NBER
REPRINT NO. 2173

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Robert P. Inman

National Bureau of
Economic Research

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> For the want of a nail the shoe is lost, for the want of a shoe the horse is lost. . . .
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> —George Herbert, *Jacula Prudentum*, 1640
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> A horse! a horse! my kingdom for a horse!
>
> —William Shakespeare, *King Richard III*, Act V, Sc. 4, Line 7

1. Introduction

The Maastricht Treaty on Economic and Monetary Union in the EC advances four convergence criteria for admission to the EMU. The first three criteria are generally defined targets for inflation, exchange rate, and interest rate performance for one to two years prior to admission, targets designed to force monetary stability on potential entrants. The fourth criterion seeks to ensure fiscal stability. Under the Maastricht Treaty's Excessive Deficit Procedure, EU member countries are required to meet two "fiscal convergence" conditions at the time of membership in the EMU: (1) the overall budget deficit for each fiscal year must be equal to or below 3 percent of GDP, and (2) the stock of gross public debt must be equal to or less than 60 percent of GDP. A recent German Federal Constitutional Court ruling requiring price stability as a condition for continued German participation in the EMU has elevated this Excessive Deficit Procedure for EMU membership to a position of central political importance.[1] Without a

Remark: Conversations with conference participants, with my colleagues Henning Bohn and Geoffrey Garrett, with Jürgen von Hagen, and with my conference discussant Daniel Gros were very helpful. The financial support of the NSF is gratefully acknowledged.

[1] In a ruling of October 12, 1993, the German Federal Constitutional Court suggested that a case could be brought before the court against German participation in the EMU if it appeared that the EMU would not be a "community of stability." It has been assumed that the prospect of significant price instability encouraged by expansive monetary policies by the European Central Bank—perhaps to accommodate

credible deficit control mechanism, price stability cannot be assured, and, without assured price stability, German participation is no longer certain.[2] German participation is essential for a true political and economic European union (see Garrett 1996). Germany's political leadership has in fact offered one proposal, entitled the "Pact for Stability," to strengthen the current EMU procedures of deficit control still further.[3]

One economic motivation for these limitations on fiscal policies is to control potentially adverse fiscal externalities on the Community from excessive borrowing by a single member state. Three external effects have been identified. First, if a country's level of public debt becomes unsustainable, other members may be politically obligated to bail out a member in crisis—despite the "no-bailout" provision of Article 104b of Maastricht—thereby creating generalized "moral hazard" incentives for all nations to overborrow.[4] Second, because of financial interdependencies, a failure to effect a bailout may lead to a Community-wide banking and financial crisis.[5] Third, bailout issues aside, excessive borrowing by one member nation may raise government interest rates elsewhere in the Community, a pecuniary externality with real (but second-order) effects when inefficient taxes are required to repay debt (see Canzoneri and Diba 1991). These externalities from excessive borrowing create a potential economic incentive for all EMU members to regulate each others' deficit behaviors through an EMU imposed and enforced balanced budget rule (BBR).[6]

members' excessive deficits—would violate the criterion of "community of stability." See Gros (1996:73).

2 See, for example, Barry Eichengreen, "Viewpoint: A Handshake Unwise for Europe" *New York Times*, April 28, 1996, Section F, p. 11.

3 The Pact for Stability seeks to strengthen the current deficit procedures by (1) making the 3 percent deficit target an absolute target which must be met in every fiscal year, with exceptions approved in only very rare circumstances; (2) requiring non-interest-bearing deposits for members found (during a semiannual deficit review) to have a deficit in excess of 3 percent of GDP; and (3) imposing a fine if the deficit violation persists for more than two years; see Gros (1996:85). German Finance Minister Theo Waigel has recently recommended EMU members limit their deficits still further to 1 percent of GDP; see *The Economist*, December 9, 1995, p. 50.

4 Such incentives clearly existed in South American federalist unions during the 1970s. Provincial governments annually (and strategically) exhausted their budgets before the end of their fiscal year, incurred large deficits to meet remaining obligations, and then relied upon the central government to absorb those deficits through monetary expansion. The result was hyperinflation. See Zarazaga (1993).

5 For a general model of such a process, see Calvo (1988). For an application to Italy, see Alesina et al. (1990).

6 The imposition of a such a rule is not without costs, however. Constraining a government to never run a deficit takes away a useful fiscal tool, one which allows the government to smooth taxation over periods of high spending needs (e.g., wars and

Even without significant cross-country fiscal externalities, BBRs may still have an economic role to play. Countries may choose to impose balanced budget rules upon themselves. If investors are unsure of the true deficit status of a country and deficits affect default risk and thus interest rates, then fiscally well-managed countries may find it in their own interest to signal their credit worthiness through the self-imposition of a credible balanced budget rule which high-debt countries cannot replicate. Such motivations help to explain why many U.S. states adopted BBRs following the deficit-induced banking crisis of the 1840s (see English 1996; Savage 1988). The strategy appears to work; Bayoumi et al. (1995) find U.S. state interest rates are significantly lower in states with strong balanced budget rules.

Finally, and apart from any economic rationale, low-deficit countries with strong preferences for price stability (e.g., Germany) may favor, for political reasons, the imposition of a balanced budget rule as a precondition for full participation in the new EMU. Monetary policies within the EMU will be set by the new European Central Bank, requiring the approval of a majority of the governing board of the bank. The governing board of the bank will be composed of representatives from each of the EMU member countries. Excluding high-deficit countries as voting members of the board is likely to favor a low-deficit country's objective of price stability.

Whether for reasons of economics or politics, this paper begins with the assumption that a balanced budget rule makes sense, and then asks the prior question: If you write a balanced budget rule, will it work? Just as we cannot be sure that announcing a low-calorie diet for a person suffering from obesity will lead that person to eat less, there is no guarantee that governments will be able to control their deficit excesses by simply being told to borrow less. A balanced budget rule must create the appropriate incentives for those making fiscal choices to adhere to the regulation. Evidence from the United States which shows that appropriately designed BBRs do work is reviewed here. Four sufficient conditions for an effective BBR are identified. An effective BBR requires *ex post*, not ex ante, *deficit accounting*; it must be *constitutionally*, not statutorily, *grounded*; there must *be open enforcement by a politically independent agent* capable of *imposing significant penalties for deficit violations*; and the rule must be *costly to amend*.

This paper reviews the empirical evidence documenting the effectiveness of such a rule (Section 2) and provides a political economy model which rational-

disasters) or to combat excessive unemployment in periods of deep recessions. Others have examined the important question of the economic significance of deficit externalities and thus whether the benefits from controlling deficits justify the costs in lost fiscal flexibility from imposing a BBR deficit regulation; see Buiter et al. (1993), Bayoumi and Eichengreen (1995), and Roubini (1995).

izes the role of each sufficient condition (Section 3). Section 4 offers a concluding comment on the potential usefulness of these results for the design of BBRs in the EMU.

2. Evidence from the United States: Do Balanced Budget Rules Work?

If there is a common political response to excessive public deficits, it is this: An opposition party calls for a balanced budget rule to constrain that borrowing. The central role of a constitutional BBR in the U.S. Republican Party's recent "Contract with America" and the demands by low-debt countries for balanced budgets in the high-debt countries of the EU are two recent and prominent examples. Economists and budget policy analysts are generally skeptical.[7] The call for a BBR sounds much like the faith healer's plea, "Sinner heal thyself." For such rules to work they must create appropriate incentives and then be enforced within the very political process they are meant to regulate.

Despite professional skepticism, there is no real world shortage of fiscal rules designed to limit taxation, spending, and government borrowing. The widespread presence of such rules offers public finance economists a unique opportunity to test their doubts. The last ten years has seen a significant effort to examine the effects of fiscal rules on fiscal outcomes.[8]

Three conditions are required of any successful study seeking to establish a causal connection between the presence of a BBR and an observed deficit outcome. First, the data must exhibit sufficient variation in the fiscal rule of interest. This will require either a very long time-series with numerous changes in the BBRs, or more plausibly, a large cross-section of independent governments with sufficient variation in the presence of BBRs. Second, the BBR must be exogenous (i.e., predetermined) to the presence of deficit behaviors to be explained. If high deficits are a possible cause for the presence of a budget rule, then the analysis will underestimate the true effect of rules on deficit control. Third, all potentially important independent variables likely to determine both the presence of the BBR and the path of deficit behaviors must be included in the analysis. Though the BBR may be predetermined, the presence or absence of the BBR and

7 Though Nobel Laureate James Buchanan is a leading exception (see Brennan and Buchanan 1980).

8 Poterba (1996) provides an overview of the U.S. literature on the presence and the effects of fiscal rules. Von Hagen and Harden (1994, 1995) do the same for Europe. Von Hagen and Eichengreen (1996) provide international evidence on budget rules across 16 federations and 33 unitary states.

the current level of deficits may be joint, though causally unrelated, outcomes of a common political or fiscal culture, whether conservative (BBR present and low deficits) or liberal (BBR absent and high deficits). To exclude independent measures of such "environmental" effects from the analysis may lead to an overestimate of the true effect of rules on deficits.

The fiscal behaviors of U.S. state governments have proven to be the most promising data base for drawing inferences as to the effects of balanced budget rules on budget behaviors. First, there is sufficient cross-section variation in the rules to allow inference. Second, many of the rules—particularly, the states' balanced budget rules—were approved at or near the time of statehood, typically decades and often a century before current fiscal behaviors.[9] Third, control variables are available to measure other important determinants of fiscal and balanced budget rule behaviors. Each of the three preconditions for the successful analysis of the causal effects of BBRs on deficits is met by this sample.

What does the evidence show? Poterba (1994) and Bayoumi and Eichengreen (1995) explain state deficit behaviors, controlling for general state economic and political conditions, by testing for the effects of a fiscal index (called the "ACIR Stringency Index") measuring the "tightness" of the state's BBR constraint. The index ranges in value from 0 to 10, where higher values indicate a more stringent constraint.[10] Alt and Lowry (1994) and Bohn and Inman (1996), also controlling for the economic and political determinants of deficits, extend the analysis by disentangling the separate effects of the individual components of balanced budget rules. All four studies reach a common conclusion: more "stringent" BBRs lead to greater deficit control. The results of Alt–Lowry and Bohn–Inman

9 The balanced budget rules in the U.S. states were all in place before 1970 (see Bohn and Inman 1996). All empirical studies seek to explain state deficit behavior after this date. In fact, almost all BBRs—Vermont is the one state without a BBR—were adopted either as part of the state's constitution or soon thereafter as a state law, at or very near the date when the state entered the U.S. union. For a history of the adoption of U.S. state balanced budget rules, see Ratchford (1941) and Savage (1988).

10 The ACIR index awards points for whether the rule requires the governor to submit a balanced budget (1 point), requires the legislature to pass a balanced budget (2 points), allows the state to carry a deficit into the next fiscal year (4 points), or does not allow the state to carry a deficit into the next fiscal year (6 points if a biennium budget, 8 points if an annual budget). The index is defined by the number of points from the state's highest ranked requirement. Further, if that requirement is a statutory rule—thus repealed by a 50 percent majority of the legislature—then the constraint is awarded an extra 1 point. If the most stringent requirement is a constitutional rule—thus repealed by a two-thirds majority of the state's citizens—then the constraint is awarded an extra 2 points. The maximum value of the index is 10 (26 states have this score) and the minimum value is 0 (Vermont has no BBR).

help to identify exactly what attributes of budget rules successfully define a stringent BBR.[11]

Bayoumi and Eichengreen (1995) estimate the effects of income shocks on state expenditure, revenue, and deficit behaviors for each of the 50 U.S. states individually. The results show that increases (decreases) in state income lead to a decline (increase) in expenditures as share of state income and a small, almost zero change, in state revenues as a share of state income. Positive shocks to income therefore lead to reductions in the overall state deficit as a share of income, while negative shocks to income lead to an increase in state deficits as a share of income. State fiscal policy is therefore countercyclical. The estimated state-by-state marginal effects of income shocks on deficits are then regressed on the value of the ACIR stringency index. Bayoumi and Eichengreen find that states with high values of the ACIR index are the states whose deficit-to-income ratio are least sensitive to shocks to income; stringent BBRs significantly reduce the countercyclicality of state deficits. Rules matter. Further, most of the deficit adjustments in the stringent BBR states occur through the control of government spending.

Poterba (1994) also examines the effects of stringent BBRs on state responses to income shocks. Poterba uses a unique data base capable of examining how states adjust an already approved annual budget plan to an unexpected shock to state incomes occurring during the fiscal year. Poterba finds that states facing stringent BBRs (ACIR index values of 6–10) respond to a deficit producing income shock by reducing state spending and raising state taxes within the fiscal year in an attempt to eliminate the deficit. In these stringent BBR states, spending falls by $44/resident and state taxes rise by $23/resident for an unexpected deficit of $100/resident. States with weak BBRs (ACIR index values of 0–5), on the other hand, cut spending by only $17/resident and raise taxes by the same $23/resident when faced with an unexpected deficit of $100/resident.

Knowing that the ACIR index of BBR stringency matters to state fiscal policies is instructive, but the Bayoumi–Eichengreen and Poterba studies using the

[11] Two other studies also have used the ACIR stringency index to examine the effects of balanced budget rules on fiscal policy. The ACIR (1987) performed a single cross-section regression to explain state deficits as a function of economic determinants of state policies and the ACIR index. The index was found to significantly reduce the measured level of state deficits. The weakness of the ACIR approach is revealed, however, when the BBR index is found to have implausibly large negative effects on both spending and revenues, suggesting potentially serious omitted variable bias.

Von Hagen (1991) extended the ACIR approach to a pooled data base, explaining average deficit behaviors over the longer period, 1975–1985. Using nonparametric tests, von Hagen found significantly higher *stocks* of state debt in states with weak BBR limitations (low ACIR index scores), a result consistent with the regression studies reviewed below explaining deficit *flow* behaviors.

fiscal index do not tell us exactly which components of a balanced budget rule do the work in checking deficit behaviors. It is important to test for the direct effects of actual BBRs on deficits. Four features of BBRs are potentially important: the *specification of the rule*, its *legislative override provision*, its *enforcement mechanism*, and its *amendment procedure*; see Table 1 below.[12]

Table 1 — Specification of Balanced Budget Rules

Specification	Weak BBR	Strong BBR	Present EMU BBR
Rule			
Timing for review	Ex ante	Ex post	Ex post
Override			
Majority rule	Allowed	Not allowed	Not allowed
Enforcement			
Access	Closed	Open	Closed
Enforcer	Partisan	Independent	Partisan
Penalties	Small	Large	Small
Amendment			
Process	Easy	Difficult	Difficult

The potentially most important distinguishing attribute of any BBR specification is whether the rule involves ex ante or ex post accounting.[13] Ex ante rules

[12] The most complete summaries of U.S. state BBRs is found in the ACIR (1987) report and in Bohn and Inman (1996).

[13] Balanced budget rules may also be specified as to whether the accounting rules apply *partially* or *completely* and whether the rules are *fuzzy* or *precise*. U.S. state BBRs are typically partial rules, applying only to the current accounts (general fund) budget, exclusive of capital spending, public employee pension spending, and private sector employment insurance spending. The capital, pension, and insurance accounts are allocated through separate budgets; these budgets may or may not have their own balanced budget requirements. Further, transfers may flow between these budgets and the general fund budget. Only when all budgets have BBR requirements do we have a complete BBR. Partial BBRs must specify an "appropriate" allocation from one budget to another; in the U.S. case, from the general fund to the capital, pension, insurance budgets. The accounting rules setting these allocations may be fuzzy or precise. BBRs seeking to be precise generally require the general fund to cover long-term interest and principal repayments for specific capital borrowings and to make actuarially specified contributions to pension and insurance funds. Fuzzy BBRs do not specify contributions to these other budgets, or do so in vague terms or with numerous exceptions. Accounting rules cannot be specified for all possible divisions of a budget and for all contingencies. As most contracts are incomplete, all BBRs will be partial and fuzzy to some degree.

apply only to the beginning of the fiscal year and either require the governor to submit a balanced budget (6 states) or require the legislature to pass a balanced budget (3 states), or both (5 states). Ex post rules require fiscal balance at the end of the fiscal year (36 states). U.S. BBRs impose the ex post constraint via a "no-carryover" provision; states are not allowed to carry over a deficit from one fiscal year to the next. No-carryover states with deficits emerging within a fiscal year must reduce spending or raise taxes within the fiscal year to remove the deficit.

Four U.S. states allow the legislature to override the state's general fund BBR in specific economic circumstances, or more generally, through a simple majority rule decision to temporarily suspend the BBR. The remaining 46 states ground their BBR as a constitutional provision, allowing override only through a constitutional amendment.

Enforcement of BBRs in the U.S. states is ultimately by each state's supreme court. Enforcement can also be described along three dimensions: access is closed or open, the enforcer is partisan or independent, and the penalties are economically insignificant or significant. In the United States, enforcement is always open; any taxpayer is allowed to bring a case against a legislature or governor violating the state's BBR. Independence of the enforcing state court can be measured along many dimensions; Bohn and Inman (1996), for example, measure court independence on budgetary matters by whether the court is appointed by the governor or legislature (less independent) or separately elected.[14] Twenty-six states have independently elected state supreme courts. In the United States, the ultimate penalty for violating a state BBR is court control over the state budget, likely to be viewed as a "costly" penalty by most state legislatures.

Finally, all U.S. states allow constitutional amendments to strengthen or weaken the state's BBR. Typically, state constitutional amendments require two-thirds approval by a state legislature or a super-majority voter approval in a state-wide referendum. Amendments may be placed on the ballot either by the state legislature after a two-thirds approval or by citizen petition. Citizen petitions are generally costly to initiate and require the support of organized political action groups.

[14] In the United States, appointed state supreme courts are viewed as less independent in their decisions, on average, than elected state supreme courts, particularly for those decisions likely to directly conflict with the preferences of the appointing political bodies; see *Developments in the Law* (1982). Twenty-six states allow for the election of state supreme court justices. These elections are regulated by an American Bar Association code of conduct to limit campaigning and typically employ nonpartisan ballots. A detailed analysis of state supreme court decisions concluded "elected judges take it to be their responsibility (as well as a likely prerequisite to reelection) to insulate their decisions from political considerations and the interests of their constituencies" (*Developments in the Law* 1982:1352).

Poterba's analysis of the midyear adjustment to budgets in the face of deficits suggests one feature of a state's BBR is important: the right to carry a deficit over from one fiscal year to the next. Alt and Lowry (1994) test directly for the fiscal effects of the no-carryover constraint. Alt and Lowry first estimate a two-equation fiscal model for a pooled sample (1968–1987) of U.S. states using revenues and expenditures as the dependent variables, with likely economic and political controls as independent variables. Also included in each regression is a (1,0) indicator variable for the presence of the no-carryover constraint. The constraint is also interacted with political control variables. Deficit behaviors are then simulated as the difference between predicted changes in state revenues and state expenditures in response to shocks to state income. Alt and Lowry find that all states facing the no-carryover constraint close more of the shock-induced deficit gap than do Republican states without the constraint. Interestingly, Democratic states without the constraint behave much as do the constrained no-carryover states; they balance the budget without the rule.[15] In all cases, temporary deficits are closed by increasing revenues.

Bohn and Inman (1996) extend the Alt–Lowry analysis in three ways. First, they have accounting estimates of state government deficits, permitting direct statistical tests of the effects of BBRs on measured deficits. Importantly, the Bohn–Inman measure is of the general fund deficit, the deficit directly regulated by state balanced budget rules.[16] If, at the end of the fiscal year, there is a general fund surplus, the surplus can be allocated to investing in new public capital stocks, to savings in a state "rainy day" account, or to repurchasing outstanding short-term debt "rolled-over" from a prior deficit. If, at the end of the fiscal year, there is a deficit, then the deficit must be financed by selling public assets, with-

[15] Much as it took an anticommunist hardliner (Nixon) to open relationships with China, perhaps for deficit policy, too, one needs a hardline fiscal reputation to run credible, *temporary* deficits in recessionary times.

[16] In Bohn and Inman the state general fund deficit is defined as the difference between a state's current account expenditures and current account revenues. Current account expenditures include wages, employee benefits including required government contributions to employee pension funds, social insurance transfers (welfare and Medicaid) and government contributions to state insurance trust funds (e.g., workmen's compensation), interest and principal repayments for short-term and long-term debt, maintenance expenditures for infrastructures, and miscellaneous other current account allocations. Current account revenues include taxes, federal grants, state fees, and interest income earned on state accounts. Excluded from the general fund is the state's capital accounts budget with revenues from long-term debt and expenditures for new capital construction, employee contributions to and expenditures from public employee retirement plans, and private employer contributions to and expenditures from workmen's compensation and unemployment insurance. Also excluded from the general fund are revenues from and expenditures for state-owned enterprises and utilities.

drawing funds from the "rainy day" account, or by rolling over short-term debt into the next fiscal year.

Second, the Bohn–Inman analysis includes a more complete set of economic and political controls and uses the most complete panel of U.S. state data now available (1970–1991).[17] Economic control variables included state income and changes in income, state unemployment and changes in unemployment, federal aid to the state and lagged federal aid, and lagged values of the stock of state financial assets and liabilities. Political controls included party control of the state legislature and governorship and, perhaps most importantly, direct measures of the conservative or liberal preferences of state voters, legislators, and political leaders.[18]

Third, like the Alt–Lowry analysis, the Bohn–Inman analysis tests for the effects of the no-carryover rule on deficit behavior, but Bohn and Inman also examine the effects on general fund deficits of the other two commonly used BBRs—the governor must submit a balanced budget and the legislature must pass a balanced budget.[19] In addition, Bohn and Inman test for the effects of alternative override provisions in the state's BBR—specifically whether the BBR is statutorily or constitutionally grounded—and alternative enforcement mechanisms—specifically whether an appointed or an elected supreme court is asked to rule of BBR violations.[20]

17 The analysis included forty-seven states, excluding Hawaii for institutional reasons (all services are state provided) and Alaska and Wyoming (both states have large severance tax surpluses from the taxation of oil). Including Hawaii in the analysis did not affect any of the results. Alaska and Wyoming were clear outliers.

18 Measures of the underlying conservatism or liberalism of state voters and elected officials are from Erikson et al. (1993). Including these political preference variables provides statistical control for a possibly important joint cause of deficits and BBRs. To exclude such measures of a state's political culture might lead us to significantly overestimate the effect of BBRs on deficits.

19 The differential effect on deficits of ex ante vs. ex post (no-carryover) budget rules is all that could be directly tested in this study. Detailed information on the use and precision of BBRs for other budget accounts (capital, pension, insurance) were not available. Tentatively, however, Bohn and Inman find that a no-carryover BBR for the general fund had no adverse effects on the rate of contributions from the general fund to the capital, public employee pension, and worker insurance accounts.

20 The analysis also tests for the effects of two other fiscal rules on state general fund deficits. First, what is the effect on general fund deficits if the state's governor can use a line-item veto? The full model including BBRs shows that the item veto may have a negative, $35/resident effect on deficits, but the estimated effect is only marginally significant and not robust over alternative specifications and estimations. Second, what is the effect on the general fund deficit of requiring voter referendum approval for capital budget borrowing? The full model including BBRs finds no significant effect of this rule on the general fund deficit.

In the full model including all economic and political controls, Bohn and Inman find the balanced budget rules requiring only the governor to submit a balanced budget and/or the state legislature to pass a balanced budget did not significantly reduce the general fund deficit.[21] Like Alt and Lowry and Poterba, Bohn and Inman find that the constraint that matters most is the ex post rule which limits the ability of the state to carry over a deficit from one fiscal year to next. With ex ante BBRs state officials appear to overestimate revenues and underestimate expenditures to ensure budget balance at the beginning of the fiscal year, only to discover to their "surprise" that projections are not realized. In contrast, the no-carryover BBR as an ex post constraint requires midyear adjustments to revenues or expenditures to balance the budget by the close of the fiscal year.

Bohn and Inman find that the presence of a no-carryover BBR leads states to reduce general fund deficits, or to increase general fund surpluses, by an average of $100/resident, approximately 6 percent of the average state's budget of $1700/resident during the sample period. The additional $100/resident is allocated to the state's rainy day fund (≡$80/resident), to paying back previously accumulated rolled-over short-term debt (≡$15/resident), and to new capital investment (≡$5/resident). Further, the probability that a state will have a deficit at the end of the fiscal year, controlling for economic and political determinants of deficit behavior, is reduced from .25 for a typical state to .10 if the state has a no-carryover BBR. Bohn and Inman also find that almost all of the estimated effect of the ex post no-carryover BBR is felt on the expenditure side of the general fund budget through reductions in service spending.[22] Taxes are not increased. Finally, the no-carryover constraint is *not* being met by postponing other financial obligations or reducing public asset accumulation; interest and principal repayments, state contributions to employee pensions and insurance trust funds, and current accounts support for public investment are all unaffected by the presence of the no-carryover BBR. Even though U.S. state BBRs are only partial balance rules applying just to the general fund, the other budget accounts appear to be protected, perhaps by their own balanced budget rules.[23]

21 In one specification of the model, the requirement that the state legislature pass a balanced budget is marginally significant, reducing the state deficit by an average of $63/resident. The result is not robust over alternative specifications and estimation techniques, however.

22 Interestingly, Alesina and Perotti (1995) also find for their sample of OECD countries that permanent deficit reductions occur only where there are permanent cuts in spending, rather than increases in taxation.

23 For example, most public employee pension accounts require actuarially set contributions from the general fund and restrict the ability of the general fund to take resources from the pension accounts. Similar rules apply to the capital accounts and to private employee unemployment and workmen's compensation insurance accounts.

Bohn and Inman find that override provisions and the structure of BBR enforcement may also matter. In the Bohn–Inman sample, for 3 of the 36 states with the no-carryover BBR the state legislature can overturn the rule with a simple majority vote—that is, the rule has statutory standing only. In the other 33 states, the no-carryover rule is constitutionally based and requires approval by two-thirds of the legislature or a separate referendum vote with a super-majority approval by the citizens to be overturned. Bohn and Inman find that states with the constitutionally grounded no-carryover rule run surpluses (lower deficits) which are, all else being equal, $55/resident larger than those states with statutorily based no-carryover rules: $107/resident vs. $52/resident. Because only three states (Arkansas, Maine, Mississippi) have statutorily based rules, however, the estimated effect is not statistically significant and can only be considered suggestive.[24] What is statistically significant is the difference in how the BBR is enforced. In the 15 no-carryover states whose supreme courts—the ultimate enforcing agent for a BBR—are appointed by the state's legislature or governor, surpluses are smaller (deficits larger) by an average of $96/resident than those found in the 21 states whose enforcing supreme court is elected directly by voters in state-wide elections. All else being equal, the no-carryover constraint reduces deficits (enhances surpluses) by $156/resident in the states with an elected supreme court and by only $60/resident in states with appointed supreme courts.

Do BBRs work to limit deficit financing? The U.S. evidence points strongly to the conclusion that they do: in particular, BBRs with a no-carryover rule requiring an ex post, end-of-the-year balanced budget. Ex ante rules requiring only a beginning-of-the-year balanced budget are not effective. Further—though these conclusions are more tentative—override provisions and how the rules are enforced also seem to matter. Constitutionally based rules requiring two-thirds of the citizens in order to be overturned are more effective than statutorily based rules needing only a simple majority of the legislature in order to be suspended or overruled. And rules which are enforced by directly elected, and presumably

[24] An important, additional U.S. observation is consistent with these state results—the U.S. Congress's efforts to control its own deficit through statutorily set deficit targets. The targets were set in the Gramm–Rudman–Hollings Deficit Control Act of 1985. In the initial years of the legislation deficit targets were met in part through the sale of government assets and in part by moving expenditures "off-budget." After exhausting this strategy, the deficit targets were adjusted upward by majority-rule votes of the legislature in 1987 and again in 1990, when the original constraints began to bind. The Budget Enforcement Act of 1990 sought to control Gramm–Rudman–Hollings use of an adjusted annual budget target by using a multiyear balance rule. But again Congress chose to adjust the deficit targets when the constraints began to bind, now by pushing deficits outside the multiyear budget "window." The net effect of these statutory efforts has been very little actual deficit reduction (see Auerbach 1994).

more independent, supreme courts are more effective than rules which are enforced by politically appointed courts. From the U.S. evidence, we can conclude that constitutionally based, independently enforced, no-carryover balanced budget rules can be effective constraints on general fund deficit behaviors.

3. Understanding the Evidence: The Political Economy of BBRs

While the evidence from the U.S. states is instructive and strongly suggestive of a role for BBRs in constraining deficit behaviors, it is not obvious that such rules will "export" and prove effective in other political environments, in particular in the countries of the EU. To understand the likely role of such rules in other political settings, we need at a minimum a structural model of deficit politics in which BBRs might matter. The model requires a specification of voter and politician preferences for deficits, a specification of the political and market institutions through which deficits are selected, and, finally, a specification of the fiscal rules designed to constrain the choice of deficits.[25]

The model proposed here assumes citizens have single-peaked preferences for government deficits ($\Delta > 0$) or surpluses ($\Delta < 0$) specified over the range of economically feasible deficits or surpluses.[26] There are three political institutions: (1) a nationally elected executive, E, who proposes a budget and an associated deficit, (2) a legislature of N (> 2) locally elected representatives, L, which approves a budget and an associated deficit by simple majority rule, and (3) a review panel or "court" which ensures the approved budget and deficit meet the requirements of current fiscal rules *as the court interprets them*. Politicians are fully responsive to the preferences of the citizens who elect them. The review panel or court may be either "independent" or "partisan." An independent court is assumed to adhere to the letter of the fiscal rules. A partisan court, on the other hand, is assumed to respond to the preferences of those who place it in office.

The relevant market institution is the capital market. The specification here is very simple. Governments may borrow at a fixed world interest rate up to a

[25] The analysis implicitly assumes that all deficits will be financed through the issuance of government debt, not through monetary accommodation. This is the relevant specification when studying the ability of BBRs to discipline fiscal policy, our concern here.

[26] See Tabellini and Alesina (1990) for one specification which will give single-peaked preferences to citizen demands for public deficits. The economically feasible maximum surplus is all GDP other than that needed to sustain subsistence in the given fiscal year. The economically maximum deficit is assumed to be that allowed by the capital markets before full credit rationing takes effect.

maximum level of debt ($\Delta_{max} > 0$) at which point the markets impose strict credit rationing and no longer lend. The maximum level of allowed borrowing is set by the market's (correct) perception of default risk; borrowing up to and including Δ_{max} is repaid with certainty. Since all $\Delta \leq \Delta_{max}$ is repaid, there is no risk to lending to a government below this limit and thus no incentive for the capital market to constrain government deficits. In this simple model, therefore, political institutions, not markets, must provide deficit discipline for $\Delta \leq \Delta_{max}$.

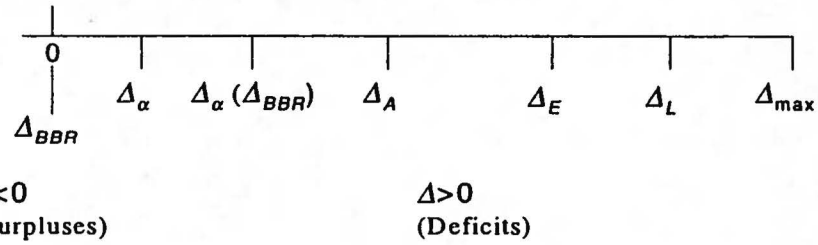
Table 1 details alternative balanced budget rules. Each rule must specify whether the budget is to be balanced at the beginning (ex ante) or at the end (ex post) of the fiscal year. Weak BBRs use ex ante balance rules; strong BBRs use ex post accounting rules. If an ex ante or an ex post BBR violation is observed, can the BBR be temporarily suspended by a simple majority vote of the legislature? Weak rules allow such a BBR override; strong rules do not. Strong enforcement of the BBR requires open access to the review panel or court to allow all potentially affected parties to claim a violation; closed access weakens the BBR. Further, for a strong BBR the enforcing review panel must be independent of—not connected by partisan obligations to—the political bodies setting deficit policies. Also, if a violation is found, penalties must be enforceable and large enough to induce the political bodies setting deficit policies to prefer the balanced budget outcome to a deficit and the associated penalty. Finally, allowing the BBR to be amended by current political interests—the same interests preferring larger deficits—may weaken the BBR. Making the amendment process costly strengthens the hold of the BBR over contemporary political decision-making.[27]

Minimally effective BBRs capable of bringing at least some discipline to the political choice of deficits will require an ex post balanced budget rule, will disallow majority rule override when a violation occurs, and will use penalties large enough to induce the executive and legislative branches to prefer the BBR allocation to the violation. The extent of deficit discipline brought by the BBR then varies with whether the access to enforcement is open (greater discipline) or closed (less discipline), the enforcer is independent (greater discipline) or partial (less discipline), and the amendment process is difficult (greater discipline) or easy (less discipline). These "comparative static predictions" for alternative BBRs are shown to hold for one plausible specification for the political economy of public deficits.

[27] The same institutional features required for a strong BBR for deficit control are needed for a strong monetary rule for price stability. A monetary rule must be specified and enforced by an independent central bank not controlled by contemporary political interests. Both monetary and fiscal rules and their associated institutions are needed to ensure an economy's commitment to an intertemporal efficient public policy. On the design of such institutions generally, see Kotlikoff et al. (1988).

Figure 1 illustrates one likely location for preferred public deficits for each of the important economic and political actors setting public deficits in the presence of a BBR. For this analysis, the BBR is set to require a zero budget deficit or less in each fiscal year: $\Delta_{BBR} = 0$. Other locations for Δ_{BBR} are of course possible. The capital markets set the maximum limit to deficits, Δ_{max}; only levels of $\Delta \leq \Delta_{max}$ will be funded by the market.

Figure 1 — Political Economy of Balanced Budget Rules



Preferred levels of deficits below Δ_{max} are illustrated in Figure 1 for each of the relevant political agents. Underlying these preferred points is a distribution of citizen preferences for deficits, specified over a full range of the economically feasible deficits. Politicians are assumed to be perfect agents for those who elect them to office. Thus the nationally elected executive favors that deficit level most preferred by the nation's median voter, shown as executive's ideal point of Δ_E in Figure 1. The national legislative favors that deficit preferred by the median of the locally elected legislators, in effect, the median of the medians from the partitioned distribution of voter preferences. In this example, the legislature's ideal point is set at $\Delta_L > \Delta_E$ though $\Delta_L < \Delta_E$ or $\Delta_L = \Delta_E$ are certainly possible.

Also shown in Figure 1 are the preferred deficits of two "pivotal" individual voters: the "access" voter (voter α), who is legally allowed to bring a case if a deficit violation occurs, and the "amendment" voter (voter A), who determines the new value of Δ_{BBR} if amendments to the original *BBR* of $\Delta_{BBR} = 0$ are allowed. The preferred deficit of the access voter is shown as $\Delta_\alpha > \Delta_{BBR}$, the most interesting case for formal analysis; Δ_α is the lowest preferred deficit above Δ_{BBR} for all those legally allowed to bring charges of a *BBR* violation.[28] The preferred

[28] In this analysis I assume that if the voter with a preferred deficit of Δ_α can bring a *BBR* case, then all voters with preferred deficits greater Δ_α can also bring a case. I assume there is a fixed and uniform cost to bringing a *BBR* challenge. Among the set of access voters eligible to bring a case, the voter with the lowest preferred deficit is decisive in the decision to bring a *BBR* challenge to any politically approved deficit.

budget for the amendment voter is shown as $\Delta_{BBR} < \Delta_A < \Delta_L$; if amending Δ_{BBR} requires a two-thirds majority of the voters then Δ_A is assumed to equal the preferred deficit of the voter at the one-third percentile in the distribution of voter deficit demands.[29]

Finally, if a legal challenge to the politically approved deficit is brought, the review panel or court hears the facts in the case, establishes the value of Δ, and compares Δ to Δ_{BBR}. If the court finds that $\Delta > \Delta_{BBR}$, then a violation occurs and Δ must be adjusted until $\Delta = \Delta_{BBR}$. Δ may be adjusted by real reductions in spending or increases in revenues or by budget "gimmickry." A politically "partisan" court permits the use of budget gimmicks to meet Δ_{BBR}, in effect allowing the initial, politically chosen budget to stand. In contrast a politically "independent" court denies the use of gimmicks and requires the government to cut spending or to raise revenues. If a case is brought, I assume the partisan court pleases its appointing agent, preferring either Δ_L or Δ_E. The independent court, on the other hand, is assumed to act as a strict constitutionalist, preferring the outcome of Δ_{BBR}.[30]

The elected executive, the legislature, and the two pivotal voters each wish the budget outcome to be as close as possible to their preferred deficits. If a *BBR* violation is found, a partisan court rules in favor of its appointing agent. The independent court rules in favor of Δ_{BBR}. The political process which determines deficits is played as a multistage budget game. First, the executive moves and proposes a budget. Second, the legislature responds by passing a budget. Third, if a *BBR* exists but the legislatively approved deficit $\Delta > \Delta_{BBR}$, then a citizen with access may bring a challenge to that budget as a violation of the *BBR*. The review panel or court must then rule that Δ is, or is not, larger than Δ_{BBR}. If a violation is found, a partisan court allows budget gimmicks so that the deficit appears to meet Δ_{BBR} but is in fact $\Delta = \Delta_L$ or $\Delta = \Delta_E$. An independent strict constitutionalist court, on the other hand, imposes the *BBR* constraint and sets $\Delta = \Delta_{BBR}$.

If any voter with a higher preferred deficit is willing to bring a court case, then so will be the voter who prefers Δ_α.

29 With a two-thirds majority approval, an alternative decisive voter for the new *BBR* exists at the two-thirds percentile position ($\Delta_{2/3}$) in the distribution of deficit demands. The deficit position $\Delta_{2/3}$ is likely to be to the right of Δ_L in Figure 1. Which *BBR* amendment occurs depends on which of the two amendment equilibria—$\Delta_{1/3}$ or $\Delta_{2/3}$—is offered by the constitutional "agenda-setter." The only interesting case, however, is when $\Delta_{1/3}$ defines the new *BBR*. If the *BBR* constraint is set by $\Delta_{2/3}$, and, as is likely, $\Delta_L < \Delta_{2/3}$, then the *BBR* constraint of $\Delta_{2/3}$ will be never binding. In the analysis which follows I assume that the outcome of the amendment process will be $\Delta_A < \Delta_L$.

30 For an analysis of an independent judiciary in which the court adheres to the letter of the law and precedence, see Rasmusen (1994).

Fourth, the independent court's decision may itself be overturned if two-thirds of the voters prefer an alternative *BBR* to the current constraint of Δ_{BBR}. In playing this budget game, the executive, the legislators, and the courts are each assumed to be rational; that is, they take into account the likely consequences of their actions on play in each subsequent stage of the game. The game is solved by backward induction and yields a subgame perfect equilibrium.

Three cases are sufficient to derive the main comparative static effects of alternative *BBR*s on the equilibrium level of deficits. The first involves no *BBR*. The second case involves an ex post *BBR*, no majority rule override, large penalties, and a partisan court; because of the presence of the partisan court, I call this case a weak *BBR*. The third case involves an ex post *BBR*, no majority rule override, large penalties, and an independent or strict constitutionalist court; this case is called a strong *BBR*. For both the weak and strong *BBR*s I consider the effects on the equilibrium value of Δ of disallowing (difficult) or allowing (easy) *BBR* amendments. Finally, the consequence of limiting voter access to the enforcement of the *BBR* is analyzed.[31]

No BBR: The equilibrium deficit will be $\Delta^* = \Delta_L$. Even if $\Delta_L > 0$, no court case can be brought. The executive is required to submit a budget. Whatever budget is submitted, other than Δ_L, will be overturned in favor of Δ_L. In U.S. legislatures, Δ_E is said to be "dead on arrival." The legislature acts last in the budget game with no *BBR*; thus Δ_L is approved and is the equilibrium deficit, denoted as $\Delta^* = \Delta_L$.

Weak BBR: The equilibrium deficit will be $\Delta^* = \Delta_L$ if the legislature appoints the partisan court and will be $\Delta^* = \Delta_E$ if the executive appoints the partisan court.

If the legislature appoints the partisan court, any *BBR* challenge to the legislature's budget will result in a court ruling of $\Delta = \Delta_L$. If there is no court challenge then the budget will also be $\Delta = \Delta_L$. The legislature can therefore propose Δ_L with impunity. Finally, whatever budget the executive submits will be defeated by Δ_L. The outcome is therefore $\Delta^* = \Delta_L$.

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31 From Table 1, a *BBR* can be described by five alternative attributes, each of which may be "weak" or "strong," and one attribute—access—which is continuous. There are 32 ($= 2^5$) possible *BBR*s each with a continuous degree of "access." For this analysis, however, if the rule involves either ex ante review, or majority rule override, or small penalties, then the rule is considered to be unenforceable and thus the equivalent of having no *BBR*. This leaves only 4 remaining *BBR* specifications, each involving ex post review, no majority rule override, and large penalties. They are a weak *BBR* (ex post, no override, large penalty, partisan enforcer) with and without amendments and a strong *BBR* (ex post, no override, large penalty, independent enforcer) with and without amendments. I then consider the effects of variable access on the equilibrium deficit in each of these four cases.

If the executive appoints the partisan court, any *BBR* challenge to the legislature's budget will result in a court ruling of $\Delta = \Delta_E$. If there is sufficiently open access such that $\Delta_\alpha < \Delta_E$, then there will be a *BBR* challenge. The voter who elected the executive and prefers Δ_E can, and will, bring suit if any legislatively offered deficit other than Δ_E is forthcoming. The executive therefore submits and the legislature approves Δ_E. The predicted outcome is $\Delta^* = \Delta_E$.

These conclusions are robust to allowing constitutional amendments. Any Δ_{BBR} amendment, other than no *BBR*, will allow the voter who prefers Δ_L or Δ_E to bring a case (if Δ_L, $\Delta_E > \Delta_\alpha$) and thus force the outcome to their preferred deficit. The decisive voter at the amendment stage is assumed to prefer Δ_A; see Figure 1. This constitutionally decisive voter will be indifferent to having some *BBR* to no *BBR* when the court is partisan to Δ_L and will strictly prefer a BBR to no BBR when the court is partisan to Δ_E. The no *BBR* outcome is Δ_L. Thus some *BBR* will remain in force. If an amendment process occurs the new *BBR* will require that $\Delta_{BBR} = \Delta_A$. Provided that $\Delta_A = \Delta_{BBR} < \Delta_E < \Delta_L$ and $\Delta_\alpha < \Delta_E$, as is the case in Figure 1, then the no-amendment, weak-*BBR* analysis applies here as well. Thus even with *BBR* amendments, $\Delta^* = \Delta_L$ or Δ_E depending on the partisan inclinations of the court.

Strong BBR: The equilibrium deficit will be $\Delta^* = \Delta_\alpha(\Delta_{BBR})$ if constitutional amendments are prohibited (i.e., are difficult), and $\Delta^* = \Delta_A$ if constitutional amendments occur (i.e., are easy).

Consider first the case where constitutional amendments are prohibited, and assume that the legislature proposes a budget where $\Delta > \Delta_{BBR}$ and a court case is brought. By definition, an independent court acting as a strict constitutionalist can reach only one decision if asked to hear a case: if $\Delta > \Delta_{BBR}$, then the court imposes $\Delta = \Delta_{BBR}$ (= 0). Given this court outcome, will a case be brought?

That decision turns on the location of Δ_α, the citizen with the lowest preferred deficit of those with access to the court. A case will be brought if the pivotal citizen Δ_α prefers Δ_{BBR} (= 0) to the legislature's $\Delta > \Delta_{BBR}$. Certainly this is so if $\Delta_\alpha < \Delta_{BBR}$ (= 0) (the pivotal citizen with access prefers a surplus) and the legislature passes $\Delta > \Delta_{BBR}$. More interesting is the case where $\Delta_\alpha > \Delta_{BBR}$ (= 0) as shown in Figure 1. In this instance, whether the case is brought turns on the exact size of the deficit the legislature approves. Let the deficit level $\Delta_\alpha(\Delta_{BBR})$ represent that deficit which is equally preferred as Δ_{BBR} by the citizen at Δ_α; any larger deficits are less preferred. Thus, if the legislature's $\Delta > \Delta_\alpha(\Delta_{BBR})$, then the court-imposed Δ_{BBR} (= 0) will be preferred to the legislature's Δ by the pivotal citizen with access; a court case will be brought. If, however, the legislature passes a Δ such that $\Delta_{BBR} \le \Delta \le \Delta_\alpha(\Delta_{BBR})$, then no court case will be brought.

Facing this threat of legal action if deficits are too high, what is the legislature's best strategy? If there are any costs associated with having their budgets reviewed by the court, then the legislature's best strategy is to propose a deficit

of $\Delta_\alpha(\Delta_{BBR})$, the highest deficit not challenged by a court case. Finally, the executive has no influence in this case; any budget he/she proposes is defeated by the legislature's preferred outcome. With a strict constitutionalist court, therefore, the equilibrium budget outcome will be $\Delta^* = \Delta_\alpha(\Delta_{BBR})$.

What if constitutional amendments are allowed? If the pivotal voter for amendments prefers Δ_A and if $\Delta_\alpha < \Delta_A$ (thus allowing the amendment voter access to the court), then an amendment will be offered and approved at a new $\Delta_{BBR} = \Delta_A$. If $\Delta_{BBR} = \Delta_A$, then for any legislatively approved $\Delta > \Delta_A$, a voter preferring a deficit of Δ_A or lower (down to Δ_α) will bring a court case. Once a case is brought, a strict constitutionalist court imposes $\Delta = \Delta_A$. The legislature prefers Δ_A to any lower deficit, and any higher deficit results in a court-imposed deficit of Δ_A. If there are costs to having the budget reviewed by the courts, the legislature proposes $\Delta = \Delta_A$. The equilibrium budget with a strong *BBR* which can be amended is therefore $\Delta^* = \Delta_A$.

Limiting Access: Limiting the set of citizens who are allowed to bring *BBR* violations before the courts reduces the effectiveness of both weak and strong *BBR*s to check deficit financing, particularly so for a strong *BBR*. Figures 2 and 3 illustrate the effects on the equilibrium deficit Δ^* as Δ_α, the lowest preferred deficit of all voters allowed to bring a *BBR* violation, rises. Larger values of Δ_α reflect less open access. The vertical axis represents the equilibrium level of the deficit as Δ_α rises (measured along the horizontal axis) and access becomes less open.

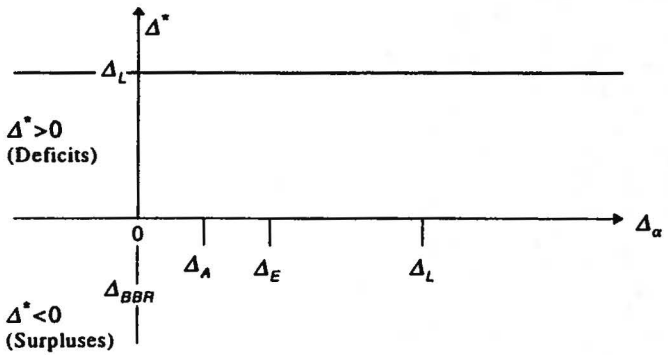
With a weak *BBR* and a court appointed by the legislature, the equilibrium deficit will equal Δ_L no matter what the level of Δ_α. This relationship is shown as the solid line at $\Delta^* = \Delta_L$ in Figure 2a. With a weak *BBR* and a court appointed by the executive, the equilibrium deficit equals Δ_E for all values of $\Delta_\alpha \le \Delta_E$; see Figure 2b. As Δ_α rises above Δ_E, however, the legislature can propose a deficit larger than Δ_E without fear that a court case will be brought. Specifically, the legislature will offer a deficit larger than, but just indifferent to, Δ_E for the voter who prefers Δ_α—that is, $\Delta^* = \Delta_\alpha(\Delta_E)$. Eventually, as Δ_α gets closer to Δ_L, it reaches the preferred deficit of that voter who is just indifferent between Δ_E and Δ_L—that is, the value $\Delta_\alpha(\Delta_E \approx \Delta_L)$ in Figure 2b. If Δ_α rises above $\Delta_\alpha(\Delta_E \approx \Delta_L)$, then the legislature can select Δ_L knowing that no voter eligible to bring a court case will prefer Δ_E to Δ_L. Thus Δ_L will become the equilibrium deficit; see Figure 2b.

Figure 3 illustrates the consequences for Δ^* of limiting access under a strong *BBR*, set initially at $\Delta_{BBR} = 0$. Figure 3a considers the case without amendment. The equilibrium deficit equals Δ_{BBR} for all values of $\Delta_\alpha \le \Delta_{BBR}$. As Δ_α rises above Δ_{BBR}, however, the legislature can propose a deficit larger than Δ_{BBR} without fear of litigation. As before, the legislature will offer a deficit larger than, but just indifferent to, Δ_{BBR} for the voter who prefers Δ_α—that is, $\Delta^* = \Delta_\alpha(\Delta_{BBR})$. But

again as Δ_α gets closer to Δ_L, even Δ_L is preferred to Δ_{BBR} by all voters eligible to bring a court case. The deficit Δ_L will be the equilibrium for all values of $\Delta_\alpha \geq \Delta_\alpha(\Delta_{BBR} \approx \Delta_L)$ in Figure 3a. At this eligibility point and beyond, no case is brought by those allowed to bring a *BBR* challenge; thus the outcome is Δ_L. Figure 3b shows the equilibrium deficits for the case of a strong *BBR* with amendment as access becomes more limited. In this case, the voter who sets the amended *BBR* is decisive, provided a case is brought against Δ_L. For values of $\Delta_\alpha \leq \Delta_A$, the equilibrium deficit will be determined by the preferred level of the *BBR*—that is, by $\Delta^* = \Delta_{BBR} = \Delta_A$. As access becomes more restrictive and $\Delta_\alpha = \Delta_A$, however, the voter at Δ_A who sets the *BBR* has an incentive to increase the *BBR*s target deficit so as to minimize the "reversion" powers of the legislature;

Figure 2 — Limited Access and Equilibrium Deficits: Weak BBR

a. Partisan Court Appointed by Legislature



b. Partisan Court Appointed by Executive

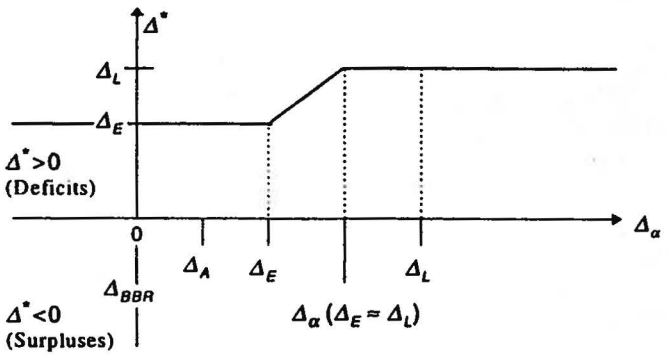
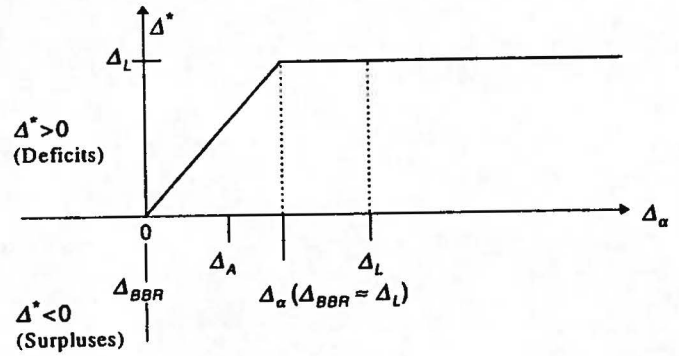
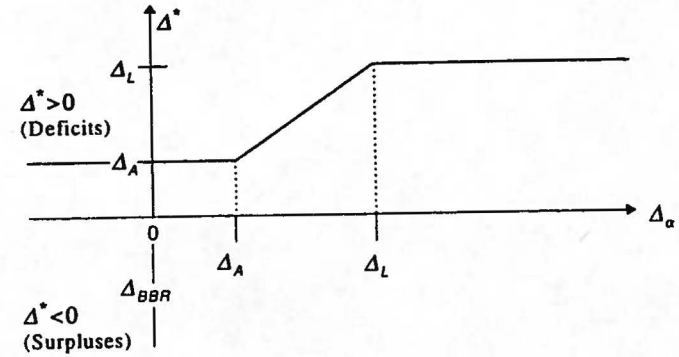


Figure 3 — Limited Access and Equilibrium Deficits: Strong BBR

a. Independent Court with No Amendments



b. Independent Court with Amendments



the preferred *BBR* for the decisive amendment voter is to now set $\Delta_{BBR} = \Delta_\alpha$. With this specification of Δ_{BBR}, a case will always be brought and the court will enforce the rule. Thus, $\Delta^* = \Delta_{BBR} = \Delta_\alpha$. This is true for $\Delta_A < \Delta_\alpha \leq \Delta_L$. For $\Delta_\alpha > \Delta_L$, the legislature proposes Δ_L and no case is brought. In summary, the initial equilibrium deficit begins at the amended *BBR* of Δ_A, continues upward until $\Delta_\alpha = \Delta_L$, and then equals Δ_L for larger (more restricted access) values of Δ_α.[32]

32 The analysis in Figure 3 reveals an interesting interaction between the level of the *BBR* and access to enforcement. With restricted access (i.e., at high values of Δ_α) it is in fact possible that *increases* in the level of the balanced budget target, Δ_{BBR}, can actually reduce the equilibrium level of the deficit, Δ^*. Overlay Figure 3b atop Fig-

The analysis makes clear that limiting the ability of citizens who prefer low deficits to charge *BBR* violations before the review panel or court weakens the ability of a *BBR* to constrain deficit behaviors. Both weak and strong *BBR*s effectively become no *BBR*s when those most interested in deficit control cannot bring a case.

This political economy analysis of how alternative *BBR*s work within a structural model of deficit policy-making gives predictions consistent with the econometric results in Bohn and Inman. The political economy model predicts equilibrium deficits (Δ^*) to be largest where there are no *BBRs*—that is, where the *BBR* uses either an ex ante rule (carryover allowed) or where legislative (statutorily grounded) override of the rule is allowed. *BBRs* not allowing legislative override (constitutionally based) and using an ex post (no-carryover) rule can constrain deficits but their impact is limited where the enforcing court or review panel is tied politically (partisan) to the executive or legislature. These are weak *BBRs*. Strong *BBRs*—those using constitutionally grounded, ex post budget rules, but enforced by an independent (elected) court—are predicted to have the most significant effect on constraining deficit behaviors. These predictions are exactly what Bohn and Inman find. The U.S. empirical evidence and the political economy analysis presented here reach the same conclusion: Only independently enforced, constitutionally grounded, ex post balanced budget rules are likely to effectively constrain the deficit tendencies inherent within democratic politics.

4. U.S. Lessons for the EMU

Can the EMU implement a strong *BBR* as defined by the analysis presented here? The current "Excessive Deficit Procedure" (EDP) requiring all new members of the EMU to maintain an overall budget deficit no greater than 3 percent of GDP is an ex post, end-of-the-fiscal-year balanced budget rule.[33] Further,

ure 3a and notice Δ^* falls as the *BBR* rises from $\Delta_{BBR} = 0$ to $\Delta_{BBR} = \Delta_A > 0$ for values of Δ_α bounded between $\Delta_A \leq \Delta_\alpha \leq \Delta_\alpha(\Delta_A \approx \Delta_L)$. The logic is simple. If those eligible to bring a court case favor moderately high deficits yet know that if a case is brought a "draconian" budget ($\Delta_{BBR} = 0$) will occur, then they will not bring a case. But if a case is not brought, then the legislature can do what it wants, namely set a high deficit, e.g., Δ_L. However, if the outcome of a court case is a more modest Δ_{BBR} ($= \Delta_A$), then those eligible to bring a case will find it in their interest to do so. Knowing that a course case will be brought constrains the legislature's choice of deficit financing, e.g., to deficits $\Delta^* < \Delta_L$.

33 Historically, public infrastructure investment in the EC countries has averaged 3 percent of GDP (see Buiter et al. 1993). Thus the 3 percent deficit rule is seen by commentators as an approximation to a current accounts balanced budget rule. Further,

statutory override by national legislatures is not allowed; the current 3 percent rule is grounded in the Maastricht Treaty, given constitutional status by the European Court of Justice. The rule and override provisions of current Maastricht Treaty are consistent with those of a strong *BBR*; see Table 1.

Existing EU budgetary institutions also fit the four stages of the deficit game specified in Section 3. Elected executives in each EU nation submit budgets which a national parliament—where most likely $\Delta_L = \Delta_E$—then approves. Maastricht then allows a review process of these national deficits to check conformance with the 3 percent deficit guidelines. The European Commission monitors deficit and debt behaviors. The preferences of the Commission define Δ_α, the preferred deficit of those allowed to bring a *BBR* violation before the review panel. The formal review panel (court) is the Council of Ministers; Maastricht explicitly prohibits the European Court of Justice from reviewing violations of deficit and debt guidelines (see Gros 1995). Finally, the *BBR* can be overturned, but only through an amendment to the Maastricht Treaty requiring the unanimous approval by all EU member nations. Those member states which favor low deficits and a no-carryover *BBR* are unlikely to abandon the rule to favor current violators. *BBR* amendments therefore must be considered "difficult" in the EMU. Against the standards for a strong *BBR* in Table 1, the EMU procedures meet all criteria save, perhaps, enforcement.

Strong enforcement requires open access, an independent enforcer, and significant penalties. In a detailed analysis of Maastricht's current enforcement procedures, Gros (1995) concludes the present EDP mechanism fails on each point. Access to the Council of Ministers is through a Commission report of a *BBR* violation, where the Commission is allowed wide latitude in deciding if a nation's deficit violates the 3 percent rule (see Article 104.c.2). A Commission seeking the largest possible EMU is unlikely to interpret the guidelines strictly or to allow open access to others to bring a *BBR* violation. Even if charges of a violation are forthcoming, the inability of the Council of Finance Ministers (ECOFIN) to impose even modest spending guidelines on current violators (e.g., Greece) suggests the political will is lacking to act as an independent enforcer of a *BBR* (see Gros 1995). Finally, current penalties are weak. Violating nations are required to disclose additional fiscal information before issuing new debt. The European Investment Bank may withhold funds, but only a few EU countries receive significant funding from the Bank. Finally, the Council of Ministers may impose fines or require non-interest-bearing deposits, but these are unlikely to be significant with a partisan enforcer. With closed access, a partisan enforcer, and

the enforcement of the 3 percent rule explicitly allows for consideration of high public sector investments in a year in which the 3 percent might be violated (see Maastricht Treaty, Article 104.c.3).

small penalties (Table 1), Gros concludes that the EMU's current 3 percent rule is, at best, a weak *BBR*.

Institutional reforms for stronger enforcement are necessary if the EMU is to have a strong *BBR* at the 3 percent target (Δ_{BBR}). To improve access to the EDP procedures, individual member governments or the European Central Bank might be allowed to bring charges of a *BBR* violation in addition to the Commission. To strengthen the independence of the enforcer and to raise sanctions for violators, enforcement and penalties might be shifted to the European Court of Justice. This reform, however, will require a unanimously approved amendment to the Maastricht "constitution." Such a reform is unlikely. Alternatively, the new members to the EMU might impose a "pact for stability" on the Council. The pact would set absolute deficit guidelines and larger penalties to be enforced by the Council without exception. This statutory approach to stronger enforcement fails to establish the constitutional foundation often needed for an effective *BBR*.

Finally, if a strong *BBR* can be written for the EMU, it comes at a price. A degree of local deficit control is lost, raising the cost of tax smoothing over adverse economic events. Further, EMU economic institutions gain and national parliaments lose in policy importance, particularly with regard to unemployment policies. There are institutional compromises between the strong and no *BBR* regimes, however. The analysis here has shown that *BBR* design need not be an all-or-nothing choice. An EMU enforcement mechanism can be designed which accommodates some local deficit discretion. One such mechanism would create a strong *BBR* by adding an independent enforcer but would then raise the deficit limit or allow less open access to the new enforcer; see Figures 3a and 3b. Alternatively, a partisan enforcer might be retained (weak *BBR*), but that partisan enforcer must be induced to favor more deficit-constrained interests at the local level; for example, the partisan enforcer might be appointed by EMU member central banks. While the member government might favor large deficits ($\Delta_L = \Delta_E$), the country's central bank appointing the enforcer might well favor some $\Delta_{BANK} < \Delta_L = \Delta_E$. the analysis of Figure 2b still applies, but now Δ_{BANK} ($< \Delta_L$) becomes the objective of the partisan enforcer. Importantly, the analysis here reveals that a balance between the central government's goal of $\Delta \leq \Delta_{BBR}$ and a local government's goal of allowing a more flexible $\Delta \geq \Delta_{BBR}$ is institutionally feasible. Finding this acceptable institutional compromise may be the true challenge for those seeking to establish a workable *BBR* for a future EMU.

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