Breaking the Golden Rule:
Fiscal Behavior with Rational Bailout Expectations in the German States*

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Tax hikes and expenditure cuts are politically costly, especially when times are bad. Understandably, politicians will do what they can to avoid paying these costs. If they can distinguish between short-term and long-term downturns, politicians might face incentives to "smooth" expenditures and revenues by borrowing during bad times and saving during good times. But even if politicians are capable of such far-sighted intertemporal decision-making, they must nevertheless occasionally be confronted with the political costs of adjusting to "permanent" downturns. Of course if their time horizons are sufficiently short, they might simply refuse to adjust, over-borrowing and externalizing the political costs of adjustment to future administrations. Otherwise, the government party might try to externalize the political costs of adjustment by targeting tax increases or spending cuts at the constituents of the opposition.

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Stabilization might be delayed, especially if fragmented coalitions disagree about who should pay the costs (Alesina and Drazen 1998), but in the very long run stabilization by central governments cannot be avoided altogether; credit would eventually be unavailable at any price. But the calculus might be different for subnational government officials— stabilization might be avoidable even in the long run if the citizens of other jurisdictions can be induced to pay the costs of adjustment. A subnational politician might hope to avoid the political costs of adjustment if she can rationally expect that expenditures will eventually be shifted onto present or future residents of other jurisdictions.

The possibility that subnational governments will attempt to avoid the costs of adjustment by strategically shifting them onto the central government has received a good deal of scholarly attention recently (Wildasin 1997, Rodden, et al 2000, IADB n.d., Inman 1999). This attention was precipitated in part by some recent episodes in which troubled subnational governments—most notably in Brazil—have received large bailouts from higher-level governments. In addition, the bailout problem has been an important concern for designers of the institutions surrounding the European Monetary Union. A central question has emerged from studies that attempt to pinpoint the causes of the intergovernmental moral hazard problem: under what conditions do subnational officials (and their constituents) face rational expectations that they can shift current costs onto other jurisdictions in the future?

While many features of the political and fiscal institutional structure are important, this paper builds on other studies that emphasize the incentive effects of intergovernmental fiscal transfers. By examining the German system of fiscal federalism, this paper selects a case in which the intergovernmental fiscal structure clearly creates rational expectations about future cost-shifting. In fact such expectations can be inferred directly from the constitution. Moreover, a recent decision by the Constitutional Court has confirmed these expectations, and two states—Bremen and Saarland—have received explicit bailouts after playing cost-shifting strategies.

This paper argues that the German system of fiscal federalism creates two very distinct kinds of states with divergent fiscal incentives. In short, the states that pay into the equalization system have no hope of being able to shift the costs of adjustment onto

others. Thus they face incentives to respond quickly to "permanent" downturns and maintain long-term balanced budgets, and they may face incentives to smooth "short-term" shocks as well.

Decision-makers in the other group of states, however, may have rational bailout expectations. The constitution and the history of intergovernmental transfers have led politicians and their constituents to believe that expenditures will not be allowed to fall below the national average, regardless of a state's fiscal performance or debt levels. In practice, the financially "weak" states (in the parlance of the German fiscal constitution) have grown accustomed to having higher per capita revenue than the "strong" states after the equalization process is completed each year. The *Länder* have very little autonomous authority to increase their own revenue. Thus the "weak" *Länder* have developed expectations that expenditures will always keep pace with the national average regardless of current revenues, and the amount of public expenditures funded out of the common pool has been increasing steadily over time. Given the presence of state-level borrowing autonomy and a mechanism through which the central government can distribute extra resources to troubled *Länder* —the so-called federal supplementary transfers—bailout expectations are quite rational among the "weak" *Länder*.

The main goal of this paper is to demonstrate with empirical evidence that these divergent incentive structures lead to divergent fiscal behavior in the "strong" and "weak" *Länder*. The first section describes in general terms the strategic intergovernmental setting in which subnational governments might attempt to shift costs onto others, and explains the role of intergovernmental transfers in the bailout problem. The second section describes the basic incentive structure of German fiscal federalism, and the third section describes how these incentives affect the strategies selected by *Land* officials. The fourth section divides the states into two groups and uses panel data on state-level fiscal, political, and macroeconomic variables to test whether fiscally "strong" and "weak" states respond differently to expected and unexpected downturns in revenue and macroeconomic performance. The results suggest that the wealthier *Länder* are fiscally conservative—they do respond to unexpected revenue downturns by cutting expenditures. In fact, they appear to have a strong aversion to borrowing during bad

times. They appear to abide by state-level constitutional "golden rules" stipulating that borrowing should not exceed current expenditures.

The results suggest that the weaker states, conversely, do raise expenditures in response to positive revenue shocks, but do not respond to negative revenue shocks. They appear to be unconstrained by their "golden rules." Interesting results are also presented regarding the response of states' expenditures to local macroeconomic fluctuations. In general, state-level expenditures appear to be procyclical, especially in the weak *Länder*, though the results suggest that the wealthy *Länder* do make countercyclical adjustments to unexpected changes in unemployment. With respect to GDP, the results cast considerable doubt on the conventional wisdom that decentralized expenditures play a role in regional stabilization.

The fourth section also tries to improve on the blunt division of states into two categories by pooling all of the states and examining whether the response to downturns is conditioned by a state's dependence on intergovernmental grants (a proxy for the rationality of bailout expectations). The results show that states with relatively low levels of dependence on transfers cut expenditures in response to negative revenue shocks, while states with higher levels of vertical fiscal imbalance increase expenditures in response to similar shocks. The final section draws out broad implications of the analysis and makes some cross-national comparisons.

I. The Strategic Context of Subnational Fiscal Decision-Making

The problem of strategic cost-shifting by subnational governments can be captured by a simple game between the central government and a single state or province, displayed in Figure One. First, the sub-central government (SCG) is faced with an adverse fiscal shock with lasting effects. It faces two choices: it can either make politically painful adjustments in tax rates or expenditures, or it can refuse to adjust and ask the central government for help. If it decides to adjust, the game ends. If it does not, the central government (CG) must then decide whether it will provide the bailout. If it decides not to provide the bailout initially, it is likely that a second stage will ensue, at which the stakes are even higher, a debt crisis has emerged, and default is imminent.

Again the sub-central government faces a choice between adjusting and attempting to externalize the costs of adjustment by asking for a bailout, although this time the bailout will be more expensive. Once again the central government must decide whether to provide it.

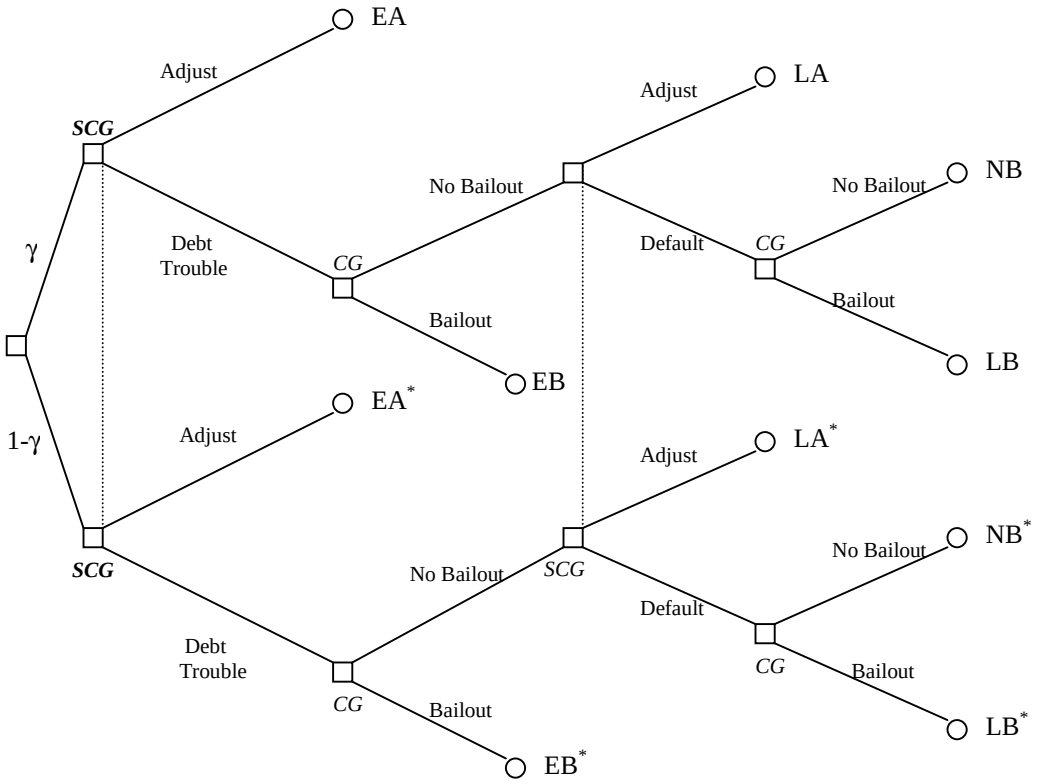


Figure 1
The Bailout Game

The expected utility of the sub-central government is driven by the expected electoral value of each outcome. Sub-central officials are concerned about the negative electoral consequences of adjustment, and would prefer that the costs of adjustment be paid by citizens of other jurisdictions. The sub-central government prefers an early bailout (EB), but if it cannot get a bailout at the fist stage, it certainly prefers to get one at

the later stage (LB). If no bailout will be provided and the sub-central government must pay the costs of adjustment itself, it would prefer a less costly early adjustment (EA) to a more costly late adjustment (LA). The worst outcome is a full-blown fiscal crises and default that must be borne alone—the "no bailout" end node (NB). Thus the sub-central government's preferences are $U_{scg}(EB)>U_{scg}(LB)> U_{scg}(EA)> U_{scg}(LA)>U_{scg}(NB)$. These preferences are common knowledge to both players.

The central government's preferences are less clear. All players know that the central government prefers for the sub-central government to adjust by itself rather than run a large deficit and demand a bailout. Likewise, it is clear that at the next stage the center prefers that the local government adjust rather than default and demand an even larger bailout. The game is interesting, however, because the sub-central government has limited information about the central government's preferences as the game continues. The sub-central government does not know with certainty whether it will be more costly for the central government to provide or deny a bailout once the demand has been made. This is similar to a scenario that has been modeled by students of international conflict as the "deterrence game" (Morrow, 1994: 200), in which military challengers must make decisions about whether to wage war or back down without knowing the resolve of defenders. In the same way, sub-central governments do not know the resolve of the central government to resist the demand for bailouts.

The most intuitive way to deal with this kind of limited information is to follow Harsanyi (1967-1968) and think of the game as beginning with a chance move that determines the central government's type—either resolute or irresolute. The central government is informed of its own type, but the sub-central government is not. If the central government is of the resolute type, it always prefers *not* to provide the bailout: $U_{cg}(EA)> U_{cg}(LA)> U_{cg}(NB)> U_{cg}(EB)> U_{cg}(LB)$. If the central government is of the irresolute type, the cost of allowing sub-central governments to default exceeds the cost of bailing them out: $U_{cg}(EA^{*})> U_{cg}(LA^{*})> U_{cg}(EB^{*})> U_{cg}(LB^{*})> U_{cg}(NB^{*})$. At each of its decision nodes, the sub-central government does not know whether it is playing in the upper or lower branch of Figure 1. In the upper branch, the sub-central government knows that it cannot hope for a bailout, and the equilibrium is EA. If the central government is irresolute and the lower branch is being played, however, the equilibrium

is EB. Thus the sub-central government's decision about whether to adjust is determined by its *beliefs* about the probability, γ, that the central government is resolute.

Other things equal, if subnational politicians are convinced that the central government will not bail them out, they will always choose to adjust to negative shocks quickly. If they are convinced of the opposite, they may never adjust—they will simply wait patiently for additional transfers in the future, or let the central government pay the political consequences if it tries to force them to fire civil servants or cut popular programs. Perhaps the most interesting cases lie somewhere in the middle, where subnational governments might test the central government's resolve by demanding bailouts in the first round. If the central government does not give in, the observable behavior in such cases might be delayed stabilization.

Beliefs about the central government's resolve might be conditioned by a number of political, institutional, and financial factors. The focus of this paper is the flow of intergovernmental transfers from the center to the states. Such transfers clearly affect the credibility of any commitment by the central government not to provide bailouts (IADB n.d., Von Hagen and Eichengreen 1996). Rodden (1999a) argues that without a certain base-line level of revenue autonomy, local governments are likely to be viewed by voters, investors, and creditors as mere creatures of the central government rather than fiscally autonomous entities. If subnational expenditures are funded primarily by common-pool resources raised or regulated by the center—as is the case in most decentralized fiscal systems—market mechanisms for local fiscal discipline are unlikely to function well, since creditors and constituents of local governments are likely to assume that the central government backs up local obligations and is ultimately responsible for local outcomes. With such expectations in place, it might be politically difficult for central governments to allow local workers to go unpaid in the event of a fiscal crisis. For this reason, central governments in countries with high levels of vertical fiscal imbalance often try to assuage the moral hazard problem ex ante by restricting local governments' access to borrowing (von Hagen and Eichengreen 1996). In hierarchical unitary systems like those in Scandinavia, central governments take on the role of adjusting to shocks through the transfer system (Rattso 2000).

In formally federal systems, however, constitutional and other political limitations often prevent the central government from effectively closing the borrowing window for subnational governments. Thus federal systems often possess a dangerous institutional combination—subnational borrowing autonomy without true fiscal "sovereignty" in the eyes of voters and creditors (Rodden 1999a). When faced with permanent negative revenue shocks, state-level politicians might believe that their best strategy is to attempt to shift the costs of adjustment to other states by continuing to borrow and spend.

But clearly not all transfer-dependent federal systems fall prey to this problem to the same degree, and within federations, the incentives to attempt cost-shifting strategy vary considerably across states. Instead of looking to cross-national variation, this paper examines substantial variations in beliefs over the probability of bailouts across states in the German federation. The next two sections explain why the German system of fiscal federalism creates rational bailout expectations in some states but not others, and the following section demonstrates how these expectations shape budget decisions.

II. The German System of Fiscal Federalism

Most of the theoretical literature on federalism in economics and political science assumes that central and subnational governments are responsible for the provision of distinct, non-overlapping goods and services. The German system of federalism is deeply at odds with this vision of "dual" federalism. Although some tasks, like national defense, are clearly allocated to the *Bund* alone, legislation and implementation in Germany is in most policy areas a complex, cooperative process between the highly interdependent *Bund* and *Länder*. Unlike the states in most other modern federations, the German *Länder* have few exclusive areas of legislative competence, and federal law generally overrides state law.

The *Länder* are nevertheless important players in the German policy process. This is not because they possess an autonomous role in legislation within a constitutionally protected set of responsibilities, but rather, because they are key players in the formulation of policy at the federal level, and in its implementation at the *Land* level. Unlike the states in most other federal systems, the governments (as opposed to the

citizens) of the *Länder* are directly represented in the *Bundesrat*-- the federal upper house of parliament. Every law that affects the interests of the states must be approved by the *Bundesrat*, which gives the states a very important role as veto players in the federal policy-making process. Additionally, in contrast to most other federations, the German central government has a very limited bureaucratic apparatus under its own control-- it relies on the *Länder* and *Gemeinden* (local communities) to implement most federal policy. Given this structural interdependence of *Bund* and *Länder*, it is very difficult for either level of government to achieve its goals without bargaining, cajoling, or cooperating with the other level.

Multilateral bargaining between the interdependent *Bund* and *Länder* is also the modus operandi in the collection and distribution of revenue. All of the most important taxes accrue to the federal and state governments jointly. Most decisions about tax base and rates are made by the federal government (subject to the approval of the *Bundesrat*). While some taxes are collected by the *Bund*, most are administered by the revenue authorities of the *Länder*, which act as agents of the federation. The constitution mandates the maintenance of "equivalent living conditions" across the *Länder*, and to this end, the fiscal equalization system goes to great lengths to redistribute revenue from the wealthy to the poor *Länder*.

A. Expenditures

The states are responsible for public spending in a wide variety of areas such areas as culture, education, law and order, health, environmental protection, and regional economic policy. Despite the constitution's attempt to divide authority between the governmental units, however, it is difficult to identify a policy area in which only one level of government is involved. As mentioned above, the *Länder* are responsible for implementing the vast majority of the federal government's policies, and likewise, the *Länder* delegate a variety of tasks to the *Gemeinden*. As a result, neither the constitution nor outlays by level of government reflect very accurately the actual distribution of authority or spending.

Even in policy areas that had previously been the exclusive competence of the *Länder*, the activities and finances of the *Bund* and *Länder* have gradually become intertwined. The most important step away from "dual" federalism was the 1969 renegotiation of the Basic Law, which established the so-called "joint tasks." The *Länder* agreed to give up their exclusive authority in several policy fields in exchange for complex forms of multi-level cooperation in policy-making and funding.

The discretion of the *Länder* in spending is limited in most areas by uniform federal law. Nevertheless, the *Länder* enjoy relatively wide autonomy in practice. Strict specific-purpose grants play only a very limited role-- most transfers are general-purpose in nature (see below). The federal government does not give specific instructions to the *Länder* in the execution of federal law, and it has no powers of supervision or specific approval of administrative practices. The *Länder* enjoy budgetary autonomy, and in many fields, they can vary the amount of support they give to programs required by federal law, and they remain free to supplement services prescribed by federal statute. The *Länder* are the largest public sector employers in Germany. In this capacity they also enjoy a good deal of discretion, again within federally-imposed legal constraints.

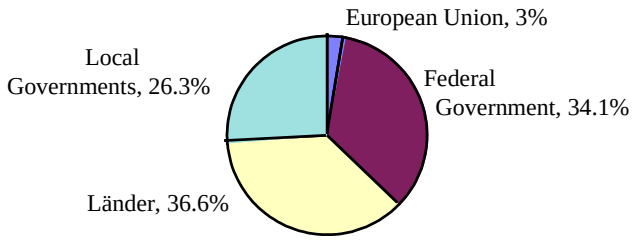
B. Revenue

Like expenditure decisions, the responsibility for revenue legislation and administration is also intertwined between the *Bund* and the *Länder*. The constitution specifies in great detail the assignment of revenue to the *Bund* and *Länder*, and major revisions in federal financial arrangements can only be made by amending the Constitution, which requires a two-thirds majority in both the *Bundestag* and the *Bundesrat*. The flow of revenue laid out in the German Constitution is far removed from the principles laid out in most fiscal federalism textbooks. Instead of assigning specific taxes to the layers of government and matching them with specific expenditure responsibilities, the provisions of the German constitution stipulates that all of the most important revenue sources are shared in Germany. The significance of taxes assigned *directly* to the layers of government is low. The income tax, corporation tax, and VAT,

which yield almost three quarters of total tax revenue, are each jointly appropriated.[1] Legislation regarding tax base and rates for each of these is the domain of the federal government, although these taxes are administered by the revenue authorities of the *Länder*. In the administration of the shared taxes, the state authorities act as agents of the federation, and are subject to uniform federal administrative guidelines.

The vertical distribution of the shared taxes between *Bund* and *Länder* is very stable over time because the actual percentage shares are laid out in the Constitution and can only be changed by amendment. In order to ensure that the *Länder* receive sufficient funds to fulfill their federally-mandated responsibilities in the face of changing fiscal circumstances, the vertical distribution of the VAT is frequently renegotiated between the *Bund* and the *Länder*. The resulting bargain must be approved by the *Länder* in the *Bundesrat*.

Figure 2: Public Expenditure by Level of Government in Germany (% of Total)



Sources: Federal Ministry of Finance (1996: 328); Spahn & Föttinger (1997:228).

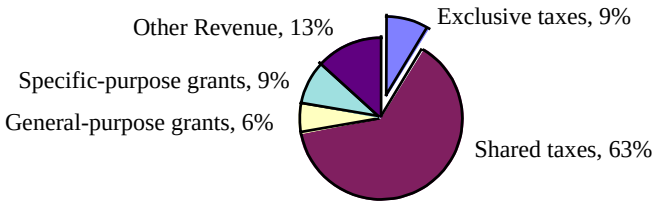
C. Transfers and Equalization

The German *Länder* spend more money than the federal government (see Figure 1), but they have very little authority to raise their own revenue. By far the most important sources of funding for the *Länder* are shared taxes. Since these taxes are legislated at the federal level, and collected and distributed according to federally

[1] For additional details, see Spahn & Föttinger (1997: 229) and Seitz (1998).

determined rules and criteria, they are difficult to distinguish from intergovernmental transfers. In addition, an important portion of *Land* funding comes from more explicit intergovernmental transfers. As shown in figure 2, only nine percent of *Land* revenue comes from own-source taxes.

Figure 3: Sources of Revenue in the German Länder, 1995 (in % of total Land Revenue)



Sources: Federal Ministry of Finance (1996); Spahn & Föttinger (1997: 321).

The *Bund* funds specific activities and capital investments in the *Länder* through the "joint financing" mechanism laid out above. The distribution of these funds is roughly proportional to population. The most important aspects of intergovernmental transfers in Germany, however, are the shared revenues and the fiscal equalization system mandated by the "equivalence of living conditions" clause in the Basic Law. First of all, the primary system of tax sharing distributes the proceeds of the major shared taxes to the states as follows: income tax revenue is apportioned to the states according to the derivation principle, corporate tax revenue is divided according to a formula based on plant location, and a portion of the VAT is distributed to the states on a per capita basis. Next, the secondary system of revenue equalization proceeds in three stages. The first two states are horizontal, while the third involves vertical transfers from the *Bund*.

In the first stage, up to 25 percent of the VAT is redistributed to the *Länder* with the lowest revenue after the primary tax sharing receipts are calculated. After this stage of redistribution, the financial endowment (*Finanzkraft*) of each state is calculated and compared with its financial needs (*Finanzbedarf*). Then at the second stage of equalization, revenue is redistributed from states whose endowments exceed their needs,

to those for whom the opposite is true. The concept of "need" is based on the per capita tax income for the entire country. At this stage, the weaker (*Finanzschwach*) states reach 95 of their financial "needs."

In the third stage of the equalization system, the federal government steps in to lift the recipient states up to at least 99.5 percent of their "needs." It does this with supplementary grants (*Fehlbetrags-Bundesergänzungszuweisungen*). At this stage, the *Bund* also bestows additional supplementary grants on some states to compensate them for "special burdens." Special supplementary grants are also received by smaller *Länder* to compensate them for higher administrative costs, and recently, by some of the "old" (pre-unification) *Länder* to compensate them for the higher fiscal burden they must bear because of reunification. Massive supplmentary transfers are also currently being made to the East German *Länder*. As will be discussed in greater detail below, the federal supplementary grants are also now being used to provide bail-outs to Bremen and Saarland because of their debt servicing obligations.

D. Borrowing

The central government has no power to place numeric restrictions on the borrowing activities of the *Länder*. Nor must the borrowing decisions of the *Länder* be approved or reviewed by the *Bund*. Like the federal government, however, the *Länder* have their own constitutional and statutory provisions that restrict them from borrowing more than the outlays for investment purposes projected in the budget. These so-called golden rule provisions at the *Land* level, however, have a number of well-known loopholes. First of all, "investment purposes" is an extremely slippery concept, and it is not difficult to recast a variety of expenditures as investment outlays. Second, financing arrangements associated with the contracting out of local public infrastructure projects provides an additional way around the "golden rule" provisions. Private investors are given guarantees and asked to build and prefinance infrastructure projects. Upon completion of the work, the government redeems the building costs over a certain period (Spahn & Föttinger, 1997: 237). Third, since 1969 the constitutions of the *Länder* have allowed them to break the "golden rule" in cases of "disturbances of general economic

equilibrium." In addition to the problem of loopholes, Bremen and Saarland have chosen to simply ignore these constitutional provisions rather flagrantly.[2]

It is important to note that while most of the federal government's debt is in the form of bonds, the *Länder* rely primarily on direct bank loans to finance their deficits. The *Länder* indirectly control a network of commercial banks-- the *Landesbanken*, which make loans (*Schuldscheine*) to the municipalities and the *Länder*. The officials of the Landesbanks generally have strong political connections with *Land* politicians, who frequently accept lucrative stints on their Landesbank's supervisory board. Some suggest that the Landesbanks are used to channel cheap credit to politically favored businesses.[3]

III. Rational Bailout Expectations and Fiscal Behavior

In short, the *Länder* have full autonomy over how much to spend each year, but virtually no control over revenue levels, which are determined by the allocation of shared revenues and grants. This system has some obvious disadvantages. Others have noted that it creates weak incentives for the *Länder* to increase revenues and pursue policies that increase their tax base. For individual states, an additional DM 1 million in income tax receipts-- either personal or corporate-- generates only between DM 80,000 and DM 290,000 in extra tax income (OECD, 1998; Huber & Lichtblau, 1998). This incentive structure contributes to a problem of falling rates of revenue collection despite increasing tax burdens (Sachverständigenrat, 1998: 114-118). Since the individual *Länder* bear most of the costs of tax administration, and only a small fraction of additional tax revenues accrue to them, they face weak incentives to strengthen audits and improve revenue collection (OECD, 1998: 84-85).[4]

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[2] According to the data collected by the central government on the finances of the Laender and author's calculations, deficits have surpassed capital expenditures quite regularly over the last 20 years in Bremen and Saarland, and only sporadically in Hamburg and Niedersachsen. *On paper ex post*, the other Laender have abided by the "golden rule." However, it seems clear that these numbers should be taken with a grain of salt if the division between capital and current accounts is as fluid as most observers suggest.

[3] "German Banking: Can Dachshunds be Whippets?", *The Economist*, January 4, 1997, page 70.

[4] A recent report estimates that the cost of lost revenue resulting from tax evasion and avoidance is around DM 125 billion-- around 15 percent of GDP. Report of the *Institut der deutschen Wirtschaft (IW)*, cited in Peter Norman, "The Taxpayers are Revolting," *Financial Times*, Nov. 3, 1997.

The weak incentives for local revenue collection under highly redistributive equalization schemes are well known, and have been documented in other countries as well (see, e.g. Carreaga and Weingast 2000). This paper addresses a different problem—under some conditions, equalization can create rational bailout expectations that encourage politicians to play cost-shifting strategies.

Yet as described above, the distribution of both grants and shared revenue is largely transparent, non-discretionary, and as shall be demonstrated below, highly predictable. Moreover, disadvantaged *Länder* are guaranteed to end up with at least the average fiscal capacity of the union. Thus on the surface it seems the *Länder* should have little reason to run into debt trouble. The original German financial constitution seems to envision a budget process in which the *Länder* simply set current expenditure levels equal to expected revenues, and it seems they should be able to do so. At least since 1969, the idea of consumption smoothing also seems plausible.

Bailout expectations do not stem from the first two stages of equalization between the *Länder*, but rather from the third stage at which the central government gets involved. The presence of a constitutional obligation to insure the equivalence of living conditions across states, combined with a constantly-increasing flow of grants from the central government aimed at counteracting "special" burdens, and an open window for autonomous borrowing, have led to rational bailout expectations in some of the weak *Länder*. The fiscal incentives of the strong and the weak *Länder* are addressed in turn.

A. "Strong" Länder

The strong *Länder* do not presently qualify for supplementary transfers from the *Bund*, and most of them never have. During the period under analysis in this paper (1974-1995), Baden-Wuerttemberg, Hessen, Nordrhein-Westfallen, and Hamburg have never received supplementary transfers at the final stage of equalization (though Hamburg does receive higher per capita transfers because of the supposedly higher administrative costs of city-states). Bayern was formally eligible for supplementary transfers until 1986, but since the late 1970s its receipts have been negligible. Since these *Länder* have not been eligible for supplementary transfers, politicians and their

constituents have never had reason to develop expectations that a future flow of revenue will cover excessive current expenditures. Thus Land governments in these states should understand that they must themselves bear the political costs of adjustment.

However, these *Länder* may have incentives to do more than simply set expenditures equal to revenues. Given their lack of revenue autonomy, any fiscal adjustment by the *Länder* is likely to take place on the expenditure side. Since expenditure cuts during recessions are politically unpopular, Land governments might face incentives to borrow during bad times and save during good times in order to keep expenditures steady over time.

B. "Weak" Länder

During the period under analysis, Niedersachsen, Rheinland-Pfalz, Saarland, and Schleswig-Holstein have been eligible for supplementary equalization transfers from the federal government. Bremen has also been eligible since the 1980s. Table One presents some basic descriptive statistics for both groups of *Länder*, including means for the entire period, as well as average yearly changes for key public finance and macroeconomic variables. The data are presented in real 1991 DM per capita. Land revenue is divided into "grant" and "non-grant" sources. The "grants" variable tallies up all transfers from the *Bund* to the *Länder*, including jointly financed programs through the so-called "joint tasks," and all of the supplementary transfers described above. Since the former are distributed according to population, cross-state differences in per capita grants are driven by the latter. The "non-grant" data include allocations from the first two stages of revenue-sharing, along with the remaining Land-level taxes and user fees.

[TABLE 1 ABOUT HERE]

Note that in the weak *Länder*, on average around 802 DM per capita flows from the federal government in the form of grants each year, while the figure for the strong *Länder* is around 337 DM. Grants have also grown much more quickly in the weak *Länder* —at a rate of around 23 DM per year, compared with only 5 DM for the wealthier

Länder. Other than the obvious differences in GDP per capita and Unemployment, the only other noteworthy differences between the two types of *Länder* in Table 1 are in expenditures and deficits. Both have grown much more quickly in the weaker *Länder*, and average deficits have been almost twice as high as those in the strong *Länder*.

It is important to note that the equalization system is not designed to provide full insurance against regional downturns, and does not do so in practice. By simply bringing the "poor" *Länder* up to the average fiscal capacity of the federation each year, the equalization system does not insure that regional downturns will trigger tax breaks or increased revenues in *Länder* that are affected by downturns (see Von Hagen and Hepp 2000). Rather, Land revenue growth on the whole tends to be procyclical. Thus the equalization system does not remove-- or even substantially reduce-- the politically painful necessity of adjusting to permanent downturns.

Yet when confronted with such downturns, politicians in the weak, transfer-receiving *Länder* might find it very tempting not to adjust. They might simply continue to borrow without considering long-term consequences. The only reasons *not* to pursue such a strategy would include (1) high borrowing costs that squeeze out consumption and/or investment and (2) potential electoral repercussions. However, it seems clear that both creditors and voters interpret the constitutional guarantee of "equivalent living conditions" and the system of supplementary transfers as an implicit bailout guarantee. Fitch-Ibca explicitly contends that the central government stands behind all debts of the *Länder*, and for that reason assigns each of the *Länder* its highest credit rating, regardless of fiscal performance. Thought there are some slight variations from one state to another, surprisingly high credit ratings for the Landesbanks are justified on similar grounds by Standard and Poor's and Moody's (See Rodden 1999a). Likewise, since high per capita debt burdens have not affected local expenditures, voters in the weak *Länder* have had few reasons to react against rising subnational debt levels.

Bailout expectations have ultimately been confirmed. Beginning in 1987, Bremen and Saarland started to receive supplementary transfers explicitly aimed at coping with high public debt. The expectations were confirmed more explicitly in 1992 when the Constitutional Court handed down its decision stipulating that the *Bund* must make extra transfers to Bremen and Saarland amounting to around 30 billion DM over the period

from 1994-2000 in order to reduce public debt without severe expenditure cuts (Seitz 1998).

This argument of this section is not that bailouts are rapid or immanent policy responses to state-level fiscal difficulties. Decision-makers in Bremen and Saarland, for example, did not know with perfect foresight that their bailout demands would be met. Rather, it merely argues that in the states that qualify for federal supplementary transfers, bailout expectations are rational-- indeed they are held even by the creditors whose money is at stake-- and state-level fiscal decisions at the margin are likely to be made accordingly. Some of the states believe they are playing the upper branch of the game tree presented in section one, while others believe they are playing the lower branch.

IV. Empirical Analysis

The previous section argued that the German fiscal system provides the financially "strong" *Länder* with incentives for long-term balanced budgets and perhaps short-term consumption smoothing, but undermines these incentives in the "weak" *Länder* by creating rational bailout expectations. After describing the data, this section tests this argument in two ways. First, separate time-series cross-section analyses of the determinates of *Land* expenditures are conducted for the strong and weak *Länder*. Second, all of the *Länder* are pooled together, and expenditure responses to revenue cuts are shown to be dependent on levels of transfer-dependence.

A. Data and Econometric Approach

The discussion above suggests that, given their minimal reliance on own-source taxes, yearly revenue can be seen as essentially exogenous. Thus the focus here is on expenditure choices, as conditioned by expected and unexpected changes in revenue, unemployment, and GDP. The most basic questions are whether and how the *Länder* change their expenditures in response to changes in revenue. First, it is useful to estimate what might be called a "naïve" model in which all spending in the current period only depends on the resources available in that period. With this model as a comparison, it

makes sense to move on to a more sophisticated inter-temporal decision-making model. The *Länder* are assumed to use the information at their disposal about longer-term trends in revenue and demands for expenditures when setting expenditure levels.

We are interested in ascertaining not only whether and to what extent states adjust to expected downturns, but also whether and to what extent they exhibit forward-looking intertemporal decision-making. The literature suggests two ways to distinguish empirically between expected and unexpected components of revenue and demands for expenditure. Poterba (1994) and Rattsø (2000) compare actual values with budget forecasts, and view the residual as the "unexpected shock." This requires a reasonable time-series of subnational budgets, which is unavailable for the German *Länder*. An alternative method is to use an autoregressive forecasting model to estimate yearly "expected" values based on trends, and view the differences between expected and actual values as "shocks" (Holtz-Eakin and Rosen 1993, Rattsø 1999). Both "expected" and "unexpected" values of revenue are entered into a regression equation, and if governments are attempting to smooth expenditures over time, changes in the permanent values of revenues should be contained in the unexpected components, and their "expected" counterparts should provide no additional explanatory power.

Fortunately, a sufficiently long time series for macroeconomic and public finance variables is available for the German *Länder* to pursue the latter strategy. Yearly data on Land-level revenue, expenditures, unemployment, and GDP have been collected from the German federal statistics office, the Ministry of Finance for the period from 1974 to 1995. Although data for the five new *Länder* are available since 1991, these are not included in the analysis because of their rather unique situation. Likewise, Berlin is not included because of its special status in the federation prior to unification. In addition, the observations for 1994 and 1995 have been dropped for Saarland and Bremen because of the massive increases in grants associated with federal bailouts. Basic summary statistics are displayed in Table 1 above.

For the inter-temporal or "shock" model, it is necessary to estimate a forecasting function for expected revenue. Given the equalization system described above, the most important determinates of revenue should be lags of revenue, in addition to lags of Land-level macroeconomic indicators from which decision-makers might form revenue

expectations.[5] Data are available for GDP per capita and unemployment. The overall size of the common revenue pool is determined by national growth rates, and these are likely to be considered by Land officials as well when making revenue forecasts. Thus the following equation was estimated:[6]

$$Rev_t = .0007 + .59\ Rev_{t-1} + .18\ Rev_{t-2} + .01\ LGDP_{t-1} - .03\ LGDP_{t-2} + .00004\ Unemp_{t-1} -$$
$$(.0002)\quad (.11)\quad (.11)\quad (.03)\quad (.03)\quad (.00002)$$

$$.00002\ Unemp_{t-2} + .13\ BGDP_{t-1} - .10\ BGDP_{t-2}$$
$$(.00002)\quad (.04)\quad (.04)$$

The yearly revenue values predicted by this model are henceforth referred to as "expected" revenues. "Revenue shocks" are calculated by subtracting the expected from the actual values.

In addition to expected and unexpected components of revenue, the expenditure model should control for fluctuations in local output and unemployment. It is also useful to break them down into expected and unexpected components. Expected values are obtained for each using autogregressive models, and shocks are calculated as above:[7]

$$Unemp_t = .50 + 1.41\ Unemp_{t-1} - .52\ Unemp_{t-2}$$
$$(.32)\quad (.16)\quad (.15)$$

$$GDP_t = .003 + 1.13\ GDP_{t-1} - .19\ GDP_{t-2}$$
$$(.001)\quad (.15)\quad (.14)$$

Descriptive statistics for these "expected" and "shock" variables are provided in Table 2. Lagged levels of GDP and unemployment are also included in the model to examine long-term trends the relationship between macroeconomic performance and expenditures.

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[5] Recall that the income tax is distributed on a derivation basis.

[6] R^2=.9995; panel-corrected standard errors in parentheses; results for Land dummies not shown (LGDP=Land GDP, BGDP=Bund GDP).

[7] R^2 for unemployment model =.94, for GDP model =.99. Panel corrected standard errors in parantheses; results for Land dummies not shown.

[TABLE 2 ABOUT HERE]

In addition, a battery of political variables has been tested, including an index based on the number and ideological distance between the parties in the Land's governing coalition (following Tsebelis 1995), an index that places the coalition on a left-right scale, an index that measures the similarity of the Land governing coalition to that of the federal government in Bonn, and finally, a dummy variable for election years. Only the election year variable had a significant effect on expenditures in any of the estimations, so it is the only political variable included in the results that follow.[8]

In order to explore the dynamics of adjustment within *Länder*, it is important to control for individual state effects. The dependent variable in all of the models is the *change* in real per capita expenditures, and fixed effects and year dummies are included. The model takes the "error correction" form in order to differentiate between short-term and long-term effects. The coefficients on the "change" and "shock" variables represent the dynamic effects of interest, and the coefficients on the "lagged level" variables shed light on long-term relationships. To avoid the potential bias of OLS with fixed effects and a lagged dependent variable, the most appropriate estimation technique is the Generalized Method of Moments suggested by Arellano and Bond (1991).[9]

B. Separate Analysis of "Weak" and "Strong" Länder

[TABLE 3 ABOUT HERE]

Table Three presents the results of the "naïve" model. The left-hand column presents the results of a model in which all of the *Länder* are pooled, and separate effects for "change in revenue" are estimated for the weak and strong *Länder*. Of course the normal expectation for such a model is that the relationship between expenditures and revenues is positive. While this is true in the long-run (the coefficient for lagged revenue

[8] For the purposes of this paper, it is necessary to control for cross-state variations with a fixed effects model. In models that allow the results to be affected by cross-state variation, partisan variables do affect expenditures and deficits See Rodden (1999b).

is positive and significant), it is only true in the short-run for the strong *Länder*. Yearly changes in revenue and expenditure appear to be unrelated in the weak *Länder*.

The second and third columns in Table Three present the results of separate regressions for the weak and strong *Länder*, with separate effects for positive and negative changes in revenue. Recall the argument above that because of bailout expectations, the weak *Länder* face few incentives to adjust to downturns. Again, the results suggest that one cannot reject the hypothesis that the weak *Länder* do not react to negative (or positive) changes in revenue. For the wealthier *Länder*, one can reject this hypothesis at the one percent level. The wealthier *Länder* do apparently reduce expenditures when revenues fall.

These results might be misleading, however, if decision-makers are trying to smooth spending over time. Moreover, the naïve model's assumption that revenue levels are exogenous might be incorrect. Even with their limited discretion over tax rates, expenditure changes may nevertheless affect expected and actual revenues at the margin if the *Länder* can increase local business taxes or improve the collection of shared revenue. Thus an inter-temporal estimation is necessary, but one that includes expected revenue changes and shocks in the same model (i.e. the Holtz-Eakin and Rosen (1993) approach to construction spending) might lead to biased estimates in this instance. In any case, we are primarily interested in examining differential responses to shocks among the weak and strong *Länder*. Given the scenario laid out in section one, we are especially interested in *negative* shocks.

Thus Table 4 presents the results of a model that highlights the effects of revenue shocks on *Land* expenditures. As described above, GDP and Unemployment are also broken down into "expected" and "shock" components. The first set of results is for a model including all of the *Länder*, allowing the coefficients for strong and weak *Länder* to differ on the shock variables. The results suggest that the weak *Länder* do not respond to unexpected revenue shocks—the standard error is larger than the coefficient, and the sign is actually negative. On the contrary, the results for the fiscally strong *Länder* suggest that expenditures are quite responsive to unexpected revenue shocks. Note that

[9] All of the models were also estimated using OLS with panel-corrected standard errors, yielding very similar results.

the coefficient is similar to that of the strong *Länder* in the naïve model. In fact, in a model including both expected changes and unexpected shocks (not reported), the coefficient for expected revenue does not approach statistical significance, while the "shock" coefficient is significant and similar to that presented in Table 4.

[TABLE 4 ABOUT HERE]

Before we accept, however, that the strong *Länder* are attempting to smooth expenditures over time and the weak *Länder* do not respond to shocks, it is important to consider possible differences between positive and negative shocks. The second set of results is for two separate models, one including only the weak *Länder* and the other including only the strong *Länder*, permitting the coefficients on positive expected and unexpected resource flows to differ from their negative counterparts. Again there is a stark difference between the strong and weak *Länder*. As one would expect, for the weak *Länder* the coefficient for positive revenue shocks is positive, though it is not quite significant at the ten percent level. However, the coefficient for negative revenue shocks is large, negative, and statistically significant. This result suggests that the weak *Länder* actually *increase* expenditures in response to negative revenue shocks.

The results for the strong *Länder* suggest the exact opposite. The "shock" results for the wealthier *Länder* are clearly driven only by spending cuts in response to negative shocks. The "positive shock" coefficient is not significantly different from zero, but the estimate suggests that a 100 DM per capita negative shock is met with a 56 DM cut in spending. This does not reflect the forward-looking consumption smoothing of Holtz-Eakin and Rosen (1993) at all. Rather, these *Länder* appear to be extremely unwilling to borrow to cover expenditures during bad times. Lacking rational bailout expectations, the golden rule seems to be a real constraint for the strong *Länder*, but not for the weak *Länder*.

The surprising results for unemployment and GDP suggest that for the most part, with exogenous revenue shocks held constant, Land-level expenditures are procyclical. For the weak *Länder*, in the naïve model unemployment is negatively correlated with spending, both in the short and long-term, though this long-term effect does not show up

in the shock model. The shock model also finds no evidence of a relationship between short-term fluctuations in unemployment and spending in the weak *Länder*. For the wealthier *Länder*, the naïve model suggests little relationship between unemployment and expenditures, while the "shocks" model does suggest that the strong *Länder* raise expenditures in response to unexpected shocks in unemployment. However, the coefficient for *expected* changes is much larger and negative.

Turning to GDP, the coefficients for real per captia Land-level GDP are positive and significant for both changes and lagged levels in the naïve model. Similar results are reported for the shock model. The coefficients are positive and statistically significant for both expected and unexpected short-term fluctuations and in both strong and weak *Länder*. Contrary to common wisdom (see, e.g., Bayoumi and Eichengreen 1994), taken together the results for unemployment and GDP suggest that the expenditures of the *Länder* do not play a significant stabilizing role in the German economy.

Finally, the results provide strong support for the hypothesis that Land-level expenditures are affected by electoral cycles. According the estimate in the shock model, spending is roughly 53 DM higher per capita during election years.

C. The Effect of Vertical Fiscal Imbalance on Adjustment to Negative Shocks

A premise of this paper is that local fiscal behavior is conditioned by the beliefs held by local officials about the likelihood of future bailouts. Thus far the empirical analysis has explored the possibility that these beliefs are conditioned primarily by a binary distinction—whether or not a state might expect to receive supplementary transfers in the future. But perhaps the relationship is continuous. It is possible that the states that have become most dependent on supplementary transfers have developed the most realistic bailout expectations. In the early 1990s, bailout expectations are surely more rational in Bremen and Saarland than in Schleswig-Holstein, for example, where supplementary transfers are much lower and have recently been falling. Given the results above, one might expect to find that the response to negative revenue shocks are conditioned by levels of transfer-dependence. Thus it is useful to estimate the inter-

temporal model using the full set of states and include an interaction of negative revenue shocks and real grants per capita.

The results in Table 5 show that this expectation is borne out.[10] A Wald test reveals that the interaction term and its components are jointly significant at the one percent level. First, note that dependence on transfers has an independent effect on expenditures—other things equal, the more dependent is a state on transfers, the higher are its expenditures per capita. Second, note that the coefficient on negative revenue shock is quite large and positive. The best way to interpret these results is by comparing expenditure changes predicted by the model at low and high values of transfer-dependence. When grants are held at their 20th percentile value-- around 26 DM per capita (for example Nordrhein-Westfallen in 1987)-- the model predicts that a 100 DM negative shock will be associated with a 139 DM cut in expenditures. When grants are held at the 80th percentile level—around 76 DM per capita (Saarland in 1987, for example)—a similar revenue shock is associated with a striking 177 DM *increase* in expenditures.

IV. Conclusions

All of the German *Länder* face constitutional provisions that prohibit borrowing to cover current expenditures. Yet these rules are without strong enforcement mechanisms, and there are clearly ways around them. It is possible to circumvent balance budget rules in the United States as well, yet numerous studies show that balanced budget rules are associated with lower levels of expenditures and debt,[11] and negative shocks are met with rather drastic adjustment measures (Poterba 1994, 1996). Perhaps one reason why this relationship holds in the United States is that voters-- who understand that the burden of state-level expenditures cannot be exported to other states--

[10] A model was also estimated in which grants were interacted with positive and negative expected revenue, along with positive and negative shocks. None of the other interactions were significant, and the results for negative revenue shocks were similar to those discussed below. Additionally, partisan and "veto player" variables were interacted with negative revenue shocks in order to test for theories linking partisan politics and fragmented coalitions with slow adjustment, but none of the additional variables achieved statistical significance.

[11] Alt and Lowry (1994), Bohn and Inman (1996), Endersby and Towle (1997), Inman (1997), Kiewiet and Szakaly (1996).

face incentives to enforce balanced budget rules by behaving as "fiscal conservatives" in elections.[12]

Perhaps in the same manor, decision-makers and voters in the wealthier German *Länder* know that they have little hope of exporting the costs of present expenditures onto other *Länder* in the future, and have incentives to honor the golden rule and behave as fiscal conservatives. On the other hand, knowing that the possibility of eventual cost-shifting is realistic, decision-makers and voters in the more transfer-dependent *Länder* face incentives to ignore or circumvent the "golden rule" and avoid adjusting to permanent downturns. This provides an explanation for the cross-section finding of Rodden (1999b) that more transfer-dependent *Länder* run significantly larger budget deficits. Another possible conclusion of this analysis is that the effect of fiscal rules on fiscal outcomes depends on the incentives of voters to enforce them. This also suggests an avenue for further research—do voters in the "strong" and "weak" *Länder* have different preferences over fiscal policy? Do they exhibit different patterns of voting behavior?

Although some studies find evidence for inter-temporal smoothing of specific kinds of capital expenditures at the subnational level (Holtz-Eakin and Rosen 1993, Rattsø 1999, 2000), evidence for non-durable, current or total expenditures is lacking (Holtz-Eakin, Rosen and Tilly 1994, Rattsø 2000). In Norway this is not surprising, since local government borrowing is strictly controlled by the central government. In the U.S. states, where the central government places no limits on state-level borrowing, and in fact encourages it through the federal tax code, the aversion to borrowing during downturns requires a different explanation. The same can be said for the wealthy German states. In a variety of contexts, subnational governments seem to be unwilling to play a significant stabilization role, even when they have the ability to do so. It is beyond the scope of this paper to seek explanations for this behavior, but it is an important area for future research with important implications for the design of the European Monetary Union.

This paper implies a new direction in the empirical analysis of subnational fiscal behavior. The literature on the United States assumes—perhaps correctly for the states—that subnational governments are essentially sovereign over their own finances. Such

[12] Peltzman (1992), Lowry, Alt, and Ferree (1996), Besley and Case (1995), Rodden (1999a).

assumptions are probably appropriate for the Canadian Provinces and Swiss Cantons as well. Voters and creditors understand that these governments alone are responsible for their obligations. There is also a literature on unitary systems, where subnational governments are more likely to be viewed by creditors and voters as creatures of the central government. In these systems, central regulations can often foil cost-shifting strategies.

Yet there is a middle class of systems—formally federal systems with semi-sovereign provincial governments—in which expectations of cost-shifting might be quite rational, at least for some of the provinces some of the time. Much more research is needed on fiscal decisions in such systems, for they make up some of the largest and most populous countries on earth—Argentina, Brazil, Mexico, Australia, Russia, India, South Africa, Germany and Spain to name a few.

This paper tells a unique story about a unique system of fiscal federalism. It is not an indictment of equalization systems more generally. For instance, the Canadian equalization system has apparently not sent the signal to creditors and voters that provincial debts will be assumed by the central government (Bird and Tassonyi 2000). Bailout expectations evolve over time, and are conditioned by the precise arrangement of political and fiscal institutions. In Germany, the "equivalence of living conditions" clause in the Basic Law, along with the presence of transfers explicitly aimed at alleviating "special burdens" have played an important role.

Thus far the costs associated with this problem have been relatively small, given that bailouts have only been granted to two of the smallest states in the federation. However, the inclusion of the Eastern *Länder* as recipients in the equalization system has created a host of new problems that have not been explored in this paper. Each of the new *Länder* is highly dependent on federal supplementary transfers, their expenditure have growth at an explosive rate, and alarming debt levels have already been attained. Promises made in the euphoria of unification along with the transfer system and the guarantee of "equivalent living conditions" may have created especially plausible bailout expectations in the new *Länder*.

Few doubt that the system must be reformed, but along with the costs, antagonism between the rich and poor *Länder* has mounted as well. Reform of the financial

constitution requires a two-thirds majority in both houses of parliament, which means that some of the "weak" *Länder* would have to vote for it in the *Bundesrat*. The construction of a coalition in favor of intergovernmental fiscal reform will be a key challenge facing the German political system in the years ahead.

References

Alesina, Alberto and Tamim Bayoumi. 1996. "The Costs and Bendefits of Fiscal Rules: Evidence from U.S. States," Cambridge, MA: NBER Working Paper no. 6914.

Alesina, Alberto and Allan Drazen. 1998. "Why are Stabilizations Delayed?" in Federico Sturzenegger and Mariano Tommasi, eds., *The Political Economy of Reform*. Cambridge, MA: MIT Press.

Alt, James and Robert Lowry. 1994. "Divided Government, Fiscal Institutions, and Budget Deficits: Evidence from the States," *Americal Political Science Review* 88:4 (December), 811-828.

Arellano,Manuel and Stephen Bond. 1991. "Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations," *Review of Economic Studies* 58, p. 277-97.

_____. 1998. "Dynamic Panel Data Estimation Using DPD98 for Gauss: A Guide for Users," unpublished paper and software documentation, Institute for Fiscal Studies, London.

Bayoumi, Tamim and Barry Eichengreen. 1994. "Restraining Yourself: Fiscal Rules and Stabilization," Centre for Economic Policy Research, Discussion Paper No. 1029.

Besley, Timothy and Anne Case, "Incumbent Behavior: Vote-Seeking, Tax-Setting, and Yardstick Competition," *American Economic Review* 85, 1 (1995): 25-45.

Bird, Richard and Almos Tassonyi. 2000. "Constraining Subnational Fiscal Behavior in Canada: Different Approaches, Similar Results?", forthcoming in Jonathan Rodden, Gunnar Eskeland, and Jennie Litvack, eds., *Decentralization and Soft Budget Constraints*.

Bohn, Henning and Robert Inman. 1996. "Balanced Budget Rules and Public Deficits: Evidence from the U.S. States," *Carnegie-Rochester Conference Series on Public Policy* 45: 13-76.

Careaga Maite and Barry R. Weingast. 2000. "The Fiscal Pact with the Devil: A Positive Approach to Fiscal Federalism, Revenue Sharing, and Good Governance," unpublished paper, Stanford University.

Deutsche Bundesbank. 1997. "Die Entwicklung der Staatsverschuldung seit der deutschen Vereinigung," *Monthly Report*, No. 3 (March). Frankfurt: Deutsche Bundesbank.

Eichengreen, Barry and Jürgen von Hagen. 1996. "Fiscal Restrictions and Monetary Union: Rationales, Repercussions, Reforms." *Empirica* 23: 3-23.

Endersby, James and Michael Towle. 1997. "Effects of Constitutional and Political Controls on State Expenditures," *Publius: The Journal of Federalism* 27, 1: 83-99.

Exler, Ulrich. 1997. "Aktuelle Probleme der Finanzpolitik und des Finanzausgleichs."

Federal Ministry of Finance. 1996. *Finanzbericht 1997*. Bonn.

Holtz-Eakin, Douglas and Harvey Rosen. 1993. "Municipal Construction Spending: An Empirical Examiniation," *Economics and Politics* 5, 1: p. 61-84.

Holtz-Eakin, Douglas, Harvey Rosen and Schuyler Tilly. 1994. "Intertemporal Analysis of State and Local Government Spending: Theory and Tests," *Journal of Urban Economics* 35, p. 159-174.

Huber, Bernd and Karl Lichtblau. 1998. "Konfiskatorischer Finanzausgleich verlangt eine Reform," *Wirtschaftsdienst* 3.

Inman, Robert. 2000. "Hard and Soft Budget Constraints in the United States," in Jonathan Rodden, Jennie Litvack, and Gunnar Eskeland, eds., *Soft Budget Constraints in Multi-Tiered Fiscal Systems.* Forthcoming.

_____. 1997. *Do Balanced Budget Rules Work? U.S. Experience and Possible Lessons for the EMU,* NBER Reprint No. 2173.

Inter-American Development Bank. N.d. "Decentralization and Fiscal Discipline in Sub-National Governments: The Bailout Problem," unpublished book manuscript, IADB, Washington, D.C.

Kiewiet, D. Roderick and Kristin Szakaly. 1996. "Constitutional Limitations on Borrowing: An Analysis of State Bonded Indebtedness," *Journal of Law, Economics, and Organization* 12, 1: 62-97.

Lowry, Robert, James Alt and Karen Ferree. 1996. "Fiscal Policy Outcomes and Electoral Accountability in American States," paper presented at the Midwest Political Science Association meeting, Chicago, IL, April 18-20, 1996.

Organisation for Economic Co-operation and Development. 1998. *OECD Economic Surveys: Germany*. Paris: OECD.

Peltzman, Sam. 1992. "Voters as Fiscal Conservatives," *Quarterly Journal of Economics* 107, 2: 327-61.

Poterba, James. 1994. "State Responses to Fiscal Crises: "Natural Experiments" for Studying the Effects of Budgetary Institutions," *Journal of Political Economy*.

_____. 1996. "State Responses to Fiscal Crises: The Effects of Budgetary Institutions and Politics," *Journal of Political Economy* 102:4, 799-821.

Rattsø, Jørn. 1999. "Aggregate Local Public Sector Investment and Shocks: Norway 1946-1999." *Applied Economics* 31, p. 577-584.

_____. 2000. "Fiscal Adjustment with Vertical Fiscal Imbalance: Empirical Evaluation of Administrative Fiscal Federalism in Norway," unpublished paper, Norwegian University of Science and Technology, Trondheim, Norway.

Renzsch, Wolfgang. 1991. *Finanzverfassung und Finanzausgleich*. Bonn: Dietz.

Rodden, Jonathan. 1999a. "Federalism and Soft Budget Constraints." PhD Dissertation, Yale University.

_____. 1999b. "And the Last Shall be First: The Political Economy of Federalism and Deficits in Germany," unpublished paper, MIT.

_____. 2000. "The Dilemma of Fiscal Federalism: Hard and Soft Budget Constraints Around the World," Unpublished paper, MIT.

Rodden, Jonathan, Jennie Litvack, and Gunnar Eskeland, eds., *Soft Budget Constraints in Multi-Tiered Fiscal Systems*. Forthcoming.

Sachverst←ndigenrat. 1997. *Wachstum, Beschäftigung, Währungsunion- Orientierung für die Zukunft: Jahresgutachten 1997/1998*. Stuttgart: Metzler-Poeschel.

Seitz, Helmut. 1998. "Subnational Government Bailouts in Germany," unpublished paper, Center for European Integration Studies, Bonn.

Spahn, Paul Bernd and Wolfgang Föttinger. 1997. "Germany," in Teresa Ter-Minassian, ed., *Fiscal Federalism in Theroy and Practice*. Washington, D.C.: International Monetary Fund.

Tsebelis, George. 1995. "Decision-Making in Political Systems: Veto Players in Presidentialism, Parliamentarism, Multicameralism and Multipartism," *British Journal of Political Science* 25:3, 289-326.

Von Hagen, Jürgen and Barry Eichengreen. 1996. "Federalism, Fiscal Restraints, and European Monetary Union," *American Economic Review* 86:2, May.

Wildasin, David. 1997. "Externalities and Bailouts: Hard and Soft Budget Constraints in Intergovernmental Fiscal Relations." Washington, D.C.: World Bank.

Table 1: Descriptive Statistics, Land-Level Fiscal and Macro-Economic Indicators (1974-1995, Real 1991 DM Per Capita)

	Fiscally "Strong" Laender				*Fiscally "Weak" Laender*			
	Mean	S.D.	Min.	Max.	Mean	S.D.	Min.	Max.
Revenue	4941.7	2153.5	2916.9	10045.1	4779.9	1772.8	3115.9	10313.8
Change in Revenue	54.6	192.9	-672.6	704.3	76.4	179.9	-600.7	707.2
"Non-Grant" Revenue	4604.7	2072.8	2725.3	9473.1	3977.9	1481.5	2557.4	7998.4
Change in "Non-Grant" Rev.	49.8	197.9	-686.5	705	53.1	144.7	-555.9	454.2
Revenue from Grants	337	126.2	183.8	614.5	801.9	370.1	409.2	2315.4
Change in Grant Rev.	4.86	26.5	-66.8	110.3	23.3	106.9	-164.8	521
Expenditure	5306.7	2328.6	3280.5	10847.1	5436.3	2111.7	3557.9	11549.8
Change in Expenditure	59.1	143.4	-478.6	462	93.4	279.7	-1268.6	1530.1
Current Expenditure	4510.6	2152.9	2546	9589.7	4646	1884.8	2938.7	10267.7
Change in Current Exp.	67.2	106.8	-366.1	388.6	98.5	141.1	-465.4	644.4
Capital Expenditure	836.2	233.3	512	1417.1	847.2	324	496.4	2076.1
Change in Capital Exp.	-12.8	75.4	-332.3	254.1	-13.2	108.8	-426.5	335.4
Fiscal Balance	-365	279.6	-1330.6	92.8	-656.4	451.5	-2007.1	7.13
Change in Fiscal Balance	-4.44	206.7	-795.1	604.8	-17	333.9	-1423.2	1745.2
GDP	40926.5	10991.4	25925	68139.3	32515.1	6657.5	23371.7	51528.2
Growth Rate	0.019	0.023	-0.053	0.067	0.018	0.023	-0.043	0.072
Unemployment Rate	6.37	2.83	1.4	13.6	8.36	3.21	2.6	15.6

Sources: Federal Statistics Office, Federal Labor Agency, and Federal Ministry of Finance, and author's calculations.
Note: Descriptive statistics are in real DM, but statistical analysis was conducted using millions of DM.

Table 2: Descriptive Statistics, Shocks and Expected Changes in Revenue and Macro-Economic Indicators (1974-1995, Real 1991 DM Per Capita)

	Fiscally "Strong" Laender					*Fiscally "Weak" Laender*				
	Obs.	Mean	S.D.	Min.	Max.	Obs.	Mean	S.D.	Min.	Max.
Δ Rev., Expected	100	65.5	113.8	-327.9	316.7	96	87.8	135.1	-403.6	545.2
Positive	78	108.9	76.7	0.859	316.7	79	128.1	106	3.22	545.2
Negative	22	-88.6	87.4	-327.9	-1.63	17	-99.3	91.9	-403.6	-19.1
Revenue Shock	100	-0.0000093	145.2	-540.7	387.6	96	-0.000022	122.6	-341.1	600.2
Positive	49	103.7	94.2	0.203	387.6	49	83.3	101.6	5.17	600.2
Negative	51	-99.6	112.2	-540.7	-2.25	47	-86.8	72	-341.1	-1.1
Δ GDP, Expected	100	791.6	416.4	-156.7	1903	96	559.7	260.1	-68.9	1297.8
GDP Shock	100	-0.000019	862.1	-4148	1622.2	96	0.000078	708.7	-1553.6	2808.4
Δ Unemp., Expected	100	0.224	0.558	-0.837	1.664	96	0.259	0.673	-1.33	2.14
Unemp. Shock	100	-1.43E-08	0.710	-1.632	1.503	96	-6.71E-08	0.852	-2.06	1.79

Sources: Federal Statistics Office, Federal Labor Agency, and Federal Ministry of Finance, and author's calculations.
Note: Descriptive statistics are in real DM, but statistical analysis was conducted using millions of DM.

Table 3: Determinates of Changes in Real Land-Level Expenditures per Capita, "Naïve" Model

	All Laender	"Weak" Laender	"Strong" Laender
Δ Revenue			
"Weak" Laender	0.032		
	(0.073)		
"Strong" Laender	0.311 **		
	(0.050)		
Positive		-0.014	-0.021
		(0.090)	(0.246)
Negative		0.242	0.560 ***
		(0.179)	(0.061)
$Revenue_{t-1}$	0.640 ***	0.833 ***	0.347 ***
	(0.114)	(0.115)	(0.069)
Δ Unemp	-0.000009	-0.000041 **	0
	(0.00002)	(0.00002)	(0.000)
$Unemp_{t-1}$	-0.000006	-0.00006 *	0.000005
	(0.00001)	(0.00003)	(0.00002)
Δ GDP	0.050 ***	0.091 ***	0.045 ***
	(0.021)	(0.032)	(0.017)
GDP_{t-1}	0.019 *	0.021	0.031 **
	(0.011)	(0.028)	(0.016)
Election Year	0.00008 ***	0.00009 ***	0.00005 ***
	(0.00002)	(0.00002)	(0.00002)
$Expenditure_{t-1}$	-0.689 ***	-0.836 ***	-0.463 ***
	(0.121)	(0.103)	(0.058)
Constant	0.00002	-0.0002	0.00020 ***
	(0.0001)	(0.0002)	(0.00007)
Wald Test	8446.82	114.46	734.87
p	0.000	0.00	0.00
Years	19	17	19
States	10	5	5

* significant at 10% level, ** significant at 5% level, ***significant at 1% level

GMM estimates, results for fixed effects and year dummies not shown. Estimated coefficients and asymptotic one-step standard errors (in parentheses) robust to cross-section and time series heteroscedastisity. Computed using DPD program in Gauss (Arrelano and Bond 1991, 1998).

Table 4: Determinates of Changes in Real Land Expenditures per Capita, "Shock" Model

	Model including all Laender, Separate effects for Strong and Weak Laender		Separate models for Strong and Weak Laender	
	Weak Laender	*Strong Laender*	*Weak Laender*	*Strong Laender*
Revenue Shock	-0.141	0.347 ***		
	(0.238)	(0.031)		
Positive			0.323	-0.106
			(0.245)	(0.239)
Negative			-1.154 **	0.562 ***
			(0.481)	(0.048)
Δ Unemp. Expect.	-0.00016		-0.00021	-0.00015 ***
	(0.00012)		(0.0002)	(0.00006)
Unemp. Shock	0.00004		0.000006	0.000092 ***
	(0.00004)		(0.00003)	(0.00003)
$Unemp._{t-1}$	0.00002 *		0.000001	0.000036 *
	(0.00001)		(0.00001)	(0.00002)
Δ GDP Expect.	0.571 ***		0.703 **	0.201 ***
	(0.150)		(0.348)	(0.051)
GDP Shock	0.035		0.098 ***	0.038 ***
	(0.024)		(0.031)	(0.015)
GDP_{t-1}	0.035 ***		-0.0060	0.062 ***
	(0.009)		(0.035)	(0.018)
Election Year	0.000053 ***		0.000053 *	0.000057 ***
	(0.00002)		(0.00003)	(0.00001)
Δ $Expenditure_{t-1}$	-0.297		-0.479 ***	0.326 ***
	(0.112)		(0.079)	(0.089)
$Expenditure_{t-1}$	-0.311 ***		-0.288 **	-0.635 ***
	(0.068)		(0.117)	(0.132)
Constant	-0.0001		-0.0003	0.00019 *
	(0.0001)		(0.0003)	(0.0001)
Wald Test	1913.85		92.72	507.82
p	0.000		0.000	0.000
Years	19		17	19
States	10		5	5

* significant at 10% level, ** significant at 5% level, ***significant at 1% level

GMM estimates, results for fixed effects and year dummies not shown. Estimated coefficients and asymptotic one-step standard errors (in parentheses) robust to cross-section and time series heteroscedastisity. Computed using DPD program in Gauss (Arrelano and Bond 1991, 1998)

Table 5: Determinates of Changes in Real Land Expenditures per Capita: "Shock" Model with Interaction Term

Revenue Shock		
Positive	-0.146	
	(0.249)	
Negative	1.30	***
	(0.315)	
Neg. Rev. Shock x Grants	-1729.6095	***
	(123.41)	
Grants	0.493	***
	(0.150)	
Δ Unemp. Expect.	-0.000096	
	(0.00006)	
Unemp. Shock	-0.000015	
	(0.00003)	
$Unemp._{t-1}$	0.000010	*
	(0.00001)	
Δ GDP Expect.	0.511	***
	(0.155)	
GDP Shock	0.056	*
	(0.030)	
GDP_{t-1}	0.056	***
	(0.016)	
Election Year	0.00006	***
	(0.00002)	
Δ $Expenditure_{t-1}$	-0.246	**
	(0.123)	
$Expenditure_{t-1}$	-0.496	***
	(0.118)	
Constant	-0.000059	
	(0.00009)	
Wald Test	7748.32	
p	0.000	
Years	19	
States	10	

* significant at 10% level, ** significant at 5% level, ***significant at 1% level

GMM estimates, results for fixed effects and year dummies not shown. Estimated coefficients and asymptotic one-step standard errors (in parentheses) robust to cross-section and time series heteroscedastisity. Computed using DPD program in Gauss (Arrelano and Bond 1991, 1998)