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## Revenue autonomy preference in German state parliaments

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# Revenue Autonomy Preference in German State Parliaments

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## Abstract

Fiscal federalism in Germany is characterized by lacking sub-national tax autonomy and intensive fiscal equalization. Due to a sunset clause, the current equalization system has to be renegotiated by the year 2019. Against this backdrop, this contribution studies the reform preferences of members of state parliaments. The study makes use of a self-conducted survey among the members of all 16 German state parliaments. It tests to which extent the preferences of these veto players for tax autonomy and fiscal equalization are driven by states' self-interest, party ideology and individual characteristics. The results are helpful to understand the political-economic constraints of federal reforms. They indicate that besides the individual ideological position higher state wealth and lower debt levels are linked to larger reform support. Therefore, a promising new reform would have to address budgetary legacies like high pre-existing debt.

**JEL Classification:** H63, H74, H77

**Keywords:** fiscal equalization, tax competition, fiscal federalism

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## 1 Introduction

Germany's fiscal federal system is characterized by both intense equalization across sub-national jurisdictions and a large extent of vertical tax sharing (Rodden, 2003; Stegarescu, 2005). Fiscal sovereignty with respect to tax autonomy is particularly low at the state level ("Länder"), which lack any significant degree of revenue autonomy. While recent constitutional reforms have increased state independence in several fields of legislation, all reform attempts towards larger state revenue autonomy or less intense fiscal equalization have failed and consensus for a constitutional reform in this regard has so far been out of reach. In this study we want to shed light on the nature and determinants of the reform resistance and thus the potential for future reforms.

Since the seminal paper of Zodrow and Mieszkowski (1986), the public finance literature has paid heavy attention to the normative side of tax autonomy and tax competition (Fuest et al., 2005). Different generations of fiscal federalism research have identified how equalization systems can contribute to stabilization and efficiency (Oates, 1972, 2008) but also how equalization systems interact with tax competition and could possibly contribute to the internalization of tax competition externalities (Bucovetsky and Smart, 2006; Buettner, 2006). In contrast to this highly developed literature on the welfare enhancing design of federal institutions, the political-economic process driving these institutions' evolution has received much less attention. Information on the preferences and beliefs of actual political actors regarding reforms of the system of fiscal federalism are completely lacking. Hence, we do not know to which extent insights on optimal federal institutions from the theoretical literature have any imprint on real world decision making. This ignorance handicaps public finance scholars in their attempts to give advice to the political process. A better understanding for the preference formation of political veto players is a precondition for the design of politically feasible federal reform strategies.

Germany is a particularly promising testing ground for a study of this type not only because the current fiscal equalization system features a low degree of revenue autonomy and intense equalization. In addition, the country's current equalization system has a well-defined expiry date. A sunset clause stipulates that the laws which specify the institutional details and the precise extent of vertical and horizontal equalization in Germany expire by the end of 2019. Hence, new decisions on Germany's system of fiscal federalism are unavoidable which may make it easier to overcome the status quo bias of the existing institutional arrangement.

We employ a unique database to study reform preferences with respect to both revenue autonomy and fiscal equalization. The core of our database is a self-conducted survey among members of all 16 German state parliaments which was in the field in 2011/12. We obtained answers from 639 politicians (out of 1861 state politicians) across all states and parties. German states have a decisive say in all reforms of fiscal federalism through the German upper house, the Bundesrat. An absolute majority of state votes in the Bundesrat is required to pass new laws with respect to ordinary rules of fiscal federalism. A change of the constitution for more fundamental reforms even requires the consent of two thirds of state votes. In the Bundesrat, states are represented through their respective state government, which in turn are elected from their respective state parliament. Hence, our study of members of state parliaments (MSP) relates to crucial veto players in any decisions on federal reforms.

The survey answers are combined with both individual characteristics of the members of state parliaments and general state characteristics. Our empirical analysis serves two purposes: First, we want to widen the understanding on the determinants of reform preferences of sub-national decision makers, such as state self-interest, party ideology or individual characteristics like education or parliamentary experience (see below section 5). Our findings can be related to predictions from existing theoretical work on tax competition and fiscal federalism. Second, we want to identify the degree of polarization among German states and their politicians with an eye towards the underlying majorities against or in favor of fiscal federalism reforms. In particular, we want to “predict” whether more revenue autonomy for states or less fiscal equalization would garner the necessary support in the Bundesrat, thus approximating future reform decisions as closely as possible (see below section 6).

Our results indicate that ideology and specific state interests are jointly linked with federal reform preferences. Those politicians who prefer lower taxes and a smaller size of government are also more inclined to accept a more competitive type of federalism for Germany. State characteristics are of importance as well, although the effects are less subtle than predicted by the theory of tax competition: Politicians from poorer states and from states with significant debt and consolidation needs are more hesitant to accept tax autonomy or lower equalization intensity. A key result arises from our predicted majorities for the Bundesrat: A majority exists for lowering the degree of fiscal equalization, while a (fragile) blocking minority against more tax autonomy exists. Our insights on the drivers of preference heterogeneity points to a strategy which is promising to foster reform acceptance: a reform package which addresses budgetary legacies like high pre-existing debt.

The paper is structured as follows: Section 2 gives a brief summary on German fiscal federalism with a focus on sub-national states' current degree of revenue autonomy. Section 3 develops our hypotheses followed by descriptive (section 4) and econometric (section 5) evidence. Section 6 predicts voting behavior of all states in the Bundesrat and section 7 concludes.

## **2 German state autonomy and the reform debate**

The federal setting in Germany comprises three distinct layers with different but partly overlapping areas of responsibility: (1) the federal level ("Bund") which is responsible *inter alia* for foreign and defense policy and social welfare programs, (2) the state level ("Länder") which bears responsibility for education, police, but also road and railway construction among others, and (3) the municipal level ("Kommunen") which is in charge of specific welfare programs (disabled, minimum income support for the elderly), local streets, theaters and other cultural facilities, preschools, fire departments, or waste management (Werner, 2006). Especially for the state level, however, tax competencies do not mirror the fiscal weights of the tasks assigned. Instead, the revenue situation is characterized both by a large degree of equalization across sub-national jurisdictions and by vertical tax sharing.

Those taxes which have the largest yields are shared between the federal layers (see Table 1). These so called joint taxes comprise the income tax (including the wage tax), the final withholding tax on interest and capital gains, the corporation tax and the value added tax (VAT) (Federal Ministry of Finance, 2011). Among these, both the income tax and the VAT generate by far the most revenue. Taxes whose proceeds exclusively flow into state budgets are only of minor relevance, with the inheritance tax and the real estate transfer tax being the most important ones. Among those two, the states have limited tax rate autonomy only for the latter whereas the inheritance tax rates are fixed by federal law.<sup>1</sup> Unlike in other federal countries like the US or Switzerland, German states have no competency to levy tax surcharges on top of tax rates determined by the federal level. This is the reason that Germany scores far below these federal countries in comparative indicators of revenue decentralization that take account of the sub-national autonomy in setting tax rates or defining tax bases (Stegarescu, 2005).

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<sup>1</sup> The German states are allowed to set real estate transfer tax rates within a bandwidth of 3.5 % to 5 %.

**Table 1: Distribution of tax income on different types of taxes**

Type of tax	Revenue (million Euro)	Percent of overall tax revenue
Joint taxes	403,567	70.38
Federal taxes	99,134	17.29
State taxes	13,095	2.28
<i>Inheritance tax</i>	4,246	0.74
<i>Real estate transfer tax</i>	6,366	1.11
<i>Lottery tax</i>	1,420	0.25
<i>Fire service tax</i>	365	0.06
<i>Beer tax</i>	702	0.12
Municipal taxes	52,984	9.24
Custom duties	4,571	0.79
Overall tax revenue	573,351	

Data for 2011.

Source: Federal Statistical Office (2012)

Thus, the German federal system is based on the principles of cooperative federalism and lacks elements of competition (Braun, 2007). This is not only visible from the lacking tax autonomy at the state level but also from an intense fiscal equalization system (FES). The latter largely offsets the differences in the states' revenue capacities and actual earnings. The system has its legal basis in Article 106 of the German constitution ("Grundgesetz"), which stipulates that living conditions in all geographic areas of Germany should be more or less equivalent ("Gleichwertigkeit der Lebensverhältnisse") and revenues must be distributed between the different federal levels according to the needs of the layers to fulfill the specified tasks. There are four consecutive stages (Federal Ministry of Finance, 2012a).

#### (1) Vertical distribution of tax revenue

First, joint taxes are distributed to the three different federal levels. With exception of VAT revenues, the federation's and state's shares of the remaining joint taxes are identical (see Table 2).

**Table 2: Assignment of joint taxes to different federal levels**

	Federation	States	Municipalities
Income tax	42.5 %	42.5 %	15 %
Withholding tax	44 %	44 %	12 %
Corporation tax	50 %	50 %	-
Value added tax <sup>1</sup>	53 %	45 %	2 %

<sup>1</sup> As compared to the shares of the remaining taxes which are established in the constitution, the shares of the VAT are regulated by simple law and change annually. The given figures are the last years' average.

Source: Federal Ministry of Finance (2011)

## (2) Horizontal distribution of tax revenue

Second, the sum of the aforementioned joint state taxes is distributed to the different states according to the principle of local revenue (i.e. each state earns the revenue which was collected through the state's tax authorities). The income tax and the withholding tax are allotted according to the residence of the taxpayers, whereas the corporation tax is allotted according to the place of business. By contrast, the allotment of revenue from VAT is split into two parts: To close the gap between fiscally weak and fiscally rich states, as a first step, up to 25 % of the total states' share is distributed to states where the average tax capacity without VAT revenue is below the all-state average.<sup>2</sup> The remaining 75 % (at least) are then allocated according to the number of state residents.

## (3) Redistribution between poor and rich states

The financial capacity per state and inhabitant (sum of all state receipts and 64 % of the municipalities' receipts divided by the number of inhabitants) is decisive for the redistribution between the states. Since the financial needs in the three city states Berlin, Bremen and Hamburg are regarded to be higher as compared to the needs of the area states, the number of inhabitants in these three states is (fictitiously) increased by 35 %.<sup>3</sup> A linear-progressive skimming-off schedule which partially closes the financing gap of those states where the (fictitious) financial capacity per state falls short of the average of all states financial capacity per inhabitant is used.<sup>4</sup> This scheme ensures that the ranking of states after redistribution is the same as before redistribution (Federal Ministry of Finance, 2011). Recent data for the extent of redistribution are given in Table 3.

## (4) Supplementary federal grants

Finally, there are general and special supplementary federal grants (SFG). General supplementary federal grants are given to those states whose financial capacity after redistribution falls short of 99.5 % of the states' financial capacity's average. This shortfall is then closed proportionally by 77.5 %, which ensures a considerable and substantial equalization of the states' financial capacity (see Table 3).

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<sup>2</sup> The exact amount of apportionment depends on the difference of a state's capacity to the overall average. A linear-progressive tax schedule is used (Federal Ministry of Finance, 2012a).

<sup>3</sup> The same, albeit to a lesser extent, holds true for three sparsely populated states of the former German Democratic Republic (GDR): Brandenburg, Mecklenburg-Western Pomerania and Saxony-Anhalt.

<sup>4</sup> Depending on the difference, up to 95 % of the gap is closed.

**Table 3: Redistribution at different stages of FES**

Stage of the FES	Financial capacity per inhabitant as a percentage of average financial capacity per inhabitant		
	Before state redistribution <sup>1</sup>	After state redistribution	With general SFG
Hesse	116.0	105.7	105.7
Bavaria	115.6	105.5	105.5
Baden-Wuerttemberg	109.5	103.8	103.8
Hamburg	102.1	101.1	101.1
North Rhine-Westphalia	98.5	99.2	99.4
Lower Saxony	97.6	98.8	99.3
Schleswig-Holstein	97.4	98.7	99.3
Rhineland-Palatinate	95.5	97.8	99.1
Saarland	94.3	97.4	99.0
Brandenburg	90.6	96.3	98.8
Saxony	88.3	95.6	98.6
Thuringia	88.0	95.5	98.6
Saxony-Anhalt	88.0	95.5	98.6
Mecklenburg-West Pomerania	86.5	95.1	98.5
Bremen	74.1	91.9	97.8
Berlin	68.1	90.5	97.5

Data for 2010.

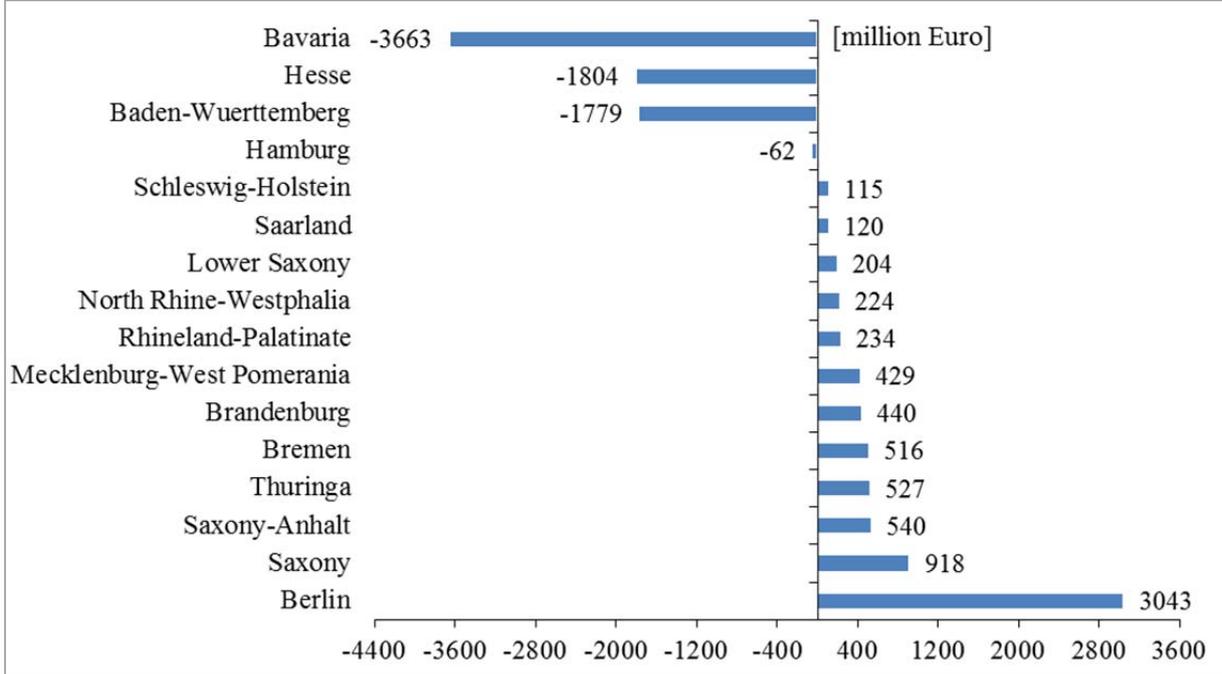
Source: Federal Ministry of Finance (2011)

<sup>1</sup>The figures already include VAT redistribution.

Special SFG on top compensate specific states for additional burdens which can be traced back to German reunification or disproportionately high burdens due to administrative costs. The exact amounts of the grants are laid down by the Law on Financial Equalization (Finanzausgleichsgesetz). In 2010 the transfers to the Eastern German states and Berlin amounted to Euro 8.7 billion (Federal Ministry of Finance, 2012a).

Taken together, the FES considerably harmonizes the financing capacities of the German states. Before any fiscal equalization takes place, the difference in financial capacity amounts to 47.9 percentage points (116 percent in Hesse compared to 68.1 percent in Berlin, all relative to the overall mean). Through all FES instruments this difference is reduced to only 8.2 percentage points. A major share of the equalization takes place horizontally at the state level. In recent years, in particular four states (Bavaria, Hesse, Baden-Wuerttemberg, and, to a lesser extent, Hamburg) have financed the transfers to the remaining 12 states (see Figure 1).

**Figure 1: Net-payer and net-receiver states of the FES stage 3 in 2011**



Source: Federal Ministry of Finance (2012b)

The German constitution specifies the system’s general principles regarding tax assignments and the overall goal (“reasonable equalization of the disparate financial capacities of the Länder”). The more specific details are provided in ordinary laws, most important the “Fiscal Equalization Law” (“Finanzausgleichsgesetz”). This law expires by the end of 2019 so that new legislation is needed. Legislation is a joint responsibility of both German parliamentary chambers: the directly elected lower house (“Bundestag”) and the upper house (“Bundesrat”) which consists of the 16 federal states’ representatives. These are delegated by the respective state government. Representation in the Bundesrat follows degressive proportionality, i.e. smaller states have votes above population proportionality. States have to cast their Bundesrat votes as a single bloc. Federal laws with financial consequences for the states require a majority in both chambers of parliament. Changes of the constitution – including a possible new assignment of tax competencies – require a qualified majority of two thirds of the votes both in the Bundestag and the Bundesrat.

There are several pros and cons which come along with such a fiscal equalization system. Referring to the benefits, traditional fiscal federalism arguments point to internalization of interjurisdictional spending or tax competition spillovers (Bucovetsky and Smart, 2006) and the reduction of the differences in public good provision capacities in regions with different tax capacities and income levels (Oates, 1999). In fact, exactly these arguments are mirrored in the German constitution as it is stipulated that living conditions in all geographic areas of

Germany should be more or less equivalent and revenues must be distributed between the different federal levels according to the needs of the layers to fulfill the specified tasks. Furthermore, the risk-sharing and redistribution elements of a FES serve as a buffer to region-specific economic shocks and play an important role for income and consumption smoothing (Boadway, 2004). Referring to the German case, for instance Buettner (2002) shows that for the period 1970 to 1977 FES transfers have significantly contributed to smooth state-specific income shocks. These results are confirmed by Hepp and von Hagen (2012), who include the German post-unification period. However, the authors state that the current system “is much more effective in eliminating differences in state tax revenues and in shielding state budgets from the impact of asymmetric shocks” as compared to income insurance for private households, suggesting that politicians care more about “the implications for state governments than for private households in their regions” (Hepp and Von Hagen, 2012, p. 252).

The risk-sharing elements of the FES may at the same time entail disincentives impacting on budgetary decisions of the states. First, FES transfers generate a common pool problem, where spending decisions are unconnected to taxing decisions. In fact, spending decisions in one state are (co-)financed by taxpayers of the remaining jurisdictions (Rodden, 2003). As was shown by Velasco (1999), this results in excessive deficits and debt accumulation. The bail-outs of the states of Bremen and Saarland in the late 1980s are examples in the German context (Seitz, 1999). Second, the system induces disincentives for states to promote activities that increase a state’s revenue capacity or tax income, since above average revenues are implicitly taxed at high marginal rates (Stehn and Fedelino, 2009). Von Hagen and Hepp (2001) present evidence on this issue and show that the correlation of German state tax revenue and state GDP has declined over time. Third, disincentives also extend to the field of tax administration. For instance, more intense tax auditing at the firm level does only partially pay off in terms of additional state revenues. Therefore, state governments may face incentives to reduce costly auditing efforts at the cost of the remaining states (Baretti et al., 2002; Krause-Junk, 2010). Finally, interjurisdictional transfers might not follow efficiency considerations but be actually driven by the political bargaining power of individual states. This could also be true for the German case, where besides the poor Eastern German states especially small Western German and city states are among the highest net receivers (which corresponds to these states’ bargaining power as a consequence of degressive proportionality of votes in the Bundesrat (see Hepp and von Hagen, 2012, as well as Fink and Stratmann, 2010).

Both the current extent of equalization and the lacking state tax autonomy are key topics of the ongoing reform debate. The level of disagreement among states has become clear by a constitutional complaint, which the states Bavaria and Hesse have filed against the current FES at the German Federal Constitutional Court in March 2013. And with respect to lacking tax autonomy, the German Council of Economic Experts and several other authors recommend to either separate tax competencies fully in order to end vertical tax sharing or to allow states and municipalities to levy tax surcharges/deductions on national taxes (Sachverständigenrat, 2003; Kitterer and Plachta, 2008; Fuest and Thöne, 2009; Feld, Kube and Schnellenbach, 2013).

### **3 Determinants of beliefs: Predictions from economic theory**

Very different factors can influence an individual politician's view with respect to state revenue autonomy. We distinguish between three dimensions: (1) State self-interest, (2) party ideology and government self-interest, as well as (3) individual characteristics related to information, education and parliamentary role/experience.

#### (1) State self-interest

The predictions related to self-interest are straightforward for fiscal equalization but less so for tax autonomy preference. Politicians from states which are recipients of (contributors to) the fiscal equalization system should tend to be in favor (against) more intense equalization. Of course, a pure insurance system against transitory shocks would not have a permanent distributional impact and all states might be interested to participate. As described above, the German system equates long-run revenue differences and, hence, produces a clear-cut pattern of beneficiaries and payers.

With respect to tax autonomy the prediction is more complex. A normative argument against tax autonomy relates to the possible inefficiencies arising from tax competition. Horizontal tax competition may lead to welfare losses and a suboptimal low level of taxes (Zodrow and Mieszkowski, 1986), whereas vertical tax competition has the opposite effect, i.e. taxes are too high (Keen and Kotsogiannis, 2002). Insofar as these models' assumptions would be valid for tax competition within Germany they are able to explain general resistance to tax autonomy but not yet the heterogeneity of views. For the latter it is important to note that

states may not be symmetric and to identify those states that benefit from tax competition in the eyes of a politician. In the political debate the argument has been influential that poor jurisdictions would lose from tax autonomy and might even be confronted with a vicious cycle of rising taxes and outward flows of mobile tax bases (high income individuals, companies). This argument is reinforced when agglomeration externalities play a role (Baldwin and Krugman, 2004). A different view is offered by Fuest (2008), who develops a model of tax competition with fiscal equalization and heterogeneity in state financial capacity. He distinguishes between two possible sources of a poor financial capacity: first, revenue shortage because of a low per capita income and, second, expenditure pressure because of special circumstances like a particularly high level of debt or pension obligations. The state government optimizes the welfare resulting from citizens consuming both private and public goods. With tax autonomy, a government is able to trade-off private good consumption against public good consumption through its tax decisions. The prediction from this model is that there should be two types of states with an interest in setting taxes different from the countrywide average. States with a low income and without any significant expenditure pressure should opt for particularly low taxes: Through lower taxes they can advance their citizens' welfare by providing room for a higher level of consumption of private goods. By contrast, states with high income and expenditure pressure should prefer high taxes because this enables a welfare maximizing shift from private to public goods. High population mobility even strengthens the case that low income countries would opt for a low tax policy.

One first insight from Fuest's model is that we do not necessarily expect a high correlation with respect to our two survey questions in focus. Fiscal equalization and tax autonomy might be assessed by state representatives in a differentiated way. While strong equalization is clearly in the interest of poor states, there is a theoretical case to be made that very poor and very rich states could welcome tax autonomy whereas "average" states can well live with a uniform countrywide level of taxation.<sup>5</sup>

In addition, we also expect that large states are relatively more opposed to an increase in states' tax autonomy compared to small states. Bucovetsky and Wilson (1991) present a model with jurisdictions of different size but with the same capital-to-labor ratio. Labor is immobile whereas capital is the mobile production factor. In the non-cooperative equilibrium

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<sup>5</sup> There is the subtle problem that uniform national tax rates in the status quo may not be equal to the average tax rates in the competitive equilibrium with state tax autonomy. Our subsequent analysis goes through if member of state parliaments take today's uniform tax rate as a proxy for the expected average tax rate in a possible future competitive situation. We are not aware of any study that has quantitatively determined the average tax rate in a competitive equilibrium, and hence the existing tax rate may serve as an anchor for politicians.

of this setup larger states are worse off compared to small states because small states have an incentive to set lower tax rates, which attracts capital and, eventually, leads to rising wages. When small and large states have the same utility in the absence of tax competition, more opposition should come from larger states. In our set-up, of course, the underlying assumptions like labor immobility are not fulfilled. However, we still expect small states (in terms of population) to be more in favor of tax autonomy than large states.

We can summarize our expectations as follows:

*Members of state parliaments (MSPs) from states which are net contributors to the fiscal equalization system should be more opposed to extensive equalization compared to MSPs from net receiving states.*

*For income, we expect a non-linear impact: States with incomes (far) above and below the mean income should favor tax autonomy whereas states with an average position should have less interest in tax autonomy.*

*MSPs from small states (in terms of population) are relatively more supportive of tax autonomy than representatives from large states.*

*Special state handicaps in tax competition should matter: States with high debt and/or permanently high deficits should be more opposed to tax competition compared to low debt states.*

## (2) Party program and government participation

Party programs differ with respect to the weights they assign to concepts like “solidarity”, “incentives” or “individual responsibility”. Furthermore, ideology impacts on the perception of economic constraints. For example, Heinemann and Janeba (2011) show how ideology influences the perception of firm mobility in the context of tax policy decisions. Similar to welfare state reforms or tax policy, decisions on the parameters of a federal constitution imply decisions on trade-offs between distributive preferences and efficiency. We would expect that parties from the left will assign a larger weight to the notion of inter-state solidarity relative to individual state responsibility. In contrast, market-liberal parties should rather stress the importance of state competition and incentives with a critical view on intense equalization and lacking tax autonomy.

Independent of party affiliation it could make a difference whether a MSP belongs to the government’s coalition parties or not. From the perspective of an opposition MSP, receipts

from a generous equalization system may be less appealing since the political advantage of this resource inflow goes to the incumbent government. Vice versa, opposition MSPs in rich states might be more favorable to the burden of payments into the equalization system since it constrains the incumbent government. Of course, these considerations are subject to expectations of a possible future power shift between parliamentary parties.

Our expectation is as follows:

*MSPs from the political left should be more supportive of equalization payments and more opposed to tax autonomy compared to other parties and market-liberal parties, in particular.*

*Compared to government MSPs, opposition MSPs in poor states (rich states) should be more opposed to (supportive of) intense equalization.*

### (3) Individual characteristics

Besides state interests and ideological imprint, individual education, information and parliamentary experience could matter. There is a growing literature which looks at the impact of these individual characteristics of policy makers. Referring to education, for instance, Besley et al. (2011) show that the education of political leaders matters for growth. Using random leadership transitions based on unexpected deaths, the authors find that the better (worse) educated a departing leader is, the lower (higher) the growth of GDP after the leader transition. Furthermore, the subject of an academic education appears to matter for economic preferences. US congress members trained in economics are less likely to support minimum wage increases (O'Roark and Wood, 2011) and members of the European Parliament with an economics education are more opposed to the introduction of an EU tax than their parliamentary colleagues (Heinemann et al., 2009).

Information and former professional positions seem to play a role, too: Göhlmann and Vaubel (2007) reveal that inflation preferences of central bankers are driven by their former occupation (the results are confirmed by Farvaque et al., 2011). Evidence in a similar vein is presented by Dreher et al. (2009) who show that a leader's professional background, e.g. being a former entrepreneur, is a statistically significant determinant in explaining a country's reform performance. With respect to subnational German finance ministers, Jochimsen and Thomasius (2012) present evidence suggesting that the financial expertise of a finance minister matters. Finance ministers who have worked in the financial business sector before their appointment achieve lower deficits than their counterparts without such experiences.

Finally, there are studies looking at a politician's experience in office. Referring to European national finance ministers, Moessinger (2012) finds that the increase in the debt to GDP ratio is smaller, the longer the tenure of the finance minister. The finding is robust to the inclusion of the time in office of the prime minister and another measure on political stability. The results are thus in line with a cross-section analysis for Switzerland, which also reveals that the finance minister's experience in office affects fiscal policy (Feld and Schaltegger, 2010).

In the empirical analysis, we are able to control for individual characteristics, such as age, gender, educational attainments, membership in the budget or legal committee, and the number of years in parliament. Thus, the characteristics included refer both to education and the level of information (proxied by membership in specialized committees or length of parliamentary membership).

We do not have a sign prediction for these individual characteristics. Equally well informed positions on an "optimum" federal system can be highly diverse as the academic literature on fiscal federalism and tax competition indicates.

#### **4 Survey details**

We conducted our survey among the members of all 16 German state parliaments which was conducted in three rounds. Parliaments of Bavaria, Brandenburg, Lower Saxony, Saarland, Schleswig-Holstein and Thuringia were surveyed in March and April 2011. The second round was conducted in Saxony, Saxony-Anhalt, North Rhine-Westphalia, Hesse and Hamburg in December 2011 and January 2012. The final, third round in April and May 2012 completed the survey by questioning the MSPs of Baden-Württemberg, Rhineland Palatinate, Bremen, Berlin and Mecklenburg-West Pomerania. The reason for this sequential implementation was the different timing of the elections in the states. Specifically, surveys were conducted approximately at mid-term of an electoral cycle, such that members of parliament did not face electoral campaigns or post-election government formation procedures.

The first step in each survey was a contact with the respective parliament's presidential office. We informed the presidency on the survey's academic intentions and asked to recommend participation to the MSPs. Subsequently, the MSPs were approached individually by written letters. Letters were addressed to the MSPs' offices in their election district and not to the parliament's address. This decentralized addressing was chosen to lower the risk of any coordinated answering, that is, through staff in the parliamentary factions. During the first

round non-answering MSPs received a follow-up email with the questionnaire attached. If they did not answer, we contacted them by phone calls. In the second and third rounds the email to non-answering politicians additionally included a link to an online platform which allowed them to answer the questionnaire online. 639 MSPs finally participated in the survey which resulted in a response rate of 34 percent. Response rates differ along the dimensions state and party affiliation (see Table 4 for response rates across states) but also along individual characteristics of state politicians (see non-response analysis in section 5).

**Table 4: Survey participation by state**

	No. of MSP	Responses	Response rate
Baden-Wuerttemberg	138	77	55.80 %
Bavaria	187	75	40.11 %
Berlin	149	30	20.13 %
Brandenburg	88	19	21.59 %
Bremen	83	18	21.69 %
Hamburg	124	39	31.45 %
Hesse	114	50	43.86 %
Mecklenburg-West Pomerania	71	17	23.94 %
Lower Saxony	152	54	35.53 %
North Rhine-Westphalia	181	51	28.18 %
Rhineland-Palatinate	101	50	49.50 %
Saarland	51	20	39.22 %
Saxony	133	45	33.83 %
Saxony-Anhalt	106	47	44.79 %
Schleswig-Holstein	95	29	30.53 %
Thuringia	88	36	40.91 %
Total	1861	639	34.34 %

**Table 5: Survey participation by party**

	No. of MSP	Responses	Response rate
Christian Democrats	681	284	41.70%
Free Democrats	123	41	33.33%
Green Party	239	75	31.38%
Left Party	200	47	23.50%
Social Democrats	559	173	30.95%
Other	59	19	32.20%
Total	1861	639	34.34%

Politicians were guaranteed confidentiality on the individual response but were informed that aggregate results would be published. Data were collected non-anonymously so that it is possible to match them with individual characteristics of MSPs, which are publicly available on the MSPs' official websites. The survey consists of questions related to the new German

constitutional debt brake, expenditure preferences and preferences on fiscal equalization and tax autonomy. The latter two are the focus of this analysis and are formulated as follows:

Tax autonomy question:<sup>6</sup> *“It is repeatedly discussed to grant German states more tax autonomy. One of the options debated is, for example, the right to levy surcharges on income or corporate taxes. Would you be in favour of states being allowed to levy these surcharges and determining their level autonomously?”*

Answers are given on a discrete 9 point scale from -4 (“no”) to +4 (“yes”) with 0 indicated as “undecided”.

Fiscal equalization question:<sup>7</sup> *“The current construction of the state fiscal equalization system is also subject to an ongoing debate. How do you assess the current extent of redistribution among the states (including all instruments of the federal equalization system)? The current equalization in the financial capacity across states through the fiscal equalization is ...”*

Answers are given on a discrete 9 point scale from -4 (“too low”) to +4 (“too far reaching”) with 0 indicated as “appropriate”.

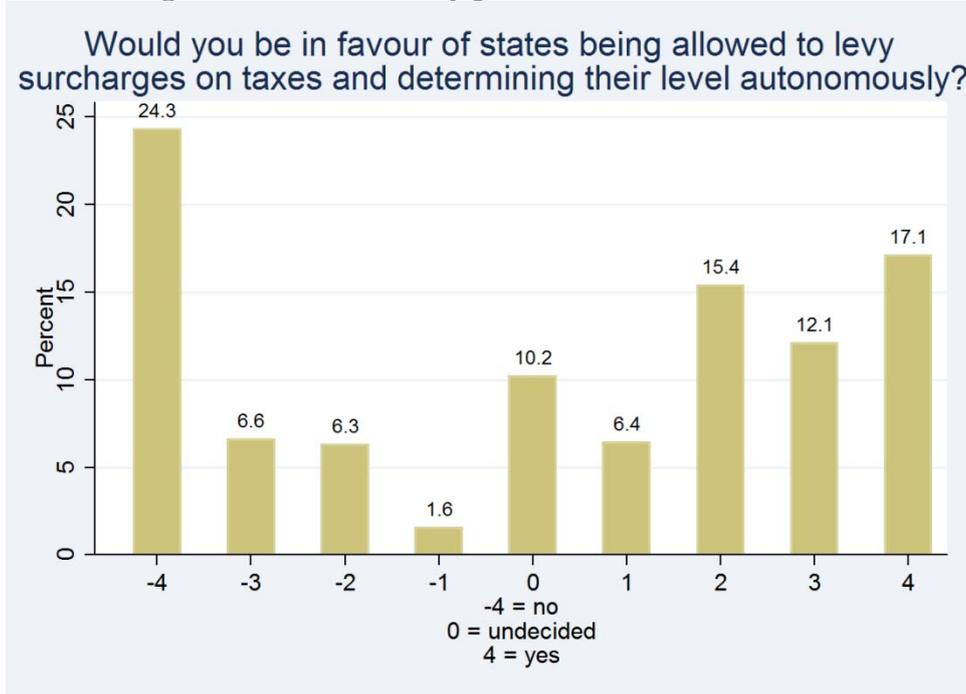
The descriptive results point to highly diverse tax autonomy preferences. Figure 2 shows that there is – with a thin margin – an absolute majority of respondents who tend to support higher state tax autonomy compared to the status quo (51 percent) whereas 10 percent have a neutral position and 39 percent are opposed. The mode falls on the strongest rejection of tax autonomy. Thus, opponents have a more determined view compared to the supporters of tax autonomy.

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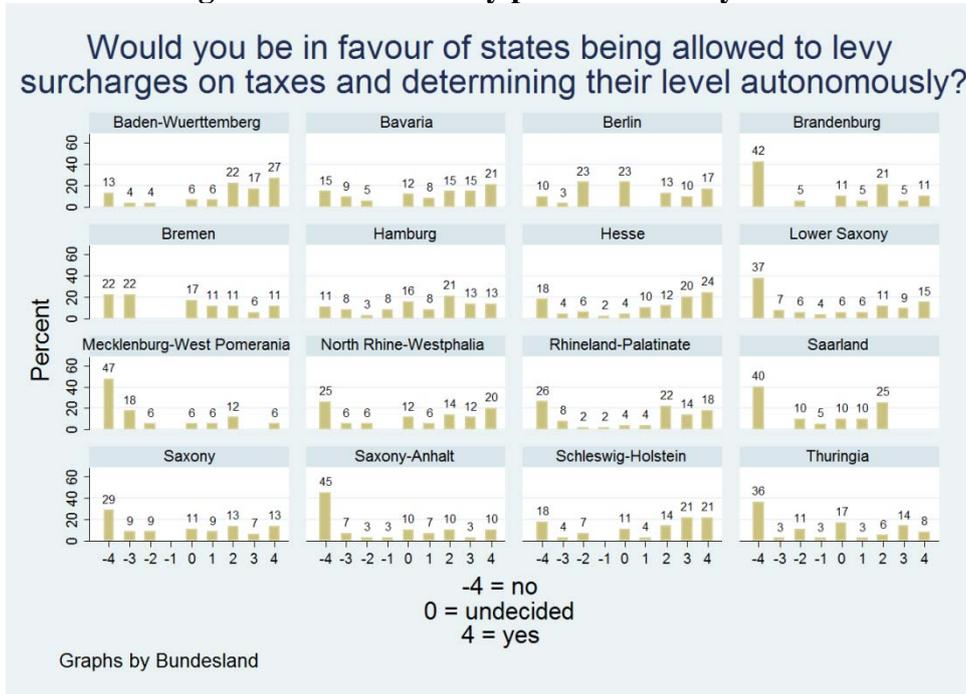
<sup>6</sup> The questions (like the whole questionnaire) are in German. The original German formulation is as follows: *“Immer wieder wird diskutiert, ob deutsche Bundesländer eine höhere Besteuerungsautonomie erhalten sollen. Im Gespräch ist dabei beispielsweise ein Zuschlagsrecht auf die Einkommen- und Körperschaftsteuer. Würden Sie es begrüßen, wenn die Bundesländer solche Zuschläge erheben und die Höhe dieser Zuschläge eigenständig festlegen dürften?”*

<sup>7</sup> The original German formulation is as follows: *„Ebenso wird die derzeitige Ausgestaltung des Länderfinanzausgleichs immer wieder diskutiert. Wie beurteilen Sie das derzeitige Ausmaß der Umverteilung zwischen den Bundesländern (unter Einschluss aller Instrumente des bundesstaatlichen Finanzausgleichs)? Die derzeitige Angleichung in der Finanzausstattung zwischen den Bundesländern über den Finanzausgleich ist... zu gering/angemessen/zu weitgehend.“*

**Figure 2: Tax autonomy preferences – overall result**



**Figure 3: Tax autonomy preferences – by state**



On first sight, answering patterns differ mainly across states and ideology. Using an analysis of variance (ANOVA), the null hypothesis that mean answers across states are equal can be rejected at all conventional significance levels (see also Figure 3). MSPs from net-paying states (within the fiscal equalization scheme) are more in favour of tax autonomy (mean

answer is 0.95) than those from net-recipient states (mean answer is -0.41), where this difference is significant at the one percent level (see Table 6). The pattern across parties is visually not as clear cut, but the null hypothesis that mean answers do not differ across parties can also be rejected at the one percent level. Mean answers also differ significantly at the five percent level, if ideology is measured by categorizing parties as right and left parties.<sup>8</sup> On average, politicians affiliated to right parties are more in favour of tax autonomy (mean answer is 0.35) than politicians from left parties (mean answer is -0.17).

**Table 6: Tax autonomy question by status in inter-state fiscal equalization scheme and by ideology**

	Total	Net-paying states	Net-recipient states	Total	Member of right parties	Member of left parties
Observations	637	240	397	572	325	247
Mean	0.107	0.954	-0.406	0.122	0.348	-0.174
Standard-Deviation	3.043	2.827	3.058	3.039	3.039	2.946
P-Value of F-Test	0.000			0.042		

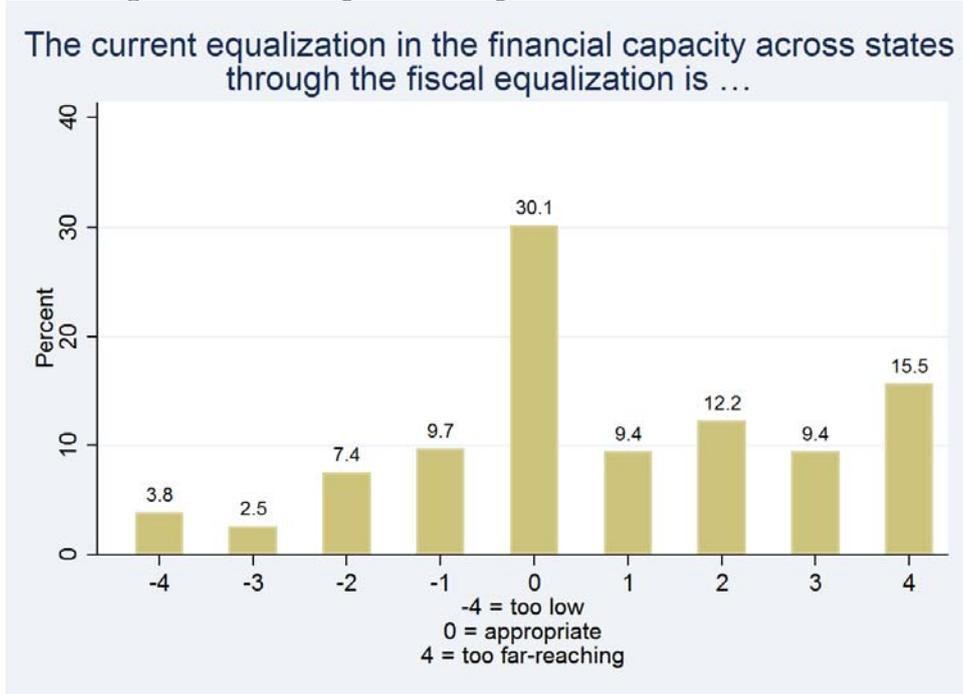
Notes: The Null hypothesis is that groups have equal means. The minimum value (maximum value) for each group is -4 (4).

Preferences on fiscal equalization show systematic differences compared to those for tax autonomy. Figure 4 reveals that the mode is the neutral position with a share of 30 percent, implying that most MSPs think the equalization scheme is just right as it is. The share of MSPs who reveal preferences for a lower extent of equalization (47 percent), however, clearly exceeds the share of those who are in favor for an even higher transfer level (23 percent).

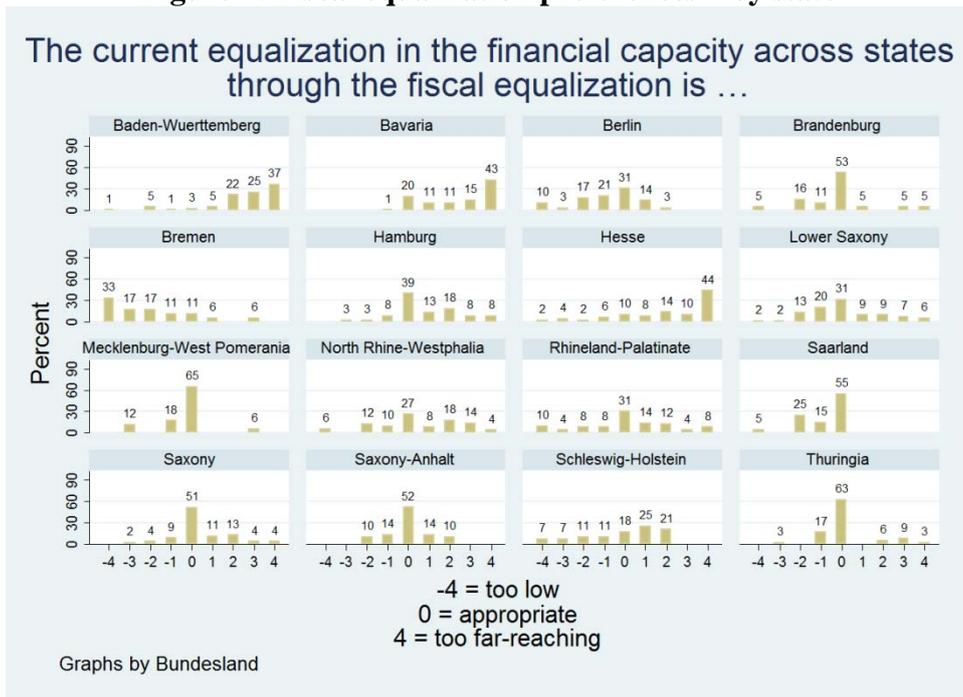
By and large, Figure 5 displays that this pattern also holds for many states individually, but not for all. A majority of MSPs in Bremen (one of the most prominent net-recipient states in per capita terms) thinks the redistribution of the current fiscal equalization scheme to be too small, while a majority in the three main net-paying states assess it to be too far-reaching, which is quite intuitive.

<sup>8</sup> Left Party, Green Party and Social Democrats classified as “left”. Christian Democrats and Free Democrats are classified as “right”. Parties like the Bavarian Free Voters are unclassified. Therefore, the number of total observations drops to 572.

**Figure 4: Fiscal equalization preferences – overall results**



**Figure 5: Fiscal equalization preferences – by state**



When partitioning states according to their status within the inter-state fiscal equalization scheme (Table 7), net-recipients on average favor the current intensity of equalization (mean answer is -0.08), whereas MSPs from net-paying states clearly advocate a less ambitious redistribution (mean answer is 2.16). This difference in means is again significant at the one percent level. Differences also exist along party lines. As Table 7 shows, none of the political

camp think fiscal equalization should be intensified. However, politicians from right parties (mean answer is 1.06) are rather in favor of cutbacks compared to MSPs from the left (mean answer is 0.28).

**Table 7: Fiscal equalization question by status in inter-state fiscal equalization scheme and by ideology**

	Total	Net-paying states	Net-recipient states	Total	Member of right parties	Member of left parties
Observations	631	239	392	566	324	242
Mean	0.765	2.159	-0.084	0.723	1.056	0.277
Standard-Deviation	2.136	1.896	1.802	2.149	2.105	2.131
P-Value of F-Test	0.000			0.000		

Notes: The Null hypothesis is that groups have equal means. The minimum value (maximum value) for each group -4 (4).

## 5 Econometric analyses

### 5.1 Missing value problem and non-response analysis

First we pay attention to the different response rates of politicians and their possible consequences for statistical inference. The underlying missing data mechanism could bias the characteristics of the available data sample and impair the reliability of subsequent testing (Allison, 2002). The descriptive analysis above indicates that the propensity to respond is correlated with individual characteristics like ideology. Furthermore, experimental studies show that a particular individual interest into the survey topic drives survey participation (Groves et al., 2004). We would expect similar patterns for our survey with experts on state budgetary issues to be keener to voice their views.

Non-response may cause a biased sample under certain conditions (Rubin, 1976; Allison, 2002). Missing data would not cause any problems if we could assume them to be “missing completely at random (MCAR)”. This is the case if the probability of missing is unrelated to any other variables in the sample. The missing generating process would be an unbiased lottery not distorting the information value of the sample. This assumption is hardly fulfilled in our case given the link between response probability and individual characteristics. A further possibility is that data are “missing at random (MAR)”: This is the case if the probability of missing variables for a variable Y is unrelated to the values of variable Y after controlling for other covariates. In our context this is fulfilled if other observable variables (like the MSPs’ individual characteristics) are crucial to explain participation in the survey. In

this case, a satisfactory strategy is to include those variables which play a role in participation into the subsequent regression model. The regression then adjusts for all observable differences between missing and non-missing cases. A more problematic situation exists if even the MAR assumptions are violated and the probability of a Y observation depends also on the value of Y (besides depending on other covariates). In this case the missing data mechanism is “non-ignorable”.

It seems plausible that in our case the assumptions of the less problematic MAR case are fulfilled. First, we do not have a significant item non-response problem but predominantly face unit non-response.<sup>9</sup> The latter can cause serious problems in the measurement of actors’ positions if they want to hide some views for strategic reasons (König et al., 2005). Fortunately, item non-response is negligible in our case (0.3 percent for the tax autonomy and 0.9 percent for the fiscal equalization question), presumably because our questions are not very sensitive. This is an indication towards the validity of the MAR assumption. Second, the promised confidentiality of individual answers makes it less likely that it is a particular preference which could drive participation. Third, we have information on the set of all state politicians in Germany, whether they participated in our survey or not. This allows us to model the missing data mechanism. For example, we can control for the familiar effect that expertise drives participation through membership in committees and professional education. Thus, in our analysis we are able to neutralize the impact of key participation determinants. The rich availability of covariates further increases the plausibility of the MAR assumption. Thus, we are confident to classify our sample selection-problem to be of the MAR type. The missing data mechanism is unlikely to distort our results as long as we include those variables among the covariates which drive participation.

We deal with the missing variable problem in two ways: First, we start with a unit non-response analysis to identify variables at the individual and state level that might have affected politicians’ decisions to answer the questionnaire or not. Those variables identified need to be included in the subsequent regressions. This will greatly reduce any potential estimation bias. Second, we provide robustness checks based on weighted regressions. This is one of the possible further precautions to reduce bias from unit non-response (Little and Vartivarian, 2005).

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<sup>9</sup> Unit non-response occurs if a MSP does not answer the questionnaire at all whereas item non-response refers to cases where survey respondents do not answer all questions. In household surveys, item non-response is typical for particularly sensitive questions related, for example, to the level of income and wealth.

To study non-response we run a probit regression with a dummy for a response (=1, 0 otherwise) as our dependent variable (see Table 8). We control for individual characteristics such as educational background, information on political functions within the state parliaments, age, gender, and individual party affiliation. Further, we control for state characteristics by including state dummy variables. Standard errors of all regressions presented here are clustered at the party-state level.<sup>10</sup> We include different sets of variables (individual information, party affiliation, state dummies) separately and jointly to be sure that results are robust.

Regarding individual characteristics, we find that politicians who studied economics or business and/or are a member of the respective state parliament's budget committee exhibit a significantly higher inclination to having answered our questionnaire. This is in line with the insight on the role of topic interest for participation (Groves et al., 2004). Furthermore, members of governing coalition parties are significantly less inclined to respond perhaps because some of them have a time-consuming role in the government. Female politicians also took part in our survey with lower probability than their male colleagues and there are some significant differences across parties. These significant variables should be incorporated as controls into our subsequent analyses in order to safeguard the MAR-assumptions on sample selection.

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<sup>10</sup> Politicians are nested within states and parties. One and the same party, however, often differs across states, which is why we chose to cluster politicians at the party-state level, instead of the state or party level only.

**Table 8: Probit estimation for unit non-responses with response (=1, 0 otherwise) as dependent variable**

	(1)	(2)	(3)	(4)
<i>Education</i>				
College entrance qualification	-0.162 [-1.153]		-0.158 [-1.131]	-0.138 [-0.975]
Tertiary degree	0.140 [1.074]		0.151 [1.105]	0.150 [1.140]
Economics/Business degree	0.200** [2.236]		0.182* [1.831]	0.170* [1.834]
Law degree	0.117 [1.270]		0.089 [0.963]	0.068 [0.744]
<i>Information</i>				
Member of budget committee	0.353*** [4.623]		0.333*** [4.384]	0.360*** [4.680]
Member of legal committee	0.032 [0.353]		0.029 [0.335]	0.046 [0.500]
Number of years in parliament	0.000 [0.002]		-0.002 [-0.341]	-0.004 [-0.697]
<i>Power</i>				
Member of state gov't coalition	-0.106 [-1.502]		-0.204** [-2.185]	-0.169** [-2.328]
<i>Other individual characteristics</i>				
Female	-0.308*** [-4.583]		-0.280*** [-4.256]	-0.274*** [-4.122]
Age in years	0.003 [0.807]		0.005 [1.321]	0.003 [0.822]
<i>Party affiliation<sup>a</sup></i>				
Christian Democrats		0.242** [2.347]	0.250* [1.705]	0.283** [2.496]
Social Democrats		0.004 [0.036]	0.026 [0.152]	0.102 [0.810]
Green Party		-0.033 [-0.254]	0.043 [0.232]	0.065 [0.506]
Left Party		-0.148 [-1.044]	-0.259 [-1.404]	-0.118 [-0.739]
Other parties		0.121 [0.485]	-0.094 [-0.291]	0.059 [0.240]
<i>Regression diagnostics</i>				
State fixed effects	✓	✓		✓
Observations	1,861	1,861	1,861	1,861
Pseudo R <sup>2</sup>	0.059	0.043	0.038	0.065

Notes: This table displays regression coefficients; \*\*\*/\*\*/\* denote significance at the 10%/5%/1% level; standard errors in brackets are clustered at the state level; <sup>a</sup> base category is the liberal democratic party.

## **5.2 Identification and true revelation of preferences**

A problem distinct from selection bias is that our cross-section survey does not allow applying quasi-experimental designs like diff-in-diff estimations which could establish causal links more convincingly. The correlation we observe between MSP characteristics and federal preferences can thus be influenced by reversed causation. For example, strategic delegation could play a role since voters and/or party organizations may strategically delegate agents with particular preferences into representative parliaments in order to impact on the outcome of parliamentary negotiations. Equally, the selection of policy makers can be influenced by the jurisdiction's state of economy (Hallerberg and Wehner, 2013). Thus, while our regressions are informative on the observable correlations between MSPs' federalisms preferences and state or individual characteristics, we cannot be certain about the nature of the underlying causal link. However, we view this restriction to be a side issue since our main interest is to study the heterogeneity of MSPs' preferences across states and not how individual preferences are actually formed.<sup>11</sup>

A further problem relates to the possibility of untruthful answers by politicians. Our survey is non-incentivized with the consequence that the usual "cheap talk"-skepticism may also hold for our results. While this criticism is valid in principle, our survey is superior to recording votes (for an example in the context of voting in the European Parliament: Hix and Noury, 2009; Hix et al., 2009) which is an alternative standard approach for measuring politicians' preferences. Observable voting behavior is subject to sanctions from parties and, hence, an even less reliable source of information for individual preferences. Incentivizing politicians in a laboratory experiment is hardly an attractive option either: If the revelation of true preferences is politically costly for a politician it is probably not possible to neutralize this bias through standard experimental incentives. In concluding this section, we cannot exclude the existence of untruthful answers. Yet our survey approach with a confidential treatment of individual responses offers probably the best available option to study MSPs' preferences.

## **5.3 Results for tax autonomy and fiscal equalization preferences**

In our econometric testing we measure the extent of significant and robust links consistent with our hypotheses developed above. With respect to the individual characteristics, we include information on educational achievements (tertiary degree dummy, specialization in

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<sup>11</sup> The identification problem is a larger problem for the literature mentioned in section 3 which explicitly wants to measure the causal impact of politicians' individual characteristics on policy performance

economics/business dummy), the amount of information (committee membership dummies and length of parliamentary experience), the power dimension (dummy for membership in a government party), as well as gender and age (see Tables A1 and A2 in the appendix for data sources and descriptive statistics).

We employ different variants to measure ideology. First, we use simple party dummies, both separate for each party and a rougher bipolar distinction between “left” and “right” parties. Second, we take account of cross-state variation in party positions within the same party through an indicator of policy field salience developed by Pappi and Seher (2013).<sup>12</sup> The indicator is based on textual analyses of the party election programs (at the state level) and the weight of a particular policy field in the program. For our purpose, we make use of the particular indicator for the field of economic policy (comprising economy, traffic, agriculture and public finances). A strong weight on economic policy in the party program (and, hence, a lower emphasis on social or other policy fields) is indicative for a stronger party orientation towards economic constraints. The indicator’s cross-state variation is important when a party addresses voters in different states with a state-specific program.<sup>13</sup> Third, we include an individual ideology measure originating from the survey itself. In the survey we asked how the politician would spend a surplus of 100 Euros in the state budget with the available options of cutting taxes, redeeming debt or increasing expenditures. We take the percentage allocated to the cut of taxes as our individual ideological proxy with a large (small) amount indicating a “right” (“left”) government ideology.

Our selection of state characteristics is driven by our theoretical considerations above. We include proxies for the states’ current economic position (GDP per capita) and size (population). In line with our reasoning on the relative merits of tax autonomy for those states above or below the mean we also include the deviation of a state’s GDP from the mean. We also include and experiment with other important fiscally related variables, such as the debt to GDP ratio, the 3-year-average of the deficit ratio and the consolidation need. The latter has been calculated by the German Council of Economic Experts (Sachverständigenrat, 2011) and measures the fiscal adjustment necessary to comply with the constitutional debt brake, which requires a zero structural deficit of German states from the year 2020 onwards. Furthermore, we include the current level of fiscal equalization transfers to capture the advantage or disadvantage from the equalization system. All state characteristics are included in the

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<sup>12</sup> We thank Franz Pappi for providing us with this state-specific indicator.

<sup>13</sup> For example voters in Eastern German states have different policy preferences as a consequence from socialization under Communism (Alesina and Fuchs-Schündeln, 2007).

regression on a real time principle, that is, we use 2010 data for the survey waves which took place in 2011 and 2011 data for the 2012 waves.

The results of our regression analysis are shown in Table 9 (tax autonomy preference) and Table 10 (fiscal equalization preference). In both tables, columns (1) to (4) include the results for different specifications of the ideological proxies. Columns (5) and (6) inform about the impact of varying legacy proxies and columns (7) and (8) add interaction effects which account for the possible asymmetry between MSPs from government and opposition parties. With exception of the two latter specifications which are estimated using OLS due to the interactions included, all remaining specifications display marginal effects for the maximum response category (= +4) based on ordered probit estimations.

For both dimensions of federal preferences, individual characteristics do not play an important role with one exception: Members of the legal committees are less inclined to accept an increase in tax state autonomy. Preference formation may thus be influenced by the awareness of the current legal constraints in the Federal Republic of Germany, which set high hurdles for more state tax autonomy and require a change of the constitution. Interestingly, however, there is no equivalent, statistically significant impact of being a member of the budget committee.

Party ideology matters: Politicians from the Social Democrats or the Green Party are much less likely to accept lower equalization intensity than those from the liberal Free Democrats, For tax autonomy, a (weakly) significant difference only exists between the Green Party and the Free Democrats. Both the simple right party dummy and the more refined state party specific indicator have the expected sign but miss significance. Our individual ideology proxy is significant in both cases: Preferences for lower taxes are linked to a larger support for tax autonomy and a less ambitious equalization.

As for state characteristics, there is a highly significant link between the income level and fiscal variables on the one hand and federal preferences on the other hand. However, the detailed findings do not fully correspond to our theoretical expectations. In line with our hypothesis, politicians from states with significant fiscal burdens and need for fiscal adjustment are less ready to accept tax autonomy. This effect is significant no matter how we measure legacies (debt, average past deficit or consolidation needs). The effect of population size is as expected, too. *Ceteris paribus*, larger states are more opposed to tax autonomy. The result, however, is not statistically significant with exception of specification 5. Furthermore, the result for the impact of the absolute deviation of state GDP from the mean contradicts our

expectation. Politicians from states with a GDP below or above the country average obviously do not welcome tax autonomy since they show a significantly lower readiness to open the way for autonomous state tax policies. The same variable is largely insignificant for equalization preferences. Our expectation that the beneficiaries of fiscal equalization like high transfers clearly shows up in the data albeit this effect is hidden behind a multicollinearity phenomenon: Fiscal equalization receipts are not robustly significant but this indicator is highly correlated with state GDP and legacy indicators (we come back to this issue in the robustness section below).

Results for interaction terms are presented in column 7 and column 8. Here, we look at the combined effect of being a member of a state government and the amount of fiscal equalization transfers to GDP (and GDP per capita, respectively). As the estimation of interaction effects is not reliable in a non-linear estimation model, we rely on an OLS regression for this specification. One significant asymmetry between government and opposition politicians is detected: In states with high transfer receipts, members of government parties are less inclined to accept tax autonomy than from opposition parties. This effect is not found for equalization preferences.

**Table 9: Regression results for tax autonomy question (-4=not in favour; +4=in favour)**

	Ideological variations				Legacy variation		Interaction effects	
	(1) OProbit	(2) OProbit	(3) OProbit	(4) OProbit	(5) OProbit	(6) OProbit	(7) OLS	(8) OLS
<i>Education</i>								
Tertiary degree	-0.0348 [0.0252]	-0.0360 [0.0255]	-0.0349 [0.0252]	-0.0355 [0.0255]	-0.0402 [0.0256]	-0.0329 [0.0251]	-0.3230 [0.2982]	-0.3347 [0.3012]
Economics/Business degree	0.0223 [0.0288]	0.0342 [0.0286]	0.0339 [0.0290]	0.0236 [0.0291]	0.0219 [0.0293]	0.0199 [0.0292]	0.2964 [0.3156]	0.3079 [0.3168]
<i>Information</i>								
Member of budget committee	-0.0205 [0.0257]	-0.0200 [0.0259]	-0.0195 [0.0257]	-0.0207 [0.0262]	-0.0191 [0.0262]	-0.0209 [0.0263]	-0.3105 [0.2733]	-0.3049 [0.2715]
Member of legal committee	-0.0569* [0.0323]	-0.0555* [0.0330]	-0.0560* [0.0329]	-0.0569* [0.0327]	-0.0562* [0.0316]	-0.0576* [0.0327]	-0.7309** [0.3431]	-0.7243** [0.3405]
Number of years in parliament	0.0020 [0.0015]	0.0018 [0.0015]	0.0018 [0.0015]	0.0016 [0.0015]	0.0022 [0.0016]	0.0018 [0.0015]	0.0145 [0.0169]	0.0162 [0.0170]
<i>Power</i>								
Member of state gov't coalition	0.0118 [0.0230]	0.0015 [0.0213]	-0.0020 [0.0226]	-0.0001 [0.0218]	-0.0029 [0.0196]	-0.0001 [0.0212]	0.1748 [0.2513]	-0.8976 [0.9889]
<i>Other individual characteristics</i>								
Female	-0.0386 [0.0258]	-0.0290 [0.0252]	-0.0302 [0.0249]	-0.0431* [0.0247]	-0.0388 [0.0245]	-0.0416* [0.0244]	-0.5567* [0.2877]	-0.5419* [0.2901]
Age in years	-0.0015 [0.0011]	-0.0016 [0.0011]	-0.0016 [0.0011]	-0.0015 [0.0011]	-0.0016 [0.0011]	-0.0016 [0.0011]	-0.0156 [0.0123]	-0.0168 [0.0123]
<i>Ideology</i>								
Christian Democrats	-0.0595 [0.0534]							
Social Democrats	-0.0786 [0.0558]							
Green Party	-0.0995* [0.0575]							
Left Party	0.0180 [0.0651]							
Other parties	-0.0223 [0.0679]							
Right parties		0.0189 [0.0202]						
Pappi Indicator			0.0106 [0.0125]					
Preference for lower taxes and fees				0.0028** [0.0011]	0.0026** [0.0012]	0.0029** [0.0011]	0.0282*** [0.0106]	0.0272** [0.0108]

Continued on next page.

**Table 9: Regression results for tax autonomy question (-4=not in favour; +4=in favour) (continued)**

	Ideological variations				Legacy variation		Interaction effects	
	(1) OProbit	(2) OProbit	(3) OProbit	(4) OProbit	(5) OProbit	(6) OProbit	(7) OLS	(8) OLS
<i>State characteristics<sup>a</sup>: income and size</i>								
GDP per capita	0.0115*** [0.0024]	0.0097*** [0.0023]	0.0099*** [0.0023]	0.0097*** [0.0022]	0.0124*** [0.0018]	0.0082*** [0.0018]	0.0944*** [0.0210]	0.0767*** [0.0259]
Absolute deviation of state GDP per capita from federal GDP per capita	-0.0122** [0.0050]	-0.0100** [0.0049]	-0.0102** [0.0050]	-0.0098** [0.0048]	-0.0172*** [0.0038]	-0.0111** [0.0046]	-0.1217** [0.0512]	-0.1171** [0.0516]
Population	-0.0021 [0.0043]	-0.0018 [0.0044]	-0.0016 [0.0045]	-0.0020 [0.0043]	-0.0083** [0.0035]	-0.0039 [0.0042]	-0.0463 [0.0459]	-0.0468 [0.0458]
<i>State characteristics<sup>a</sup>: legacies</i>								
Total debt to GDP	-0.0022* [0.0012]	-0.0020* [0.0012]	-0.0022* [0.0012]	-0.0021* [0.0011]				
3 year average of deficit to GDP					-0.0576*** [0.0135]			
Consolidation needs as share of GDP						-0.0384*** [0.0149]	-0.4035** [0.1632]	-0.4007** [0.1655]
<i>State characteristics<sup>a</sup>: equalization</i>								
Fiscal equalization transfers to GDP	0.0211 [0.0202]	0.0126 [0.0200]	0.0135 [0.0202]	0.0143 [0.0197]	-0.0074 [0.0117]	0.0141 [0.0161]	0.3419 [0.2331]	0.1002 [0.1832]
<i>Interaction effects</i>								
Fiscal equalization transfers to GDP × Member of state gov't coalition							-0.3930* [0.2054]	
GDP per capita × Member of state gov't coalition								0.0316 [0.0297]
<i>Constant</i>								
Constant term (OLS estimation)							-0.3342 [0.9801]	0.2971 [1.1530]
<i>Regression diagnostics</i>								
Observations	637	618	618	636	636	636	636	636
Pseudo R <sup>2</sup>	0.0217	0.0194	0.0194	0.0205	0.0239	0.0214	n.a.	n.a.
R <sup>2</sup>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.0869	0.0849
p-value joint significance of all variables	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
p-value joint significance of individual	0.0980	0.1990	0.2220	0.0889	0.0998	0.117	0.0453	0.0840
p-value joint significance of party dummies	0.1130	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
p-value joint significance of state-controls	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0007

Notes: Columns (1)-(6) display marginal effects for the maximum category (= +4), columns (7) and (8) display OLS coefficients, \*/\*\*/\*\* denote significance at the 10%/5%/1% level; standard errors in brackets are clustered at the state-party level; <sup>a</sup> base category for the individual party-dummies is the free democratic party; <sup>b</sup> State characteristics are 2010 data for survey waves 1 and 2, which both took place in 2011, and 2011 data for survey wave 3, which took place in 2012.

**Table 10: Regression results for fiscal equalization question (-4=too low; +4=too far reaching)**

	Ideological variations				Legacy variation		Interaction effects	
	(1) OProbit	(2) OProbit	(3) OProbit	(4) OProbit	(5) OProbit	(6) OProbit	(7) OLS	(8) OLS
<i>Education</i>								
Tertiary degree	0.0112 [0.0150]	0.0076 [0.0146]	0.0098 [0.0149]	0.0118 [0.0149]	0.0027 [0.0159]	0.0172 [0.0149]	0.1678 [0.1379]	0.1722 [0.1382]
Economics/Business degree	-0.0097 [0.0191]	-0.0082 [0.0195]	-0.0078 [0.0200]	-0.0097 [0.0181]	-0.0124 [0.0190]	-0.0167 [0.0195]	-0.1525 [0.1661]	-0.1624 [0.1667]
<i>Information</i>								
Member of budget committee	0.0116 [0.0196]	0.0147 [0.0198]	0.0157 [0.0199]	0.0115 [0.0190]	0.0165 [0.0192]	0.0129 [0.0188]	0.1147 [0.1580]	0.1110 [0.1611]
Member of legal committee	-0.0095 [0.0257]	-0.0091 [0.0265]	-0.0107 [0.0258]	-0.0106 [0.0251]	-0.0105 [0.0243]	-0.0116 [0.0245]	-0.1037 [0.2064]	-0.0999 [0.2091]
Number of years in parliament	-0.0007 [0.0013]	-0.0007 [0.0013]	-0.0006 [0.0014]	-0.0005 [0.0013]	0.0008 [0.0014]	0.0000 [0.0013]	-0.0008 [0.0112]	-0.0009 [0.0109]
<i>Power</i>								
Member of state gov't coalition	-0.0383 [0.0320]	-0.0525 [0.0326]	-0.0576 [0.0379]	-0.0471 [0.0331]	-0.0501* [0.0286]	-0.0431 [0.0334]	-0.4586 [0.3006]	-0.5158 [0.8845]
<i>Other individual characteristics</i>								
Female	-0.0100 [0.0238]	-0.0053 [0.0247]	-0.0106 [0.0242]	-0.0193 [0.0252]	-0.0120 [0.0245]	-0.0161 [0.0253]	-0.1291 [0.2255]	-0.1456 [0.2287]
Age in years	0.0001 [0.0009]	-0.0000 [0.0008]	-0.0001 [0.0009]	0.0001 [0.0008]	-0.0001 [0.0009]	-0.0002 [0.0009]	-0.0009 [0.0075]	-0.0010 [0.0073]
<i>Ideology</i>								
Christian Democrats	-0.0122 [0.0365]							
Social Democrats	-0.0745** [0.0326]							
Green Party	-0.0676* [0.0354]							
Left Party	0.0249 [0.0454]							
Other parties	-0.0114 [0.0522]							
Right parties		0.0493 [0.0320]						
Pappi Indicator			0.0196 [0.0205]					
Preference for lower taxes and fees				0.0027** [0.0010]	0.0025** [0.0011]	0.0030*** [0.0011]	0.0255*** [0.0093]	0.0260*** [0.0091]

Continued on next page.

**Table 10: Regression results for fiscal equalization question (-4=too low; +4=too far reaching) (continued)**

	Ideological variations				Legacy variation		Interaction effects	
	(1) OProbit	(2) OProbit	(3) OProbit	(4) OProbit	(5) OProbit	(6) OProbit	(7) OLS	(8) OLS
<i>State characteristics<sup>a</sup>: income and size</i>								
GDP per capita	0.0087*** [0.0031]	0.0074** [0.0030]	0.0079** [0.0033]	0.0073** [0.0031]	0.0100*** [0.0031]	0.0018 [0.0024]	0.0142 [0.0196]	0.0128 [0.0299]
Absolute deviation of state GDP per capita from federal GDP per capita	-0.0078 [0.0054]	-0.0064 [0.0053]	-0.0065 [0.0057]	-0.0056 [0.0055]	-0.0161** [0.0064]	-0.0040 [0.0059]	-0.0322 [0.0491]	-0.0324 [0.0528]
Population	0.0001 [0.0046]	0.0003 [0.0047]	0.0008 [0.0047]	0.0007 [0.0044]	-0.0090* [0.0048]	-0.0002 [0.0051]	0.0019 [0.0447]	0.0022 [0.0448]
<i>State characteristics<sup>a</sup>: legacies</i>								
Total debt to GDP	-0.0067*** [0.0021]	-0.0069*** [0.0022]	-0.0071*** [0.0022]	-0.0066*** [0.0019]				
3 year average of deficit to GDP					-0.1100*** [0.0239]			
Consolidation needs as share of GDP						-0.0736*** [0.0248]	-0.6240*** [0.2079]	-0.6339*** [0.2085]
<i>State characteristics<sup>a</sup>: equalization</i>								
Fiscal equalization transfers to GDP	-0.0033 [0.0304]	0.0011 [0.0322]	0.0023 [0.0330]	-0.0077 [0.0297]	-0.0842*** [0.0168]	-0.0432 [0.0286]	-0.5798** [0.2316]	-0.4000 [0.2449]
<i>Interaction effects</i>								
Fiscal equalization transfers to GDP × Member of state gov't coalition							0.2720 [0.2659]	
GDP per capita × Member of state gov't coalition								0.0037 [0.0291]
<i>Constant</i>								
Constant term (OLS estimation)							1.5094 [0.9142]	1.5375 [0.9709]
<i>Regression diagnostics</i>								
Observations	631	612	612	630	630	630	630	630
Pseudo R <sup>2</sup>	0.0912	0.0832	0.0813	0.0890	0.0971	0.0834		
R <sup>2</sup>							0.2918	0.2887
p-value joint significance of all variables	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
p-value joint significance of individual	0.953	0.782	0.867	0.869	0.783	0.870	0.758	0.8550
p-value joint significance of party dummies	0.0572	n.a.						
p-value joint significance of state-controls	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Notes: Columns (1)-(6) display marginal effects for the maximum category (= +4), columns (7) and (8) display OLS coefficients, \*/\*\*/\*\* denote significance at the 10%/5%/1% level; standard errors in brackets are clustered at the state-party level; <sup>a</sup> base category for the individual party-dummies is the free democratic party; <sup>b</sup> State characteristics are 2010 data for survey waves 1 and 2, which both took place in 2011, and 2011 data for survey wave 3, which took place in 2012.

## 5.4 Robustness tests

Our first robustness test returns to the multicollinearity issue. Table 11 shows the correlation coefficients of GDP per capita with the measure of consolidation needs and fiscal equalization transfers. All variables are highly correlated which probably explain the missing significance of fiscal equalization transfers in the regression results of Tables 9-10.

**Table 11: Correlation coefficients of selected variables**

	GDP per capita	Consolidation needs as share of GDP	Fiscal equalization transfers to GDP
GDP per capita	1		
Consolidation needs as share of GDP	-0.3982	1	
Fiscal equalization transfers to GDP	-0.4245	0.7766	1

Notes: 637 observations included.

To demonstrate this, we have re-estimated our model by excluding the GDP per capita or/and the measure of consolidation needs. The results are shown in Table 12. The coefficient of fiscal equalization transfers has the expected sign and is statistically highly significant if we exclude the GDP per capita or/and the consolidation needs. The result supports our hypothesis that state self-interest is important: Politicians from states with high fiscal equalization transfers are more opposed to cut back transfers as their counterparts in net-payer states.

Given multicollinearity, we have also re-estimated the interaction effects by excluding consolidation needs or/and GDP per capita. The results do not change, however. There is no additional statistically significant impact of these interaction terms in the absence of those variables.<sup>14</sup>

The results of further robustness tests are shown in the appendix (see Table A 3). We use specification 6 from the main results as the baseline specification. In a first step, we re-estimate the model applying a weighted regression. As regression weights we use the inverse of responses per party and state to the party and state basic population. The main results are robust, i.e. there is a strong positive effect of individual ideology towards lower taxes and fees. State characteristics matter as well. This especially holds for consolidation needs for the period 2011 to 2020. In a second step, we replace all state characteristics but include state fixed effects in the regressions. The main result for the personal characteristics is not affected by this change. Referring to the fiscal equalization preferences, however, the alternative models show an additional statistically significant impact of individual power. Members of state government parties thus are more in favor of increased fiscal equalizations compared to members of opposition parties.

<sup>14</sup> The results are not shown but are available upon request.

**Table 12: Regression results: robustness test on multicollinearity**

	Tax autonomy preferences			Fiscal equalization preferences		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Education</i>						
Tertiary degree	-0.0352 [0.0254]	-0.0340 [0.0252]	-0.0358 [0.0255]	0.0168 [0.0150]	0.0160 [0.0154]	0.0159 [0.0153]
Economics/Business degree	0.0268 [0.0293]	0.0239 [0.0291]	0.0292 [0.0292]	-0.0150 [0.0191]	-0.0080 [0.0180]	-0.0078 [0.0176]
<i>Information</i>						
Member of budget committee	-0.0186 [0.0264]	-0.0203 [0.0260]	-0.0182 [0.0261]	0.0134 [0.0191]	0.0128 [0.0191]	0.0129 [0.0193]
Member of legal committee	-0.0526 [0.0332]	-0.0576* [0.0330]	-0.0529 [0.0334]	-0.0106 [0.0242]	-0.0135 [0.0264]	-0.0133 [0.0261]
Number of years in parliament	0.0013 [0.0016]	0.0017 [0.0015]	0.0013 [0.0016]	-0.0001 [0.0013]	-0.0001 [0.0014]	-0.0001 [0.0015]
<i>Power</i>						
Member of state gov't coalition	-0.0024 [0.0249]	0.0029 [0.0223]	-0.0002 [0.0255]	-0.0437 [0.0344]	-0.0371 [0.0390]	-0.0373 [0.0394]
<i>Other individual characteristics</i>						
Female	-0.0385 [0.0239]	-0.0438* [0.0251]	-0.0402 [0.0245]	-0.0155 [0.0254]	-0.0217 [0.0281]	-0.0216 [0.0279]
Age in years	-0.0016 [0.0011]	-0.0016 [0.0011]	-0.0016 [0.0011]	-0.0002 [0.0009]	-0.0001 [0.0009]	-0.0001 [0.0009]
<i>Ideology</i>						
Preference for lower taxes and fees	0.0030*** [0.0011]	0.0029** [0.0012]	0.0030*** [0.0011]	0.0030*** [0.0011]	0.0031*** [0.0010]	0.0031*** [0.0010]
<i>State characteristics<sup>a</sup>: income and size</i>						
GDP per capita		0.0074*** [0.0018]			0.0003 [0.0025]	
Absolute deviation of state GDP per capita from federal GDP per capita	-0.0011 [0.0035]	-0.0064 [0.0046]	0.0015 [0.0032]	-0.0018 [0.0045]	0.0050 [0.0048]	0.0054 [0.0038]
Population	0.0017 [0.0037]	0.0001 [0.0045]	0.0041 [0.0039]	0.0010 [0.0048]	0.0075 [0.0062]	0.0077 [0.0061]
<i>State characteristics<sup>a</sup>: legacies</i>						
Consolidation needs as share of GDP	-0.0259 [0.0194]			-0.0711*** [0.0247]		
<i>State characteristics<sup>a</sup>: equalization</i>						
Fiscal equalization transfers to GDP	-0.0133 [0.0219]	-0.0159 [0.0128]	-0.0323** [0.0160]	-0.0497* [0.0279]	-0.1022*** [0.0282]	-0.1030*** [0.0273]
<i>Regression diagnostics</i>						
Observations	636	636	636	630	630	630
Pseudo R <sup>2</sup>	0.0146	0.0194	0.0137	0.0829	0.0721	0.0721

Notes: All specifications are estimated as ordered probit. This table displays marginal effects for the maximum category (= +4), \*/\*\*/\*\* denote significance at the 10%/5%/1% level; standard errors in brackets are clustered at the state-party level; <sup>a</sup> State characteristics are 2010 data for survey waves 1 and 2, which both took place in 2011, and 2011 data for survey wave 3, which took place in 2012. <sup>b</sup>We use the inverse of responses per party and state to the party and state basic population as regression weights.

## 6 State-specific median preferences and predicted reform majorities

We now make use of our estimation models to identify the constraints which federal reforms are facing in state parliaments and the Bundesrat. For that purpose, we use the estimated models to predict the (voting) preferences of *all* politicians whether they participated in our survey or not. With the exception of the individual ideology proxy (preference for lower taxes

and fees, this variable originates from the survey itself) all control variables are also available for politicians not participating in our survey.

The first step identifies the preferences of each state parliament's median position, which is defined by the middle position when ordering the predicted preferences across the -4/+4 answer scale. The results in Figure 6 (upper part) show that median positions in Eastern German states, Lower Saxony and Rhineland-Palatinate are (mildly) opposed to tax autonomy. With respect to fiscal equalization the Eastern German states (excluding Saxony) as well as Bremen are in favor of, while the others are opposed to more fiscal equalization with the resistance being particularly strong in the net-contributor states of Bavaria, Baden-Wuerttemberg, and Hesse.

The second step makes use of these predictions to identify predicted majorities within states and the Bundesrat. We estimate the approval rate per state for both reform dimensions. The algorithm assigns an approving position to each politician for whom the predicted survey answer is above zero on the -4/+4-scale. The approval to both reform dimensions per state is presented in Figure 6 (lower part). There is a slight majority of 9 to 7 German states which would vote in favor of increasing tax rate autonomy and a larger majority of 10 to 6 in favor of less intense equalization. The Eastern German states would reject both tax autonomy (with the exception of Berlin) and a reduction of equalization payments (with the exception of Saxony). Western German states would be united (with the dissenter Bremen) to vote in favor of a less ambitious equalization system and have less agreement on tax autonomy. According to our model's predictions, the within-state agreement against the current equalization intensity is large; approval rates for less equalization frequently reach 100%, that is, all politicians in the respective state parliament (at least slightly) think that the current system of fiscal equalization is too far reaching and would thus vote for a reduction. The marked exceptions are states in Eastern Germany and the poorer city states of Berlin and Bremen (with a 0% reform support in these two city states).

As described in section 2, the states cast their votes in the Bundesrat as bloc votes. Voting weights are summarized in Table 13. Decisions in normal legislation pass with absolute majority (i.e. 35 out of 69 total votes), while a change of the constitution requires the consent of two-thirds of the Bundesrat votes (i.e. 46 votes).

We now aggregate pro-reform state votes according to the bloc vote rule in the Bundesrat, i.e. all state votes are counted according to the state majority position. The resulting majorities are 40:29 in favor of tax autonomy and 47:22 in favor of less intense equalization. Thus, the

states opposing tax autonomy have the power to successfully veto a constitutional change which would be required to open the way towards individual state tax rate setting. However, the veto power is fragile. The switch of Lower Saxony alone into the tax autonomy camp would be sufficient to gain a pro-reform constitution changing majority. A reform towards less intense equalization is more likely than for tax autonomy because we predict a larger majority and an absolute majority rather than a qualified majority would be sufficient to change the fiscal equalization scheme.<sup>15</sup>

**Table 13: Distribution of votes in the Federal Council of Germany**

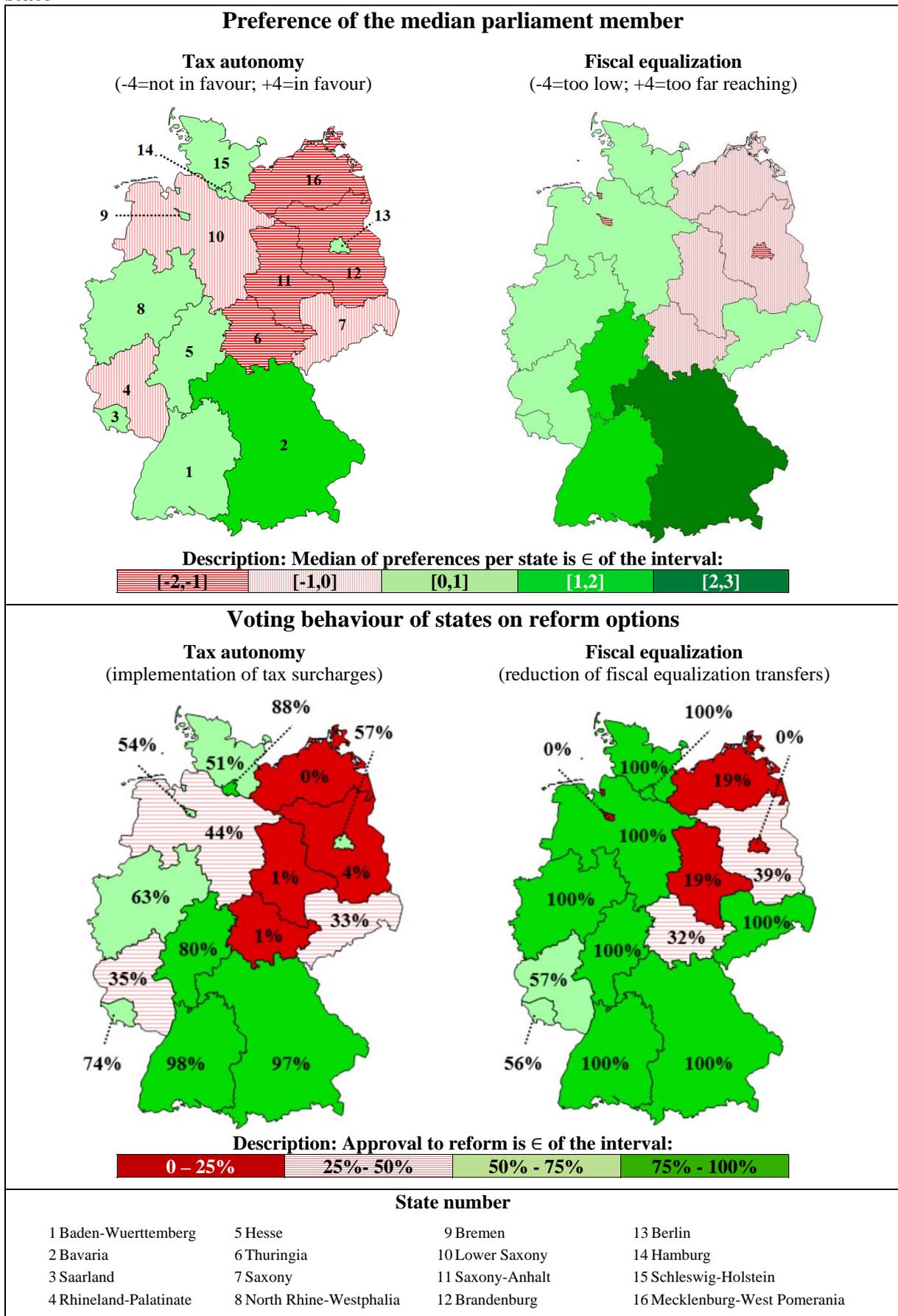
State	Votes	State	Votes
Baden-Wuerttemberg	6	Saxony	4
Bavaria	6	Thuringia	4
North Rhine-Westphalia	6	Saxony-Anhalt	4
Lower Saxony	6	Berlin	4
Hesse	5	Bremen	3
Schleswig-Holstein	4	Hamburg	3
Rhineland-Palatinate	4	Mecklenburg-West Pomerania	3
Brandenburg	4	Saarland	3

Source: Basic Law (Grundgesetz), Article 51; www.bundesrat.de

Of course, our calculations must be regarded with caution. In real future votes on reforms of Germany's fiscal federal system the individual politician's preference is not the only determinant. Actual votes will also be influenced by country-wide party strategies and party discipline. A further complication is that the composition of state parliaments will change in the future and voters might strategically select candidates to influence the upcoming fiscal federalism reform decisions. Accordingly, our predictions cannot be seen as an exact forecast of a future vote. However, they are indicative for the underlying voting tendencies and provide insights into the room for possible political compromises.

<sup>15</sup> The principle of fiscal equalization is enshrined in the German constitution. The formulas and the intensity of equalization are defined in simple laws.

**Figure 6: Median parliament member preferences and predicted voting behaviour per state**



## 7 Conclusion

The public finance literature has contributed a lot to our understanding of the incentive and welfare effects of federal institutions. By contrast, insights into the determinants of reform preferences and reform resistance of political decision makers are rare. This study contributes to this white spot in the context of the current federal reform debate in Germany.

One clear result of our analysis is that there is the expected ideological link but that state interests are equally important to understand federal reform preferences. The ideological link exists in the sense that those sub-national politicians who prefer lower taxes and a lower size of government are also more inclined to accept a more competitive type of federalism for Germany. The impact of state interests is not as differentiated as theoretical tax competition models would suggest. The clear pattern is that richer states are more open for tax competition and less intense equalization than poorer states. MSPs from states which lag behind the country's economic development do not seem to perceive the chances of tax competition as theoretical models would predict even for them. This can be taken as a challenging insight for public finance: Insofar there is a theoretical consensus that tax competition may also offer opportunities for poorer states (without significant budgetary legacies) this message has not yet reached the political discourse.

What is consistent with theoretical reasoning is the fact that legacies play a prominent role for the understanding of reform resistance: Large legacy debt (open or implicit) lowers the support for tax autonomy. This result points to the potential of a political bargain. Given that the resistance towards tax autonomy in some pivotal states is only weak, some targeted collective help with respect to the legacy debt problem could open the way for compromise and a move towards tax autonomy in the upcoming reform decisions on German federalism.

## Appendix

**Table A 1: Variable description**

<i>Education</i>		
Tertiary degree	Dummy	Degree from university or polytechnic
Economics/Business degree	Dummy	Tertiary education in business or economics
<i>Information</i>		
Member of budget committee	Dummy	Deals with state government budget
Member of legal committee	Dummy	Deals with state's legal issues
Number of years in parliament	Discrete	Calculated as 2011/2012 minus year of parliament entry (interruptions taken into account)
<i>Power</i>		
Member of government coalition at state level	Dummy	Member of one of the ruling parties
<i>Other individual characteristics</i>		
Female	Dummy	Member of parliament is female
Age in years	Discrete	Calculated as 2011/2012 minus year of birth
<i>Party affiliation</i>		
Free Democrats	Dummy	Member of Free Democratic Party (base category)
Christian Democrats	Dummy	Member of Christian Democratic or Christian Social Party
Social Democrats	Dummy	Member of Social Democratic Party
Green Party	Dummy	Member of Green Party
Left Party	Dummy	Member of Left Party
Other parties	Dummy	Member of other party
Right parties	Dummy	Member of right wing party (Christian Democrats, Free Democrats; No value for the "other parties")
Pappi Indicator	Continuous	Share of „economic policy“ in state party programs 1990-2010 (standardized, mean 0 and variance 1 ), <i>source</i> : Pappi and Seher (2013)
Preference for lower taxes and fees	Continuous	Calculated as the percentage of a hypothesized additional state budget that is allocated to lowering taxes and fees (between 0 and 100%)
<i>State characteristics: income and size</i>		
GDP per capita	Continuous	Gross domestic product per capita, in thousand Euros, <i>source</i> : German Statistical Office
Absolute deviation of state GDP per capita from federal GDP per capita	Continuous	Absolute deviation of state GDP per capita from federal GDP per capita <i>source</i> : German Statistical Office
Population	Continuous	Population in millions <i>source</i> : German Statistical Office
<i>State characteristics: legacies</i>		
Total debt to GDP	Continuous	Total debt divided by gross domestic product, in %, <i>source</i> : German Statistical Office
3 year average of deficit to GDP	Continuous	3 year average of deficit to GDP <i>source</i> : German Statistical Office
Consolidation needs as share of GDP	Continuous	Consolidation needs for the period 2011 – 2020 as a share of calculatory nominal GDP <i>source</i> : Sachverständigenrat (2011)
<i>State characteristics: equalization</i>		
Fiscal equalization transfers	Continuous	Total net inter-state fiscal equalization transfer payments divided by GDP, in %, <i>sources</i> : Federal Ministry of Finance, German Statistical Office

**Table A 2: Summary statistics for variables**

	Observations	Mean	Standard deviation	Min	Max
<i>Dependent variables (answer to survey question)</i>					
Tax autonomy question	636	0.113	3.041	-4	4
Fiscal equalization question	631	0.765	2.135	-4	4
<i>Education</i>					
Tertiary degree	636	0.744	0.437	0	1
Economics/Business degree	636	0.176	0.381	0	1
<i>Information</i>					
Member of budget committee	636	0.206	0.404	0	1
Member of legal committee	636	0.142	0.349	0	1
Number of years in parliament	636	8.308	6.939	0	38
<i>Power</i>					
Member of government coalition at state level	636	0.538	0.499	0	1
<i>Other individual characteristics</i>					
Female	636	0.242	0.429	0	1
Age in years	636	51.481	10.281	23	73
<i>Ideology</i>					
Free Democrats	636	0.064	0.246	0	1
Christian Democrats	636	0.443	0.497	0	1
Social Democrats	636	0.270	0.445	0	1
Green Party	636	0.118	0.323	0	1
Left Party	636	0.074	0.262	0	1
Other parties	636	0.030	0.170	0	1
Right parties	617	0.524	0.500	0	1
Pappi indicator	618	0.240	0.833	-1.83	1.28
Preference for lower taxes and fees	636	3.044	9.882	0	100
<i>State characteristics: income and size</i>					
GDP per capita	636	30.988	7.135	21.402	49.434
Absolute deviation of state GDP per capita from federal GDP per capita	636	5.680	4.279	0.104	18.901
Population	636	6.769	5.003	0.661	17.845
<i>State characteristics: legacies</i>					
Total debt to GDP	636	27.496	15.405	6.920	73.628
3 year average of deficit to GDP	636	0.898	0.863	-0.397	3.604
Consolidation needs as share of GDP	636	1.240	1.135	-0.600	3.500
<i>State characteristics: equalization</i>					
Fiscal equalization transfers received to GDP	636	0.237	0.908	-0.794	3.001

**Table A 3: Regression results: robustness test with alternative specifications**

	Tax autonomy preferences		Fiscal equalization preferences	
	(1) OProbit	(2) OProbit	(3) OProbit	(4) OProbit
<i>Education</i>				
Tertiary degree	-0.0384 [0.0277]	-0.0402 [0.0254]	0.0203 [0.0184]	-0.0036 [0.0156]
Economics/Business degree	0.0179 [0.0271]	0.0177 [0.0293]	0.0102 [0.0222]	-0.0042 [0.0183]
<i>Information</i>				
Member of budget committee	-0.0441 [0.0290]	-0.0156 [0.0266]	0.0089 [0.0179]	0.0129 [0.0179]
Member of legal committee	-0.0464 [0.0353]	-0.0567* [0.0320]	0.0093 [0.0241]	-0.0108 [0.0245]
Number of years in parliament	0.0024 [0.0016]	0.0027* [0.0015]	0.0003 [0.0015]	0.0003 [0.0012]
<i>Power</i>				
Member of state gov't coalition	-0.0169 [0.0230]	-0.0042 [0.0165]	-0.0499* [0.0273]	-0.0556*** [0.0213]
<i>Other individual characteristics</i>				
Female	-0.0641** [0.0308]	-0.0394 [0.0243]	-0.0061 [0.0254]	-0.0195 [0.0234]
Age in years	-0.0020 [0.0013]	-0.0016 [0.0010]	0.0002 [0.0010]	0.0000 [0.0009]
<i>Ideology</i>				
Preference for lower taxes and fees	0.0022* [0.0011]	0.0026** [0.0012]	0.0028** [0.0011]	0.0026** [0.0010]
<i>State characteristics<sup>a</sup>: income and size</i>				
GDP per capita	0.0110*** [0.0020]		0.0001 [0.0020]	
Absolute deviation of state GDP per capita from federal GDP per capita	-0.0161*** [0.0049]		-0.0031 [0.0045]	
Population	-0.0099** [0.0046]		0.0012 [0.0039]	
<i>State characteristics<sup>a</sup>: legacies</i>				
Consolidation needs as share of GDP	-0.0555*** [0.0176]		-0.0650*** [0.0200]	
<i>State characteristics<sup>a</sup>: equalization</i>				
Fiscal equalization transfers to GDP	0.0459** [0.0228]		-0.0345 [0.0243]	
<i>Regression diagnostics</i>				
Weighted regression <sup>b</sup>	✓		✓	
State fixed effects instead of state variables		✓		✓
Observations	636	636	630	630
Pseudo R <sup>2</sup>	0.0255	0.0279	0.0861	0.110

Notes: This table displays marginal effects for the maximum category (= +4), \*\*\*/\*\*/\* denote significance at the 10%/5%/1% level; standard errors in brackets are clustered at the state-party level; <sup>a</sup> State characteristics are 2010 data for survey waves 1 and 2, which both took place in 2011, and 2011 data for survey wave 3, which took place in 2012. <sup>b</sup>We use the inverse of responses per party and state to the party and state basic population as regression weights.

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