BEYOND THE FICTION OF FEDERALISM
Macroeconomic Management in Multitiered Systems

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> No matter how useful the fiction of federalism is . . . one should not overlook the fact that it is a fiction. In the study of federal governments . . . it is always appropriate to go behind the fiction to study the real forces in a political system.
> —*William Riker*[1]

RESEARCH on the relationship between federalism and economic outcomes is currently characterized by a split personality. On the one hand, long-standing traditions in research on fiscal federalism,[2] public choice,[3] and a more recent body of work on "market-preserving federalism"[4] extol the virtues of decentralized fiscal and political decision making. Theoretically, where subnational politicians have incentives to respond to the diverse interests of multiple, decentralized constituencies, the public sector will be smaller and more efficient, markets will expand, and economies will grow more rapidly. On the other hand, it is difficult to ignore the growing evidence that federalism complicates policy-making on issues ranging from fiscal and monetary

   [1] Riker, "Six Books in Search of a Subject or Does Federalism Exist and Does It Matter?" *Comparative Politics* 2, no. 2 (1969), 324.
   [2] Wallace Oates, *Fiscal Federalism* (New York: Harcourt Brace Jovanovich, 1972).
   [3] Charles Tiebout, "A Pure Theory of Local Government Expenditures," *Journal of Political Economy* 64 (October 1956); Geoffrey Brennan and James Buchanan, *The Power to Tax: Analytical Foundations of a Fiscal Constitution* (New York: Cambridge, 1980).
   [4] Barry Weingast, "The Economic Role of Political Institutions: Market-Preserving Federalism and Economic Development," *Journal of Law, Economics, and Organization* 11 (April 1995); Gabriella Montinola, Yingyi Qian, and Barry Weingast, "Federalism, Chinese Style: The Political Basis for Economic Success in China," *World Politics* 48 (October 1994).

management[5] to exchange rates[6] to the privatization of state-owned enterprises.[7] When compared with unitary systems, federal systems appear to empower regional politicians who act as veto players and exacerbate collective action problems vis-à-vis macroeconomic policy. With little electoral responsibility for macroeconomic performance and various institutions that foster overspending, subnational governments sometimes extract resources from the center with little concern for the potential impact of their economic decisions on the federation as a whole. The result is a critically weakened center with limited capacity to provide national public goods.

Neither body of research, however, squares with the simple fact that the economic records of federations vary dramatically. While federalism may well be part of the story of secure property rights and fiscal prudence in the United States, it is just as often viewed as contributing to unstable property rights and macroeconomic volatility in countries like Argentina and Russia. In a 1969 critique of the federalism literature, William Riker complained that scholars place too much emphasis on differences between federal and unitary systems and not enough on the institutional, political, and cultural diversity within these two types. His critique is still valid today. This article is designed to explain some of the diversity in the macroeconomic experiences of federations by examining the specific political and fiscal structures that differentiate federal systems from one another.

To be sure, federations have some important features in common—above all, they possess institutions that protect the autonomy of subnational governments while limiting the authority of the center. Indeed, these features figure heavily in both the market-preserving and the market-distorting sides of federalism's apparent split personality. Nevertheless, while Weingast and others[8] have been careful to define some general conditions under which federalism is most likely to produce good macroeconomic outcomes, most research to date has relied upon either abstract formal models or single-case studies. The result has been

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[5] Jonathan Rodden, "The Dilemma of Fiscal Federalism: Grants and Fiscal Performance around the World," *American Journal of Political Science* 46 (July 2002); Daniel Triesman, "Decentralization and Inflation: Commitment, Collective Action, or Continuity?" *American Political Science Review* 94 (December 2000); Erik Wibbels, "Federalism and the Politics of Macroeconomic Policy and Performance," *American Journal of Political Science* 44 (October 2000).

[6] David Woodruff, *Money Unmade: Barter and the Fate of Russian Capitalism* (Ithaca, N.Y.: Cornell University Press, 1999).

[7] Leslie Elliott Armijo and Prem Shankar Jha, "Centre-State Relations in India and Brazil: Privatisation of Electricity and Banking," in Satu Kahkonen and Anthony Lanyi, eds., *Institutions, Incentives and Economic Reforms in India* (New Delhi: Sage Publications, 2000).

[8] Weingast (fn. 4); Montinola, Qian, and Weingast (fn. 4).

a tendency to dichotomize federations, seeing them as either market enhancing or market deforming. While these fictions—or more generously, ideal types—might be useful analytical tools, we believe federations are best understood as varying along a continuum.

As such, this article hypothesizes that the effect of federalism on macroeconomic management is contingent on a variety of fiscal and political factors, including geographic characteristics, the level of fiscal decentralization, the revenue autonomy of regional governments, and the nature of party systems. For example, we expect differences between countries like Canada, where the provinces spend as much as the federal government and have wide-ranging authority to set the base and rates of their own taxes, and countries like Germany, where the *Länder* receive virtually all of their resources from grants and revenue sharing. Building on the public economics literature, we argue that decentralization, when funded by intergovernmental transfers, might undermine fiscal discipline and create inflationary pressure. We argue furthermore that strong national parties and other political variables should have an effect both within and across countries. For instance, we expect federalism to play a very different role in countries like Pakistan, where subnational executives are sometimes handpicked by the governing party at the center, than it does in countries like Canada and Spain, where a different set of political parties competes and forms governments at the central and subnational levels.

In short, our premise is that federalism's good (or alternatively bad) reputation should actually be attributed to underlying incentives built into the particular institutions of each country. To identify some of the factors that influence the divergent macroeconomic performance of federal systems, this article examines fiscal and inflationary performance in fifteen federations from 1978 through 1996. These cases include all countries that other studies widely identify as federations and for which the necessary data are available.

Because of its range of new political and fiscal variables and the extensive country and time coverage, our data set is a major improvement over those used in previous studies. Above all, we have collected reliable data on provincial taxation and partisanship. Our approach allows us to contribute both to the burgeoning literature on the political economy of federalism and decentralization and to the broader literature on macroeconomic policy and reform. Our findings indicate that the structure of both fiscal and party systems influences macroeconomic outcomes in federations. Contrary to recent literature on the dangers of decentralization, our sample of federations finds fiscal decentralization

associated with smaller overall deficits and lower inflation rates, especially when the states have wide-ranging autonomy over taxation. Deficits and inflation increase as state governments become more dependent on intergovernmental transfers, especially when transfer dependence is combined with high levels of fiscal decentralization. Additionally, we find that greater intergovernmental partisan continuity is associated with lower deficits and inflation.

The first section of the article provides an overview of the contending perspectives on the relationship between federalism and economic outcomes. The second section lays out several basic arguments linking distinctive political and fiscal features of federalism to deficits and inflation. The third section introduces the data set and empirical approach, and the fourth section evaluates these arguments using an original time-series cross-section data set. The final section concludes and discusses broader implications of the findings.

I. Federalism and Macroeconomic Outcomes

For decades most researchers have seen the relationship between decentralized decision making and economic performance in a positive light. Economists and political scientists have suggested that decentralized and shared authority in a context of multitiered governance ensures a more efficient delivery of public goods, brings decision making closer to citizens, and encourages the emergence and maintenance of effective markets as a result of the competitive pressures that provinces place upon each other and upon the national government.[9] First, decentralized decision making might overcome aggregation and information problems by bringing policy decisions more closely in line with citizen preferences, which vary across provinces or localities. Second, decentralized government helps electorates discipline local officials, thereby solving agency problems. Finally, provincial and local decision makers might be constrained by the ability of individuals and firms to vote with their feet—by moving to jurisdictions that offer the most attractive package of taxes and services.[10] Although researchers have questioned the empirical validity of some of these propositions and the

[9] For a concise and spirited defense of this perspective, see James Buchanan, "Federalism as an Ideal Political Order and an Objective for Constitutional Reform," *Publius* 25 (Spring 1995).

[10] On information and agency, the most important contribution is still Oates (fn. 2), in which the efficiencies of decentralization are greatest in the presence of heterogeneous regions and small externalities. For a similar conclusion from a political economy perspective, see Ben Lockwood, "Distributive Politics and the Costs of Centralization," *Review of Economic Studies* 69 (August 2002). Tiebout (fn. 3) offers the classic statement on the virtues of mobility and sorting.

assumptions that drive them,[11] they have provided the foundation for decades of theorizing and justification for advocates of decentralization in countries as diverse as Spain and South Africa.[12]

While economists generally gloss over the distinction between federal and unitary systems, recent literature stresses that the efficiency and accountability advantages of decentralization are most plausible when the autonomy of subnational governments is protected and the central government's authority is credibly limited—in other words, among federations. Barry Weingast and his collaborators combine the public choice and welfare economics traditions with some insights from Friedrich von Hayek and William Riker to identify a subset of federal systems that are uniquely "market preserving."[13] More recently, the notion that federations foster markets has led some to argue that federations are uniquely responsive to the dual pressures for both internationalization and localization associated with an increasingly global economy.[14]

In addition to the well-known informational advantages of decentralization, these research traditions emphasize two rather overtly political advantages of federalism for those who fear that democracy breeds excessive public spending. First, autonomous subnational units serve as a powerful constraint on what are viewed as the market-obstructing impulses of central government Leviathans. While self-interested central officials often have incentives to manipulate economic policy or expand the scope of the national government, strong subnational governments can serve to check the federal government and ensure property rights.[15] Second, the competition among subnational units for tax revenue and investment constrains the size of the public

[11] For examples, see Robert Inman and Daniel Rubinfeld, "The Political Economy of Federalism," in Dennis Mueller, ed., *Perspectives on Public Choice: A Handbook* (Cambridge: Cambridge University Press, 1997); W. E. Lyons, David Lowery, and Ruth Hoogland Dehoog, *The Politics of Dissatisfaction: Citizens, Services, and Urban Institutions* (Armonk: M. E. Sharpe, 1992); Jonathan Rodden and Susan Rose-Ackerman, "Does Federalism Preserve Markets?" *Virginia Law Review* 83, no. 7 (1997).

[12] In addition to the principal-agent, externality, and coordination problems introduced below, critics of decentralization point out that these theories underestimate the importance of economies of scale in centralized provision of public goods and that some policies, most notably redistribution, cannot be efficiently conducted at the local level. Moreover, a key problem with informational arguments in favor of decentralization is that information-constrained voters might be more inclined to monitor the central government than local governments and that shared or overlapping authority might make accountability more difficult.

[13] Weingast (fn. 4); Montinola, Qian, and Weingast (fn. 4).

[14] Ronald Watts, *Comparing Federal Systems* (Kingston, Ontario: Institute of Intergovernmental Relations, 1999); John Newhouse, "Europe's Rising Regionalism," *Foreign Affairs* 76 (February 1997); Richard Doner and Eric Hershberg, "Flexible Production and Political Decentralization in the Developing World: Elective Affinities in the Pursuit of Competitiveness?" *Studies in Comparative International Development* 34 (Spring 1999).

[15] Weingast (fn. 4).

sector and ensures the efficient delivery of public services consistent with the diverse demands of disparate, decentralized constituencies.[16]

More directly relevant to the research at hand, there are several reasons to think these arguments will also have positive implications specifically for macroeconomic performance. According to the literature on political business cycles, politicians might attempt to woo myopic voters by expanding the economy during election campaigns. As a result, there are incentives to overspend and increase the money supply in the short term even if the long-term results are suboptimal. Given these conditions, it is essential to design institutions that credibly commit policymakers to stable prices and spending restraint. According to Lohmann,[17] Qian and Roland,[18] and others, federalism often serves exactly this purpose by imposing checks and balances on central policymakers, thus preventing them from reneging on their macroeconomic commitments. State governments, in essence, police the inflationary and deficit bias of central officials. In a related matter, Lohmann[19] also hypothesizes that federations are more likely than unitary countries to develop politically independent, inflation-averse central banks that refuse to provide accommodating monetary policy. Moreover, competition among regional governments in attracting mobile capital might increase the opportunity cost of public spending and underscore the utility of fiscal restraint.[20] If a state's public sector is wasteful, investors and voters can move to a locale where their taxes would be used more efficiently. This situation contrasts with a single unitary government whose expansionary tendencies are relatively unchecked, since capital tends to be much less mobile across national boundaries than it is across states within nations. The result should be an emphasis on fiscal balance and inflationary restraint in decentralized federations.

These arguments seem to square well with some facts in OECD federations. Federalism and central bank independence, for instance, seem at first glance to be important complementary explanations for low and stable inflation rates and tight fiscal policy in the United States, Switzerland, and, until recently, Germany. Yet in Brazil, Argentina, and Russia federalism is coupled with loose fiscal management, politically captured central banks, and high and volatile inflation rates. In fact, de-

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[16] Yingyi Qian and Gerard Roland, "Federalism and the Soft Budget Constraint," *American Economic Review* 88, no. 5 (1999).

[17] Susanne Lohmann, "Federalism and Central Bank Independence: The Politics of German Monetary Policy, 1957–92," *World Politics* 50 (April 1998).

[18] Qian and Roland (fn. 16).

[19] Lohmann (fn. 17).

[20] Brennan and Buchanan (fn. 3).

spite the theoretical appeal of decentralized government for fiscal conservatives from Hayek to Buchanan, federalism is currently gaining a bad reputation as a source of fiscal indiscipline. The central argument in these critiques is that federalism often exacerbates collective action problems in the formulation and implementation of economic policy. Under a set of common conditions, federalism empowers regional politicians who face incentives to undermine macroeconomic management, market reforms, and other policies that have characteristics of national public goods.[21] Self-interested regional elites do this either through autonomous policies made at the local level or through their influence as veto players in the policy-making process at the center. Thus the very constraints on the central government that supposedly underlie commitment and prudence might just as well have the very opposite effect—preventing the center from effectively resolving coordination problems and internalizing externalities.

Even some students of Canadian and American federalism have long suspected that fiscal decisions of the provinces and states might undermine the central government's attempts at macroeconomic management. More recently, in the wake of debt crises induced by the excessive borrowing of subnational governments, observers of federalism in Brazil and several other developing countries have moved beyond suspicion.[22] These events have spawned an empirical literature suggesting that federations are more prone than unitary systems to fiscal and monetary mismanagement and crises—especially in developing countries.[23]

There are good theoretical reasons supporting the empirical findings that federal political structures can have a negative impact on macroeconomic management. First, in several federations, subnational governments account for nearly half of all government spending. In such systems, any attempt to balance public budgets and ensure price stability must include simultaneous efforts by multiple levels of government, introducing a coordination problem. Second, to the extent that they are concerned primarily with their own political success, provincial politicians have weak incentives to make fiscal decisions that create positive externalities for the rest of the federation.

[21] Rémy Prud'homme, "The Dangers of Decentralization," *World Bank Research Observer* 10 (August 1995); Daniel Triesman, "Political Decentralization and Economic Reform: A Game-Theoretic Analysis," *American Journal of Political Science* 43 (April 1999); Wibbels (fn. 5).

[22] William Dillinger and Steven Webb, "Fiscal Management in Federal Democracies: Argentina and Brazil," Policy Research Working Paper no. 2121 (Washington, D.C.: World Bank, 1999).

[23] In a sample of developing countries, Wibbels (fn. 5) finds higher and more volatile deficits and inflation rates among federations than among unitary systems. Using a larger sample, Treisman (fn. 5) finds that federations do not demonstrate higher inflation rates than unitary systems, but if inflation problems develop, federations are less likely to resolve them.

In an unfortunate but common scenario, subnational governments spend beyond their means, all the while hoping that the central government will ultimately be compelled to bail them out with loans or special transfers. In response to an unexpected negative revenue shock, for instance, subnational officials might be unwilling to raise taxes or cut expenditures for fear of driving out mobile voters and capital. In a variety of scenarios, subnational officials prefer to try to externalize the political costs of adjustment to central government officials. Such behavior could lead to upward pressure on overall public sector deficits and inflation, even if the central government does not come through with the expected bailout.[24] Recent empirical studies demonstrate some ways in which the burdens of subnational governments affect the central government's fiscal policies. Fornasari, Webb, and Zou[25] find a significant relationship between subnational deficits and higher central government expenditures and deficits. Triesman[26] shows that when central banks are not autonomous, subnational deficits lead to higher levels of inflation.

Even when regional governments play a relatively small spending role, they may have the ability to undermine macroeconomic management by blocking the central government's attempts at fiscal reform, particularly if these would prove painful for regional constituents. A key feature of political federalism is the formal or informal inclusion of regional governments as veto players in the central government. In the vast majority of federations a relatively strong upper chamber represents the regions by territory rather than population, which provides small states with important bargaining advantages.[27] In some federal systems (for example, Germany), the regional governments are directly represented in the upper house; in most others (for example, the United States) the representatives of the federated units are directly elected.[28] Even where upper chambers are relatively weak, moreover, regionally oriented parties can obstruct the development of coherent central policies in favor of the particularistic needs of decentralized elites. Such is quite clearly the case in Argentina and India.

[24] Rodden (fn. 5).

[25] Francesca Fornasari, Steven B. Webb, and Heng-Fu Zou, "Decentralized Spending and Central Government Deficits: International Evidence," World Bank Working Paper (Washington D.C.: World Bank, 1998).

[26] Triesman (fn. 5).

[27] David Samuels and Richard Snyder, "The Value of a Vote: Malapportionment in Comparative Perspective," *British Journal of Political Science* 31 (October 2001); Alfred Stepan, "Federalism and Democracy: Beyond the U.S. Model," *Journal of Democracy* 10 (October 1999).

[28] An exception is Canada, where the Senate is weak and appointed, and regional bargaining takes place primarily in other forums: within the cabinet, directly between Ottawa and provincial governments, and in the premiers' conferences.

This "territorial representation" aspect of federalism might create a dynamic that is similar to the well-known "war of attrition." Alesina and Drazen[29] argue that multiparty coalitions might be slow to adjust to negative shocks because members of the coalition cannot find easy political targets upon whom to externalize the costs. Decision making in federations is often a process of regional coalition building, and it may be difficult to come to an agreement on how to distribute the regional costs of adjustment among provinces with veto authority over federal policy. For all these reasons, the provision of nationwide collective goods, especially with respect to macroeconomic policy, might be more difficult in federations than in their unitary counterparts. Yet while recent studies comparing federal and unitary systems begin to fill a large gap in a macroeconomic policy literature that has traditionally ignored the role of multitiered systems of government, the design of these works smooths over the wide range of variation within the universes of federal and unitary countries. The distinction between federal and unitary systems is generally conceptualized and operationalized dichotomously.[30] Such an antipodean distinction might be useful for broad albeit blunt comparisons across the two types of systems, but its reductionist character minimizes the tremendous variation within each category. The next section begins to fill in some of the missing institutional details for federations.

II. Hypotheses

If there are good reasons to expect the varieties of federalism to influence economic policy, the research on macroeconomic policy has been slow on the uptake. A wealth of recent literature does explore the relationship between political institutions and macroeconomic management.[31] A key theme in this literature is the argument that political fragmentation—whether in the form of multiparty coalitions or partisan divisions between the executive and legislative branches—leads to

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[29] Alberto Alesina and Allan Drazen, "Why Are Stabilizations Delayed?" in Federico Sturzenegger and Mariano Tommasi, eds., *The Political Economy of Reform* (Cambridge: MIT Press, 1998).

[30] Fornasari, Webb, and Zou (fn. 25); Triesman (fn. 5).

[31] This literature is too large to review here. Highlights include Nouriel Roubini and Jeffrey Sachs, "Political and Economic Determinants of Budget Deficits in the Industrial Democracies," *European Economic Review* 33 (May 1989); James Poterba and Jürgen von Hagen, eds., *Fiscal Institutions and Fiscal Performance* (Chicago: University of Chicago Press, 1999); Torsten Persson and Guido Tabellini, "*Political Institutions and Policy Outcomes: What Are the Stylized Facts?*" (Manuscript, Department of Economics, Bocconi University, 2001); Robert Franzese, "The Political Economy of Public Debt: An Empirical Examination of the OECD Postwar Experience" (Manuscript, Department of Political Science, University of Michigan, 2001).

slower fiscal adjustment to unexpected shocks and, ultimately, to persistently higher budget deficits and public debt. With the exceptions noted above, however, this literature has not yet examined the role of fiscal decentralization and political federalism in generating political fragmentation of a different breed. As already described, federalism might exacerbate a basic coordination problem associated with budgeting in multitiered systems, while weakening the agency relationships between voters and governments and between central and provincial governments. This section explores the ways in which these problems are contingent on specific federal fiscal and political characteristics.

FISCAL FEDERALISM

> —H1. *A federation's capacity to control deficits and inflation declines as levels of expenditure decentralization increase.*

We define expenditure decentralization as the percentage of total public sector spending conducted by subnational governments. If subnational officials face incentives to use their expenditure authority to undermine the central government's macroeconomic management, it is logical that the severity of the intergovernmental budget coordination problem will increase with the level of expenditure decentralization. Indeed, even where provincial spending authority is attenuated by central efforts to direct spending by unfunded mandates, the result may simply be increased fiscal stress for subnational governments loath to offset mandated spending with cuts elsewhere. Table 1 presents data on provincial spending as a share of total central and provincial spending.[32] The federal cases range from Canada, where the provinces spend about half of the combined total, to Venezuela, where the figure is only about 12 percent. Indeed, case studies of some of the more decentralized countries listed in Table 1 suggest that provincial expenditures undermine the central government's attempts at macroeconomic stabilization. Courchene explains, for instance, that in the late 1980s a spending spree in Ontario frustrated the Bank of Canada's price stability strategy.[33] Likewise, Argentine monetary policy was compromised in the 1980s when the Central Bank discounted large provincial debts,

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[32] Relatively low values for the United States and Switzerland may be surprising—this is because local and municipal governments are not included in either the numerator or the denominator. Local data were unavailable for several countries, and furthermore our arguments are focused on constituent units in federations.

[33] Thomas Courchene, "Preserving and Promoting the Internal Economic Union: Australia and Canada," in Paul Boothe, ed., *Reforming Fiscal Federalism for Global Competition: A Canada-Australia Comparison* (Edmonton: University of Alberta Press, 1996).

TABLE 1
BASIC FISCAL VARIABLES
(1978–96)

	Expenditure Decentralization	Change in Expenditure Decentralization	Vertical Fiscal Imbalance	Change in Vertical Fiscal Imbalanc
	Provincial Expenditure as Share of Provincial + Central Expenditure (Average 1978–96)	Average from 1988 to 1996 – Average from 1978 to 1987	Provincial Grants and Revenue Sharing Receipts as Share of Total Provincial Revenue (Average 1978–96)	Average from 1988 to 1996 – Average from 1978 to 1987
Argentina	0.38	0.11	0.65	−0.07
Australia	0.38	0.01	0.51	−0.12
Austria	0.17	0.001	0.41	0.02
Brazil	0.24	0.05	0.31	0.05
Canada	0.49	0.01	0.20	−0.01
Germany	0.30	−0.01	0.83	−0.01
India	0.41	0.01	0.52	−0.08
Malaysia	0.19	−0.02	0.20	−0.001
Mexico	0.16	0.08	0.75	0.01
Nigeria	0.31	−0.08	0.84	0.01
Pakistan	0.24	0.002	0.86	0.06
Spain	0.14	0.12	0.72	0.09
Switzerland	0.37	−0.03	0.28	0.04
United States	0.29	0.04	0.22	−0.0002
Venezuela	0.12	0.03	0.94	−0.06

SOURCES: See appendix.

thus increasing the money supply.[34] Recently, high expenditures and debt in some of the German *Länder* have raised the possibility that the German government will run afoul of the Maastricht deficit criteria. Expenditures by state governments on subsidies to farmers, tax breaks for investors, and bailouts of state electricity boards have led to declining fiscal health among the Indian states and placed fiscal pressure on their primary lender—the Indian central government.[35] Similar arguments have been made about Brazil.[36]

[34] Dillinger and Webb (fn. 22).
[35] William McCarten, "The Challenge of Fiscal Discipline in the Indian States," in Jonathan Rodden, Gunnar Eskeland, and Jennie Litvack, eds., *Decentralization and the Challenge of Hard Budget Constraints* (Cambridge: MIT Press, forthcoming).
[36] Antúlo Bomfim and Anwar Shah, "Macroeconomic Management and the Division of Powers in Brazil," *World Development* 22 (April 1994); Jonathan Rodden, "Federalism and Bailouts in Brazil," in Rodden, Eskeland, and Litvack (fn. 35).

Hypothesis 1 merely surmises that other things being equal, such scenarios are less likely in federations where the central government directly controls a greater share of public sector expenditures.[37] The federations under analysis have also demonstrated important changes over time. Column 2 in Table 1 displays changes in expenditure decentralization from the first half to the second half of the period under analysis. All but four of the countries have experienced some fiscal decentralization. If true, H1 raises concern about the trend toward fiscal decentralization in federations around the world.

   —H2. *A federation's capacity to control deficits and inflation declines as levels of vertical fiscal imbalance increase.*

There is good reason to be suspicious of the proposition that fiscal decentralization alone puts spending or inflationary pressure on subnational governments. H2 asserts that the problem lies in part with the structure rather than with the overall level of fiscal decentralization. In particular, we expect that higher levels of vertical fiscal imbalance, which we define as the degree to which subnational spending is financed by revenue transfers from the center (as opposed to locally raised taxes, fees, and so on), will foster excessive spending at the subnational level. Theoretical and empirical studies of public economics suggest that individuals view grants and own-source local revenues through different lenses. A key proposition of the "fiscal illusion" literature is that when the link between taxes and benefits is distorted, voters are less likely to sanction overspending politicians. Intergovernmental grants create the appearance that local public expenditures are funded by nonresidents.[38] Grant programs often supply concentrated local benefits that are funded by a common (national) pool of resources.[39] Local voters, local politicians, and regional representatives within the central legislature all receive fiscal or political benefits from grant programs without inter-

[37] Given data shortcomings, we are unable to differentiate between provincial spending for which allocation decisions are made solely by provincial officials and that which is controlled indirectly by federal fiat (unfunded mandates, for instance). H1 makes the plausible assumption that a shift from central to provincial spending implies some loss of direct central control over the consolidated public sector budget.

[38] For an overview of concepts and measurements of fiscal illusion and a literature review, see Wallace Oates, "On the Nature and Measurement of Fiscal Illusion: A Survey," in Oates, ed., *Studies in Fiscal Federalism* (Brookfield, Vt: Edward Elgar, 1991). For a theoretical application to intergovernmental grants in particular, see Oates, "Lump-Sum Intergovernmental Grants Have Price Effects," in Peter Mieszkowski and William Oakland, eds., *Fiscal Federalism and Grants-in-Aid* (Washington, D.C.: Urban Institute, 1979).

[39] See Barry Weingast, Kenneth Shepsle, and Christopher Johnsen, "The Political Economy of Benefits and Costs: A Neoclassical Approach to Distributive Politics," *Journal of Political Economy* 89 (August 1981).

nalizing their full cost, causing them to demand more expenditures funded by grants than from their own-source taxation.

An empirical literature has established a link between transfer dependence and the growth of government.[40] Dependence on intergovernmental transfers might lead to unsustainable *borrowing* as well, since high levels of transfer dependence often undermine the credibility of the central government's commitment not to bail out troubled states.[41] By a similar logic, when provincial governments are funded primarily by taxes they raise and collect themselves, the center can commit more easily to a policy that it will never assume provincial obligations, thus giving creditors and voters stronger incentives to punish subnational officials for excessive spending and borrowing.[42]

Table 1 provides average data on vertical fiscal imbalance (grants and revenue-sharing as a share of total provincial revenue) for the sample of federations. Note that unlike previous studies,[43] we do not rely exclusively on the "grants" variable provided in the IMF's *Government Finance Statistics* (GFS), which includes revenue sharing (taxes raised by the center and distributed automatically to the states according to a formula) as own-source subnational revenue. Given the theoretical arguments above, it is more appropriate to count these funds as grants, since they are generally not legislated by provincial governments. Thus, we check the GFS data against country sources and substitute these when revenue-sharing programs create discrepancies (see appendix).[44] The correlation between our vertical fiscal imbalance variable and one calculated from the GFS is only .46. This variable ranges from Canada, where on average only 20 percent of provincial revenue is provided by grants, to a high of 94 percent in Venezuela.

    —*H3. The effects of expenditure decentralization (H1) and vertical fiscal imbalance (H2) are conditional on one another.*

[40] E.g., Stanley Winer, " Some Evidence on the Effect of the Separation of Spending and Taxing Decisions," *Journal of Political Economy* 91 (February 1983); Ernesto Stein, "Fiscal Decentralization and Government Size in Latin America," in Kiichiro Fukasaku and Ricardo Hausmann, eds., *Democracy, Decentralization and Deficits in Latin America* (Washington, D.C.: Inter-American Development Bank and OECD, 1998).

[41] Rodden (fn. 5).

[42] Dillinger and Webb (fn. 22) make a plausible argument to the contrary: they suggest that transfer dependence sometimes provides the central government with valuable leverage that can be used to impose reforms and tighter fiscal discipline on the subnational units. However, such strong conditionality is the exception rather than the rule in most intergovernmental transfer schemes in federations, and even if central governments make such proclamations, they may not be credible in the long run.

[43] See, e.g., Kiichiro Fukasaku and Luiz de Mello, "Fiscal Decentralization and Macroeconomic Stability: The Experience of Large Developing and Transition Economies," in Fukasaku and Hausmann (fn. 40).

[44] For cases without certain kinds of revenue-sharing programs, the GFS data and government data are identical, since the GFS is based on country sources.

H3 implies that H2 is conditional on H1 and vice versa—that is, there is an interactive effect. If transfer dependence has a negative effect on fiscal discipline and/or increases demand for loose monetary policy as a solution to subnational indebtedness, this phenomenon should be most pronounced in systems where subnational governments are responsible for large shares of total public sector expenditures. By the same token, if greater dependence on own-source provincial revenue improves provincial fiscal discipline, this will have a tightening effect on the fiscal balance of the public sector as a whole if the provincial sector makes up a larger share of the total. Likewise, the effect of fiscal decentralization might be contingent on the structure of the intergovernmental fiscal system. Fiscal decentralization should lead to upward pressure on deficits and inflation when provinces are dependent primarily on grants and downward pressure when they are dependent on own-source taxes, user fees, and borrowing. In fact, the arguments linking decentralization with fiscal restraint are driven by tax competition;[45] thus decentralization should lead to fiscal restraint only when funded by increased state-level taxation.

POLITICAL FEDERALISM

> —*H4 A federation's capacity to control deficits and inflation increases when political parties create incentives for cooperation between the center and provinces.*

More than forty years ago William Riker and Ronald Schaps suggested that the key determinant of intergovernmental policy inconsistency in federal systems is the centralization of the party system.[46] More recent studies argue that if national party leaders have substantial capacity to discipline copartisans at other levels of government, it can be easier for the central government to implement a coherent, unified policy agenda that transcends jurisdictional divisions.[47] Thus strong, disciplined political parties that compete in all of the states can be a solution to the underlying collective goods problem. National party leaders with incentives to respond to a nationwide constituency have encompassing interests in national collective goods such as sustainable fiscal and monetary policy. To the extent that self-seeking fiscal policies by their provincial partisan colleagues might undermine their ability to provide

[45] For example, Brennan and Buchanan (fn. 3).
[46] Riker and Schaps, "Disharmony in Federal Government," *Behavioral Science* 2 (1957).
[47] Dillinger and Webb (fn. 22); Christopher Garman, Stephan Haggard, and Eliza Willis, "Fiscal Decentralization: A Political Theory with Latin American Cases," *World Politics* 53 (January 2001); Peter Ordeshook and Olga Shvetsova, "Federalism and Constitutional Design," *Journal of Democracy* 8 (January 1997).

them, national leaders might try to use their leverage over appointments or nominations to create incentives for subnational officials to internalize externalities when making fiscal decisions. Alternatively, where national leaders have few copartisans at the subnational level, such vertically divided government can complicate coherent fiscal policymaking in much the same way as does more traditionally understood horizontally divided government.[48]

While existing literature focuses on the center's control over the career advancement of provincial officials, our supposition is that a strong connection between partisanship and fiscal behavior need not be driven by explicit, hierarchical offers and threats. Provincial officials might have incentives to cooperate simply because their electoral fates are determined in good part by the fates of their copartisans at the federal level. If macroeconomic stability is key to a party's national success and significant coattail effects implicate provincial elections in that success, provincial officials sharing the party label of the federal executive have incentives to contribute to fiscal restraint. In other words, subnational officials in some countries might have incentives to internalize fiscal externalities if they face corresponding "electoral externalities."[49] Thus, it might be counterproductive for self-interested provincial officials to sabotage the center's attempts to balance budgets or combat inflation. Overborrowing and requests for bailouts will likely damage the party's national reputation and as a result, that of the provincial premier or governor. In fact, a study by Jones, Sanguinetti, and Tommasi[50] finds that deficits are significantly lower among Argentine provinces whose governors share the president's party label.[51] If this argument is correct

[48] Matthew D. McCubbins, "Party Governance and U.S. Budget Deficits: Divided Government and Fiscal Stalemate," in Alberto Alesina and Geoffrey Carliner, eds., *Politics and Economics in the Eighties* (Chicago: University of Chicago Press, 1991); Gary Cox and Matthew McCubbins, "Divided Control of Fiscal Policy," in Gary Cox and Samuel Kernell, eds., *The Politics of Divided Government* (Boulder, Colo.: Westview Press, 1992); James Alt and Robert Lowry, "Divided Government, Fiscal Institutions, and Budget Deficits: Evidence from the States," *American Political Science Review* 88 (December 1994).

[49] Jonathan Rodden, "Creating a More Perfect Union: Political Parties and the Reform of Federal Systems" (Manuscript, Department of Political Science, MIT, 2001).

[50] Mark Jones, Pablo Sanguinetti, and Mariano Tommasi, "Politics, Institutions and Fiscal Performance in a Federal System: An Analysis of the Argentine Provinces," *Journal of Development Economics* 61 (April 2000).

[51] An interesting contrary hypothesis in the Indian context is presented in Stuti Khemani, who argues that since the deficits of the Indian states are funded primarily by loans over which the central government has discretion, state deficits are essentially pork manipulated by the central government. As a result, deficits are higher in the states controlled by the center, though it is unclear whether this would have any effect on overall public sector deficits. See Khemani, "Partisan Politics and Subnational Fiscal Deficits in India: What Does It Imply for the National Budget Constraint?" (Manuscript, World Bank, 2001).

more generally, it may be the case that countries with strong electoral externalities and frequent instances of what Riker calls partisan "harmony" between levels will demonstrate tighter overall fiscal performance. Not only might the provinces face disincentives to strategically shift burdens onto the center (and one another), but the center may face disincentives to shift burdens onto the provinces. For example, central governments may be tempted to off-load responsibilities onto provinces without increasing their access to funding, thus increasing fiscal pressure on provincial governments. Such a strategy is much less attractive if the costs are simply off-loaded onto the center's copartisans.

Ideally, we would measure the existence of electoral externalities for each federation by examining the relationship over time between the electoral fates of federal and provincial copartisans. Likewise, we would like to have information about appointment powers, the drawing of party lists, and other intraparty organization facts in order to gauge the leverage central officials have on their decentralized copartisans. However, collecting such variables in a comparable way poses a daunting data collection challenge for a large data set. Instead, we have collected data on the percentage of state governments controlled by the party of the federal chief executive. In the long run across countries, this variable is a reasonable proxy for the presence of electoral externalities— high levels of partisan similarity between the center and provinces likely reflect mutual interdependence of copartisans across levels. In any event, if copartisanship across levels has positive aggregate macroeconomic consequences, they are most likely to show up at times when a large share of the provinces is controlled by the party of the federal executive.

Mobilizing a wide variety of sources, we have calculated the share of states controlled by the party of the federal executive for each country-year in our data set.[52] Figure 1 displays time-series and cross-section

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[52] Coalition governments at the center complicate the collection of this data for Switzerland, Brazil, and Austria. In fact, we are unable to calculate a sensible measure for Switzerland, where the federal executive is a collegial body that represents (by convention) all of the major parties. In Brazil, where the party system is highly fractionalized, national executives must rely on unstable legislative coalitions. It is plausible that members of such coalitions would be able to discipline their copartisans at the state level in a manner consistent with the theoretical propositions outlined above. Nevertheless, the variable presented in Figure 1 (and used in subsequent regressions) counts only those states run by the same *party* as the chief executive, for the simple reason that where coalition governments are prevalent, chief executives have had little success at disciplining states governed by other coalition members. To deal with the concern, we have also constructed a variable that codes states controlled by junior members of the federal coalition as controlled by the center. This variable is different for a small number of years only in Brazil and Austria and does not affect the results reported below. In the case of *subnational* coalition governments (prevalent in Austria, Germany, and India), we code based on the senior member of the coalition that occupies the office of chief minister, prime minister, president, and so on.
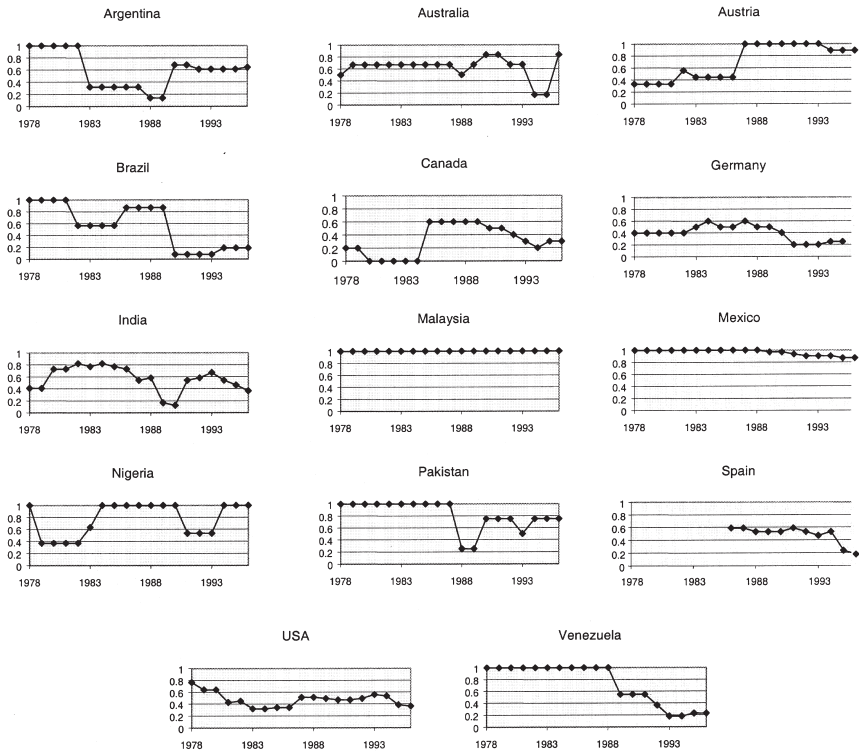
FIGURE 1

FEDERAL-PROVINCIAL COPARTISANSHIP

(PORTION OF PROVINCES CONTROLLED BY PARTY OF THE CHIEF EXECUTIVE)

variation in federal-provincial copartisanship.[53] This variable does not allow us to distinguish between traditional arguments about career advancement and our more subtle argument about electoral externalities (this is probably best achieved with case studies), but it allows us to examine the overall effect of copartisanship.

JURISDICTION STRUCTURE

   —H5. A federation's capacity to control deficits and inflation decreases with the share of total provincial expenditure carried out by the largest province.
   —H6. A federation's capacity to control deficits and inflation decreases as the number of provinces increases.

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[53] Note that for country-years characterized by authoritarianism we have coded this variable as 1, indicating that the central government controlled all state governments.

Consistent with the propositions outlined above, macroeconomic policy is often subject to collective action problems in federal contexts. State politicians have few incentives to suffer the political consequences of austerity if the fiscal and monetary benefits of those policies will flow in part to other provinces and the national government. The number and symmetry of states is likely to influence the severity of this collective action problem. H5 is consistent with Wildasin, who argues that in an asymmetric federation, a single large state can become "too big to fail."[54] Such a state is likely to elicit bailouts from central officials fearful that failure in the dominant state will consume the rest of the nation. Knowing this, large states may have incentives to overspend and overborrow.

It is important to note an alternative and opposing hypothesis suggesting that a hegemonic province has incentives to internalize the externalities associated with subnational spending. According to this formulation, exactly because the province contains a sufficiently large portion of the nation's productive capacity, a majority of the benefits of stable macroeconomic performance will accrue to the leaders of that province. Given the close relationship between national macroeconomic performance and the policies of the large province, the costs of fiscal restraint are likely to be internalized with positive implications for the nation as a whole.[55] In order to test these competing hypotheses, we construct from various sources a measure of the expenditures of the largest province as a share of total provincial expenditure.[56]

H6 considers the related issue of jurisdiction size. Wildasin's analysis suggests not only that symmetrically sized jurisdictions are preferable but also that the jurisdictions should be small and plentiful.[57] Likewise, one might surmise that it is more difficult for the center to credibly commit to a no-bailout policy when the federation consists of a small number of large provinces rather than a large number of small provinces. When each province accounts for a large share of the total,

[54] David Wildasin, "Externalities and Bailouts: Hard and Soft Budget Constraints in Intergovernmental Fiscal Relations" (Manuscript, Washington, D.C., World Bank, 1997).

[55] See R. J. May, *Federalism and Fiscal Adjustment* (Oxford: Oxford University Press, 1969). With reference to defense, a similar argument was made by Alexander Hamilton about the Dutch Confederation: "In this confederacy, one large province, by its superior wealth and influence, is commonly a match for all the rest; and when they to not comply, the province of Holland is obliged to compel them"; cited in Morton J. Frisch, ed., *Selected Writings and Speeches of Alexander Hamilton* (Washington, D.C.: American Enterprise Institute, 1985), 200.

[56] GDP share would perhaps be preferable to expenditure share as a measure of a jurisdiction's ability to impose negative fiscal externalities on others, but we are unable to obtain provincial-level GDP data for the full sample. Given our interest in fiscal policy, expenditure concentration is preferable to a measure of population concentration.

[57] Wildasin (fn. 54).

TABLE 2
JURISDICTION STRUCTURE

	Largest State Expenditure as Share of Total	Number of States
Argentina	0.24	24
Australia	0.33	8
Austria	0.20	9
Brazil	0.37	28
Canada	0.32	12
Germany	0.25	16
India	0.13	32
Malaysia	0.13	13
Mexico	0.15	32
Nigeria	0.10	31
Pakistan	0.51	4
Spain	0.18	17
Switzerland	0.15	26
United States	0.14	51
Venezuela	0.20	22

SOURCES: See appendix

each might expect that the center will not be able to withstand the political pain associated with allowing it to fail.

However, the opposite relationship is also plausible. If the central government's ability to control deficits and inflation depends on its ability to coordinate and strike bargains with the provinces, it is possible that such coordination and bargaining is less complex when the number of provinces is low. To examine these possibilities, we include the number of states in the federation, with the expectation that this will have a positive effect on fiscal balance and a negative effect on inflation. Cross-section averages for both variables are displayed in Table 2.

III. DATA AND ECONOMETRIC APPROACH

To test the propositions outlined above, we conduct a time-series cross-sectional analysis of budget balance and inflation in fifteen federations between 1978 and 1996. Our sample includes all countries that have been identified as federal in previous research[58] and for which data are available. The only currently surviving federal or semifederal cases that we exclude are Belgium, Colombia, Russia, South Africa, Papua New

[58] Daniel J. Elazar, "From Statism to Federalism: A Paradigm Shift," *Publius* 25 (Spring 1995); Watts (fn. 14); Treisman (fn. 5).

Guinea, and some federations that link islands (for example, the Federated States of Micronesia). Outside of broad definitional debates as to what constitutes a federation, we exclude these nations for one of two reasons. First, in some cases, such as Papua New Guinea and Pacific Islands, it is not possible to collect the necessary political data for regional governments. Second, in the remaining cases, the experience with federalism is so recent that it would be possible to include only one or two years in the late 1990s. Similarly, we also do not include failed federations for which data are unavailable, such as the Soviet Union and Yugoslavia. We do, however, include formally federal countries such as Nigeria and Brazil that have experienced periods of authoritarian governance. Despite the fact that the OECD-oriented federalism literature has generally assumed democratically elected state governments, we recognize that state-level politics continues to play a role in national politics even during periods when democracy is suspended. For instance, a recent study of Nigeria emphasizes the presence of many of the variables we identify as underpinning clashes over fiscal resources, despite the prevalence of authoritarianism in that nation.[59] We thus consider the variation in regime type over time as interesting in its own right, as it allows us to assess the functioning of federal institutions during periods of authoritarianism. Generally speaking, in selecting our sample we have chosen to err on the side of inclusiveness so as to maximize comparisons and approximate the universe of federal cases while avoiding arbitrary exclusion. Nonetheless, as explained below, the results are robust to the exclusion of all federations with questionable democratic credentials. We limit ourselves to federations for two reasons. The hypotheses we wish to test assume the presence of federal institutions. While comparisons with unitary systems would be interesting, previous studies have taken the blunt federal-unitary distinction as far as it can go. On a more practical note, it would be impossible to gather partisan data for a large sample of unitary systems. France alone, for example, has thousands of municipalities.

DEPENDENT VARIABLES

We are particularly interested in how variations in federal structure affect budget balance and inflation. Not only are these important indicators of macroeconomic performance, but given the arguments presented above, these are also clearly subject to provincial-level influence. We estimate budget balance since we expect that subnational over-

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[59] Rotimi T. Suberu, *Federalism and Ethnic Conflict in Nigeria* (Washington, D.C.: United States Institute of Peace Press, 2001).

spending and overborrowing will have its most direct impact on public sector fiscal performance. Faced with overspending and intransigent states, national governments have three choices: they can increase their own spending on subnational governments to help cover imbalances, design the tax/transfer system such that ever larger portions of the tax pie are transferred to subnational governments, or ignore provincial imbalances. In all three cases, total public sector deficits are likely to increase, though in the first two scenarios central government deficits will expand and in the third provincial-level budget balances will deteriorate. As opposed to previous empirical research, which has analyzed only central government deficits, we measure budget balance as the sum of total central- and state-level surplus as a percentage of total (center and state) expenditures:[60]

$$\frac{(CentRev + ProvRev) - (CentExp + ProvExp)}{(CentExp + ProvExp - Grants)} \quad (1)$$

Given the subnational incentives to overspend, this inclusion represents a significant improvement over existing data sets. These data are taken from the IMF's *Government Finance Statistics* and from comparable national sources when IMF data are not available (see appendix). The indicator takes on negative values when a budget is in deficit and a positive value when a budget is in surplus.

We analyze inflation for two reasons. First, once total public sector fiscal imbalances become prevalent as outlined above, national governments face pressure to monetize deficits. Monetization of provincially inspired deficits can happen in one of two ways. In the first, state debt is directly discounted by the Central Bank, thereby increasing the money supply. In the second scenario, the central government bails out state debtors, which stimulates central spending, deficits, and ultimately inflation. In both cases, the net result is money growth. Second, under certain conditions the proliferation of actors with influence over monetary policy common to many federations might exacerbate collective action problems and increase inflation. This outcome results from pressures on a weak central government, which is the only actor with an encompassing concern for stable prices. State governments, by contrast, are likely to have more inflationary preferences because they are not

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[60] It is important to avoid double counting grants that are included in the center's expenditures and the provinces' revenues. In the numerator the two cancel out when calculating the combined central-provincial surplus. However, to accurately measure the denominator—total expenditures—it is necessary to subtract grants to avoid double-counting the grants when they are "spent" at the central level and then again at the local level.

held responsible for macroeconomic performance. As a result, federalism has been associated in some cases with politically compromised central banks and high inflation, particularly in developing nations.[61] However, we have provided several more nuanced arguments about the fiscal and political conditions under which federalism might be associated with high inflation. Inflation is measured as the logged rate of change in the consumer price index using IMF data.[62]

CONTROL VARIABLES

In addition to the characteristics of federations outlined above, we also include a number of political and economic control variables consistent with extant research in economics and political science. We introduce a variable to measure trade as a percentage of GDP to account for the possibility that greater integration in the global economy creates stronger incentives for market-conforming macroeconomic policies. Trade is thus expected to have a positive coefficient for budget balance (in the direction of surpluses) and a negative coefficient for inflation.[63] We include a dummy variable for election years to control for the finding of Alesina and Roubini[64] that the political business cycle has a significant negative impact on macroeconomic policies.[65] In order to control for the argument of Haggard and Kaufman[66] that a fractionalized party system will increase the number of veto players in national legislatures vis-à-vis economic policies, we also include an indicator of the effective number of political parties.[67] Finally, a classic argument of Buchanan and Wagner[68] is that voters in democracies fail to internalize governments' intertemporal budget constraint and simply reward expenditures and punish taxes, which tempts democratically elected incumbents (as opposed to dictators) to spend more than they tax. To control for this possibility, we include the 20-point version of Gurr's index of democracy.[69]

[61] Treisman (fn. 5); Wibbels (fn. 5).

[62] We use the log, as the inflation data are skewed.

[63] These data are from the World Bank, *World Development Indicators* (information available at www.worldbank.org).

[64] Alberto Alesina and Nouriel Roubini, *Political Cycles and the Macroeconomy* (Cambridge: MIT Press, 1997).

[65] This variable is coded 1 only for elections for the national-level parliament or chief executive. Data are taken from World Bank, *Database of Political Institutions* (www.worldbank.org).

[66] Stephan Haggard and Robert R. Kaufman, *The Political Economy of Democratic Transitions* (Princeton: Princeton University Press, 1995).

[67] Data taken from World Bank (fn. 65). As described below, we have experimented with several other measures of horizontal political fragmentation as well.

[68] James Buchanan and Richard Wagner, *Democracy in Deficit: The Political Legacy of Lord Keynes* (New York: Academic Press, 1977).

[69] Data taken from the *Polity 98* data set (www.cidcm.umd.ed/inser/polity/indev.htm).

Economic controls include logged GDP per capita, GDP growth rates, and a nation's status as an oil exporter.[70] We include GDP per capita (constant international dollars, purchasing power parity or PPP) to control for cross-national differences and long-term trends in wealth that might affect budget deficits and inflationary pressure.[71] It is important to control for yearly growth rates in order to take account of government attempts to conduct "tax smoothing" or countercyclical demand management.[72] Lastly, our dichotomous indicator for oil exporters controls for the close relationship between the international price of oil and both budget balance and inflation in nations that are heavily dependent on oil revenues.[73]

ESTIMATION TECHNIQUES

To summarize, the model can be stated formally as:

$$\text{MACRO}_{it} = \sum\beta_j\text{FEDERAL}_{jit} + \sum\beta_k\text{POLCONTROL}_{kit} + \sum\beta_l\text{ECONCONTROL}_{lit} \qquad (2)$$

where MACRO refers to the two indicators of macroeconomic performance, the vector of j FEDERAL variables represents the six measures of various federal characteristics, the vector of k POLCONTROL variables represent the trade, election year, and party system variables, and l ECONCONTROL variables are the indicators of GDP per capita, growth, and the oil exporter dummy. The βs are parameter estimates and the subscripts i and t denote the country and year of the observations, respectively.

There is considerable disagreement about the proper estimation technique for a model like ours, which includes fifteen cross-section units and eighteen years, with slightly unbalanced panels (a small number of years are missing).[74] There are several possible approaches—each with its own disadvantages. Fortunately, in this instance each yields re-

[70] We have also experimented with a range of additional demographic control variables: area, population, population/number of states, urbanization, population density, ethnic fractionalization, and percentage of the population above and below the working age. None of these attained statistical significance, and none affected the substance or significance of the results reported herein.

[71] Data taken from World Bank (fn. 63).

[72] Data taken from World Bank (fn. 63). We have also estimated models that address these possibilities by differentiating between expected GDP and shocks, but this estimation technique does not affect the results presented below.

[73] Data taken from World Bank (fn. 63).

[74] For recent overviews of tradeoffs, see G. S. Maddala, "Recent Developments in Dynamic Econometric Modelling: A Personal Viewpoint," in Walter Mebane, ed., *Political Analysis,* vol. 7 (Ann Arbor: University of Michigan Press, 1998); Ruth Judson and Ann Owen, "Estimating Dynamic Panel Data Models: A Guide for Macroeconomists," *Economic Letters* 65 (October 1999); Badi Baltagi, *Econometric Analysis of Panel Data* (New York: Wiley, 2001); Bernhard Kittel and Hannes Winner, "How Reliable Is Pooled Analysis in Political Economy? The Globalization-Welfare State Nexus Revisited," Discussion Paper 2–3 (Cologne: Max-Plank-Institut für Gesellschaftsforschung, May 2002).

markably similar results. Since we find evidence of groupwise het-
eroskedasticity and cross-sectional and serial correlation in the error
term, we estimate autoregressive models with panel-corrected standard
errors.[75] Given the small number of cross-section units and results of a
Hausman test that rejects the random effects specification, it is impor-
tant to include a matrix of country dummies. This raises the possibility,
however, that in addition to the usual concerns when there is a lagged
dependent variable, the fixed-effects estimator is biased because of cor-
relation between the lagged dependent variable and the individual ef-
fects. Though the bias declines when the time-series dimension is
reasonably long (as is the case here),[76] we have employed a number of al-
ternative estimation techniques, described below, that display different
combinations of advantages and biases. Most of the variables of interest
do vary each year, and we have theoretical reasons to be interested in both
cross-section and time-series variation. However, the variables address-
ing aspects of jurisdiction structure (H5 and H6) do not vary over time,
and a model that includes fixed effects will not capture the hypothe-
sized cross-section relationship. Thus in spite of our concerns about the
random-effects specification, for comparison we also present deficit and
inflation models that drop the country fixed effects, replacing them
with region dummies in order to minimize omitted variable bias, which
allows us to shed light on effects (especially concerning jurisdiction
structure) that might be driven by structural cross-country differences.

IV. Results

Table 3 presents the results of both deficit and inflation models with
fixed effects, including specifications with and without the interaction
term called for by H3. Since these models include fixed country effects,
we do not include the time-invariant jurisdiction structure variables. In
order to assess these variables, the results of models *without* fixed coun-
try effects that include these variables are displayed in Table 4. A bene-
fit of comparing the results of Tables 3 and 4 is that one can gain a sense
of the extent to which the results in Table 3 are driven purely by time-
series variation within units and the extent to which cross-country vari-
ation drives the results. However, given the results of the Hausman test
and the joint significance of the country dummies, we are most confi-
dent about the results of models that include country fixed effects.

[75] Nathaniel Beck and Jonathan Katz, "What to Do (and Not to Do) with Time Series Cross-
Section Data," *American Political Science Review* 89 (September 1995).
[76] The bias also increases with the magnitude of the autoregressive coefficient. See Judson and
Owen (fn. 74).

TABLE 3

DETERMINATES OF FISCAL BALANCE AND INFLATION
(LEVELS, FIXED EFFECTS)

	Dependent Variable			
	Combined State–Central Surplus/Expenditure		Inflation (log)	
	Model 1	Model 2	Model 3	Model 4
Fiscal decentralization (state exp./total state-central exp.)	0.809*** (0.180)	1.831*** (0.366)	−1.220 (1.429)	−5.959 (3.792)
Vertical fiscal imbalance (grants/ state revenue)	−0.272*** (0.094)	0.139 (0.198)	2.077** (0.840)	0.182 (1.458)
Decentralization*VFI		−1.478** (0.575)		6.858 (4.834)
Federal-provincial copartisanship	0.064*** (0.024)	0.071*** (0.024)	−0.447*** (0.199)	−0.457** (0.200)
Trade/GDP	0.003*** (0.001)	0.003*** (0.001)	0.006 (0.006)	0.005 (0.006)
Election year	−0.031 (0.021)	−0.030 (0.021)	0.331* (0.173)	0.310* (0.171)
Legislative fractionalization	0.097** (0.047)	0.122*** (0.047)	−0.225 (0.378)	−0.355 (0.384)
Democracy	−0.005** (0.002)	−0.006*** (0.002)	−0.015 (0.023)	−0.012 (0.022)
GDP per capita (log)	−0.072 (0.047)	−0.116** (0.052)	0.022 (0.392)	0.226 (0.440)
GDP growth rate	0.002 (0.002)	0.002 (0.002)	−0.050*** (0.015)	−0.050*** (0.015)
Oil exporter	−0.035 (0.056)	−0.007 (0.056)	−0.934 (0.925)	−0.587 (0.902)
Lagged dependent variable	0.328*** (0.091)	0.327*** (0.089)	0.801*** (0.076)	0.805*** (0.075)
Constant	0.016 (0.322)	−0.015 (0.343)	−0.002 (3.341)	−0.543 (3.385)
Observations	215	215	224	224
Number of countries	14	14	14	14
R^2	0.76	0.77	0.87	0.88

Panel-corrected standard errors in parentheses.
*significant at 10%; **significant at 5%; ***significant at 1%.
Coefficients for country dummies not shown.

TABLE 4
DETERMINATES OF FISCAL BALANCE AND INFLATION
(LEVELS, NO FIXED EFFECTS)

	Dependent Variable	
	Combined State–Central Deficit/Expenditure	Inflation (log)
	Model 5	Model 6
Largest state/total	0.424***	0.865
	(0.141)	(1.042)
Number of states	0.006***	0.010
	(0.002)	(0.014)
Fiscal decentralization	0.627***	−0.436
(state exp./total	(0.228)	(1.865)
state-central exp.)		
Vertical fiscal imbalance	0.103	−0.145
(grants/state revenue)	(0.095)	(0.831)
Decentralization*VFI	−0.356	−0.726
	(0.354)	(2.837)
Federal-provincial	0.049**	−0.457**
copartisanship	(0.024)	(0.199)
Trade/GDP	0.002***	0.002
	(0.001)	(0.004)
Election year	−0.026	0.322*
	(0.024)	(0.183)
Legislative fractionalization	0.099***	0.071
	(0.044)	(0.367)
Democracy	−0.005**	−0.018
	(0.002)	(0.023)
GDP per capita (log)	0.070***	−0.081
	(0.013)	(0.070)
GDP growth rate	0.002	−0.055***
	(0.002)	(0.015)
Oil exporter	0.168***	0.052
	(0.063)	(0.280)
Lagged dependent variable	0.407***	0.858***
	(0.097)	(0.071)
Constant	−1.188***	1.305
	(0.223)	(1.593)
Observations	215	224
Number of countries	14	14
R²	0.73	0.87

Panel-corrected standard errors in parentheses.
*significant at 10%; **significant at 5%; ***significant at 1%.
Coefficients for region (N. America, L. America, Asia, W. Europe) dummies not shown.

FISCAL FEDERALISM

We find no support for H1. On the contrary, model 1 shows that higher shares of total expenditures at the provincial level are associated with a higher overall fiscal surplus in federations. This result is statistically significant and substantively quite striking—a 1 percent increase in expenditure decentralization is associated with a .8 percent increase in surplus (or drop in deficit) as a share of expenditures. Model 3 suggests that higher provincial expenditure shares are associated with lower inflation rates, though the relationship does not achieve statistical significance. The coefficients for the same variable in the estimation without fixed effects (Table 4, model 6) demonstrate a similar relationship.

This finding—especially the strong fiscal balance result—runs counter to a rapidly developing conventional wisdom. Fiscal decentralization in federations is manifestly not a recipe for disaster. On the contrary, when other aspects of the political and fiscal federal structure are held constant, fiscal decentralization actually has a dampening effect on overall fiscal deficits and inflation.

Table 3 does demonstrate strong support for H2, however. Higher levels of vertical fiscal imbalance are associated with larger deficits and higher levels of inflation in federal systems. A 1 percent increase in grants as a share of total state revenue is associated with roughly a .25 percent decline in overall fiscal balance. This is quite consistent with the fiscal illusion and moral hazard hypotheses presented above.

Models 2 and 4 examine the possibility that the fiscal decentralization and transfer-dependence variables have the more complex interactive effect on fiscal balance and inflation suggested by H3. In model 2 the interaction term and its components are jointly significant at the 1 percent level (joint F-test) and in model 4 they are significant at the 5 percent level. The best way to interpret these results is by plotting conditional coefficients for each component of the interaction term at various realistic values of the other.[77] Figure 2 does this for the surplus regression, and Figure 3 does it for inflation. The solid lines plot out conditional effects, and the broken lines represent upper and lower 95 percent confidence intervals. Figure 2a shows that the coefficient for vertical fiscal imbalance is negative over most of the sample range, with the negative effect strengthening at higher levels of decentralization. Note that the estimated effect is actually positive (though not significantly different from zero) at very low levels of decentralization. This provides support

[77] See Robert Franzese, Cindy Kam, and Amaney Jamal, "Modeling and Interpreting Interactive Hypotheses in Regression Analysis" (Manuscript, University of Michigan, 1999).
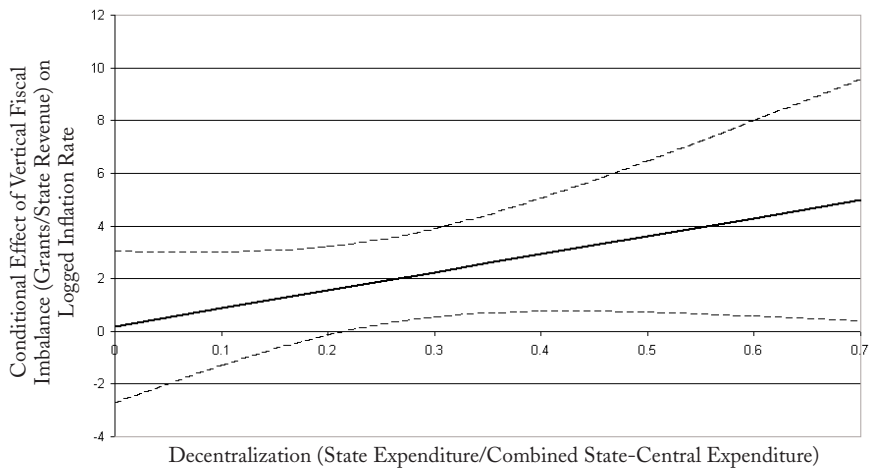
(a)
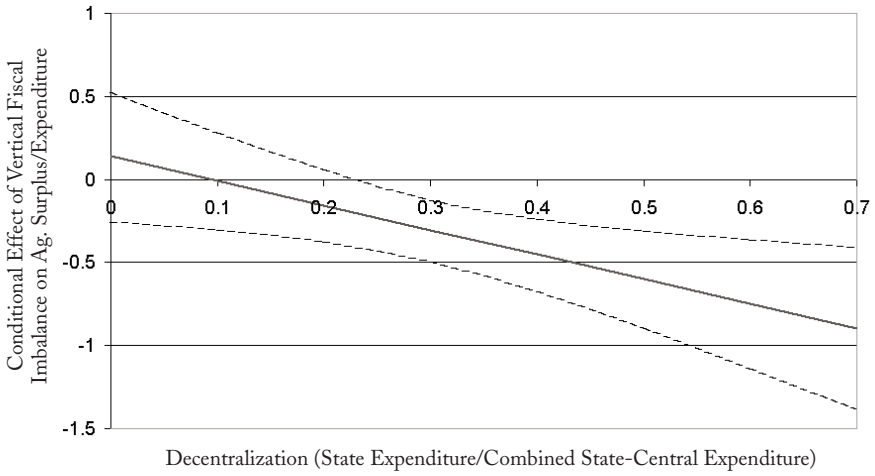
CONDITIONAL EFFECTS OF TRANSFER DEPENDENCE ON FISCAL BALANCE
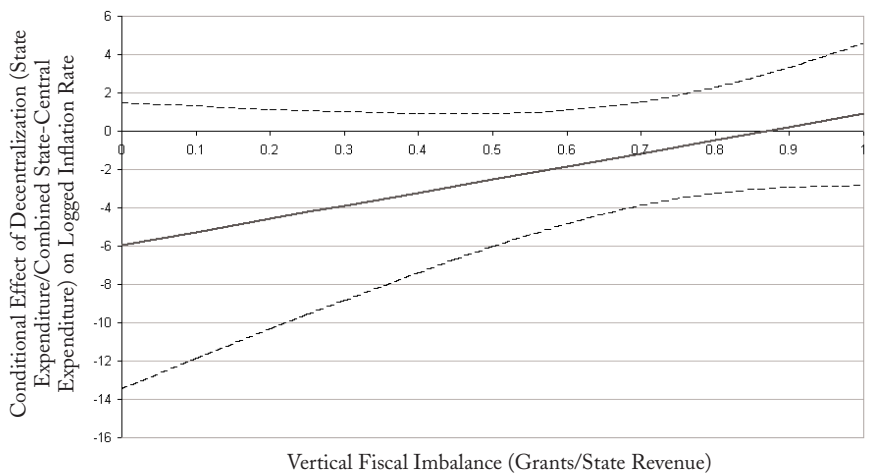

(b)
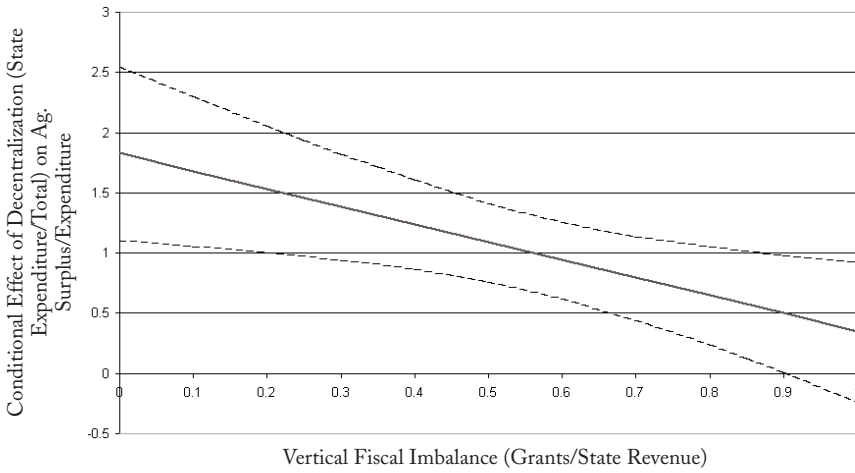
CONDITIONAL EFFECTS OF EXPENDITURE DECENTRALIZATION ON
FISCAL BALANCE

FIGURE 2

(a)

CONDITIONAL EFFECTS OF TRANSFER DEPENDENCE ON INFLATION

(b)

CONDITIONAL EFFECTS OF DECENTRALIZATION ON INFLATION

FIGURE 3

for H3—the negative effect of vertical fiscal imbalance on the overall surplus is strongest when the states' expenditures account for a large share of total spending. Figure 2b demonstrates the conditional effects of expenditure decentralization on the aggregate surplus at various levels of vertical fiscal imbalance. Here we see that the coefficient for decentralization is always positive, but much more so when local governments rely primarily on own-source revenues rather than on grants. This finding is quite consistent with the arguments that interstate fiscal competition and oversight by local voters—which most plausibly are strengthened as countries move to the left in Figure 2b—lead to fiscal restraint.

Figure 3 tells a similar story, though the wide confidence intervals cast doubt on the significance of the relationship at the highest levels of decentralization and the lowest levels of vertical fiscal imbalance. Note, however, that the conditional coefficients are significant (visually, the confidence interval is relatively narrow) in the ranges where most of the cases actually fall (See Table 1). The results suggest that the positive effect of vertical fiscal imbalance on inflation is strongest at higher levels of decentralization in federations, and the negative effect of decentralization on inflation disappears when states are highly transfer dependent.[78]

POLITICAL FEDERALISM

The coefficients for the federal-provincial copartisanship variable are striking. As expected, when a larger share of the provinces is controlled by the party of the federal chief executive, the aggregate surplus is higher and inflation lower. For fiscal performance, the coefficient and standard errors are quite similar in the models with and without fixed effects (models 1, 2, and 5). Substantively, a 10 percent increase in copartisanship (for example, moving from five to six out of ten provinces controlled by the center) is associated with between .5 and .7 percent increase in the consolidated surplus as a share of revenue. Copartisanship also has a highly significant negative effect on inflation in both the fixed and the random effects estimations (models 3, 4, and 6).[79]

[78] In models without fixed effects, the interaction term and its components are jointly significant at the 1 percent level in the fiscal performance equation (model 5) but do not reach significance in the inflation equation (model 6).

[79] The arguments presented above suggest not only that deficits and inflation might be higher in the absence of vertical copartisanship but also that central and provincial governments might attempt to shift their fiscal burdens onto one another in a "vertical war of attrition" instead of taking painful adjustment measures. To examine this possibility, we have also estimated a dynamic model in which the copartisanship variable is interacted with the lagged dependent variable in order to test whether high levels of copartisanship are associated with faster adjustment to large deficits. The results suggest that, indeed, high levels of copartisanship are associated with faster adjustment.

JURISDICTION STRUCTURE

With such a small number of country observations, we are not in an ideal position to evaluate the role of jurisdiction structure. These variables do not approach statistical significance in the inflation equation. However, in model 5 (Table 4) the coefficients are positive and significant for the asymmetry variable—the largest state's share of total expenditure—and the "number of states" variable. A positive coefficient for the former is consistent with the argument that disproportionately large states cannot expect to externalize costs to other states through overspending. There is no support, at least in this sample, for the popular argument that the presence of a disproportionately large jurisdiction undermines fiscal discipline. The coefficient on the "number of states" variable suggests that overall fiscal performance is better in countries with more provinces. However, we must stress that both of these results are quite sensitive to model specification and the influence of specific cases. Moreover, a simple between-effects estimation using cross-section averages did not produce significant coefficients for these variables. In order to obtain more conclusive and believable results, it is necessary to (1) use disaggragated province-level data to examine the fiscal behavior of different types of jurisdictions or (2) move beyond the universe of federations and study a larger sample that includes decentralized unitary countries.

CONTROL VARIABLES

Though several of the control variables behave as expected, some produce counterintuitive results for this group of federal nations. Trade dependence in federations is associated with lower deficits. Democracy in federations is associated with slightly larger deficits but has no significant affect on inflation rates. Election years also have interesting effects; they are associated with increased inflation and larger deficits, though insignificantly in the latter case. This evidence of an electoral inflation cycle in federations is potentially quite interesting but requires more careful analysis involving additional variables—particularly measures of central bank independence.

   Short-term increases in GDP are associated with declining inflation, but it is difficult to interpret the effects of GDP growth rates on the combined measure of central and provincial deficits. It is possible, for instance, that the central government attempts to conduct counter-cyclical fiscal policy while provincial spending is procyclical. It is also possible that central governments respond to unexpected negative

shocks by strategically cutting transfers and thus off-loading their deficits onto subnational governments.[80] These possibilities deserve further analysis, but the aggregate data used here are insufficient. The coefficients on logged GDP per capita reflect long-term effects of increasing wealth. Here the results of the estimations with and without fixed effects are divergent. In the models that control for fixed country effects (Table 3, models 1 and 2), increasing GDP per capita is associated with declining fiscal balance. However, in the model without fixed effects (Table 4, model 5), the large differences between developed and developing countries in the sample lead to a positive relationship between wealth and fiscal balance. The coefficients for GDP per capita do not attain significance in the inflation models. A surprising result is that increased party fractionalization in the legislature is associated with slightly improved fiscal performance in federations.[81]

ALTERNATIVE SPECIFICATIONS

To satisfy some concerns about potential bias, we have explored several tests and alternative estimation techniques. First, to address our concerns about bias associated with the inclusion of a lagged dependent variable, we left out the lagged dependent variable and applied the Prais-Winsten transformation, yielding very similar results to those presented in Table 3. Furthermore, although the deficit data can be characterized by a random walk, the relatively high autoregressive coefficient for inflation is cause for concern. Panel data unit root tests[82] lead us to accept that the deficit data are stationary. Tests are inconclusive for the inflation data, however, and a handful of countries appear to be characterized by pronounced trends in inflation. To deal with lingering concerns about unit roots, we estimated a series of dynamic models using first differences, as well as models that included a combination of first-differences and lagged levels among the regressors (the error cor-

[80] See Geoffrey Garrett and Jonathan Rodden, "Globalization and Decentralization," in Miles Kahler and David Lake, eds., *Globalizing Authority* (Princeton: Princeton University Press, forthcoming).

[81] It is difficult to know how to interpret the effect of fractionalization in the central legislature on combined central-provincial budget balance. We have estimated models using other measures of political fractionalization suggested by Roubini and Sachs (fn. 31) and by George Tsebelis, "Decision-Making in Political Systems: Veto Players in Presidentialism, Parliamentarism, Multicameralism and Multipartism," *British Journal of Political Science* 25 (July 1995). We also estimated dynamic models that interact these measures with the lagged dependent variable to capture delayed adjustment, but none of these variables attains significance or affects the main results.

[82] Specifically, we used Im-Pesaran-Shin and Levin-Lin tests. See G. S. Maddala and In-Moo Kim, *Unit Roots, Cointegration, and Structural Change* (Cambridge: Cambridge University Press, 1998); Baltagi (fn. 74).

rection setup).[83] We have also estimated GMM models using the instrumental variable technique advised by Arellano and Bond.[84] All of these alternatives yielded similar parameter estimates and standard errors in the deficit equations, though in the inflation regressions the coefficient for the copartisanship variable, while always retaining its negative sign, did not attain statistical significance in some of the first-difference specifications.

Second, we further examined the time-series nature of the data by estimating models including year dummies and searching for bad leverage points. Third, we estimated separate models for developing and developed nations, suspecting that federalism might function differently at divergent levels of development. Fourth, we addressed concerns about the truncation of the fiscal-balance dependent variable (it cannot exceed 1) by estimating a tobit model. Next, we addressed concerns about the influence of individual panels by casewise deletion of countries. We were particularly concerned that some of the coefficients, especially those for copartisanship, may have been driven by the inclusion of nondemocratic federations, so we estimated models that drop all nondemocracies (observations where the democracy score is less than 5).[85] In all cases the substance and significance of the results reported above stand up under these alternative specifications.[86]

V. Conclusions

In order to move beyond an impasse in the literature on federalism and macroeconomic policy, we have developed and tested six simple hypotheses concerning the relationship between fiscal institutions, political institutions, and macroeconomic outcomes using an original data set of federations. Our results have important implications for the federalism and macroeconomic policy literatures, the design of federal institutions, and future research. Though the empirical macroeconomic literature has traditionally ignored the role of federalism, it has become increasingly clear in recent years that federalism often has deleterious

[83] For a defense of the error correction specification for this type of data, see Nathaniel Beck, "Comparing Dynamic Specifications: The Case of Presidential Approval," in James Stimson, ed., *Political Analysis*, vol. 3 (Ann Arbor: University of Michigan Press, 1991).

[84] Manuel Arellano and Stephen Bond, "Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application in Employment Equations," *Review of Economic Studies* 58 (April 1991).

[85] Note that the results reported above do not include Switzerland because of our inability to calculate the copartisanship variable. When Switzerland is included and the copartisanship variable is dropped, the substance and the significance of all other variables are unchanged.

[86] All of the results are available from the authors upon request.

consequences for macroeconomic policy and performance. Yet some of the world's most stable and successful democracies have had highly decentralized federal political and fiscal structures for over two centuries. To date we have had little basis on which to evaluate the conditions under which federalism warrants its increasingly bad reputation.

Our most surprising finding in this respect is that other things being equal, increased decentralization of expenditures in federations is associated with lower deficits and inflation. Despite growing concern for the impact of decentralization on everything from government size to inflationary crises, decentralization of expenditure in federations seems to have effects that are broadly consistent with an older economics literature on fiscal federalism. However, it should be stressed that our sample includes only federations.

It is important to note, moreover, that what appears to be a fiscally conservative impact of decentralization is conditioned by the degree to which state governments generate their own revenue. Increasing reliance on intergovernmental transfers rather than on own-source revenue is associated with larger deficits and higher inflation rates. Moreover, we demonstrate that the constraining effects on deficits and inflation associated with expenditure decentralization are conditional on state governments having considerable tax capacity. This is entirely consistent with the theoretical literatures that link tax competition and a tight tax-benefit link to overall fiscal restraint. These cross-national results, though interesting and suggestive, invite further refinement. While our data set is an improvement, we have not even begun to address the varieties of intergovernmental grant programs and the array of provincial tax and user fee programs in use around the world—each with its own set of incentives. Future work might endeavor to collect cross-national indicators that capture some of this diversity, but the most promising avenue for future research is the collection of disaggregated data at the provincial level, since the mix of taxes and transfers varies dramatically from one province to another in most federations.

We have also discovered that intergovernmental political relationships are important. Where the party of the national government controls larger proportions of state governments, aggregate deficits are smaller and inflation rates are lower. We know of no comparative research in the macroeconomic literature that has taken this issue seriously and believe that this finding represents an important contribution to the literature in both comparative federalism and macroeconomic policy. Again, however, cross-national quantitative analysis may be a rather blunt tool, and this set of issues invites considerable further re-

finement. It is possible that interstate partisanship plays a very different role in countries depending on the rules of the intergovernmental game. Indeed, Jones, Sanguinetti, and Tommasi[87] and Khemani[88] derive different arguments and findings about the effects of partisanship on state-level deficits in Argentina and India, respectively, based on distinct incentive structures. The effects might even vary over time within countries. For instance, federal-state copartisanship apparently provided few incentives for fiscal discipline in the Brazilian states until Cardoso's political coalition made it possible for governors to claim credit for reducing inflation. On balance, in our cross-national analysis of total deficits—and to a lesser extent inflation—the evidence favors the view that the potential costs of interstate opportunism can be assuaged by an integrated party system. However, additional case studies are needed to unearth the precise mechanisms—ranging from explicit threats to more subtle incentive compatibility—through which copartisanship might work. Future studies might also examine more carefully the precise relationship between partisanship, institutions of provincial representation, and what we have called "vertical wars of attrition"—attempts by provincial and central officials to shift the burdens of adjustment onto one another.

Our measure of federal-provincial copartisanship may be a useful first step in systematically addressing an important but heretofore unmeasured aspect of *political* decentralization. Figure 1 displays a wealth of important information about fluctuations in political (de)centralization over time and facilitates useful cross-national comparisons. For instance, it tracks the decline of Congress Party dominance in India, displays the gradual erosion of PRI dominance in Mexico, and shows the fragmentation of the Brazilian federal system. While clearly related, political and fiscal decentralization are too often conflated in recent research. The simple correlation between our copartisanship and expenditure decentralization variables is negative (as one would expect), but only −.44, and we have shown that these variables have quite different effects on macroeconomic outcomes.

While our research suggests that neither the supposed virtues nor the pathologies of federalism are clear-cut, it does have implications for debates about the design of federations. First, generally speaking, if fiscal discipline is a concern, fiscal decentralization should be accompa-

[87] Mark Jones, Pablo Sanguinetti, and Mariano Tommasi, "Politics, Institutions and Fiscal Performance in a Federal System: An Analysis of the Argentine Provinces," *Journal of Development Economics* 61 (April 2000).

[88] Khemani (fn. 51).

nied by the development of autonomous taxing capacity at the provincial level in federations. Indeed, federalism has had its most perverse effects on macroeconomic performance (Argentina, for instance) where significant fiscal decentralization has proceeded in spite of feeble and uneven revenue-raising competence at the provincial level. The challenge of developing local taxation and user fees under conditions of poverty, capital mobility, and weak provincial institutions is daunting but potentially worth the effort. Second, although tight links between the electoral fates of federal and provincial copartisans might be seen as a challenge to provincial accountability, our results suggest a potential upside to institutions that facilitate federal-provincial partisan links in countries where there are concerns about fiscal policy and inflation.

More broadly, this research indicates a new direction for research in comparative politics. The next step is improved cross-national examination of variations in provincial-level politics and fiscal policy across federations. To the degree that provincial politics is important, provincial governments are responsible for significant portions of total public sector spending, and decentralization is the policy du jour, research in comparative federalism clearly must turn to the subnational level of analysis. The number of questions is daunting: What political factors influence fiscal behavior at the provincial level across federations? Under what conditions do individual provinces respond to the economic concerns of central governments? How do executive-legislative relations influence provincial policy-making across federal systems? And what is the relative importance of variations in provincial-level party systems and budgetary institutions? To date the only leverage we have on these definitively comparative questions comes from isolated research on a handful of countries. As made clear in the discussion above, country specialists often come up with contrasting context-dependent hypotheses and findings. Our hope is that this cross-national analysis will serve as a useful starting point for a more refined but truly comparative theoretical and empirical enterprise.

APPENDIX: DATA SOURCES

Data on fiscal balance, fiscal decentralization, and grants are taken from the IMF, *Government Finance Statistics Yearbook* (various years) with the following exceptions:

—Argentina. unpublished Ministry of Finance data
—Germany. German Federal Statistics Agency, http://www.statistik-bund. de, and unpublished data provided by the Finance Ministry of the state of Baden-Wuerttemberg
—Mexico. Combination of GFS and Instituto Nacional de Estadística, Geografía e Informática. "Finanzas Públicas Estatales y Municipales de México" (various years)
—Nigeria. Central Bank of Nigeria, A*nnual Report and Statement of Accounts* (Lagos: Central Bank of Nigeria, various years)
—Pakistan. Government of Pakistan, Finance Division, *Economic Survey* (Karachi: Manager of Publications, various years)
—Venezuela. República de Venezuela, Oficina Central de Estadística e Informatica, *Anuario estadistico de Venezuela* (Caracas: La Dirección, various years)

Data on jurisdiction structure taken from the following:

—Argentina. unpublished Ministry of Finance data
—Australia. *Europa World Yearbook* (various years)
—Austria. Wirtschaftskammer Oesterreich, "Bundeslaender in Zahlen: Ein statistischer Wirtschaftsvergleich" (2000)
—Brazil. *Europa World Yearbook* (various years)
—Canada. Statistics Canada, http://www.statcan.org
—Germany. German Federal Statistics Agency, http://www.statistik-bund.de
—India. Department of Statistics, Ministry of Planning and Programme Implementation, *Statistical Abstract India* (New Delhi: Government of India, various years)
—Malaysia. *Europa World Yearbook* (various years)
—Mexico. Instituto Nacional de Estadística, Geografía e Informática, "Finanzas públicas estatales y municipales de México" (various years)
—Nigeria. Central Bank of Nigeria, *Annual Report and Statement of Accounts* (Lagos: Central Bank of Nigeria, various years)
—Pakistan. Government of Pakistan, Finance Division, *Economic Survey* (Karachi: Manager of Publications, various years)
—Spain. Instituto Nacional de Estadistica, http://www.ine.es
—Switzerland. unpublished data provided by Swiss Federal Statistics Office
—United States. U.S. Census Department, ftp://ftp.census.gov/pub/outgoing/ govs/
—Venezuela. República de Venezuela, Oficina Central de Estadística e Informatica, *Anuario Estadistico de Venezuela* (Caracas: La Dirección, various years)

Data on copartisanship are taken from the *Europa World Yearbook* (various years), with the following exceptions:

—Argentina. Ministry of the Interior data

—Australia. *Europa World Yearbook;* and Campbell Sharman, "Discipline and Disharmony: Party and the Operation of the Australian Federal System," in Sharman, ed., *Parties and Federalism in Australia and Canada* (Canberra: Australian National University Press, 1994)

—Canada. Prior to 1988: Frank Feigert, *Canada Votes* (Durham: Duke University Press,). After 1988, unpublished data provided by John Wilson at the University of Waterloo

—Germany. American Institute for Contemporary German Studies, http://aicgs.org

—United States. *America Votes* (Washington, D.C.: Congressional Quarterly, various years)