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Legislative Malapportionment

and the Politicization of

Germany's Intergovernmental Transfer System

by

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Abstract

Legislative bargaining theory suggests that fiscal transfers among member states of a federation are determined to a substantial degree by political bargaining powers. Malapportionment of the states' population in the legislature is claimed to lead to disproportionally higher benefits of overrepresented states. The present paper analyses empirically the distribution of fiscal transfers in Germany's intergovernmental transfer system over the period 1970-2002. It can be shown that overrepresented states in the upper house receive disproportionate shares of transfers, while malapportionment in the lower house does not seem to matter. We also find empirical evidence that overrepresentation became more important over time.

JEL: D7, H77

Keywords: Legislative bargaining, overrepresentation, fiscal transfers, Germany

1 Introduction

Following Harold Lasswell's famous dictum from 1936, the central inquiry of politics is, "who gets what, when and how?" (Lasswell 1988). One strand of research in political economy has therefore focused intensely on the political determinants of fiscal transfers and the division of favors among the states in a federal system. From a theoretical perspective the distribution of public spending and flows of net fiscal benefits may be severely influenced by a malapportionment of votes in legislatures. Put briefly, a disproportional representation of the states' population in legislative chambers produces asymmetric bargaining powers, favoring overrepresented units at the expense of underrepresented states. A number of empirical studies confirm this view and find a strong correlation between a disproportional representation of sub-central entities and an unequal provision of grants and federal expenditures per capita among states in the U.S. (Atlas et al. 1995, Lee 1998, Lee 2000, Knight 2004), Argentina (Porto and Sanguinetti 2001) and among countries in the European Union (Rodden 2002).

One of the most interesting cases in this respect is Germany. Over the past decades the volume of Germany's system of intergovernmental transfers (*'Länderfinanzausgleich, LFA'*) has increased substantially. In 1970, the total sum of horizontal and vertical redistributive transfer flows amounted to 0.3 % of GDP, it climbed to 0.4 % of GDP in 1990, and in 2000 it reached over 1.6 % of GDP in nominal terms. Obviously, this upsurge is driven to a large extent by German Unification and the inclusion of the relatively poor five new *Länder* and the city state of Berlin in the fiscal transfer system since 1995. Although the rise of total transfer volume may be subject to criticism by itself, economic scholars are mostly troubled with substantial inefficiencies of the transfer system, attributable to a far-reaching equalization of the state's financial positions and a sizable number of questionable regulations, favoring certain states at the expense of others (Homburg 1994, Huber and Lichtblau 2000). Some contributors discuss the political rationale behind interstate redistribution of fiscal revenues (Homburg 1997, Lenk and Schneider 1999, Blankart 2000, Pitlik and Schmid 2000). These papers suggest that political factors are at the heart of an explanation for the expansion and the direction of redistribution in the intergovernmental transfer system. This view is supported by a recent decision of Germany's Constitutional Court (Bundesverfassungsgericht 2000), in which previous regulations of the system of intergovernmental transfers were declared to be partly unconstitutional. What is exceptionally remarkable is that the judges advised political decision makers to frame new rules with the aim of limiting free bargaining among state and federal officials in negotiations for fiscal transfers. According to the Court's opinion the allocation of tax receipts and fiscal transfers among the states as well as between the states and the federal level has to be isolated from political forces in the bargaining process.[1] Pitlik, Schmid, and Strotmann (2001) show for the time period 1979-90 that there was sufficient scope for a political manipulation of transfer flows. Prior to German Unification a net distributional advantage of smaller states can in part be explained by extraordinary bargaining powers due to an overrepresentation in the upper house of the federal legislative. The impacts of German Unification on the political and economic determinants of intergovernmental transfers have not been examined so far, however.

The present paper extends the study of Pitlik, Schmid, and Strotmann (2001) in various ways. First of all, the time period under consideration is expanded to include the years 1970-2002. Thus, we take account of the special circumstances in Germany after 1991 which changed substantially the economic and political environment under which the transfer system thus far operated. Secondly, we also consider the effects of the bicameral system in Germany as well as covariates modeling partisan affiliations of federal and state governments in our empirical research. Thirdly, we test for an over time change in the factors shaping the distribution of net gains. We attempt to investigate whether more complex transfer negotiations due to an increasing number of players had an impact on the relative importance of political influences as compared to economic considerations. Finally, from a methodological standpoint, instead of simple cross sectional regressions, we make use of the time series-cross section

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1 If both chambers of the German federal legislative would not have agreed on new regulations until 2002 the entire transfer system would have been nullified. In 2001 delegates of the federal and the state level agreed to a severely critized reform that will be in effect on from 2005.

information structure of the data by employing panel estimation techniques. The paper proceeds as follows. Section 2 gives a very brief overview of the theoretical underpinnings of the malapportionment hypothesis. Section 3 shortly describes the evolution of fiscal federalism in Germany and reviews economic and political developments influencing the LFA. Section 4 contains empirical tests of our main hypotheses. Section 5 concludes with a short discussion.

2 Malapportionment and the distribution of fiscal transfers

Traditional economics highlights three basic rationales for the introduction of a system of intergovernmental grants (e.g. Oates 1999): (i) internalization of spillover effects, (ii) mitigation of interregional income differences, and (iii) absorbing economic shocks and offering interregional insurance by a redistributive transfer scheme. States providing benefits to other regions, economically weaker states, and states hit by adverse economic shocks should therefore receive higher transfers, ceteris paribus.

Yet, these raisons d'être do not consider that real world intergovernmental transfer schemes are not made by benevolent maximizers of social welfare, but are instead the result of a complex exchange of favors by self-interested political actors. From a public choice perspective the central hypothesis is that, all else equal, "... grants go to those states with political agents with the most – and most valuable – political capital to sell" (Grossman 1994, p. 298). In this view, a state's net gain in the interregional redistribution game is shaped by its ability to supply political support in exchange for tax and transfer receipts.

The structure of intergovernmental fiscal systems is typically decided on in a legislative bargaining process, based on a simple majority rule. As is well known from social choice theory, in each simple majority decision concerning distributional issues, serious cycling problems are prevalent (McKelvey 1976). In a highly influential paper, Baron and Ferejohn

(1989) however show that stability may be achieved in a sequential legislative bargaining game. In their framework, one out of a total of N legislators is chosen randomly to propose a division of a fixed amount of money among the legislators. Each legislator represents one electoral district. After a proposal is made, the legislature is voting on it. If the proposer's offer is not accepted by a majority, the game goes on and a new proposer is selected randomly until a proposal is finally accepted.

Building a minimum winning coalition for his proposal, a self-interested proposer makes an offer to a majority of agents that keeps these legislators indifferent between accepting and continuing the game. In order to maximize his own share, it is therefore sensible for the proposer to form a coalition that is composed of legislators whose votes are cheapest to get. The group of cheap suppliers of votes in the majority rule divide-the-dollar game consists of two classes of legislators, i.e., (i) agents with the lowest default pay offs, and (ii) legislators representing more votes per capita (c.f. also Persson and Tabellini 2000, pp. 166-167).

The basic notion why these legislators are more likely to be included in the winning coalition is simple in both cases. Agents with a low pay off in case of a breakdown of negotiations are willing to accept worse offers than agents with a higher default pay off. Hence, poorer districts are expected to receive a disproportionately higher share of the cake. In addition, legislators representing more votes per capita demand a lower share of the total amount to be divided in order to please their respective districts population. If all legislators supply one vote to the proposer, smaller districts will be favored at the expense of more populated districts. More generally, overrepresented electoral districts, i.e. jurisdictions whose representatives offer more votes per capita in the legislative game as compared to the national average, have a higher chance of being included in the majority winning coalition. Malapportionment in the legislature may produce an unequal distribution of benefits per capita, where disproportionately higher shares go to overrepresented, i.e. typically smaller, states.

Ansolabehere, Snyder, and Ting (2003) argue that this logic does not automatically apply to bicameral legislatures. In particular they note that if a proposal has to be accepted by a majority in both chambers of the legislature, an unequal distribution of funds among states due to a malapportionment in the upper house may be vetoed by a majority of representatives in a lower house in which representation is proportional to population. Ansolabehere, Snyder, and Ting (2003) however also show that a bias towards overrepresented states may re-occur under two conditions, i.e., (i) if decisions in a malapportioned legislative chamber require a supermajority, or (ii) if the proposal powers originate in the chamber with disproportional representation.

Summing up so far, legislative bargaining theory suggests that fiscal transfers among the member states of a federation are not only determined by economic reasons, but also to a substantial degree by political bargaining powers. Theory suggests that a disproportional representation of the states' population in the legislature under certain conditions leads to disproportionally higher benefits going to overrepresented states.

3 The evolution of German Fiscal Federalism: an overview

Since 1949 the Federal Republic of Germany experienced a remarkable process of centralization of competencies at the federal (*'Bund'*) level (Blankart 2000). The system of intergovernmental fiscal relations among jurisdictional tiers is still predominantly based on the fiscal constitution of 1969. It is characterized by a revenue sharing arrangement, covering about 75 percent of German tax revenues. Almost no tax legislation authority is left autonomously to the states. Some special tax receipts are allocated exclusively to the state or to the federal level. Revenues of joint taxes, which include the income tax, the corporation tax, and the VAT, are divided among all governmental tiers according to negotiated shares. In the horizontal dimension, income tax and corporation tax receipts are divided among the states according to a slightly modified residence principle, leaving little scope for interstate redistribution. This initial distribution of tax revenues builds the baseline for a further redistribution of financial resources among the states in a system composed of three stages.

The basic structure of the redistributive transfer system can be summarized as follows. Article 107/1 Basic Law demands that at least 75 percent of VAT proceeds are allocated among the *Länder* on a per capita basis. A residual of 25 percent serve as an improvement of the fiscal position of financially weaker states (stage 1). The second stage sets up a scheme of equalization transfers from wealthier to less wealthier states to correct remaining fiscal imbalances. This stage is characterized by various special provisions and exemptions in the political definition of the states' fiscal capacities and fiscal needs. Stage 1 and stage 2 are interdependent, as higher VAT receipts reduce received payments on the second stage. On a third stage, the central government donates specific grants (*'Bundesergänzungszuweisungen'*, BEZ) to provide a supplementary coverage of certain states' special needs. In the 1980s a number of reforms came into effect on all three stages (see Renzsch 1991, pp. 261-279). These reforms included adjustments for the political definition of fiscal capacities, as well as the introduction of new categories and an increasing volume of special supplementary grants. Since 1987, major changes occurred, initiated by a Constitutional Court's decision in 1986 (Bundesverfassungsgericht 1986)

Although German Unification in the fall of 1990 caused a dramatic change of the economic environment, the basic structure of Germany's intergovernmental transfer system remained virtually unchanged. In 1991, GDP per capita was roughly 2.3 times higher in the West (including Berlin) than in the East. The Contract of German Unification however did not establish a permanent regulation of intergovernmental fiscal relations in Germany. A special fund ('*Fonds Deutsche Einheit*') was set up as an interim solution to cover the pressing financial needs of the new states, including the city state of Berlin. Additional proceeds, however, were not financed by higher taxes but by a sizeable debt increase in the federal budget as well as several off-budget agencies. During 1991 to 1994, the fiscal transfer system among the old Western states was still in force, and an almost negligible and only temporary transfer scheme among the new *Länder* had been institutionalized. A further ruling of the Constitutional Court (Bundesverfassungsgericht 1992) demanded the introduction of special supplementary grants to Bremen and Saarland in order to bail the two states out of a serious budgetary crisis. These *Sanierungszuweisungen* were introduced in 1994. Initially it was intended to donate grants only until 1998, but later donations were extended until 2004.

In May 1993 a Constitutional Commission delegated the task of an incorporation of the new *Länder* into the fiscal transfer system to the state ministers of finance (Benz 1993, p. 887). The main conflict line concerning the vertical relation between the federal and the state administrations was the distribution of VAT shares. In this respect, the states formed a strong coalition against the Bund.[2] As regards the horizontal distribution of revenues, the ministers of finance had to cope with a serious heterogeneity of interests. Numerous possible transfer schemes existed which would improve financial positions of a majority of states.[3] Two topics have shown to be exceptionally problematic. Without a modification of the rules in effect integration of East German states would have turned former net winner states among the old *Länder* into net losers. Furthermore, Western states strongly opposed an equalization formula based primarily on economic conditions, as they could easily foresee that this would bring about a permanent subsidization of the weak new *Länder*. Eventually, delegates arrived at a compromise ('Federal Consolidation Program') coming into effect in 1995. Two notable changes occurred: Inclusion of the East German states into the system is accompanied by an introduction of new supplementary grants to the new *Länder* and Berlin. This goes along with payments benefiting some old states to compensate them for fiscal losses they expected to experience from integration. Thus, the system of intergovernmental transfers still contains

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2 The federal ministry of finance conceded immediately to a higher VAT share of the *Länder* amounting to about DM 16 Billions. This was approximately the sum, the old states expected to lose by an incorporation of the new states on the first stage (Lenk 1999, p. 170).

3 Lenk and Schneider (1999), for example, develop a revised transfers system, intended to reduce negative incentive effects. In contrast to many other proposals, mostly ignoring the political feasibility of a change, the argument Lenk and Schneider (1999) work out in favor of their proposal is that it alters financial flows in a direction which is supposed to achieve a majority of the involved states because it improves financial capacities.

elements of equalization rules primarily based on economic conditions and on a number of unspecified formulas.

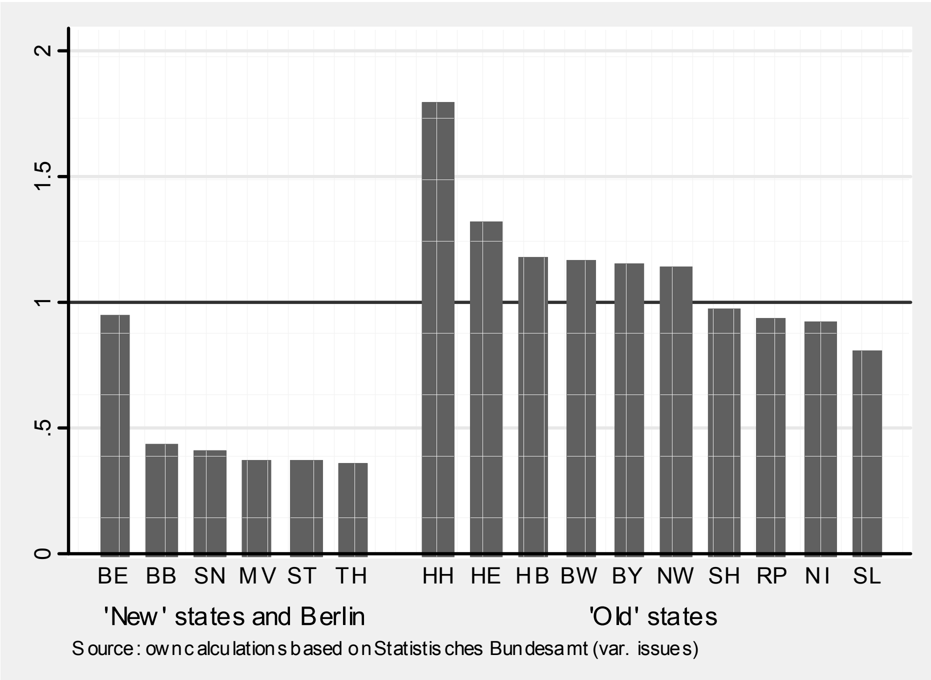
Figure 1 shows initial, i.e. prior to redistribution, average per capita tax receipts of the 16 *Länder* over the period 1995-2002. These include proceeds from all local taxes, own state tax sources and the states' shares of income and corporation tax revenues. For ease of comparison, equal per capita receipts over all states are normalized to 1. As can easily be seen from the chart, revenues in the five new *Länder* Brandenburg (BB), Saxony (SN), Mecklenburg-Vorpomerania (MV), Saxony-Anhalt (ST) and Thuringia (TH) were considerably below national average.[4] Berlin (BE), as well as Schleswig-Holstein (SH), Rhineland-Palatinate (RP), Lower Saxony (NI), and Saarland (SL) had tax receipts slightly below average, while per capita tax receipts of Hessen (HE), Baden-Württemberg (BW), Bavaria (BY), Northrhine-Westphalia (NW) and of city states Bremen (HB) and Hamburg (HH) were above average.

Figure 2 illustrates net per capita gains of the states from the distribution of VAT revenues, horizontal equalization payments, and vertical supplementary grants, i.e., from the system of intergovernmental transfers in total over the period 1995-2002. Equal per capita gains across all states are normalized to 1.

The East German states, including Berlin, benefited more than twice the national average from fiscal transfers per capita. In the group of Western states, Bremen received exceptionally high transfers, amounting to over three times the average, followed by Saarland (1.9 times the national per capita average). The remaining Western states gained below per capita average.

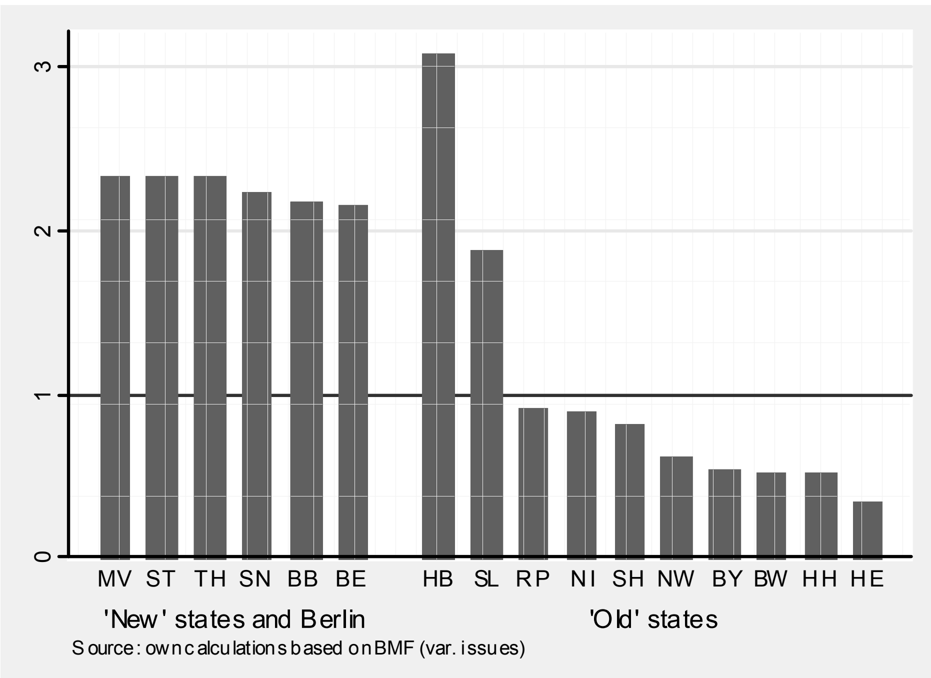
4 Lower tax revenues of the new *Länder* result both from a general economic weakness as well as a number of tax expenditures especially designed after German Unification to foster investment in East Germany.

Figure 1: Average initial per capita tax receipts of the Länder (1995-2002)



Note: Initial tax receipts include all local and state taxes as well as states' shares of income and corporation tax. Nationwide average of per capita receipts normalized to 1.

Figure 2: Average per capita gains of the Länder in the transfer system (1995-2002)



Note: Gains include VAT receipts, horizontal equalization payments and supplementary grants. Nationwide average of per capita gains normalized to 1.

4 Empirical investigation

4.1 Hypotheses and descriptive statistics

Theoretical research in legislative bargaining, as well as previous empirical studies, lead to the central hypothesis that states overrepresented in the legislature receive a higher share of total transfers per capita. The more citizens are represented by a legislative agent's vote, the higher per capita receipts a state is expected to receive in the transfer system (*Hypothesis 1*).

The German intergovernmental transfer system is based on federal law that has to be accepted by majorities in the lower (*Bundestag*) and in the upper chamber (*Bundesrat*) of the federal legislature. Members of the *Bundestag* are popularly elected from sub-national districts and state party lists according to a mixed-member proportional formula. The *Bundesrat* represents the *Länder* and is composed of delegates that are appointed exclusively by state governments. The number of votes in the *Bundesrat* depends on state size. Whereas smaller states currently do have only three votes, more populous states hold up to six seats in the upper chamber. Yet, representation in the upper chamber is still far from proportional to population.

As can often be observed in federal systems, legislative malapportionment in Germany is substantially higher in the upper chamber than in the lower chamber.[5] Figure 3 depicts malapportionment in the *Bundesrat* (black bars) and the *Bundestag* (gray bars) as an average over the years 1995-2002. Proportional representation is normalized to 1. In the upper chamber all new *Länder* including Berlin are overrepresented, although to a different degree. Among Western states, Bremen (5.4), Saarland (3.3), and Hamburg (2.1 times the average) are considerably overrepresented in the *Bundesrat*. Delegates of these three states jointly represent only 4 percent of total population but 13 percent of total votes in the upper chamber. Northrhine-Westphalia, the most underrepresented state in the *Bundesrat*, has a population of 18.1 Millions, representing almost 22 percent of total population but less than 9 percent of

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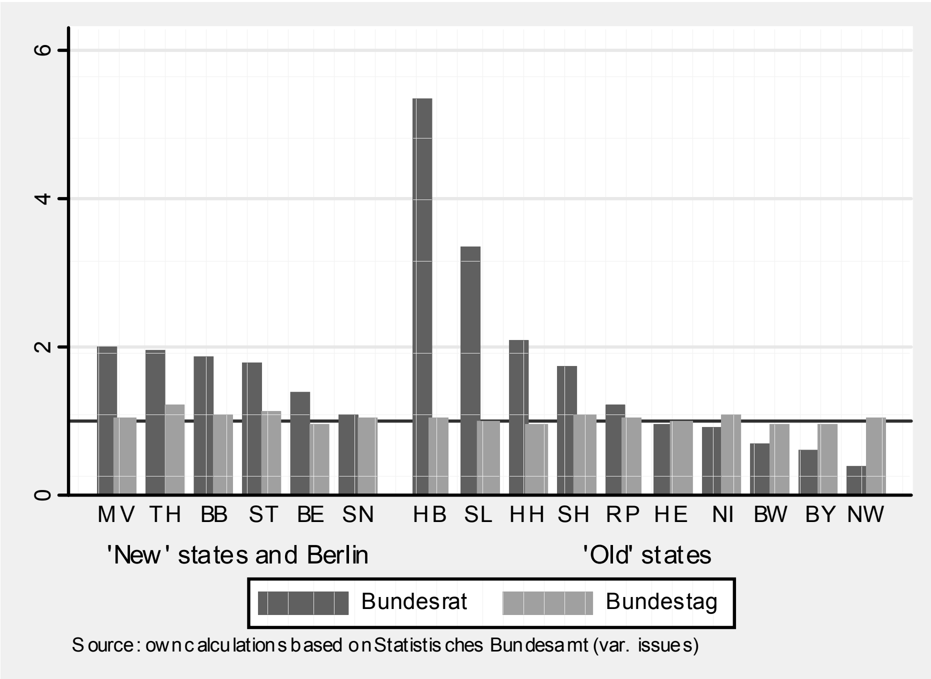
5 During 1970-2002 the Loosemore-Hanby index of disproportionality in the *Bundesrat* is almost constantly about 0.25, while in the *Bundestag* it takes values about 0.025, indicating a much higher disproportionality of representation in the upper chamber.

upper chamber votes. Representation of states in the *Bundestag* is obviously much more proportional to population. Averaged over 1995-2002 the representation index lies in a range between 0.9 (Baden-Württemberg) and 1.3 (Thuringia).

Figure 3: Average malapportionment in Bundesrat and Bundestag (1995-2002)



Note: Proportional representation normalized to 1.

Germany's upper and lower chamber of the legislature further differ with respect to specific concerns of representatives. The *Bundesrat* is clearly dominated by geographical self-interest. A state government's political fortune is heavily dependent on the well-being of its fellow citizens. Thus, as regards the intergovernmental transfer system, a major aim of state delegates in the upper house is to maximize financial resources of the state government in order to win votes. Coalition-building in the lower house is more likely influenced by ideological affiliations or party politics. Geographical self-interest of representatives in the lower house is also present as one half of the members of the *Bundestag* are elected directly from local electoral districts, and the second half is elected by a state party list system. However, in a parliamentary democracy the federal government coalition depends on the political support of a legislative party majority in the lower house (Laver and Shepsle 1996).

Party discipline is of overwhelming importance for voting behavior in the *Bundestag*, whereas a missing support by state delegates in the *Bundesrat* does not directly intimidate a governing coalition at the federal level. It can thus be conjectured that in Germany's parliamentary system legislative malapportionment has a larger impact on the distribution of benefits in the upper than in the lower house of the federal legislature (*Hypothesis 2*).

A further question is whether the impact of overrepresentation is dependent on the time period under consideration. Intergovernmental redistribution is typically not chosen in an ad hoc discretionary bargaining process. Equalization formulas comprise a fixed set of rules that are more or less stable for a longer period of time. Most notably when reforms are negotiated and new rules come into effect there is an opportunity to change existing redistributive schemes. It is therefore of special interest to investigate whether political and economic determinants of relative gains and losses remained stable after each major reform. In particular, one may ask if negotiations on a revision of the fiscal transfer system affected the relative importance of malapportionment and economic conditions for the allocation of benefits among the states. Due to an ever-increasing importance of more discretionary special grants on the third stage of the transfer system, we conjecture that the effects of overrepresentation might be more visible in later time periods (*Hypothesis 3*).

As the short depiction of the evolution of the German system of intergovernmental fiscal transfers since 1970 in section 3 suggests, the time period 1970-2002 for which data are available might best be divided into sub-periods 1970-86, 1987-94 and 1995-2002. During these three sub-periods only minor changes in legal rules of the transfer system occurred. Although German Unification in the fall of 1990 altered the composition of Germany's legislative institutions[6], Eastern states and Berlin have not been incorporated into the transfer system until 1995.[7]

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6 *Political* integration of the new *Länder* was accompanied by an increasing number of legislators in both chambers of the federal legislature, changing the degree of malapportionment slightly. Calculating our representation index for the period 1987-94, we only refer to the old states' delegates.

7 A special problem arises with 1994, where special donations to Bremen and Saarland were introduced. See our discussion below.

Figure 4: Over- and underrepresentation in the upper chamber and mean of relative gains from 1970 to 2002

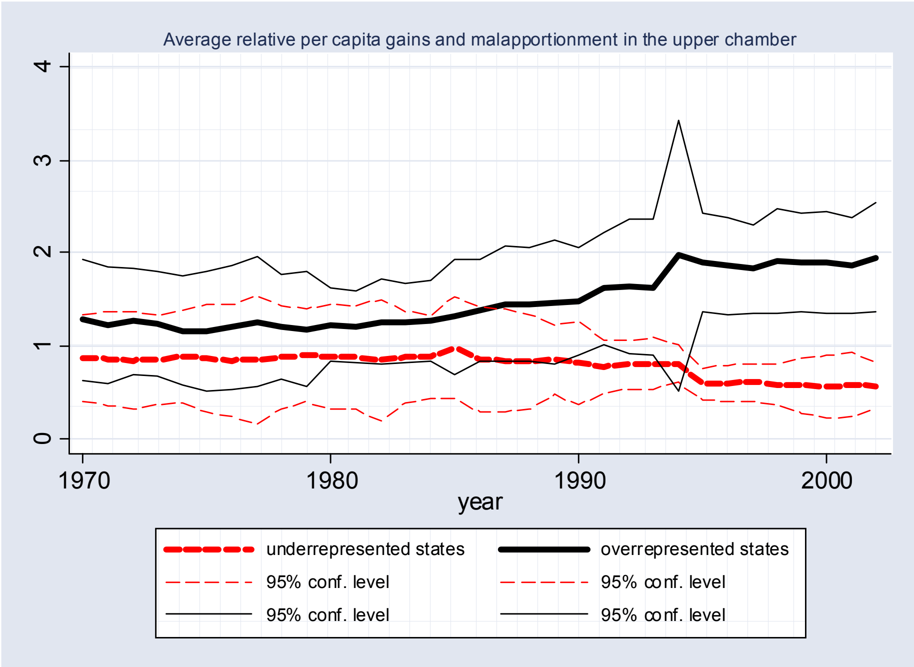
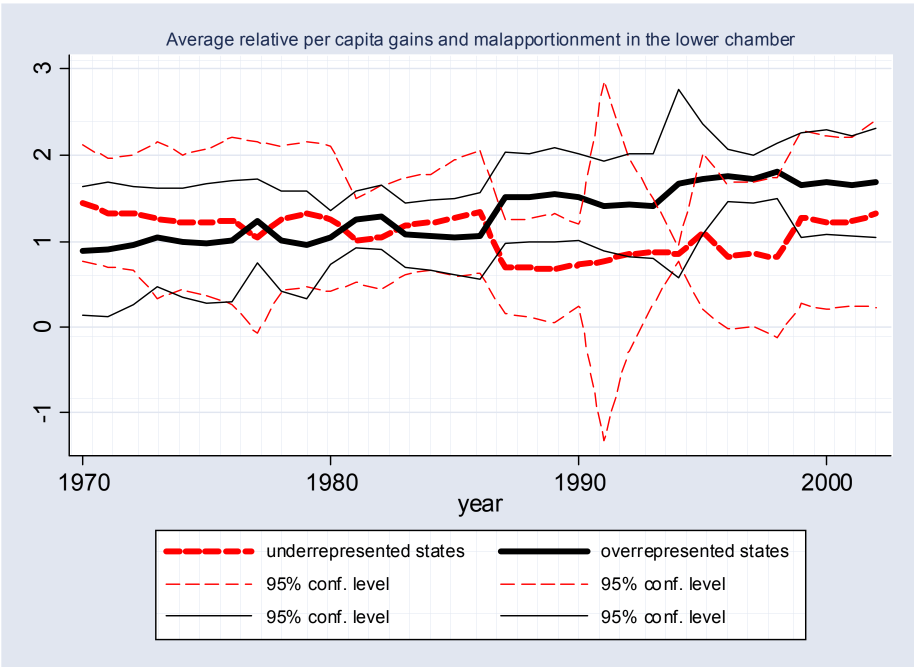


Figure 5: Over- and underrepresentation in the lower chamber and mean of relative gains from 1970 to 2002



Figures 4 and 5 present the development of the means for received per capita gains grouped by overrepresented and underrepresented states in both legislative chambers. Figure 4 shows that throughout the period as a whole and in all sub-periods overrepresented states in the *Bundesrat* received higher per capita gains on average. Thereby, the differences in means are increasing over time indicating a possible surge in the role of political bargaining power for the determination of the transfers. While till 1994 the differences in relative per capita gains are not statistically significant at a 5%-level of significance – which might partly results from the low number of observations – they are highly significant since 1995.

The results for the lower chamber are less convincing (see Figure 5). Averaged over the entire period 1970-2002, overrepresented states in the *Bundestag* received slightly more than underrepresented *Länder*. Though since 1987 the mean of relative per capita gains in the overrepresented states is without a single exception higher than in the underrepresented states statistical significance is never given.

These simple tests, however, neglect a number of potentially influential factors for the determination of fiscal benefits. Hence, the descriptive analysis will be corroborated by a more refined and systematic multivariate analysis in the next section.

4.2 Multivariate analysis

In the following empirical tests we make use of the panel structure of the data, employing annual figures for all German states over the time period 1970-2002. The five new states and Berlin have been incorporated into the system of transfers only since 1995. The panel is therefore unbalanced, containing observations for the 10 old *Länder* from 1970 to 2002 and for 6 *Länder* only from 1995 to 2002, leading to a total of 368 observations.[8]

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8 As there is an outlier for the dependent variable for the year 1994 we ran regressions both dropping and including observations for the year 1994. The results, however, do not depend on the inclusion of this year's data. The results presented are based on the estimations without 1994.

The dependent variable is total relative per capita gains (RELGAIN) of state i at time t from all stages of the intergovernmental transfers system. Equal per capita distribution of financial resources across states is again normalized to 1. Total relative per capita gains are explained by a vector of variables x_{it}. The individual effect u_i accounts for unobserved heterogeneity on the state level, and ε_{it} is the disturbance term.

$$RELGAIN_{it} = \beta' x_{it} + u_i + \varepsilon_{it}$$

Before presenting the variables included in x_{it} and before discussing the estimation results some remarks with respect to the estimation strategy are given. The first decision to be made is whether the individual effects are treated as "random" or "fixed". From a theoretical point of view there exist arguments in favor of both assumptions. As our data comprises the population of all German states and is not a sample this might argue for using a fixed effect model. Alike, a simple Hausman test also prefers the estimation of a fixed effect model. However, as some of our main control variables – e.g. the dummy for a city state and the dummy for the new Länder – are time-constant we cannot control for their impact in a fixed effect framework. We therefore estimated both models with random and fixed effects to account for the sensitivity of the results. Since the results were rather stable we restrict the further presentation to the estimates of FGLS random effect models.[9] As different tests for serial correlation indicate the existence of first-order autocorrelation we additionally account for autocorrelation within panels or panel-specific first-order autocorrelation. Furthermore, we allow for heteroscedasticity across panels (see e.g. Greene 2003 or Wooldridge 2002 for details).

9 Standard errors were estimated based on the GLS estimates. Alternatively, we also estimated Prais-Winsten-Regressions with panel-corrected standard errors (Beck and Katz 1995), but the results are quite the same. We therefore only present results for the GLS estimates.

Table 1: Determinants of relative per capita gains from 1970 to 2002. Results from feasible panel GLS estimation with first-order autocorrelation and heteroscedasticity across panels.

explanatory variables:	dependent variable: RELGAIN					
	(1)	(2)	(3)	(4)	(5)	(6)
RELTAX	-0.428	-0.468				
	(0.000)***	(0.000)***				
yd7086* RELTAX			-0.589	-0.586	-0.578	-0.620
			(0.000)***	(0.000)***	(0.000)***	(0.000)***
yd8794* RELTAX			-0.470	-0.470	-0.464	-0.487
			(0.000)***	(0.000)***	(0.000)***	(0.000)***
yd9502*RELTAX			-0.551	-0.557	-0.546	-0.587
			(0.000)***	(0.000)***	(0.000)***	(0.000)***
BRREP	0.525	0.286				
	(0.000)***	(0.000)***				
yd7086* BRREP			0.159	0.156	0.161	0.165
			(0.000)***	(0.000)***	(0.000)***	(0.000)***
yd8794* BRREP			0.267	0.271	0.271	0.302
			(0.000)***	(0.000)***	(0.000)***	(0.000)***
yd9502*BRREP			0.378	0.373	0.375	0.084
			(0.000)***	(0.000)***	(0.000)***	(0.001)***
BTREP	0.029	0.024				
	(0.001)***	(0.008)***				
yd7086* BTREP			0.009	0.006	0.009	0.003
			(0.566)	(0.729)	(0.604)	(0.812)
yd8794* BTREP			0.031	0.023	0.028	0.003
			(0.175)	(0.319)	(0.216)	(0.868)
yd9502*BTREP			-0.014	-0.015	-0.012	0.008
			(0.417)	(0.362)	(0.458)	(0.555)
NEWSTATE		0.607	0.453	0.446	0.460	0.601
		(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
CITY		0.520	0.695	0.689	0.677	0.703
		(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
yd8794			0.062	0.060	0.059	0.074
			(0.008)***	(0.010)***	(0.012)**	(0.000)***
yd9502			0.145	0.140	0.135	-0.009
			(0.000)***	(0.000)***	(0.000)***	(0.751)
A-state				-0.033		-0.035
				(0.016)**		(0.005)***
B-state				-0.018		-0.017
				(0.142)		(0.123)
Non-divid*C-state					0.020	
					(0.864)	
Divided* C-state					0.023	
					(0.044)**	
Constant	1.328	1.108	1.024	1.046	1.026	1.041
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Observations (id)	368 (16)	368 (16)	368 (16)	368 (16)	368 (16)	368 (16)
rho	0.939	0.855	0.775	0.779	0.786	0.684
chi2	1207.729	2031.087	2872.390	2770.239	2748.435	5681.687

p values in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 1 shows results of our first set of estimates. The very basic model (1) regresses RELGAIN only on three main explaining variables: Initial per capita tax receipts before redistribution in the transfer system (RELTAX) measures the economic cause of intergovernmental transfers. A state's representation in the upper chamber (BRREP) and in the lower chamber (BTREP) of the federal legislature are included to check whether states which are overrepresented in the legislative receive a higher share of total transfers per capita. In order to test for comparative importance of these main factors in the determination of transfers among states, for every year RELTAX, BRREP, and BTREP are standardized to a mean of 0 and a standard deviation of 1. Descriptive statistics of all variables can be found in the appendix.

Model (2) includes two further covariates. CITY is an indicator for the three city states (Bremen, Hamburg, and Berlin). All city-states are overrepresented in the upper house, though Berlin only moderately. There may be a reason to give higher transfers to city states due to spillover effects into the surrounding states. However, Homburg (1997) has shown that the *Länderfinanzausgleich* is not an adequate instrument to correct spillovers. Nevertheless, we control for city states even if the economic justification for higher transfers to these states is weak at best. We expect a positive sign of the coefficient. NEWSTATE is a dummy variable for the five new *Länder* and Berlin to correct for the unquestionable higher financial needs of these states. The sign of NEWSTATE is expected to be positive.

In the basic regressions (1) and (2) all coefficients behave in the predicted manner. RELTAX is highly significant and negative, showing that higher initial tax revenues lead to lower benefits in the intergovernmental transfer system. BRREP and BTREP both show a positive sign, indicating that overrepresented states receive higher benefits. The coefficient of the *Bundesrat* (BRREP) is a multiple larger than the coefficient of the *Bundestag* (BTREP), demonstrating that malapportionment is much more important in the upper than in the lower chamber. CITY and NEWSTATE have the expected positive sign at a 1 percent confidence level.

Model (3) includes period dummies for 1970-86, 1987-93 and for 1995-2002 as well as interaction terms of period dummies with the three variables of interest. In the pre-Unification period RELTAX, BRREP, and BTREP still have the expected signs at high confidence levels. Interaction terms reveal that initial taxes had a lower impact on total transfers during the period 1987-93, while in 1995-2002 the influence of RELTAX on RELGAIN returns roughly to its pre-Unification value. Additional Wald tests show that the decline during 1987-1993 is statistically significant.

The impact of overrepresentation in the upper chamber (BRREP) on the total level of transfers per capita is positive and statistically significant in all the three time periods. Moreover, it is remarkable that the importance of the overrepresentation in the upper chamber for the total relative per capita gains has grown since 1970. While the estimated coefficient was about 0.16 from 1970 to 1986, it increased to 0.27 from 1987 to 1993 and to 0.38 from 1995 to 2002. Both increases are statistically significant at a 1%-level of significance. For the malapportionment in the lower chamber whose impact on the relative per capita transfers was already shown to be less in the basic models (1) and (2) there is no significant trend in the development over time. After the inclusion of the time variables the joint effect of malapportionment in the lower chamber is not statistically significant any more.

Grossman (1994), and Worthington and Dollery (1998) claim with respect to fiscal transfers, that state governments with a closer political affinity to the federal government are supposed to receive higher transfers.[10] This argument, however, takes for granted that central government authorities have the discretionary power to target benefits to states at their own preference. As noted above the situation is somewhat different in Germany, because both houses of the federal legislature have to co-decide on transfers. The federal government coalition is more often than not confronted with a majority of state governments composed of

10 Yet, this partisan argument is not that clear-cut. Crain, Leavens, and Tollison (1990) argue with respect to pork barrel politics in the U.S. that favors which go to states governed by a similar party as the federal government have undesirable consequences if the respective incumbent is defeated in a future election. A program that confers benefits to a party affiliate in a certain state might then benefit the previous opposition party, et vice versa.

opposition parties in the upper house. Depending on the majority in both legislative chambers, the incumbent federal government may then be forced to buy political support of states governed by parties belonging to the opposition in the lower house. German political scientists (e.g. König and Bräuninger 1997) use the terms A-states, B-states, and C-states to depict political affinity of state and federal governments. A-states are governed by coalitions which are solely composed of parties that are members of the federal government, too. In B-states the opposite is the case. C-state governments are composed of incumbent as well as opposition parties at the federal level. Model (4) adds two dummy variables for A-states and B-states to the set of regressors.[11] While coefficients of all other covariates remain almost unchanged, A-states and B-states receive a smaller share of total benefits as compared to C-states, though this effect is only statistically significant for A-states and rather small. This result may partly be explained by the need of the federal government to buy majorities in the upper chamber, where the C-states often hold a pivotal position.[12] Model (5) therefore additionally tests whether the relative gains of C-states are larger in periods when the federal government does depend on the votes of C-states (1970 to 1982 and 1990 to 2002). It can be shown that this effect is indeed positive and statistically significant though with a coefficient of 0.02 not very large.

In 1994, the central government started to donate special supplementary grants to the heavily indebted states Bremen and Saarland. So far, in our analyses we excluded this period from our estimations as this year is a heavy outlier with respect to the dependent variable. Though the inclusion of the year 1994 does not severely change the general results additional insights can be gained by omitting special grants to Bremen and Saarland, intended to mitigate budgetary problems of both states (*Sanierungs*-BEZ), out of the calculation of RELGAIN (see Model (6)). The results show that the impact of BRREP would have dropped down to levels even less than the corresponding levels in the period from 1970 to 1986 if special favors were not

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11 Our coding of a state depends on the timing of the last elections. If elections were held in the first 6 months, the state government is coded according to the result of the respective year's election. Otherwise, a change in the government coalition only becomes relevant for the next year.

12 We also tested for differences in the coefficients in the (rare) cases when a federal government is not dependent on B- or C-states. However, we found no dissimilarity.

introduced. One may speculate, then, that the introduction of special grants to Bremen and Saarland was indeed necessary to maintain a political equilibrium in the upper house of the federal legislature. The inclusion of the five new *Länder* and Berlin otherwise might have destroyed a previous bargaining equilibrium.

Summing up, we find considerable evidence for a positive effect of overrepresentation in the Bundesrat on relative gains in the intergovernmental transfer system (Hypothesis 1). We can also not reject Hypothesis 2 that malapportionment is more important for the determination of gains in the upper house as compared to the lower house. Additional evidence is also found in support of Hypothesis 3 that bargaining powers in the upper house became an increasingly important factor in an explanation of the distribution of relative gains over time. This result however depends on the inclusion of special bail-out grants to the two most overrepresented states of Bremen and Saarland in 1994. One can only hypothesize whether underrepresented states like Northrhine-Westphalia would have received the same amount of transfers in face of a severe budget crisis (Homburg 1997).

5 Discussion and outlook

Modern legislative bargaining theory implies that fiscal transfers among member states of a federation are determined to a substantial degree by political bargaining powers. Disproportional representation of the states' population in the legislature is claimed to benefit overrepresented states. Our results clearly confirm that malapportionment in the upper house of the German legislature leads to disproportional state shares of per capita transfers. In particular, overrepresented states receive higher benefits per person, even though we control for initial tax receipts prior to redistribution, as well as special needs of city states and of the new *Länder*. Results also indicate that the impact of overrepresentation has increased over time. One might therefore claim that the German intergovernmental transfer system has become more 'politicized'.

It can yet be objected that intergovernmental redistribution is not chosen in an ad hoc discretionary bargaining process. Equalization formulas are typically characterized by a fixed set of rules that are quite stable for a longer period of time. Thus, it would be inappropriate to model the determination of relative gains and losses of the states as a result of annual political bargaining. Only at the time when revisions are negotiated there would be an opportunity to change existing redistributive schemes. Our results are visibly in line with this argument, as we can show that major shifts in the importance of overrepresentation in the determination of transfers are associated with negotiations over a reform of the transfer system.

One may finally ask, what are the prospects in favor of a reform? Experience of the most recent reform in 2001 do not leave too much space for optimism. As Rodden (2002, p. 160) points out, state delegates are generally well aware of the future distributional consequences of certain regulations when entering negotiations. Political decisions on the rules that govern intergovernmental transfers are never isolated from the distributional consequences of these rules, as long as agents do not act behind an ideal veil of uncertainty. Being aware of that problem, in its 1999 decision Germany's Constitutional Court referred to this well known notion from Constitutional Economics. To limit free bargaining among state and federal government officials in the negotiations for fiscal transfers, the Court insisted on a two step procedure to a reform of fiscal relations in order to arrive at a clear separation of a choice of rules from a choice within rules (Buchanan 1987). Firstly, the Court demanded legislators to frame a set of universal standards ('Maßstäbegesetz') for the vertical and horizontal distribution of revenues. Secondly, rules in the 'Maßstäbegesetz' should serve as a guideline for a more specific statute, that is required to contain more precise and technical regulations which allow to calculate the flow of financial resources between the states and the federal level. Delegates of *Bund* and *Länder,* however, adhered to that procedure only formally. In sharp contrast to the spirit of the Court's judgment, both statutory rulings have been decided on by Chancellor *Schröder* (representing the Bund) and state prime ministers in a single informal session in June of 2001. Seen from this view it might not come as a surprise that the most recent reform of the German fiscal transfer system, which is in effect since 2005, does not appear to change substantially redistribution towards states that are overrepresented in Germany's upper chamber (Pitlik 2004). An almost four year lag of reform implementation appears to be far too short to create a sufficient degree of distributional uncertainty.

One might also argue that any serious reform should deal with malapportionment in the upper chamber, which it is at the heart of the considered problems. Yet, disproportionality of representation is rooted in constitutional rules or electoral laws that are sticky over time. Substantial changes of the bargaining powers of states only occur (i) if state population changes dramatically, or (ii) if underlying constitutional or electoral rules are amended. There is, however, no reason to expect overrepresented states to sacrifice constitutionally guaranteed bargaining powers to adjust states' voting rights in the upper chamber accordingly. A more feasible way may be to re-organize German Federalism according to Article 29 of the Constitution which offers the option of a *Länderneugliederung*, i.e. a fusion of states. A longer debate in Germany about a union of certain weaker states, or a fusion of city states with neighboring states, illustrates that *Länder* governments are not willing to give up their status as an independent political entity.[13] Mounting fiscal problems in the states of Bremen, Berlin, and Saarland may yet create incentives to merge with economically stronger states and thus set the stage for a revision of voting weights in the German *Bundesrat*.[14]

13 Although Germany's constitution in 1949 already included that option, Germany only observed one single case of a fusion of states in 1951.

14 See Barbera and Jackson (2004) for a normative treatment of voting weights of nations.

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Appendix: Descriptive Statistics

Variable	Observations	Mean	Std. Dev.	Min	Max
RELGAIN	378	1.29	0.71	-0.19	4.37
RELTAX	378	0	0.96	-1.47	2.50
BRREP	378	0	0.96	-1.08	3.02
BTREP	378	0	0.96	-2.48	2.43
CITY	378	0.20	0.40	0	1
NEWSTATE	378	0.13	0.13	0	1
A-STATE	378	0.37	0.48	0	1
B-STATE	378	0.46	0.50	0	1
C-STATE	378	0.17	0.38	0	1

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