Zentrum für Europäische Integrationsforschung
Center for European Integration Studies
Rheinische Friedrich-Wilhelms-Universität Bonn

Working Paper

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Regional Risk Sharing and Redistribution in the German Federation

B 15
2000

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September 2000

Keywords: Regional Risk-sharing, Fiscal Federalism, Monetary Union

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Abstract:
We provide empirical estimates of the risksharing and redistributive properties of fiscal equalization among the states of the German federation. Fiscal equalization serves as a mechanism to insure state budgets against asymmetric revenue shocks, but provides almost no insurance against regional income shocks. Equalization responds only weakly to income differentials but strongly to tax revenue differentials across states. A further result is that the correlation of state tax revenues with state GDPs has declined over time. This may reflect a weakening in state tax efforts in response to the adverse incentive effects of fiscal equalization.

Nontechnical Summary

Fiscal arrangements for sharing income risk and redistributing income across different regions of a national state or across the states forming a federation have received considerable interest in recent research. Much of this interest was sparked by the preparation of European Monetary Union during the 1990s where a fiscal tax and transfer system has been considered as an alternative to the exchange rate instrument for absorbing asymmetric shocks. Other contributions have looked at the role of the fiscal system in improving the performance of economies with incomplete capital markets that do not allow consumers to insure against regionally asymmetric shocks. Much of the empirical work in this area has been done using data from the US and Canada.

In this paper, we analyze the risksharing and redistributive properties of Germany's system of fiscal equalization, the principal arrangement for tax revenue sharing and transfers among the states of the German federation and between these and the federal government. We use data from 1961 to 1994, the last year before the inclusion of the East german states in the system, for a panel analysis. We are interested in two main aspects of the system: To what extent does it provide insurance against asymmetric shocks to the individual states, and to what extent does it provide systematic redistribution from rich to poor states.

A first result is that fiscal equalization provides almost no insurance against asymmetric shocks to state GDPs. Furthermore, it provides very little redistribution from states with high to states with low per-capita GDPs. In contrast, fiscal equalization perfectly insures state budgets against fluctuations in per capita tax collections around the federal average. Fiscal equalization also results in significant redistribution of tax revenues from states where per capita tax collections are low to states where per capita tax revenues are high. Both the degree of insurance provided and the extent of tax-revenue redistribution have increased over time. Thus, fiscal equalization in Germany can be best understood as a system for risksharing and redistribution among state governments rather than consumers in different states. The model presented in section 2 of this paper suggests that this can be explained by the desire to insure risk-averse consumers against fluctuations in the provision of local public goods.

An important critique against fiscal equalization holds that large transfers among states lead to adverse incentive effects for governments to develop and maintain a healthy tax base in their own states. The model we present in section 2 shows that this argument is too simple. If fiscal equalization provides significant insurance against shocks to tax revenues, an increase in the transfers under fiscal equalization may well induce more rather than less tax effort. The reason is that local governments are encouraged to produce more public goods if fiscal equalization allows for a steadier supply of these goods over time.

In the last section of this paper, we show that the elasticity of state tax revenues with regard to fluctuations in state GDPs has steadly declined over the 35 years under consideration. This is weakly consistent with the view that more redistribution among states leads to lower tax effort. But the empirical evidence suggests that the argument has been overplayed in the recent debate about fiscal equalization in Germany.

1. Introduction

Fiscal arrangements for sharing income risk and redistributing income across different regions of a national state or across the states forming a federation have received considerable interest in recent research. Much of this interest was sparked by the preparation of European Monetary Union during the 1990s.The literature has looked at such arrangements from two different angles. Following the tradition of Mundell's (1961) analysis of currency unions, one branch of the literature considers the importance of fiscal arrangements among regions or states sharing the same currency as mechanisms for regional economic stabilization, i.e., as a substitute for exchange rate flexibility. The basic idea of this approach is nicely summarized in a quote by Jacques Delors, the former president of the European Commission, in the Delors-Report (1989, p.89), the blueprint for European Economic and Monetary Union (EMU):

"*... in all federations, the different combinations of federal budgetary mechanisms have powerful "shock-absorber" effects dampening the amplitude either of economic difficulties or of surges in prosperity of individual states. This is both the product of, and the source of the sense of national solidarity which all relevant economic and monetary unions share."*

Following this approach, the MacDougall Report (European Commission, 1977a, b), which considered the conditions for monetary union in Europe already in the 1970s, and, more recently, Sachs and Sala-I-Martin (1991), von Hagen (1992), Goodhart and Smith (1993), Bayoumi and Masson (1997, 1998), Melitz and Zumer (1998) provide empirical estimates of the extent to which fiscal arrangements in existing federations provide insurance against region or state-specific shocks to aggregate output. The empirical results of the more recent studies indicate that federal fiscal arrangements in practice absorb between 10 and 20 percent of the impact of asymmetric shocks, much less than Delors' quote would suggest.[1]

The other branch of the literature considers the role of national or federal fiscal arrangements for consumption risk-sharing among consumers living in different regions of a country or federation (Persson and Tabellini 1996a, b; Bucovetsky 1998). Here, the motivation is that fiscal arrangements may improve consumption smoothing in the presence of incomplete capital markets. Empirical contributions following this approach include Atkeson and Bayoumi (1993), Sorensen and Yosha

(1997), Asdrubali, Sorensen and Yosha (1996), van Wincoop (1995) and Athanasoulis and van Wincoop (1998). Persson and Tabellini (1996a,b) analyze the political economy of regional risk-sharing arrangements. They argue that there is a trade-off between redistribution and risk-sharing among the regions of a federation and find that underinsurance is a likely outcome of inter-governmental transfer schemes.

The empirical work in both strands of this literature has concentrated on the US and Canada and provided only some evidence for other federations or nations. This paper provides new empirical evidence of the risk-sharing and redistributive properties of fiscal equalization in Germany. Germany is a particularly interesting case in this context, because, like Canada and in contrast to the US, it has an explicit, formula-based mechanism for fiscal equalization, *Finanzausgleich* (FA), which is defined by the federal constitution.[2] The German case has not received much attention in the empirical literature, most likely because of the intricacies of the formal arrangement and the difficulties to find the appropriate data.

In section II, we begin our analysis with the development of a stylized model of horizontal fiscal equalization. The model serves to motivate an important point in the empirical work, i.e., the distinction between fiscal equalization targeting differentials in private sector incomes across regions and fiscal equalization targeting regional government tax collections. By focusing entirely on regional risk sharing, the existing literature misses important aspects of fiscal equalization in Germany, where interregional transfers to households play only a minor role.[3]

Section III gives a description of FA. In section IV, we explore the extent to which it serves as a buffer against regional income shocks and against shocks to local government tax collections. Furthermore, we explore the redistributional aspects of FA, both in terms of per capita GDPs and state tax revenues. We find, first, that FA provides no insurance against state-specific income shocks and very small redistribution relative to state-specific differences in per-capita GDP. Second, we find that FA provides perfect insurance of state tax revenues against asymmetric shocks and very significant redistribution of state tax collections. Thus, FA is best

[1] See von Hagen (2000) for a review of the empirical results.
[2] As in Canada, equalization is considered to be an outflow of a constitutional mandate to provide equal living conditions for all citizens throughout the federation.
[3] Kunz (2000) shows that such transfers are provided to some extent by Germany's unemployment insurance.

understood as a mechanism for insuring state budgets rather than regional economies and for equalizing the distribution of tax revenues across states.

The observation that FA redistributes tax revenues among the states of Germany has lead to the argument that it creates negative incentives for states collecting taxes and developing their tax bases (e.g. Baretti et al 2000; Büttner 1999). Our theoretical model suggests that this argument is too simple, as it neglects the insurance aspect of horizontal equalization. In the last part of section IV, we show that the link between state tax collections and GDP is weak in Germany, and has become weaker over time. The evidence is consistent with the operation of negative incentive effects, but these effects may be weaker than what is generally suggested in the public debate. Section V concludes.

II. Principles of Regional Risk Sharing and Redistribution

In a world of perfect capital markets, the government has no role in providing private consumers with insurance against income shocks, as every individual could buy the amount of insurance he desires in the market. Insurance against regional shocks can be achieved by cross-ownership of productive assets or through lending and borrowing on credit markets. There might still be fiscal arrangements for redistributing income between individuals living in different regions of a country, but these would target permanent income differentials across regions rather than deal with region-specific income risk. In a world with incomplete capital markets, however, consumption smoothing can be improved by fiscal transfers between regions.

Consider a federation consisting of i = 1, …,N states. There is a representative consumer in each state who receives a stochastic income y_{it} with expected value $E(y_{it}) = y + \Delta_i$ and a fixed variance σ_i^2. Subsequently, we let all variables without a state index i denote per capita averages across all regions. Thus, y is average expected income across all states, and Δ_i is the difference between this and the representative consumer's expected income in state i. We normalize the variance of aggregate income y_t to one. Note that the correlation between state-specific and aggregate income, ρ_i, is generally different from zero. The representative consumer in state i pays taxes t_{it} to the state government, which uses the proceeds to provide its citizens with a public good, g_{it}. To simplify, we abstract from private and public sector borrowing. In each state i, government tax collections are a random variable

with expected value $Et_{it} = t + \delta_i > 0$ and a fixed variance θ_i^2. Obviously, the distribution of tax collections in each state is constrained to assure that $t_{it} < y_{it}$. In the absence of any transfers across regions, the representative consumer's budget constraint is $c_{it} = y_{it} - t_{it}$, and the state government's budget constraint is $g_{it} = t_{it}$. The representative consumer's preferences are given by a utility function $U_i(c_{it}, g_{it})$ with positive and decreasing marginal utility in both arguments.

Our model has two channels of region-specific risk: shocks to state income, and shocks to state tax collections. State tax collections and incomes in state i are not necessarily perfectly correlated, as the state government may collect taxes on things other than incomes, the income elasticity of tax revenues may be small, and there may be lags between the generation of incomes and tax collections.

The literature typically considers regional transfer mechanisms providing direct consumption smoothing by pooling regional income risk across regions. It is achieved by a transfer mechanism that collects payments from citizens in individual regions proportional to their incomes and pays transfers proportional to average per capita income. We assume that, due to constitutional constraints, the tax and transfer rates are the same for all citizens in the country, and that the mechanism cannot distinguish between actual and expected income. Thus, if a transfer mechanism aiming at consumption smoothing is in place, individuals in state i receive a net transfer of $\tau(y_t - y_{it})$, where $0 \leq \tau \leq 1$. These transfers may, of course, run through the budgets of the state governments, but receipts and payments net out, as they are paid directly to households.

An alternative transfer mechanism collects and pays transfers between the state governments on the basis of their tax collections. This intergovernmental transfer scheme makes governments collecting higher than average tax revenues pay a part of their receipts to governments collecting less than average tax revenues. Thus, the net transfer is $\beta(t_t - t_{it})$, where $0 \leq \beta \leq 1$.

With these transfer systems in place we can now reformulate the consumer's and the state budget constraints.

(1) $c_{it} = \tau y_t + (1-\tau)y_{it} - t_{it}$

(2) $g_{it} = \beta t_t + (1-\beta)t_{it}$.

To derive some characteristics of regional transfer schemes aiming at risk sharing, we now ask, what are the parameters τ and β the representative household in state i would choose? We answer this question by deriving the parameters that maximize the representative household's expected utility given the budget constraints (1) and (2).

Consider first the optimal mechanism for transfers paid to households from the point of view of consumers in region i.

(3) $$t_i^* = \min\{\max(-1, t_i^{opt}), 1\}, t_i^{opt} = \frac{-\Delta_i}{r_i^c(1+s_i(s_i-2r_i))} + \frac{s_i(s_i-r_i)}{1+s_i(s_i-2r_i)},$$

where r_i^c is the *Arrow-Pratt* measure of absolute consumption risk aversion.

Equation (3) contains a number of insights into the properties of regional transfer arrangements. First, since the mechanism does not distinguish between expected and unexpected incomes, it has a purely redistributive part represented by the first term. Regions with relatively low expected incomes would prefer more redistribution, while regions with relatively high expected incomes might even prefer no income smoothing at all.

Second, the optimal risk-sharing arrangement depends on the stochastic characteristics of a region, indicated by the second term of equation (3). In the absence of any differences in expected per capita incomes, the desired degree of consumption smoothing increases as the correlation coefficient declines, i.e., the insurability of incomes across regions increases. Furthermore, the desired degree of consumption smoothing increases with the variance of regional per-capita income relative to the volatility of aggregate per-capita income, unless the correlation coefficient ρ_i is large. Intuitively, high-risk regions desire a larger degree of consumption smoothing than low-risk regions.

Third, equation (3) shows that regions with different characteristics desire different consumption smoothing arrangements. The design of a federal system, therefore, entails some compromise among the states. Persson and Tabellini discuss the political economy of such a compromise. While details are beyond the scope of this paper, two points are particularly noteworthy. First, in the presence of differences in expected per-capita incomes across states, the political equilibrium implies a trade-off between redistribution and consumption smoothing which may lead to under-provision of the latter. Second, a political equilibrium may emerge, in which

high-risk regions pay a permanent transfer to low-risk regions in return for obtaining a higher degree of insurance than the low-risk regions would choose for themselves. Thus, a federal arrangement for consumption smoothing may lead to permanent, unconditional transfers even when the expected per capita incomes are the same in all states.

Next, we consider the optimal arrangement for transfers between state governments from the point of view of the representative consumer in

(4) $$b_i^* = \min\{\max(-1, b_i^{opt}),1\}, b_i^{opt} = \frac{-d_i}{r_i^g q^2 (1 + w_i(w_i - 2p_i))} + \frac{w_i(w_i - p_i)}{1 + w_i(w_i - 2p_i)},$$

where π_i is the correlation coefficient between regional and aggregate per capita tax revenues, w_i is an index of the relative volatility of state to average per capital tax collections, $w_i = \theta_i/\theta$, and r_i^g is the *Arrow-Pratt* measure of absolute risk aversion with regard to the local public good.

Equation (4) shows that the choice of the transfer mechanism between state governments is determined by similar considerations as the transfer mechanism that pays transfers directly to households. As before, the transfer mechanism has a redistributive component, represented by the first term, and an insurance component, aiming at smoothing state tax revenues over time. Nevertheless, equation (4) is interesting in its own right, because it shows that there is a scope for horizontal fiscal transfers among the states of a federation even if these transfers are uncorrelated with regional income shocks and are not used to improve household consumption smoothing.

An important aspect of horizontal transfer arrangements is that they may create adverse incentives for the states' tax collection efforts and the development of tax resources (Migue, 1993). Indeed, the current debate on the reform of FA in Germany focuses strongly on the argument that state governments have too weak incentives to improve tax collections or to develop new taxable resources, because doing so does not pay for the individual government, as most of the additional revenue generated is lost through FA. Baretti et al. (2000) provide empirical evidence that suggests that reducing the amount of horizontal equalization in Germany would increase state tax collections.[4]

[4] In contrast, Smart and Bird (1996) argue that equalization creates positive incentive effects for state tax collections, if poor states are rewarded for higher tax efforts by higher transfers.

To explore the argument, let $t_{i,t} = E(t_{i,t}) + \varepsilon_{i,t}$ and assume that expected tax revenues differ across states only because state government make different efforts to collect taxes. Thus, $E(t_{i,t})$ is a measure of tax effort. Assume that state government i can choose its tax effort before any shocks happen and that the government incurs a cost of tax effort, $\Omega[E(t_{i,t})]$, with positive and increasing marginal cost. The state government chooses its tax effort to maximize the welfare function $V_i = U_i - \Omega[(E(t_{i,t})]$. We can then use the envelope theorem to derive the relation between tax effort and the degree of insurance and redistribution achieved through the intergovernmental transfer system.

(5)

$$\frac{d[E(t_i)]}{db} = \frac{m_{g,i}(1-a_i) + m_{gg,i}d_i g_i + [r^g_{g,i} - (r^g_i)^2]m_{g,i}g_{ii}q^2[b^2 + ((1-2b)p_i + (1-b^2)w_i)w_i]}{m_{gg,i}g_i - \Omega_{tt,i} - m_{cc,i}}$$

In equation (5), α_i denotes the share of state i in national averages, $\gamma_i = (1-\beta(1-\alpha_i))$ is the net revenue from an extra dollar of taxes to the state government, $\mu_{j,i}$ denotes the expected value of the first (j=g), second (j=gg, cc) derivative of the utility function with regard to the respective argument, $r_{g,i}^g$ is the derivative of the r_i^g, and $\Omega_{tt,i}$ is the second derivative of the cost of tax effort. A closer look at equation (5) reveals that the incentive effect of horizontal transfers among the state governments consists of two elements. The first two terms summarize the conventional argument about redistributive transfers. Assuming that the denominator of (5) is negative (i.e., not dominated by $\mu_{cc,i}$), an increase in the transfer parameter β reduces optimal state tax effort. This effect is stronger for small states and for states with relatively low tax efforts (i.e., with $\delta_i < 0$.).[5]

The third term brings in the state government's demand for insurance against asymmetric tax shocks. This term is negative, if risk aversion with regard to the public good is strong, and its derivative is not too large. Indeed, it seems plausible that the degree of risk aversion with regard to local public goods is quite high. If so, increasing the transfer parameter encourages a state government to spend more tax effort. Intuitively, offering more insurance against asymmetric revenue shocks encourages the government to choose a higher level of public goods provision, which in turn requires higher tax effort. Thus, the empirical observation of a large transfer parameter β does not imply that state governments are vexed with adverse

incentives regarding their efforts spent on tax collection and the improvement of local tax sources.

III. Finanzausgleich: Fiscal Equalization in Germany

Finanzausgleich is an arrangement for redistributing tax revenues among the states and the federal government of Germany.[6] The original federal constitution assigned all taxes of unambiguous local incidence to the states, among them personal and corporate income taxes and business taxes, and all other taxes to the federal government. Apart from some minor taxes, this left the federal government with sales taxes, which were later replaced by VAT. In order to secure it with a sufficient revenue base, a third of personal and corporate income tax revenue was given to the federal government, this share climbed to 35 percent by 1969. The fiscal constitution act (Finanzverfassungsgesetz) of 23 December 1955 instituted a horizontal sharing arrangement among the states covering all revenues from state taxes plus half of the local taxes collected by municipalities. From 1956 on, it guaranteed every state a minimum of 88.75 percent of the federal average per capita revenue from this tax base.[7] By 1959, this minimum had climbed to 91 percent. In 1967, the federal government started paying supplementary transfers (*Ergänzungszuweisungen*) to states with low tax capacities. The main goal of this system according to the German constitution is to 'create and secure uniform living standards throughout Germany' (Art.72 para 2(3) and Art.106 para 3(2)).

FA was reformed in 1969, when the federal government obtained half of the revenue from corporate income tax, 42.5 percent of the revenue from personal income tax, and 70 percent of the revenue from VAT.[8] The horizontal sharing arrangement guaranteed each state a minimum of 95 percent of federal average per capita revenues from all taxes included in the arrangement, i.e., all state taxes and half of the revenue from local taxes. Frequent changes of the formula for distributing tax revenues occurred in the years since then.

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[5] Note that for $\beta < 1$, $\mu_{ig} > \mu_{jg}$ if $\delta_i < \delta_j$.
[6] Seperate arrangements for fiscal equalization at the municipal level exist in all states.
[7] Equalization arrangements prior to 1956 guaranteed every state a minimum of 61.25 percent of the federal average per capita tax revenue.
[8] 15 percent of the revenue from personal income tax was given to the muicipalities.

FA evolves in three stages. At the first stage, 75 percent of their share in VAT are distributed among the states on an equal per-capita basis.[9] The remaining 25 percent are used to make payments to states with per capita revenues from all state taxes of less than 92 percent of the federal average. If the amount available for redistribution is not enough, the transfers are cut accordingly.[10] If the amount available is more than what is needed, the remainder is distributed among the financially strong states on a per-capita basis.

At the second stage, tax capacities and resource needs are calculated for all states. Tax capacity is determined by the sum of state tax revenues[11] and 50 percent of the local taxes collected on a state's territory. Resource needs are calculated as the average per capita tax revenues in Germany multiplied by the population of the respective state. At this stage, the special financial needs of the city states Hamburg and Bremen are recognized by attributing them with larger than actual populations. The difference between tax capacity and resource needs determines whether a state pays or receives transfers under FA. Financially weak states receive payments which lift them to at least 92 percent of federal average per capita tax revenues. If a state's revenues are between 92 and 100 percent of the federal per capita average, it receives transfers that amount to 37.5 percent of that difference. If a state's tax revenues are above 102 percent of the national average, it pays a contribution to FA. For per capita revenues between 102 and 110 percent of the federal average, the contribution is equal to 70 percent of the difference, for per capita revenues above 110 percent of the federal average, the contribution is 100 percent of the difference between the state's revenues and the federal average. As a result, the differences in per capita tax revenues among the states range between 95 percent and 104.4 percent of the federal average.

At the third stage, payments from the federal government to the states are made to further reduce the differences in per capita revenues. These supplementary transfers are general-purpose grants which are computed on the basis of special financial needs and the per capita VAT revenue of the financially weak states.

[9] The actual formula is complicated by the fact that Hamburg and Bremen are attributed artificially higher populations to reflect their special needs as port cities.
[10] In this case, however, financially weak states are guaranteed the amount they would receive if the entire share of the states in VAT were distributed on a per-capital basis.
[11] These tax revenues include the states' share of the income tax, corporate tax, trade tax, wealth tax, inheritance tax, car tax, beer tax, lottery tax, as well as the share of the VAT revenue for the states.

FA was reformed again in 1995, when the new East German states were brought into the arrangement. For per capita revenues between 100 and 101 percent of the federal average the contribution is now 15 percent of the difference, for per capita revenues between 101 and 110 percent of the federal average, it is 66 percent of the difference, for per capita revenues above 110 per cent of the federal avergae, it is 80 percent of the difference. Contributing states must be left with at least 95 percent of the average per capita revenues after redistribution. Together with the supplementary payments, all states have at least 99.5 percent of the average per capita revenues.

Table 1: Finanzausgleich: Basic Statistics

	Average 1961	Maximum 1961	Minimum 1961	St.Dev. 1961	Average 1994	Maximum 1994	Minimum 1994	St.Dev. 1994
GDP per capita	19274	28887	15488	4199	43008	69024	33538	10941
Tax Revenues	1332	2512	820	506	3319	4222	2742	410
Transfers under FA (%of GDP)	0.49	2.68	-1.98	1.50	0.29	1.48	-0.10	0.66
Absolute Transfers (%of GDP)	1.22	2.68	0.00	0.92	0.45	1.48	0.02	0.55

Note: All variables in DM of 1991

Table 1 reports some basic statistics characterizing FA. In 1961, the difference between the largest and the smallest per capita GDP among the 10 West German states was 70 percent of the average GDP per capita, the standard deviation amounted to 22 percent. In 1994, the range of per capita incomes was 82.5 percent of average per capita GDP, while the standard deviation was 25 percent. This indicates a significant and slightly increasing degree of variation in per capita incomes among the 10 West German states. The range of per capita tax revenues was 127 percent of average per capita taxes in 1961, compared to 45 percent in 1994. For tax revenues, the standard deviation was 38 percent of the average in 1961, and 12 percent in 1994. Thus, there was a strong convergence of per capita tax revenues among the states during this period.

Turning to the transfers under FA, the table shows that the average payment made at stage 3 was small in both periods. Measuring transfers relative to state GDP, the largest transfer received was 2.68 percent in 1961 and 1.48 percent in 1994, while the largest transfer paid was 1.98 percent of GDP in 1961, compared to

0.20 percent in 1994. The average absolute transfer was 1.22 percent of state GDP in 1961 and 0.45 percent in 1994. Finally, the standard deviation of transfers declined substantially. Thus, the volume and dispersion of payments made under the arrangement have come down over the 34 years under consideration. During this time period, Hessen and Bavaria are the only states that changed their positions from large net recipients to large net contributors to the system. The position of the remaining states did not change importantly.

IV. Empirical Analysis

In this section, we use panel data analysis to estimate the amount of risk sharing and redistribution of tax revenues provided by the German FA. We use annual data of the 10 West German states from 1961 to 1994, the last year before the five East German states were included in FA. Data from earlier years are not included because the state of Saarland joined the arrangement only in 1961. Thus, our data consists of a balanced panel of ten states over 34 years. We use annual GDP per capita to approximate incomes at the state level. These data were provided by the Statistical Office of Baden-Württemberg. The tax data we use include all tax revenues covered by FA, measured in per-capita terms. These data and the data reporting the annual transfer flows among the states and between the states and the federal government under FA are taken from the relevant legal documents fixing the amounts to be paid and received.[12] We deflate all nominal variables with the West German GDP deflator with base year 1991. We cut the sample in 1994, because the East German states participate in FA since 1995, and there are no estimates of state GDP available for these states.

In the analysis below, we focus on two questions: How much insurance against asymmetric shocks and how much redistribution does FA achieve. We derive empirical answers to these questions both with regard to asymmetric shocks and the distribution of state tax revenues and with regard to asymmetric shocks and the distribution of state GDPs. While there are no payments directly to individuals in response income shocks as in our model above, transfers under FA might still respond to asymmetric GDP shocks and, thus, provide an indirect insurance against

[12] 1949-1955: "Verordnung zur Abrechnung des Finanzausgleichs unter den Ländern" for the years 1949-55, "Zweite Verordnung zur Durchführung des Länderfinanzausgleichs" for the years 1956-70,

such shocks to the entire state.[13] As per capita GDP is a better proxy for a state's economic well being than per capita tax revenues, considering the redistributive function with regard to GDP also seems of genuine interest.

IV.1. The Insurance Function of FA

To evaluate the insurance function of FA, we estimate the following equation:

$$(6) \qquad \frac{x_{it} - x_{it-1}}{y_{it-1}} = a_t + s_i + b * \frac{y_{it} - y_{it-1}}{y_{it-1}} + residual$$

Here, x_{it} is the flow into or out of state i's budget in year t under FA, and y_{it} stands either for the state's pre-FA tax collections or GDP. Including a time fixed effect α_t, the term $y_{it} - y_{it-1}$ effectively stands for the asymmetric change in y in state i, since the national average will be picked up by the time fixed effect. We also control for state fixed effects, s_i . The coefficient ß then estimates the extent to which flows under FA provide insurance against asymmetric tax revenue or GDP shocks. Complete insurance is indicated by a coefficient of β=-1, partial insurance by values between minus one and zero.

The results of the regressions with respect to the GDP of the states are summarized in Table 2. We report estimates for the flows at stage 1 of FA, stage 2, the federal supplementary grants, and stage 3. The estimates are significantly negative for stage 1 and stage 2. However, the adjusted R-squares and F-values show that the regressions do not have much explanatory power. That is, the link between flows under FA and fluctuations in state GDPs is statistically not very strong. Including state fixed effects does not add explanatory power to these regressions. Taking the estimates with time and state fixed effects, the transfers at the first stage of FA offset an asymmetric GDP shock of one percent to a state by a payment of 0.013 percent of GDP, the transfers at the second stage increase this offset to 0.054 percent. Supplementary grants are not significantly linked to asymmetric changes in GDP. However, including them in the total transfers (stage 3) reduces both the size

"Zweite Verordnung zur Durchführung des Gesetzes über den Finanzausgleich zwischen Bund und Ländern" since 1971.

[13] To the extent that welfare payments to individuals are paid out of state budgets and respond to asymmetric shocks, FA would provide an indirect insurance against such shocks to individuals.

of the offsetting coefficient and its statistical significance. Thus, supplementary grants partially offset the insurance function of FA weak as it is already at the second stage.

Table 2: Insurance Effects for GDP

	Fixed Effects	Coefficient Estimate	T-value	F-value (degrees of freedom)	Adjusted R^2
Stage 1	Time	-0.013	-2.53	0.94 (24,215)	-0.01
	Time and state	-0.016	-2.59	0.74 (33,206)	-0.04
Stage 2	Time	-0.052	-5.45	2.07 (24,215)	0.10
	Time and state	-0.054	-5.45	1.65 (33,206)	0.08
Supplementary grants	Time	0.013	0.86	2.01 (27,242)	0.09
	Time and state	0.013	0.87	2.01 (36,233)	0.12
Stage 3	Time	-0.035	-1.76	1.64 (24,215)	0.06
	Time and state	-0.034	-1.68	1.90 (33,206)	0.11

To check the stability of the offsetting coefficients, we reestimated equation (6) allowing for changes in the parameter β by including interactive slope dummies for the 1960s, 1980s, and 1990s. This is suggested by the fact that the rules and parameters of FA were reformed in 1969, and modified several times on a more ad-hoc basis in later years. The estimate for the 1970s, i.e., the first full decade of operation under the 1969 reform, are the standard of comparison in these tests. The results, not reported here to save space, show that none of the dummy variables is significant. We also estimated the equation with instruments for current income, which did not change the results. Furthermore, including one and two lags of the explanatory variable did not turn out to be significant. Overall, we conclude that FA provides almost no insurance against asymmetric GDP shocks to states in Germany.

A very different picture emerges when we turn to the insurance function with regard to tax revenues. Table 3 reports similar estimates with the annual changes in tax revenues used as the explanatory variable. Here, we see that the offset coefficients are negative and highly significant for the transfers at the first and second stage. An asymmetric drop in state tax revenues is offset by a transfer of 32 percent at the first stage and 88 percent at the second stage. Thus, FA provides partial insurance against asymmetric shocks to state tax revenues at the first stage and almost complete insurance at the second stage. However, supplementary grants work in the opposite direction and, therefore, reduce the overall amount of insurance provided at the third stage of FA to 56 percent. As before, including state fixed effects

does not make a difference in the results. Again, we estimated equation (6) including lags of the explanatory variable on the right hand side, but these did not appear significantly.

Table 3: Insurance Effects for State Tax Revenues

	Fixed Effects	Coefficient Estimate	T-value	F-value (degrees of freedom)	Adjusted R^2
Stage 1	Time	-0.320	-9.56	4.74 (24,215)	0.27
	Time and state	-0.324	-9.32	3.37 (33, 206)	0.25
Stage 2	Time	-0.865	-27.09	34.09 (24,215)	0.77
	Time and state	-0.878	-27.03	25.31 (33,206)	0.77)
Supplementary grants	Time	0.081	1.54	2.04 (27,242)	0.09
	Time and state	0.078	1.10	2.05 (36,233)	0.12
Stage 3	Time	-0.563	-4.27	2.43 (24,215)	0.13
	Time and state	-0.555	-4.26	2.59 (33,206)	0.18

Table 4 reports the estimates of the coefficient β allowing for parameter changes over time. Note that the total effect is now the sum of the coefficient estimated for the 1970s plus the coefficient estimated for any other subperiod. While there is no significant difference in the insurance provided during the 1960s and 1970s, the total effect increases from (-0.70) to –(0.92) in the 1980s, i.e., FA provided more insurance of state tax revenues in the 1980s than in the earlier decades. This is reversed, however, in the 1990s, where the additional effect estimated is only (-0.17) and is not statistically significant.

Including supplementary grants in the evaluation of FA (stage 3) gives an even more dramatic result. Here, we find that the insurance provided by the system remained the same throughout 1961-1989. In the 1990s, however, the combined effect of FA changes sign.This indicates that FA including supplementary grants had a destabilizing effect on state tax revenues in the 1990s.

Table 4: Stability Tests for Slope Parameters

	Stage 2		Stage 3	
	Coefficient	t-value	Coefficient	t-value
1961-69	-0.040	-0.53	0.020	0.10
1970-79	-0.699	-24.6	-0.774	-10.62
1980-89	-0.219	-3.01	-0.098	-0.52
1990-94	-0.169	-1.78	1.153	4.74

IV.2 Redistribution Through Finanzausgleich

To assess the redistributive function of FA, we estimate the following equation:

$$(7) \qquad \frac{x_{it} - x_t}{y_t} = a_t + s_i + g * \frac{y_{it} - y_t}{y_t} + residual$$

Here, x_t and y_t denote the federal average per capita values of the respective variables. As before, $_t$'s are time fixed effects and the s_i are state fixed effects. The coefficient γ thus estimates the response of transfer flows under FA to a state's deviation from the average per capita tax revenue or GDP. FA reduces differences in per capita tax revenues or GDP, if $\gamma < 0$.

Estimates of equation (7) with time fixed effects alone tell us how transfers under FA respond to the difference between the per-capita GDP of state i and national average per-capita GDP controlling for common trends and business cycle. This difference consists of a permanent and a transitory part. The former is due to long-term differences in the relative income position of state i reflecting its economic development relative to that national average. The latter is due to fluctuations around this long-run relative position over time. Estimating equation (7) with time and state fixed effects separates these two effects, as the state fixed effects pick up the permanent component of the transfers, and the slope parameter reflects the short-run component.

Table 5 reports the redistributive effects of FA with regard to GDP per capita. The estimates with time fixed effects only indicate a significant but very small redistributive effect. At the first stage, a difference of per capita GDP of DM 100 between state i and the federal average is compensated by a reduction in FA transfers by 50 pfennig. Stage 2 raises the effect to DM 1.8, stage 3 to DM 2.1. Estimates with time and state fixed effects lead to a dramatic increase in the adjusted R-squares, but a loss of significance of the slope coefficient at stage 1 and stage 2. This indicates that the redistributive function with regard to GDP is a permanent one, FA does almost nothing at these stages to compensate states for fluctuation around their long-run relative income positions. However, estimating equation (7) with time and state fixed effects at stage 3 leads to a larger and more significant slope coefficient. This is not surprising. It shows that the supplementary grants, which can be paid with more discretion than the formula-based transfers at stage 1 and stage 2,

are used to compensate states for temporary fluctuations around their relative income positions.

Table 5: Redistributive Effects for GDP

	Fixed Effects	Coefficient Estimate	T-value	F-value (degrees of freedom)	Adjusted R^2
Stage 1	Time	-0.005	-7.91	2.59 (25,224)	0.14
	Time and state	0.00	-0.20	33.74 (34,215)	0.82
Stage 2	Time	-0.018	-8.21	2.84 (25,224)	0.16
	Time and state	-0.044	-6.26	42.55 (34,215)	0.85
Supplementary grants	Time	-0.003	-2.33	1.52 (28,251)	0.05
	Time and state	-0.029	-3.50	3.43 (37,242)	0.24
Stage 3	Time	-0.021	-6.74	2.26 (25,224)	0.11
	Time and state	-0.082	-6.71	25.01 (34,215)	0.77

Table 6 reports our estimates of equation (7) with time and state fixed effects and time-varying slope coefficients. Recalling that the total redistributive effect for each subperiod is the sum of the coefficient reported for 1970-1979 plus the coefficient reported for the subperiod, we see that the marginal redistributive effect was larger in the 1960s than in the 1970s, and has declined since then. Thus, in the early 1990s, FA had almost no marginal redistributive effect at stage 2, and only half of the effect it had in the 1970s at stage 3. This suggests that the permanent transfers paid under FA do little to equalize the income distribution among the states.

Table 6: Time-varying Slope Parameters

	Stage 2		Stage 3	
	Coefficient	t-value	Coefficient	t-value
1961-69	-0.030	-17.27	-0.030	-9.00
1970-79	-0.039	-9.40	-0.064	-8.06
1980-89	0.017	10.93	0.017	5.53
1990-94	0.028	14.47	0.031	8.22

An alternative way to look at the long-run redistributive function of FA is to look at the correlation between the state fixed effects and the relative income position of each state. The state fixed effects indicate the average transfers paid to a state relative to the reference state, which is Baden-Württemberg in our estimation. Given the small number of degrees of freedom in this exercise, we calculate the rank correlation between the fixed effects and the per capita GDPs for the states. We do this for two subperiods, 1960-79 and 1980-94. For the first subperiod, the rank correlation between state fixed effects and average per capita GDPs is (-0.75) for the

second stage of FA. This is significant at the one-percent level. For the second subperiod, the rank correlation is close to zero and not significant. Both rank correlations are not significantly different from zero at stage 3 of FA. However, excluding the two city states Hamburg and Bremen from this exercise, the rank correlation becomes significantly negative for the second subperiod and stage 2, and marginally significant (at the 10-percent level) and negative at stage 3 for the same subperiod. Thus, the permanent redistributive effects are clearer when the special situation of the two city states is taken into account.

Table 7 reports the redistributive effects of FA with regard to state per capita tax revenues. Again, we find that the separation between permanent redistribution and marginal redistribution is important. With time effects only, FA compensates a state with per capita tax revenues of DM 100 less than the national average with a transfer of DM 44 at stage 2 and DM 52 at stage 3. However, the marginal redistributive effect is much stronger. Our estimates indicate that a state is compensated fully for temporary per capita tax revenues less than the national average at stage 2 of FA. At stage 3, the state even receives an total grant of DM 111 for a temporary loss of DM 100, i.e., it is beneficial for the state to be below its permanent relative revenue position.

Table 7: Redistributive Effects for Tax Revenues

	Fixed Effects	Coefficient Estimate	T-value	F-value (degrees of freedom)	Adjusted R^2
Stage 1	Time	-0.104	-11.76	5.65 (25,224)	0.32
	Time and state	-0.125	-6.56	39.67 (34,215)	0.84
Stage 2	Time	-0.436	-15.28	9.56 (25,224)	0.46
	Time and state	-1.018	-43.91	401.62 (34,215)	0.98
Supplementary grants	Time	-0.061	-3.39	1.78 (28,251)	0.07
	Time and state	-0.014	-0.29	2.92 (37,242)	0.20
Stage 3	Time	-0.517	-11.72	6.10 (25,224)	0.34
	Time and state	-1.114	-10.68	32.81 (34,215)	0.81

Table 8 reports the estimates of equation (7) with time and state fixed effects and time-varying coefficients. Consider the results without state fixed effects, first. The estimates indicate that the redistributive effect at stage 2 of FA was stronger in the 1960s than in the 1970s. In the 1980s and 1990s, it has become weaker than in the 1970s. In contrast, there is no variation in the redistributive effect at stage 3 of FA. Thus, the long-run redistributive function of the entire system has not changed

significantly over time, although redistribution at the intermediate stage 2 did. This suggests that the federal grants paid at stage 3 have compensated for the weaker redistributive function at stage 2. Since FA at stage 2 is largely rule-based, and the rule is negotiated among the states and the federal government, this indicates that the states have been increasingly unwilling to support horizontal redistribution, and have shifted the redistributive function to the federal level instead.

The results are different when we consider marginal redistribution, i.e., the estimates including time and state fixed effects. For stage 2, we find that the marginal redistributive function of FA was considerably weaker in the 1960s than the 1970s, when it became almost fully offsetting. The increasing slope coefficient for the 1980s and 1990s suggests that redistribution at the margin was weaker in this period than in the 1970s. At stage 3, we find again a less redistributive effect of FA in the 1960s. Overcompensation of marginal revenue differentials began in the 1970s, and became somewhat but not significantly stronger in the 1990s.

Table 8: Time-varying Slope Parameters

	Time Fixed Effects				Time and State Fixed Effects			
	Stage 2		Stage 3		Stage 2		Stage 3	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
1961-69	-0.06	-1.4	-0.03	-0.4	0.16	8.6	0.26	4.79
1970-79	-0.49	-13.4	-0.53	-9.83	-0.98	-28.2	-1.18	-11.7
1980-89	0.09	1.6	0.04	0.4	0.04	2.2	-0.04	-0.68
1990-94	0.18	2.2	0.04	0.3	0.05	1.7	-0.14	-1.68

As before, we calculated the correlations between the state fixed effects and average per capita tax revenues in two subperiods, 1960-79 and 1980-94, to assess the long-run redistributive function of FA. These correlations are close to zero and not statistically significant both at stage 2 and 3 and for both time periods. Leaving out the city states of Hamburg and Bremen, however, the rank correlation becomes (-0.89) for stage 2 and the first subsample, which is statistically significant at the one-percent level. For stage 2 and the second subperiod, the rank correlation is negative but not significant. For stage 3, it is highly significantly negative for both subperiods. This confirms the weaker redistributive function provided by stage 2 of FA in the later part of the sample period. Furthermore, the results confirm that the federal government uses its involvement at stage 3 to pay vertical transfers reducing differences in per capita tax revenues among the states.

IV.3. Incentive Effects for State Tax Collections

Critics of the German FA, including the economics press and Germany's Constitutional Court commonly argue that the redistributive properties of FA create adverse incentives for the state governments to develop their tax capacities. The reasoning is that governments lose all additional tax revenues through FA. If tax capacity development is costly in terms of administrative or political effort, state governments will reduce their efforts in view of these charges. The result would be an insufficient development of the tax capacity of all states (Baretti et al, 2000).

Above, we have pointed out the ambiguity of this reasoning from a theoretical point of view, as it neglects the insurance function of FA. The fact that Germany's FA provides very far-reaching insurance of state tax revenues suggests that this argument is of some relevance at least in this context. Our empirical results so far can shed some more light on the issue.

A first point to be noted is that the redistributive function of FA is very small with regard to state GDP and large with regard to state tax revenue. Thus, FA has only minor incentive implications for state development policies that aim at raising a state's long-term level of output. A second point is that incentive effects are likely to depend more strongly on the long-term redistributive properties of FA and less on the marginal redistribution. If this is true, Table 8 implies that the relevant estimate is a charge on additional tax revenues of 52 percent rather than 100 percent. Thus, the adverse effects are likely smaller than what looking at the formula for computing transfers (and, hence, marginal redistribution) would imply.

To explore the issue further, we consider the following regression model of per capita state collections:

(8) $tax_{it} = a_0 + a_t + s_i + cy_{it}$,

where tax and y denote pre-FA per capita tax collections and per capita GDP, respectively, s_i stands for the state fixed effects and α_t for time fixed effects. The coefficient χ thus indicates how tax collections in a state respond to deviations of income from trend. Estimating this equation with a constant slope parameter first, yield a coefficient χ = 0.0156, with a t-value of 4.36. The adjusted R-square is 0.98. We then estimate this equation with time-varying slope coefficients to see how the income elasticity of tax collections changed over time. The results are reported in Table 9.

Table 9: Time-varying Slope Parameters

	Time fixed effects	Time and state fixed effects
1960-69	0.045 (10.74)	0.034 (12.26)
1970-79	0.067 (29.41)	0.043 (10.98)
1980-89	-0.013 (-4.48)	-0.009 (-5.74)
1990-94	-0.024 (-7.60)	-0.018 (-9.13)

Note: T-ratios in parentheses.

The table indicates that the income elasticity of tax collections has weakened considerable over time. In the 1960s, per capita tax revenues increased by DM 11.20 in response to a DM 100 increase in per capita GDP. This was reduced to DM 6.70 in the 1970s, and to DM 4.30 in the 1990s.

This observation is indeed consistent with the hypothesis that state efforts to collect taxes on current income and economic activity declined over time. Recall that the largest change in the redistributive properties occurred between the 1960s and the 1970s. The finding that the same is true for the income elasticity of state tax collections is suggestive support at least of the notion that FA created adverse incentives for state tax efforts. However, the income elasticity of state tax collections continued to go down even when there were no further significant changes in the redistributive properties of FA. This suggests that FA did not play much of a role in the more recent weakening of state tax collections.

V. Conclusion

This paper presents an analysis of fiscal equalization among the states of the Federal Republic of Germany . Fiscal equalization is a formula-based mechanism redistributing tax revenues between the states, augmented by vertical payments from the Federal Government to individual states. It is an outflow of the constitutional mandate to secure equal living conditions for all citizens in the country.

The theoretical model discussed in this paper shows that, apart from pure income redistribution, fiscal equalization can be motivated by considerations of regional risk sharing among consumers living in different states. Regional risk sharing may aim at insuring consumer incomes against asymmetric, region-specific shocks. Alternatively, regional risk-sharing may aim at insuring state budgets against asymmetric tax revenue shocks, enabling states to smooth the provision of local

public goods over time. Counter to conventional wisdom, transfer payments between states do not create adverse incentive effects for states leading to a reduction in tax effort and an insufficient development of local tax bases, if the motivation to insure state budgets against such shocks is sufficiently strong.

Our empirical analysis explores the insurance and redistributive properties of fiscal equalization in Germany, using data from 1961 to 1994. We find that the distinction between insurance aiming at private sector incomes and insurance aiming at state budgets is important. Transfers under fiscal equalization do not correlate strongly with asymmetric shocks to state GDPs. They do, however, strongly offset asymmetric shocks to state tax collections. We conclude that Germany's fiscal equalization is better characterized as an insurance against tax revenue shocks than as a mechanism for offsetting asymmetric shocks to regional incomes.

Similarly, the redistributive properties of fiscal equalization are better characterized with regard to state tax incomes than with regard to per capita GDPs in the states. Transfers under fiscal equalization respond only weakly to differences in per capita GDP across the states. In contrast, they do offset differences in state tax revenues per capita. This offsetting effect is perfect at the margin, but only about fifty percent in the long run. Since the 1970s, redistribution of tax revenues at the margin even overcompensates tax revenue differentials. Thus, states may be better off in times of temporary tax revenue losses than in times of positive revenue shocks.

The result that fiscal equalization leads to significant redistribution of tax revenues across states implies that there is a potential for adverse incentive effects on state tax collections. To explore this issue, we estimate tax revenue functions to see if the link between tax collections and local GDP has changed over time. Our results show that this link has, indeed, become significantly weaker over the 34 years under consideration. This is consistent with the proposition that states have paid less effort on tax enforcement in response to more redistribution of tax revenues through fiscal equalization. However, this effect seems to have been strongest between the 1960s and the 1970s. The ongoing weakening of the link between economic activity and tax collections in the 1980s and 1990s in the German states can hardly be attributed to fiscal equalization.

References

Asdrubali, Pierfederica, Bent Sørensen, and Oved Yosha (1996), "Channels of Interstate Risk Sharing: United States 1963-1990." Quarterly Journal of Economics 111, 1081-1110

Athanasoulis, Stefano, and Eric van Wincorp (1998), "Risksharing Within the United States: What Have Financial Markets and Fiscal Federalism Accomplished?", Research Paper 9808, Federal Reserve Bank of New York

Atkeson, Andrew, and Tamim Bayoumi (1993), "Do Private Capital Markets Insure Regional Risk? Evidence for the US and Europe." Open Economies Review 4, 303-24

Baretti, Christian, Bernd Huber, and Karl Lichtblau (2000), " A Tax on Tax revenue. The Incentive Effects of Equalizing transfers: Evidence from Germany." Mimeo, ifo Institute München

Bayoumi, Tamim, and Paul R. Masson (1998), "Liability-creating Versus Non-liability-creating Fiscal Stabilization Policies: Ricardian Equivalence, Fiscal Stabilization, and EMU." Economic Journal 108, 1026-45

Bayoumi, Tamim, and Paul R. Masson (1997), "The Efficiency of National and Regional Stabilization Policies." in: Jean-Olivier Hairault, Pierre-Yves Hénin, and Franck Portier (eds.), Business Cycles and Macroeconomic Stability. Boston: Kluwer Academic Publishers

Bayoumi, Tamim, and Paul Masson (1995), "Fiscal Flows in the United States and Canada: Lessons for Monetary Union in Europe." European Economic Review 39, 253-74

Bucovetsky, Sam (1998), "Federalism, Equalization, and Risk-sharing." Journal of Public Economics 67, 301-28

Büttner, Thiess (1999), "Regional stabilization by Fiscal Equalization. Theoretical Considerations and Empirical Evidence from Germany." Mimeo, Mannheim: ZEW

Delors, Jacques (1989), "Regional Implications of Economic and Monetary Integration." in: committee for the Study of Economic and Monetary Union (ed.), Report on Economic and Monetary Union in the European Community. Luxembourg: Office for Official Publications of the EC.

European Commission (1977a), Report of the Study Group on the Role of Public finance in European Integration Vol. I, Studies: Economic and Financial Series A13, Brussels

European Commission (1977b), Report of the Study Group on the Role of Public finance in European Integration Vol. II, Studies: Economic and Financial Series B13, Brussels

Fatas, Antonio (1998), "Does EMU need a Fiscal Federation?" Economic Policy 26

Goodhart, Charles E. A., and Stephen Smith (1993), "Stabilization" in: European Commission, The Economics of Community Public Finance, European Economy Reports and Studies 5, 417-55

Kurz, Claudia (2000), "Regional risk Sharing and Redistribution by the Unemployment Insurance system: The Case of Germany." Mimeo, Europa University Viadrina.

Mélitz, Jacques, and Silvia vori (1993), "National Insurance Against Unevenly distributed Shocks in a European Monetary Union." Recherches Economiques de Louvain 59, 81-104

Mélitz, Jacques, and Frédéric Zumer (1998), "Regional Redistribution and Stabilization by the Centre in Canada, France, the United Kingdom, and the United States: New Estimates Based on Panel Data Econometrics." CEPR Discussion Paper 1829

Migué, Jean-Luc (1993), Federalism and Free Trade. Hobart Paper, London: Institute of Economic Affairs

Mundell, Robert (1961), "A Theory of Optimal Currency Areas." American Economic Review 51

Obstfeld, Maurice, and Giovanni Peri (1998), "Regional Non-Adjustment and Fiscal Policy." Economic Policy 26

Persson, Torsten, and Guido Tabellini (1996a), "Federal Fiscal Constitutions: Risk Sharing and Moral Hazard." Econometrica 64, 623-46

Persson, Torsten, and Guido Tabellini (1996a), "Federal Fiscal Constitutions: Risk Sharing and Redistribution." Journal of Political Economy 104, 979-1009

Sala-i-Martin, Xavier, and Jeffrey Sachs (1991), "Fiscal Federalism and Optimum currency Areas: Evidence for europe from the United States." in: Matthew Canzoneri, Vittorio Grilli, and Paul Masson (eds.), Estabilishing a Central Bank: Issues in Europe and Lessons from the US, Cambridge: Cambridge University Press

Sorensen, Bent E. and Oved Yosha (1997), “Federal Insurance of US States: An Empirical Investigation.” in: Assaf Razin and Efraim Sadka (eds.), Globalization: Public Economics Policy Perspectives”, Cambridge University Press

van Wincoop, Eric (1995), “Regional Risksharing.” European Economic Review 39, 1545-68

von Hagen, Jürgen (1992), “Fiscal Arrangements in a Monetary Union - Some Evidence from the US.” in: Don Fair and Christian de Boissieux (eds.), Fiscal Policy, Taxes, and the Financial System in an Increasingly Integrated Europe Deventer: Kluwer Academic Publishers.

von Hagen, Jürgen (1993), “Monetary Union and Fiscal Union: A Perspective from Fiscal Federalism.” in: Paul R. Masson and Mark P. Taylor (eds.), Policy Issues in the Operation of Currency Unions. Cambridge: Cambridge University Press

von Hagen, Jürgen, and George W. Hammond (1998), “Regional Insurance Against Asymmetric Shocks: An Empirical Study for the European Community.” The Manchester School 66, 331-53

von Hagen, Jürgen (2000), “Regional Insurance Against Asymmetric Shocks.” In: Greg Hess and Eric van Wincoop (eds.), Intranational Macroeconomics

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ISSN 1436 - 6053

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