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Legislative Malapportionment
and the Politicization of
Germany's Intergovernmental Transfer System

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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 representation effects. Malapportionment of the states' population in the legislature is claimed to lead to disproportional benefits of overrepresented states. The paper analyzes empirically the determinants of funds in Germany's intergovernmental transfer system. We expand previous investigations both to include the effects of the bicameral system in Germany and the post-reunification period. Using data for the period from 1970 to 2002, we find that malapportionment in the upper house leads to disproportional state shares of per capita transfers. Estimates also indicate that the impact of overrepresentation has somewhat increased over time. Disproportional representation in the lower house does not seem to matter, as the institutional framework of decision making in the lower chamber is not too supportive to constitute a bias towards overrepresented states.

Keywords: Legislative bargaining, overrepresentation, fiscal transfer system, Germany

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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, Hoover and Pecorino 2005), 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 percent of GDP, it climbed to 0.4 percent of GDP in 1990, and in 2000 it reached over 1.6 percent of GDP in nominal terms. Obviously, this upsurge is driven to a large extent by German Unification and the inclusion of the relatively poor East German states 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). Some contributors discuss the political rationale behind interstate redistribution of

fiscal revenues (Homburg 1997, Lenk and Schneider 1999, 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.¹ Pitlik, Schmid, and Strotmann (2001) show for the time period 1979-90, that there was indeed 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 overrepresentation in the upper house of the federal legislative.

The present paper supplements the existing literature in various ways. First of all, while a possible impact of overrepresentation has so far only been analyzed for the upper house of the federal legislative and the pre-unification period, we expand the analyses to the effects of the bicameral system in Germany. Secondly, we now take account of the special circumstances in Germany after 1991 which changed substantially the economic and political environment under which the fiscal equalization system so far operated. Therefore, the time period under consideration is expanded to the years 1970 to 2002. Thereby, we test for an over time change in the factors shaping the distribution of resources, and we attempt to investigate whether Unification had an impact on the relative importance of political influences as compared to economic considerations.

Our empirical results clearly confirm that malapportionment in the upper house is of critical importance in explaining the distribution of funds across states. Holding constant economic and political covariates, we find that on average a state which is overrepresented (as compared to proportional representation) by one standard deviation receives higher per capita shares of about 50 percent (as compared to an equal per capita distribution of funds). All else equal, in 2002 this accounts for a difference in per capita transfers to the most overrepresented state (Bremen) as compared to the most underrepresented state (Northrhine-Westphalia) of over 3,900 Euros. We also find that the impact of overrepresentation in the upper house on the distribution of funds has moderately increased over time. As regards the lower house, however, our data do not support an overrepresentation hypothesis. This finding might in part be explained by a substantially smaller

degree of malapportionment in Germany's lower chamber, and by decision making procedures, which are, in contrast to upper house decision making, heavily centralized.

The paper proceeds as follows. Section 2 gives a very brief overview of the theoretical underpinnings of the malapportionment hypothesis. Section 3 describes the institutional background of political decision making in Germany as it is concerned with the intergovernmental transfer system 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 or tax revenue 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*.

These *raison d'être* do not consider that real world intergovernmental transfer schemes are 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, 298). In a highly influential paper, Baron and Ferejohn (1989) analyze distributive decision making as a sequential bargaining game in a highly decentralized legislature. Each legislator represents one district. 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 electoral districts. If the offer is rejected by a legislative

majority, the game goes on and a new proposer is selected randomly until a proposal is finally accepted.

To form a minimum winning coalition for his proposal, a self-interested proposer offers a division to a majority of legislators that keeps them indifferent between accepting and continuing the game. In order to maximize his own share, the proposer aims at forming 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, as they are willing to accept worse offers than agents with a higher default pay off, and (ii) legislators representing more votes per capita (c.f. also Persson and Tabellini 2000, 166-167). Malapportionment then produces an unequal distribution of benefits per capita, where higher shares go to overrepresented, i.e. typically smaller, states.

Ansolabehere, Snyder, and Ting (2003) (henceforth: AST) argue that this logic does not apply automatically to bicameral legislatures, where two chambers decide jointly on the distribution of funds by simple majority rule, as is the case in Germany. In their model of bicameral bargaining, lower chamber (House) seats are assigned proportional to population size, while the upper chamber (Senate) is malapportioned. AST show that if proposal powers originate in the House expected per capita benefits are equal in all states. According to AST a bias towards overrepresented states only occurs if a supermajority requirement in the Senate forces a House proposer to buy votes from cheap suppliers, or if proposal powers originate in the malapportioned Senate, because members are chosen as proposer with a higher probability. A small state bias may also arise if expenditures cannot be divided to the district level.

A further complication for the distribution of benefits is concerned with weighted voting in legislatures. Based on cooperative game theoretical reasoning, the key notion of power indices (e.g. Shapley and Shubik 1954, Banzhaf 1965, Deegan and Packel 1978) is to quantify relative voting powers by calculating the influence of a respective actor on the decision making results. Assuming

a random formation of coalitions, asymmetrical powers arise from unequal voting weights. Under weighted voting in a legislature, such as in Germany's upper chamber, players given the largest voting weights are generally thought to have disproportional voting power. In a recent contribution, Snyder, Ting, and Ansolabehere (2005) however argue forcefully that voting power theory assumes incorrectly that all winning coalitions are equally likely to form. It is yet hardly plausible that rational players would be willing to coalesce with partners whose votes are more expensive to buy. The authors show that in a competitive bargaining environment expected payoffs are strictly proportional to voting weights, provided that probabilities of being chosen as proposer are proportional to voting weights. In case of identical recognition probabilities for each legislator regardless of voting weights, players assigned low weights even expect a disproportionate share of the pie.

Summing up so far, in a bicameral setting with only one malapportioned chamber and with weighted voting, the effect of malapportionment on the per capita distribution of funds depends on additional provisions. In the next section, we discuss how institutional arrangements in Germany meet these various requirements.

3 INSTITUTIONAL BACKGROUND

Fiscal Equalization Scheme

The German system of intergovernmental fiscal relations is predominantly characterized by a revenue sharing arrangement among all governmental levels, covering about seventy-five percent of tax revenues, including the personal income tax, the corporation income tax, and VAT receipts. Certain special tax revenues are allocated exclusively to the state (*Länder*) or to the federal (*Bund*) level, but there is almost no tax legislation authority left autonomously to the states. Personal income tax and corporation tax proceeds are divided among the states according to a slightly

modified residence principle, leaving little scope for interstate redistribution and fiscal equalization. This initial distribution of tax revenues forms the basis for an extensive redistribution of proceeds. The basic structure of the redistributive transfer system is composed of three stages and can be summarized as follows. In a first step, the *Bund* and the *Länder* negotiate on shares of VAT revenues. As regards cross-state VAT distribution, the constitution demands that at least seventy-five percent of the state share of VAT proceeds are allocated among the states on a per capita basis. A residual of twenty-five percent of revenues serve to improve the fiscal position of financially weaker states according to a fixed formula (stage 1). The second stage sets up a scheme of equalization transfers from wealthier to less wealthier states to correct remaining fiscal imbalances. Redistribution is characterized by various special provisions and exemptions in the definition of the states' fiscal capacities and fiscal needs. On a third stage, the federal government donates specific cash transfers (*Bundesergänzungszuweisungen*) to provide a supplementary coverage of *ad hoc* determined special needs of certain states.

Since its introduction in 1970, the three stage procedure has not changed in general. In the 1980s a number of minor reforms came into effect, including some adjustments of the political definition of fiscal capacities, and the introduction of new special supplementary grants. A major revision occurred in 1987, demanded by the Constitutional Court (Bundesverfassungsgericht 1986). Although Unification in the fall of 1990 caused a dramatic change of the economic environment, during 1991 to 1993 the fiscal transfer system among the old Western states remained virtually unchanged, 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) lead to the introduction of supplementary grants-in-aid (*Sanierungszuweisungen*) to Bremen and Saarland in 1994. Inclusion of the East German states into the system from 1995 on has been accompanied by some further revisions of the transfer scheme.

Malapportionment in Legislative Chambers

Intergovernmental fiscal relations are established by constitutional provisions, which determine the baseline fiscal positions of states prior to redistribution, and on a simple federal statute (*Finanzausgleichsgesetz*), comprising the entire redistributive scheme. Our focus is thus on changes in the *Finanzausgleichsgesetz*, which require simple majorities in both chambers. Lower chamber legislators are popularly elected from sub-national districts and state party lists according to a mixed-member proportional formula. The upper chamber represents the states in federal legislation and is composed of delegates appointed by state governments. Decisions in the upper chamber are based on weighted voting. At present, the sixteen states have a total of sixty-nine votes. Smaller states currently have three votes, more populous states are represented by up to six delegates, which have to vote as a unit.

Although the number of *Länder* seats in the upper chamber depends approximately on state population, representation is yet far from proportional. Figure 1 depicts malapportionment in the upper chamber (black bars) and the lower chamber (gray bars) averaged over the years 1995-2002. Proportional representation is normalized to 1.²

-- insert figure 1 about here --

In the upper chamber, the new *Länder* including Berlin, are all overrepresented, although to a different degree. Among the old states, Bremen (5.4), Saarland (3.3), and Hamburg (2.1 times the average) are considerably overrepresented. Delegates of these three states jointly represent only 4 percent of total population but 13 percent of total votes. Northrhine-Westphalia (NW), the most underrepresented state in the upper chamber, has a population of 18.1 Millions, representing almost twenty-two percent of total population but less than nine percent of total votes.

Representation in the lower chamber is approximately proportional to state population. On the district level, German electoral law demands that population does not deviate by more than twenty-five percent from national average of all electoral districts. Hence, there is no source of systematic malapportionment in the lower chamber. Yet, we observe a moderate disproportionality. Averaged over 1995-2002 the normalized representation index lies in a range from 0.92 to 1.22.⁴

Decision Making Procedures

With respect to decision making rules on the subject of intergovernmental transfers, we have to distinguish between formal and informal procedures. See Renzsch (1991) or Altemeier (1999) for an overview. Formally, legislators of both chambers along with the federal government (*Bundesregierung*) are entitled to initiate proposals for statutory reforms. As is common in parliamentary systems, the dominant actor of the policy making game in the lower chamber is yet the federal executive (e.g. König and Bräuninger 1996). Party discipline is of crucial importance for voting behavior and legislators rarely vote across party lines (Laver and Shepsle 1996, Beyme 1997, 271-291). To be sure, territorial self-interest of members of parliament is not completely absent as legislators are elected directly from local districts and state party lists. But 'home state-interests' with respect to intergovernmental fiscal transfers are supposed to be of minor importance for representatives, due to the requirement of stable parliamentary majorities. The decision making procedure is thus much more centralized than typically assumed in theories of legislative bargaining.

In the upper chamber, legislators are delegates of state executives. Actor preferences are hence clearly dominated by home-state financial self-interest. In line with theories of legislative bargaining, decision making in the upper chamber follows a fully decentralized procedure, with no single dominant actor.⁴

Although formally the two chambers of the federal legislature co-decide, informal decision making is characterized by a systematic coordination among executive federal and state level actors. Important policy issues concerning both federal and state interests are dealt with at joint conferences of state Minister Presidents and federal government members (Rudolf 1990). With respect to the intergovernmental transfer system, results of this *ex ante* executive coordination have proven to be effectively binding for legislative decisions in both chambers (Renzsch 1991, Altemeier 1999, ch. 3).

To recapitulate, the decision making procedure is somewhat different from AST's theory of bicameral legislative bargaining. In line with bargaining theories, decision making procedures in the upper chamber are strongly decentralized, and malapportionment supposedly matters. Main actors of the policy game in the lower chamber are not individual legislators but the federal government, which holds an effective veto right and significant proposal powers. Provided that the federal executive in a parliamentary system with proportional representation does not adhere to specific state interests (Persson and Tabellini 2003), malapportionment in the lower chamber is presumably less important for targeted fiscal redistribution among states.

In the next section, we investigate empirically whether states overrepresented in the German legislature benefit disproportionately from redistribution in the intergovernmental fiscal transfer system (*Hypothesis 1*). We also test our hypothesis that 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 of interest is whether the impact of malapportionment on the allocation of benefits among the states is dependent on the time period under consideration. We therefore investigate whether political determinants of relative gains and losses remained stable after major reforms of the system.⁵ Due to an ever-increasing importance of discretionary grants on the third stage, we conjecture that effects of malapportionment might be more visible in later time periods (*Hypothesis 3*).

4 EMPIRICAL INVESTIGATION

4.1 Descriptive Statistics

A central redistributive aim of the system of intergovernmental transfers is to mitigate interregional differences of tax revenues. While tax legislation competences are almost exclusively allocated to the federal level, the *Länder* differ substantially in their tax capacities. Figure 2 shows initial, i.e. prior to redistribution, average per capita tax receipts of the sixteen states over the period 1995-2002. Reported tax receipts include proceeds from all local taxes, own state tax sources and the states' shares of income and corporation tax revenues, but excluding VAT revenues. For ease of comparison, average per capita tax receipts over all states are normalized to one. As can easily be seen from the chart, per capita revenues in the five new *Länder* were considerably below national average. Some Western states had tax revenues slightly below average, while per capita tax receipts of Hessen, Baden-Württemberg, Bavaria, Northrhine-Westphalia and of city states Bremen and Hamburg were above average.

- insert figure 2 about here –

Figure 3 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 distribution of funds across all states are normalized to 1. Thus, the height of each bar shows deviations of received transfers from a fictitious distribution perfectly proportional to population size.

- insert figure 3 about here –

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.

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.⁶ Figure 4 shows that throughout the period as a whole and in all sub-periods overrepresented states in the upper chamber received higher per capita transfers on average. 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 until 1994 the differences in relative per capita gains are not statistically significant at a five percent-level of significance – which might partly result from the low number of observations – they are highly significant since 1995.

-- insert figure 4 and figure 5 about here --

Results for the lower chamber are less convincing (see Figure 5). Averaged over the entire period 1970-2002, overrepresented states received slightly more than underrepresented states. Though since 1987 the mean of relative per capita gains of overrepresented states is permanently higher, 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 not been incorporated into the system of transfers until 1995. The panel is therefore unbalanced, containing observations for the ten old *Länder* from 1970 to 2002 and for five new states plus Berlin from 1995 to 2002.

The dependent variable is total relative per capita gains (RELGAIN) of state i at time t from all stages of the intergovernmental transfer system. As defined in the previous section, equal per capita distribution of financial resources across states is normalized to one. The model to be estimated is:

$$RELGAIN_{it} = \phi RELGAIN_{i,t-1} + \alpha RELTAX_{i,t} + \beta' ECON_{i,t-1} + \gamma' POL_{i,t-1} + \delta_1 d8793 + \delta_2 d94 + \delta_3 d9502 + u_i + \varepsilon_{it} \quad (1)$$

To account for persistence in the distribution of relative gains across states, a lagged dependent variable $RELGAIN_{i,t-1}$ is employed as explanatory variable. ϕ is expected to be positive. Initial relative per capita tax receipts before redistribution through the transfer system (RELTAX) measures fiscal need as a main economic rationale for intergovernmental transfers. RELTAX however differs from the legal definition of fiscal capacities, as it includes, for example, full proceeds from all local taxes. We expect the coefficient α to have a negative sign. Note that we decided not to include (relative) per capita GDP as an explanatory variable. Per capita GDP and initial per capita tax revenues are highly related with a simple correlation of 0.95, leading to a serious collinearity problem in our estimates. For our purpose, tax revenues are however a preferred measure as these account for effects of income tax revenue allocation between city states and neighboring states. GDP measures neglect the effects of residential choice of workers having a job in city states, but living in a neighboring state.

Relative per capita benefits are further explained by a vector of further economic (ECON) and political variables (POL). To capture spillover-effects and economies of scale-effects as a rationale for higher transfers, and to avoid a bias because of a possible correlation between jurisdiction size and income shocks (c.f. Konrad and Seitz 2003), we control for a state's relative population size (RELPOP), lagged by one year. All else equal, smaller states are expected to receive higher gains. In addition, we control for lagged relative population density (RELDENS) to include possible effects of the cost and the needs of public good provision on relative transfer positions.⁷ We also include a state's lagged real per capita GDP growth (RGROWTH) to control for state-specific economic shocks. Finally, relative state debt per capita (including local debt) is included in the model with a lag of one year (RELDEBT).

The political variables (POL) include a state's representation in the upper chamber (BRREP) and in the lower chamber (BTREP) of the federal legislature to check the main hypothesis that states which are overrepresented in the legislature receive a higher share of total transfers per capita. Proportional representation is normalized to one. To allow for delays in the implementation of political bargains, BRREP and BTREP are also lagged by one year. To compare the relative importance of overrepresentation in the legislative chambers, for every year BRREP and BTREP are standardized to a mean of zero and a standard deviation of one.

Grossman (1994) claims with respect to fiscal transfers, that state governments with a closer political affinity to the federal executive are supposed to receive higher transfers.⁸ German political scientists use the terms A-, B-, and C-states to depict political affinity of state and federal governments (e.g. König and Bräuninger 1997). 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. Therefore, in our model two dummy variables for A-states and B-states are added to the set of political regressors, both with a lag of one year.⁹

Time dummy variables for periods of differing legal provisions in the *Finanzausgleichsgesetz* are added, i.e. for the periods 1986-93, 1994, and 1995-2002, while the period from 1970-1985 will serve as reference period. The individual effect u_i in our model accounts for state-specific and time-constant unobserved heterogeneity, and ε_{it} is the disturbance term.

As our data set comprises all German states and is not a random sample this argues for using a fixed effect model. A simple Hausman test also prefers the estimation of a panel fixed effects model. This however comes at the cost that some time-constant control variables of interest – e.g. a dummy for a city state and a dummy for the East German states – cannot be included. Standard errors are corrected for clustering in unit effects, to account for the fact that within-unit observations cannot be treated as independent (Wooldridge 2002). However, as a lagged dependent variable is used as a regressor in our model we have to take into account that the panel fixed effects estimator may be biased (see e.g. Baltagi 2001). Though the bias should not be too large as the number of periods is rather large in our study, we alternatively use the GMM procedure suggested by Arellano and Bond (1991) for dynamic panel models. Thereby, all regressor variables besides the dummy-variables for A- and B-states are treated as endogeneous. Table 1 both presents the results from panel fixed effects and from Arellano-Bond-GMM estimation, but the results are rather similar and the conclusions do not depend on the method of estimation used.

- insert table 1 about here –

In a first step, we abstained from analyzing inter-time changes of the impact of overrepresentation on relative per capita gains in our basic model (1). This will additionally be done in models (2) and (3). If one considers the estimates for the coefficient of the lagged RELGAIN first, a coefficient of 0.64 indicates, as expected, a high persistence in the distribution of relative benefits. A comparison

of the results of fixed effects estimation and the Arellano-Bond-GMM estimation shows that they are very similar. As this is also valid for the further results we will not have to distinguish both estimation strategies when interpreting the results.

Fiscal needs as a main economic rationale for intergovernmental transfers are indeed confirmed to play an important role for the states' relative per capita gains. According to model (1), an increase of RELTAX by one percentage point reduces RELGAIN also by one percentage point. More precisely, if a state improves initial per capita tax revenues relative to the average of all states by, say ten percentage points, per capita fiscal transfers (relative to the nationwide average) are reduced by ten percentage points.¹⁰

With respect to the impact of overrepresentation on the distribution of fiscal transfers we can confirm the hypothesis that malapportionment matters in the upper chamber but not in the lower chamber. Even if we control for elementary economic characteristics of the states which partly depend on state size, our results show that overrepresentation in the upper chamber is positively associated with relative per capita gains. An increase of (standardized) BRREP by one point leads to higher (normalized) relative per capita benefits of 0.51 points. This is a sizable effect. Consider, for example, 2002 as the most recent year in our sample. If total resources in the fiscal transfer system were distributed on an equal per capita basis, each state would have received 1,910 Euros per head of the population. All else equal, Bremen, the most overrepresented state in the upper chamber (with a standardized representation index of 3) receives about 2,920 Euros per capita due to overrepresentation. In contrast, Northrhine-Westphalia, which is the most underrepresented state (standardized representation index of -1), receives 51 percent less the average, i.e. about 975 Euros per capita. For the lower chamber we do not find a corresponding significant impact of overrepresentation.

Our economic control variables show some remarkable and surprising effects. Relative population size RELPOP is highly significant and positively correlated with RELGAIN in all estimations. All

else equal, larger states receive higher benefits per capita relative to the national average. As this could be caused by high collinearity with BRREP (the simple correlation between BRREP and RELPOP is $r = -0.7$), we also tested whether this unexpected result is stable if we drop BRREP from the equations. Yet, the positive sign of RELPOP is confirmed in all alternative specifications. Lagged growth (RGROWTH) and lagged relative population density (RELDENS) are – at least in this basic specification – not significantly associated with RELGAIN. Lagged relative per capita debt (RELDEBT) is highly significant and positive, as expected.

The dummies for time periods of differing legal provisions in the *Finanzausgleichsgesetz* are jointly significant on a five percent-level of significance. All else equal, the relative per capita gains were significantly lower in the period from 1995 to 2002 than in 1987 to 1993 and in 1970 to 1986.

In model specification (2), we add interactions of the period dummies with RELTAX, BRREP and BTREP to test for differences in their impact on the relative per capita gains over time. While we can find no statistical difference of the importance of relative tax receipts over 1987-93 compared to 1970 to 1986, the introduction of supplementary grants in 1994 is accompanied by a highly significant reduction of the coefficient. The inclusion of the five new *Länder* plus Berlin in 1995, however, made the allocation of relative gains much less dependent on the distribution of initial tax revenues, as indicated by a coefficient of +0.6. Over the time period 1995-2002, relative state tax receipts played a less important role for the distribution of relative favors in the intergovernmental transfer system, *ceteris paribus*. This is indeed surprising, as the economic gap between old Western and new Eastern states has been exceptional.

The impact of overrepresentation in the upper chamber (BRREP) on the total level of transfers per capita is still positive and statistically significant. Moreover, it is remarkable that the importance of overrepresentation in the upper chamber for total relative per capita gains increased since 1970. We find additional effects of BRREP of +0.14 over 1987-93, and +0.11 over 1995-2002. The exceptional effect of +0.8 for 1994 is clearly related to newly introduced donations to Bremen and

Saarland, the two most overrepresented Western states. Yet, we find again no impact of lower chamber malapportionment on RELGAIN.

With respect to our economic controls, RELPOP still shows a strong positive effect, and RELDENS is now negative and significant. Both results stand in stark contrast to economic reasoning as regards the allocation of intergovernmental transfers. Yet, repeating our analyses by excluding all political variables confirms these astonishing results. While lagged growth is still not correlated with RELGAIN, RELDEBT now turns out to be not significant.

The controls for political affinity to the federal executive show, that A-states and B-states receive a smaller share of total benefits as compared to C-states, though the effect is rather negligible and not statistically significant.¹¹

Additional insights can be gained by omitting special grants to Bremen and Saarland, intended to mitigate budgetary problems of both states from the calculation of RELGAIN (see model (3)). Estimates show that the impact of BRREP is still higher in 1987-93, but we can find no difference from the basic effect for 1994 and 1995-2002. One may speculate, then, that the introduction of special grants-in-aid to Bremen and Saarland was indeed the result of extraordinary bargaining powers of these two states in the lower chamber. It is rather unlikely that underrepresented states like Northrhine-Westphalia would have received the same amount of transfers in face of a severe budget crisis (Homburg 1997).

Summing up, we find considerable evidence for a positive effect of overrepresentation in the upper chamber on the allocation of resources in the intergovernmental transfer system (Hypothesis 1). We can also not reject Hypothesis 2 that malapportionment is important in the upper house but not in the lower house. In additional estimates¹² we checked if a disproportional representation in the lower chamber matters if only votes of federal government coalition parties are taken into account. Yet, we could not find any stable effect statistically different from zero. Some weak 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 highly overrepresented states Bremen and Saarland.

5 DISCUSSION AND OUTLOOK

Public choice theory implies that fiscal transfers among member states of a federation are determined to a substantial degree by political bargaining. According to theories of legislative bargaining, disproportional representation of the states' population in the legislature is claimed to benefit overrepresented states. Theory however also conjectures that in a bicameral setting, such as in Germany, a bias depends on a number of additional formal provisions.

Our results clearly confirm that malapportionment in the upper house of the German legislature leads to disproportional state shares of per capita transfers. Estimates also indicate that the impact of overrepresentation has somewhat increased over time. This is in line with theoretical predictions, as decision making procedures in the upper chamber are decentralized and dominated by geographical self-interest of the delegates. On the contrary, disproportional representation in the lower house does not seem to matter. This may be caused by the simple fact that the degree of malapportionment is significantly smaller than in the upper chamber. The institutional framework of decision making in the lower chamber is also not too supportive to constitute a bias towards overrepresented states. Firstly, parliamentary voting is clearly ruled by strong party discipline. Secondly, decision making in the lower chamber is substantially centralized with the federal executive as a single dominant actor, leaving only a minor role to individual legislators.

From a political point of view, one may ask, what are the prospects in favor of a reform? Experience of the most recent revision of the *Länderfinanzausgleich* in 2001 does not leave too much space for optimism. As Rodden (2002, 160) points out in the context of transfer allocation in

the European Union, state delegates are generally well aware of the distributional consequences of regulations when entering negotiations. Political choice of rules that govern intergovernmental transfers is 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 (*'Maßstäbengesetz'*) for the vertical and horizontal distribution of revenues. Secondly, rules in the *'Maßstäbengesetz'* 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 federal level) 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 change substantially the redistribution towards states overrepresented in Germany's upper chamber (Pitlik 2004). A four year lag of reform implementation appears to be far too short to create a sufficient degree of distributional uncertainty.

Hence, 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 law which is 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 are, however, no incentives for overrepresented states to

sacrifice constitutionally guaranteed bargaining powers to adjust states' voting rights in the upper chamber accordingly. A more feasible way to re-organize German Federalism may be according to Article 29 of the Constitution which offers the option of a *Länderneugliederung*, i.e. a fusion of states. A long debate in Germany about a merger of certain weaker states, or a fusion of city states with neighboring states, which remained almost without any consequence, illustrates that state 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 might set the stage for a revision of voting weights in the German *Bundesrat*.

APPENDIX 1: GERMAN STATES IN 2002

state	code	population (in Millions)	upper chamber votes	lower chamber votes
Baden-Württemberg	BW	10.63	6	78
Bavaria	BY	12.39	6	93
Berlin	BE	3.39	4	25
Brandenburg	BB	2.59	4	23
Bremen	HB	0.66	3	5
Hamburg	HH	1.73	3	13
Hessen	HE	6.08	5	47
Mecklenburg-Vorpomerania	MV	1.75	3	15
Lower Saxony	NI	7.97	6	68
Northrhine-Westphalia	NW	18.06	6	148
Rhineland-Palatinate	RP	4.05	4	34
Saarland	SL	1.07	3	8
Saxony	SN	4.37	4	37
Saxony-Anhalt	ST	2.56	4	26
Schleswig-Holstein	SH	2.81	4	24
Thuringia	TH	2.40	4	25

Source: Bundesministerium der Finanzen and Statistisches Bundesamt

APPENDIX 2: DESCRIPTIVE STATISTICS

Variable	Obs	Mean	Std. Dev.	Min	Max
RELGAIN	352	1.28	0.72	-0.19	4.36
RELTAX	352	0.98	0.31	0.33	1.89
BRREP ^a	352	0.00	0.96	-1.08	3.01
BTREP ^a	352	0.00	0.95	-2.48	2.48
RELPOP	352	1.01	0.86	0.11	3.51
RGROWTH	352	1.76	2.04	-6.05	6.90
RELDENS	352	2.62	3.44	0.33	16.96
RELDEBT	352	1.24	0.51	0.47	3.14
A-STATE	352	0.36	0.48	0	1
B-STATE	352	0.47	0.50	0	1
C-STATE	352	0.17	0.37	0	1

a Note: year-by-year-standardized values

Source: Bundesministerium der Finanzen and Statistisches Bundesamt

ENDNOTES

*A previous version of this paper was presented at the 2005 meeting of the Verein für Socialpolitik (German Economic Association) in Bonn. We thank Jim Alm and three anonymous referees for very helpful comments.

- 1 This view is supported by a decision of Germany's Constitutional Court, in which previous regulations were declared to be partly unconstitutional (Bundesverfassungsgericht 2000). In 2001 delegates of the federal and the state level agreed on a severely criticized reform that is in effect since 2005.
- 2 See Appendix 1 for a full list of state names and abbreviations.
- 3 One referee pointed out thoughtfully that district data are aggregated at the state level. A state's districts could well be badly malapportioned, but effects may average out across all districts. Yet, the *Länderfinanzausgleich* is a purely interstate redistributive scheme and transfer flows are not divisible down to the district-level. As AST (2003, 476) note, this should support a small state bias.
- 4 Once an issue is brought on the political agenda by the upper chamber, it can be amended by a lower chamber majority. The upper chamber can only accept or reject a final proposal. If the legislative chambers disagree, a mediation committee enters the game. Currently, the committee is composed of thirty-two appointed members with equal voting weights. Sixteen delegates are appointed by state governments. The other members, representing the lower chamber, are selected proportionally to party seats in the *Bundestag*. Mediation committee's proposals are presented to both chambers under closed rule (Tsebelis and Money 1997, 181).
- 5 As noted above, although German Unification in the fall of 1990 altered the composition of Germany's legislative institutions, Eastern states and Berlin have not been incorporated into the transfer system until 1995. The short depiction of the evolution of the intergovernmental

fiscal transfers system since 1970 suggests that 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 sub-periods only minor changes in legal rules of the fiscal transfer system occurred, except for the introduction of substantial grants-in-aid to Bremen and Saarland in 1994. Thus we also investigate effects for 1994 separately.

- 6 *Political* integration of the new *Länder* was accompanied by an increasing number of legislators in both chambers of the federal legislature, changing malapportionment slightly. Calculating our representation index for the period 1987-94, we only refer to the old states' delegates.
- 7 A (hypothetical) equality of population size and density of all states is normalized to one.
- 8 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 favoring states governed by a similar party as the federal government has undesirable consequences if an 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.
- 9 Our coding depends on the timing of the last elections. If elections were held in the first 6 months of a year, the government is coded according to the respective year's election result. Otherwise, a change in the government coalition only becomes relevant for the next year.
- 10 Note that the political definition of fiscal capacities differs from our measure of initial state tax revenues.
- 11 We also tested for the dependence of partisan effects on divided or unitary government. However, we found no effect.
- 12 Results (not shown) are available from the authors on request.
- 13 Although the constitution in 1949 already included that option, since then Germany only observed one single case of a fusion of states in 1951.

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Table 1: Determinants of Relative Per Capita Gains from 1970 to 2002.

Dependent variable: RELGAIN						
Explanatory variables:	Fixed Effects Estimation			Arellano-Bond GMM Estimation		
	(1)	(2)	(3)	(1)	(2)	(3)
RELGAIN (t-1)	0.642 (0.000)***	0.420 (0.000)***	0.350 (0.000)***	0.647 (0.000)***	0.426 (0.000)***	0.364 (0.000)***
RELTAx	-0.994 (0.000)***	-1.816 (0.000)***	-1.958 (0.000)***	-0.997 (0.000)***	-1.808 (0.000)***	-1.937 (0.000)***
yd8793 * RELTAx		-0.034 (0.774)	0.014 (0.932)		-0.030 (0.764)	0.023 (0.872)
yd94 * RELTAx		-0.837 (0.041)**	0.210 (0.081)*		-0.836 (0.014)**	0.213 (0.030)**
yd9502 * RELTAx		0.603 (0.000)***	0.728 (0.000)***		0.592 (0.000)***	0.703 (0.000)***
BRREP (t-1)	0.508 (0.001)***	0.573 (0.000)***	0.378 (0.013)**	0.493 (0.000)***	0.574 (0.000)***	0.373 (0.001)***
yd8793 * BRREP (t-1)		0.136 (0.028)**	0.186 (0.005)***		0.137 (0.008)***	0.188 (0.000)***
yd94 * BRREP (t-1)		0.802 (0.000)***	-0.006 (0.852)		0.803 (0.000)***	-0.005 (0.868)
yd9502 * BRREP (t-1)		0.109 (0.031)**	-0.040 (0.333)		0.106 (0.015)**	-0.039 (0.290)
BTREP (t-1)	-0.005 (0.765)	-0.006 (0.799)	-0.032 (0.189)	-0.005 (0.759)	-0.006 (0.755)	-0.033 (0.118)
yd8793 * BTREP (t-1)		-0.034	-0.012		-0.034	-0.012

		(0.222)	(0.584)		(0.179)	(0.580)
yd94 * BTREP (t-1)		-0.175	0.023		-0.174	-0.024
		(0.011)**	(0.219)		(0.002)***	(0.134)
yd9502 * BTREP (t-1)		0.010	0.004		0.011	0.005
		(0.581)	(0.897)		(0.517)	(0.830)
RELPOP (t-1)	0.485	0.495	0.227	0.472	0.486	0.212
	(0.007)***	(0.000)***	(0.013)**	(0.002)***	(0.000)***	(0.002)***
RGROWTH (t-1)	-0.001	-0.001	0.000	0.000	-0.001	0.001
	(0.760)	(0.612)	(0.990)	(0.979)	(0.766)	(0.545)
RELDENS (t-1)	0.018	-0.110	-0.071	0.032	-0.098	-0.044
	(0.842)	(0.014)**	(0.090)*	(0.733)	(0.058)*	(0.323)
RELDEBT (t-1)	0.248	0.025	0.013	0.244	0.023	0.009
	(0.001)***	(0.422)	(0.666)	(0.000)***	(0.400)	(0.716)
A-STATE (t-1)		-0.024	-0.023		-0.024	-0.023
		(0.318)	(0.324)		(0.253)	(0.241)
B-STATE (t-1)		-0.018	-0.021		-0.017	-0.019
		(0.418)	(0.339)		(0.379)	(0.294)
yd8793	0.010	0.071	0.036	-0.016	0.056	-0.006
	(0.447)	(0.565)	(0.831)	(0.605)	(0.561)	(0.965)
yd94	0.209	1.119	-0.235	0.179	1.104	-0.278
	(0.275)	(0.008)***	(0.056)*	(0.365)	(0.000)***	(0.001)***
yd9502	-0.118	-0.697	-0.889	-0.163	-0.707	-0.918
	(0.048)**	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Constant	0.629	2.347	2.754	0.002	0.001	0.003
	(0.012)**	(0.000)***	(0.000)***	(0.432)	(0.640)	(0.189)
Observations	352	352	352	336	336	336

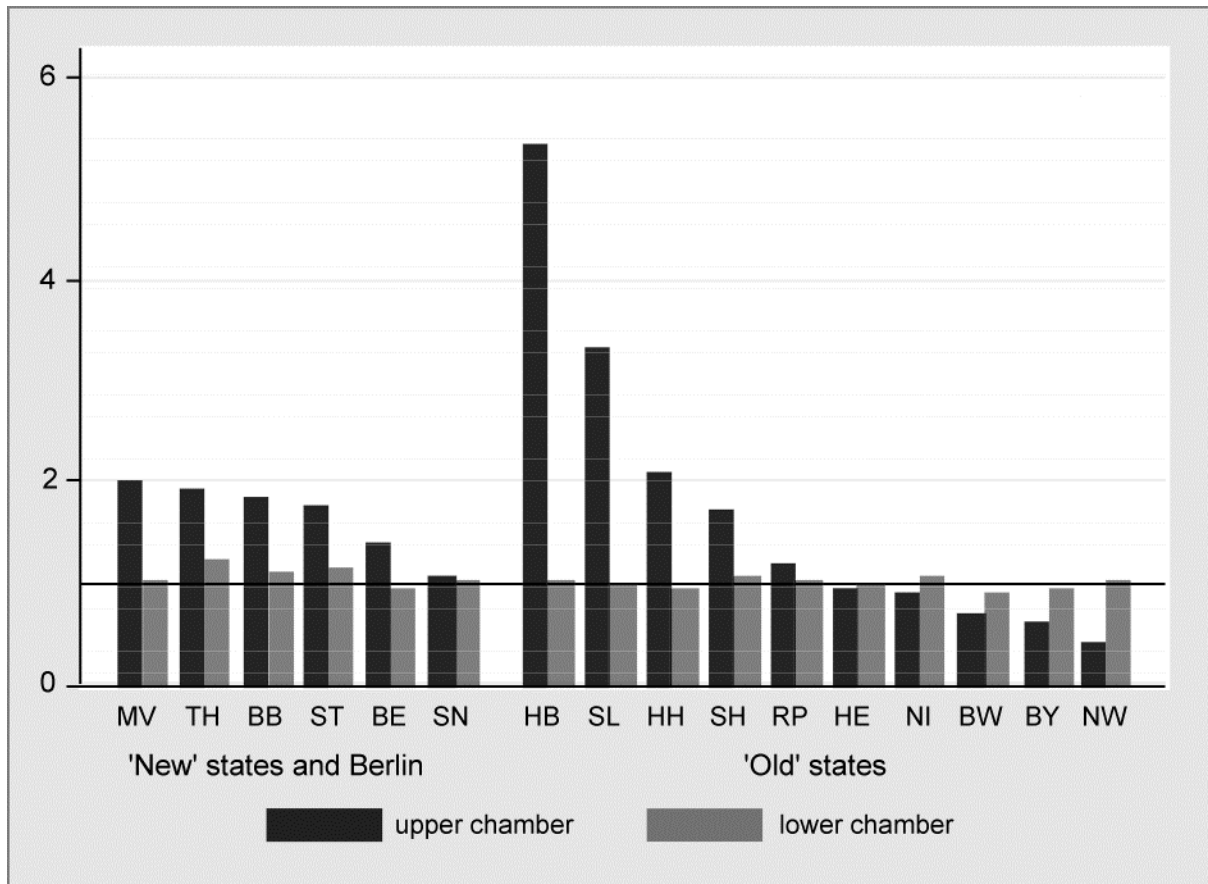
R-squared (within)	0.841	0.943	0.920
Arellano-Bond test of first order autocovariance	-1.73 (0.084)	-2.43 (0.015)	-2.22 (0.026)
Arellano-Bond test of second order autocovariance	1.47 (0.143)	0.53 (0.596)	0.55 (0.586)
Sargan test of over- identifying restrictions	335,58 (1,000)	421,21 (1,000)	477,27 (1,000)

P-values in parentheses, * significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent.

Both Fixed Effects-Regression and Arellano-Bond-GMM estimation with robust standard errors.

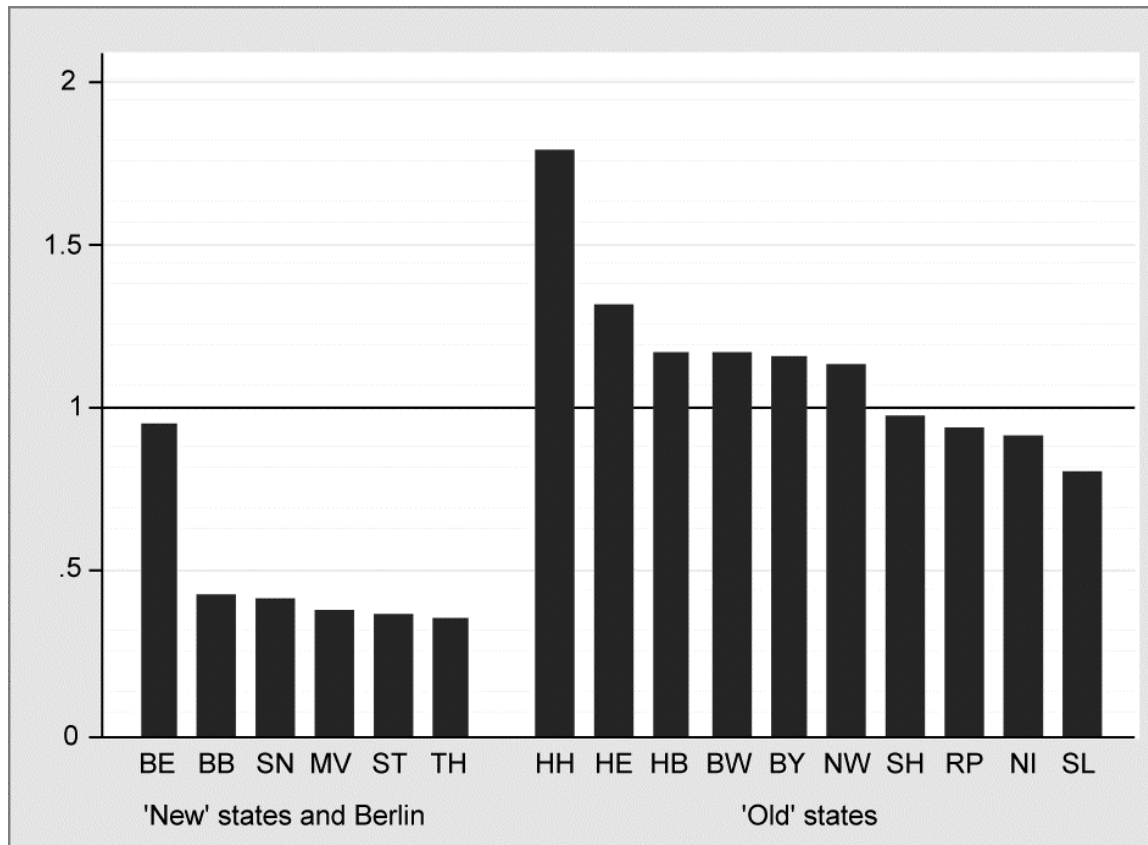
Standard errors for Fixed Effects Regression adjusted for clustering on unit effects.

Figure 1: Average Malapportionment in Upper and Lower Chamber (1995-2002)



Note: Proportional representation normalized to 1.

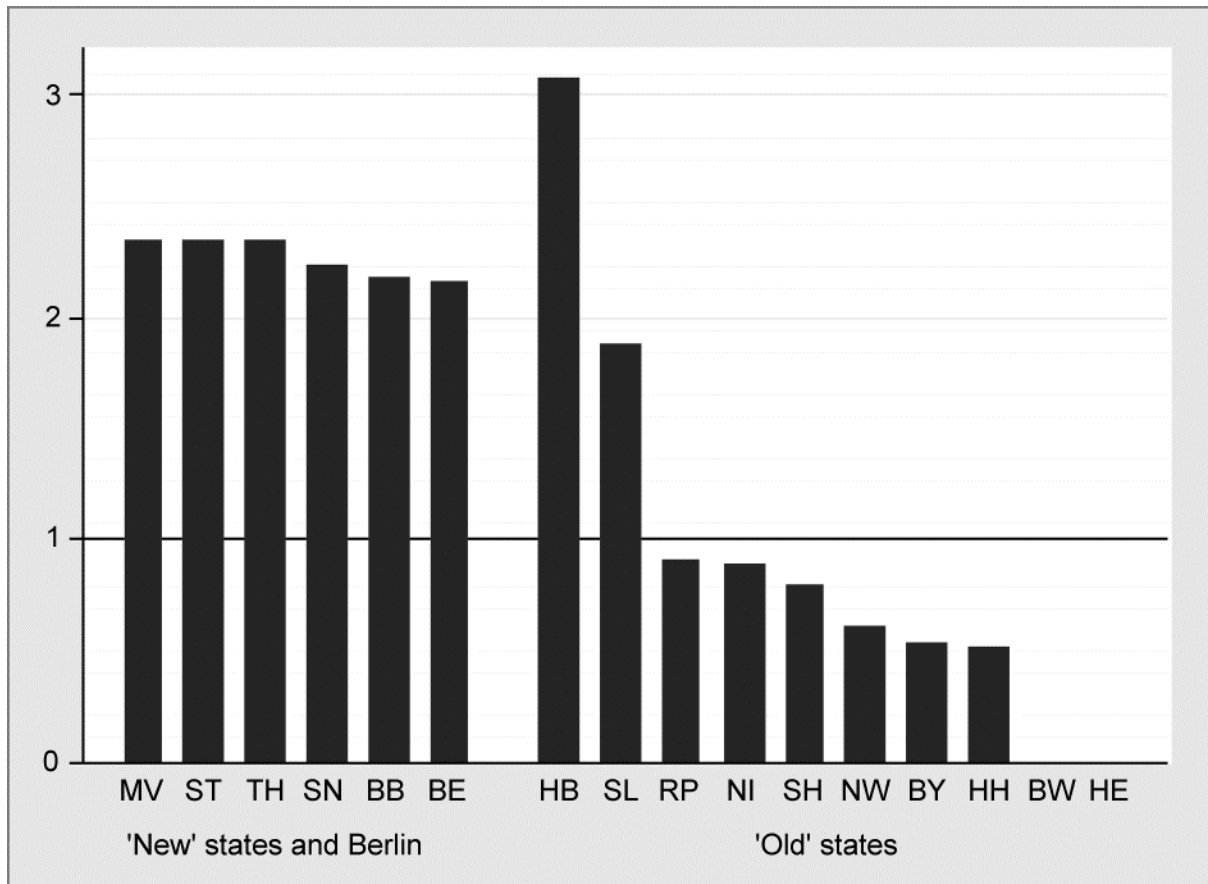
Source: Own calculations based on Statistisches Bundesamt (various issues)

Figure 2: Average Initial Per Capita Tax Receipts of the States (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.

Source: Own calculations based on Statistisches Bundesamt (various issues)

Figure 3: Average Per Capita Gains of the states 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.

Source: Own calculations based on Bundesministerium der Finanzen (various issues)

Figure 4: Over- and Underrepresentation in the Upper Chamber and Mean of Relative Gains from 1970 to 2002

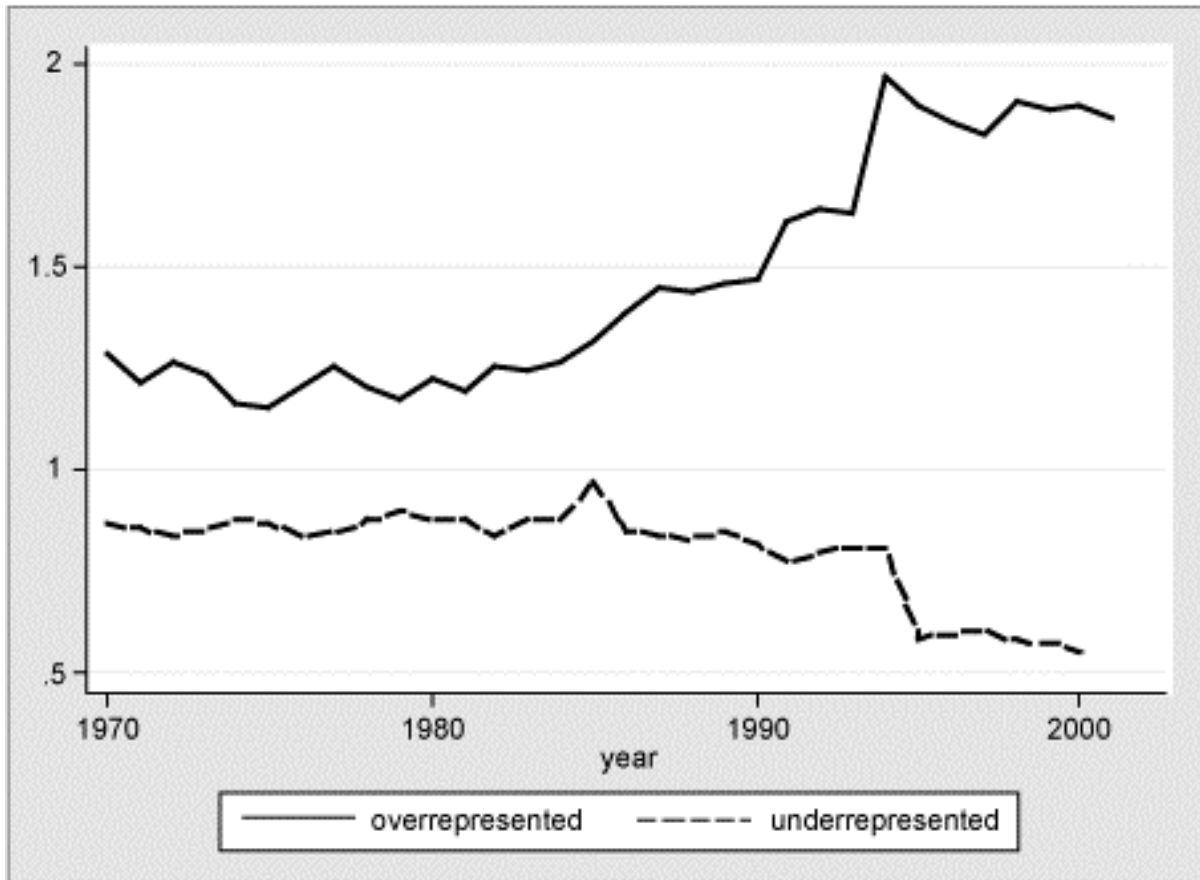


Figure 5: Over- and Underrepresentation in Lower Chamber and Mean of Relative Gains from 1970 to 2002

