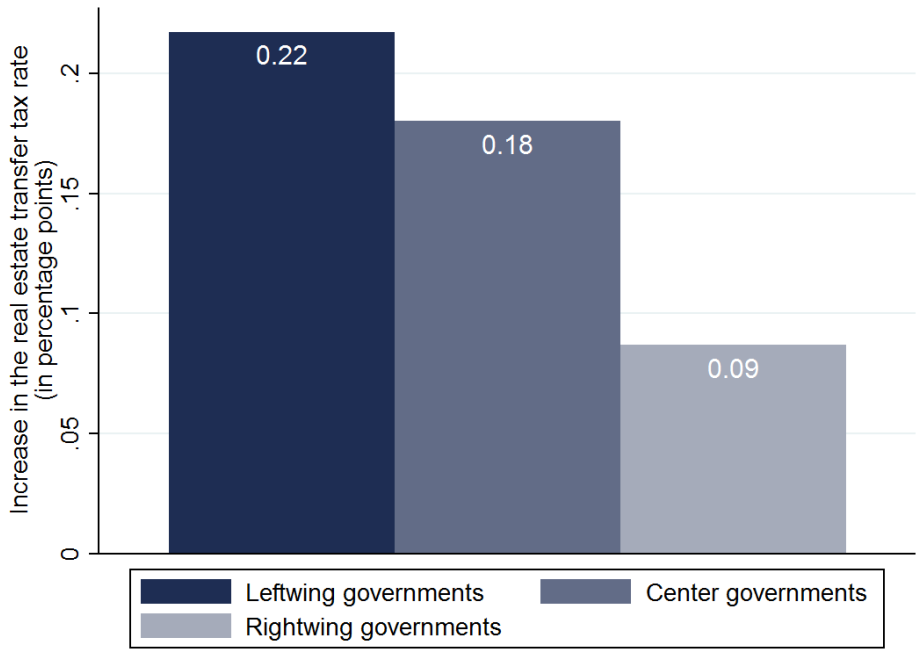
Note: We define variables in Section 3.

Table 3: *Correlation between the main variables*

	Real estate transfer tax rate	Rightwing governments (*t*-1)	Leftwing governments (*t*-1)	Center governments (*t*-1)	Share of rightwing voters (CDU/CSU and FDP) in federal elections	Share of leftwing voters (SPD, Greens and Left) in federal elections	Debt per capita (*t*-1)	Shared taxes per capita (*t*-1)
Real estate transfer tax rate	1							
Rightwing governments (*t*-1)	-0.515***	1						
Leftwing governments (*t*-1)	0.363***	-0.477***	1					
Center governments (*t*-1)	0.125*	-0.471***	-0.551***	1				
Share of rightwing voters (CDU/CSU and FDP) in federal elections	-0.185**	0.400***	-0.142**	-0.238**	1			
Share of leftwing voters (SPD, Greens and Left) in federal elections	-0.073	-0.247**	0.074	0.161**	-0.901***	1		
Debt per capita (*t*-1)	0.289***	-0.385***	0.418***	-0.053	-0.630***	0.570***	1	
Shared taxes per capita (*t*-1)	0.438***	-0.093	0.124	-0.036	0.139*	-0.368***	0.023	1

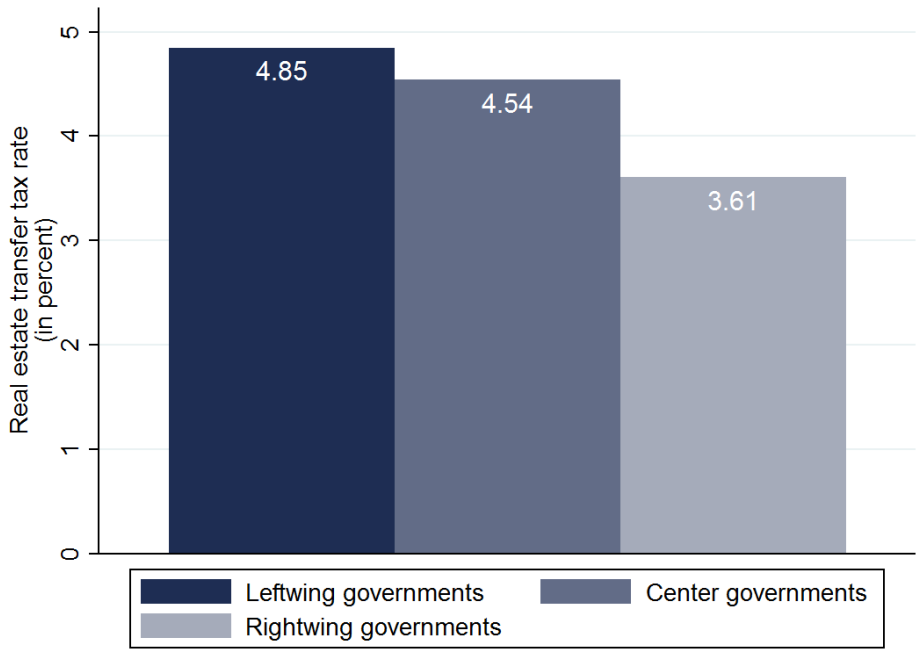
Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. We define variables in Section 3.

Figure 1: *Increases in the real estate transfer tax rate by type of government, 2007–2017*



Note: The averaged increases in the tax rates and the t-test are computed for a sample of 176 observations (annual data for 16 states over the period 2007–2017).
Source: State law gazettes; own calculations.

Figure 2: *Real estate transfer tax rate by type of government, 2007–2017*



Note: The averaged tax rates and the t-test are computed for a sample of 176 observations (annual data for 16 states over the period 2007–2017).
Source: State law gazettes; own calculations.

Table 4: *OLS regression results*

	(1)	(2)	(3)	(4)
Leftwing governments (*t*-1)	0.615***	0.640***	0.613***	0.591***
	(0.198)	(0.197)	(0.181)	(0.172)
Center governments (*t*-1)	0.470**	0.487*	0.481**	0.460*
	(0.213)	(0.229)	(0.225)	(0.223)
Share of rightwing voters (CDU/CSU and FDP) in federal elections		0.0307	0.0359	0.0407
		(0.0428)	(0.0456)	(0.0465)
Debt per capita (*t*-1)			3.43×10^{-5}	3.22×10^{-5}
			(4.61×10^{-5})	(4.36×10^{-5})
Shared taxes per capita (*t*-1)				-4.79×10^{-4}
				(7.14×10^{-4})
Fixed state effects	Yes	Yes	Yes	Yes
Fixed time effects	Yes	Yes	Yes	Yes
Observations	176	176	176	176
Groups	16	16	16	16
R^2 within	0.732	0.735	0.738	0.740
R^2 between	0.242	0.0255	0.0334	0.0317
R^2 overall	0.633	0.540	0.576	0.570

Dependent variable: Real estate transfer tax rate. Fixed-effects model with standard errors robust to heteroskedasticity (Huber/White/sandwich standard errors) in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 5: *OLS regression results including degree of fiscal redistribution*

	(1)	(2)	(3)	(4)
Leftwing governments (*t*-1)	0.237**	0.245**	0.249**	0.244**
	(0.0935)	(0.0931)	(0.0898)	(0.0923)
Center governments (*t*-1)	0.168	0.174	0.174	0.170
	(0.0982)	(0.103)	(0.102)	(0.105)
Degree of fiscal redistribution (tax base) (*t*-1)	1.291***	1.317***	1.318***	1.327***
	(0.315)	(0.324)	(0.327)	(0.344)
Share of rightwing voters (CDU/CSU and FDP) in federal elections		$8.87 \square 10^{-3}$	$8.27 \square 10^{-3}$	$9.43 \square 10^{-3}$
		(0.0154)	(0.0160)	(0.0156)
Debt per capita (*t*-1)			$-4.01 \square 10^{-6}$	$-4.48 \square 10^{-6}$
			$(1.57 \square 10^{-5})$	$(1.55 \square 10^{-5})$
Shared taxes per capita (*t*-1)				$-1.08 \square 10^{-4}$
				$(3.97 \square 10^{-4})$
Fixed state effects	Yes	Yes	Yes	Yes
Fixed time effects	Yes	Yes	Yes	Yes
Observations	176	176	176	176
Groups	16	16	16	16
R^2 within	0.261	0.262	0.263	0.263
R^2 between	0.000172	0.00904	0.0124	0.00744
R^2 overall	0.108	0.105	0.103	0.0968

Dependent variable: Increases in the real estate transfer tax rate. Fixed-effects model with standard errors robust to heteroskedasticity (Huber/White/sandwich standard errors) in parentheses. ** $p < 0.05$, *** $p < 0.01$.