



# The Costs and Benefits of Fiscal Rules: Evidence from U.S. States

## Citation

Alesina, Alberto, and Tamim Bayoumi. 1996. The Costs and Benefits of Fiscal Rules: Evidence from U.S. States. Working paper, Department of Economics, Harvard University.

## Permanent link

<http://nrs.harvard.edu/urn-3:HUL.InstRepos:37147373>

## Terms of Use

This article was downloaded from Harvard University's DASH repository, and is made available under the terms and conditions applicable to Other Posted Material, as set forth at <http://nrs.harvard.edu/urn-3:HUL.InstRepos:dash.current.terms-of-use#LAA>

## Share Your Story

The Harvard community has made this article openly available.  
Please share how this access benefits you. [Submit a story](#).

[Accessibility](#)

NBER WORKING PAPER SERIES

THE COSTS AND BENEFITS OF FISCAL  
RULES: EVIDENCE FROM U.S. STATES

Alberto Alesina  
Tamim Bayoumi

Working Paper 5614

NATIONAL BUREAU OF ECONOMIC RESEARCH  
1050 Massachusetts Avenue  
Cambridge, MA 02138  
June 1996

Alesina's research is supported by an NSF grant. This paper is part of NBER's research programs in Monetary Economics and Public Economics. Any opinions expressed are those of the authors and not those of the IMF or the National Bureau of Economic Research.

© 1996 by Alberto Alesina and Tamim Bayoumi. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

THE COSTS AND BENEFITS OF FISCAL  
RULES: EVIDENCE FROM U.S. STATES

**ABSTRACT**

This paper shows that in American states balanced budget rules are effective in enforcing fiscal discipline but they have no costs in terms of increased output variability. More specifically, we show that tighter fiscal rules are associated with larger average surplus and lower cyclical variability of the budget balance. However, the lower flexibility of the budget balance does not affect state output variability.

Alberto Alesina  
Department of Economics  
Harvard University  
Cambridge, MA 02138  
and NBER

Tamim Bayoumi  
International Monetary Fund  
700 19th Street, NW  
Washington, DC 20431

## 1. Introduction

Recent work on the impact of balanced budget rules on fiscal behavior has identified two critical questions. First, whether they are effective in enforcing fiscal discipline or, instead, whether they can be circumvented by creative accounting. Second, if these rules are effective, what are these benefits in terms of budget discipline versus their costs in terms of lost flexibility in fiscal policy. Less flexibility should have costs in terms of output variability both in a neoclassical framework, because it limits the ability to tax smooth, and in a Keynesian framework, because of the need for anticyclical policies.<sup>1</sup> While balanced budget rules are rare for national governments, various forms of restrictions of this type apply to US states. Furthermore, US states provide a particularly attractive area for empirical research as most of the rules were imposed long ago, reducing problems associated with sample selection bias.<sup>2</sup>

In this paper, by looking at the experience of US state we conclude that balanced budget rules are effective in enforcing fiscal discipline and they have no costs in terms of increased output variability. Recent work by Eichengreen (1992), Poterba (1994), Alt and Lowry (1994), Bayoumi and Eichengreen (1995) and Bohn and Inman (1995) has shown that, indeed, fiscal restrictions on US states enforce some budget discipline, in terms of lower deficits and/or quicker response to

---

<sup>1</sup>For a recent survey of the literature on budget rules and fiscal institutions see Alesina and Perotti (1996). On the tax smoothing argument see Barro (1979) and Lucas and Stokey (1983).

<sup>2</sup>See Bayoumi and Eichengreen (1995) and Ratchford (1941) for historical details on the adoption of fiscal rules.

negative fiscal shocks at the cost of lowering anticyclical policies. Partly by drawing on this previous research, we make a very simple point in this paper: the increased discipline generated by fiscal rules reduces budget flexibility, but it appears to have little or no cost in terms of more output variability.

The paper is organized as follows. Section 2 presents a very simple graphical analysis which makes our basic point in the most elementary possible way. Section 3 presents some supporting econometrics evidence. The last section concludes.

## 2. Budget restrictions, deficits and variability

As our measure of budgetary restrictions we use the variable constructed by Anderson and the Advisory Council on Intergovernmental Relations (1987). This index, which varies between 0 and 10 with a higher number indicating more stringent fiscal controls, has been used by virtually all earlier researchers into the impact of fiscal controls on US states. As we are interested in the impact of fiscal controls on overall budgetary policy, we adopt the relatively broad measure of the budget surplus used in Bayoumi and Eichengreen (1995). Others (for example, Bohn and Inman, 1995) have focused specifically on the types of expenditures covered by fiscal controls. Reassuringly, the overall conclusions from both types of data appear similar. All of our analysis is for the 48 mainland US states.

Figure 1 plots the average primary budget surplus as a share of state product for the

period 1988 to 1992 against our measure of fiscal control.<sup>3</sup> The figure shows a positive relationship indicating that more stringent fiscal controls are associated with higher primary surpluses. The regression line is as follows: (t-statistics in parenthesis)

$$\text{PRIMS} = 0.0023 + 0.0010 \text{ FC} \quad (1)$$

(0.72)      (2.62)

N. of obs: 48     $R^2 = 0.13$

In equation (1) PRIMS is the average budget surplus as a share of state product, and FC is the measure of fiscal control, increasing in the tightness of the controls.

This relationship is not limited to the primary surplus. Figure 2 plots the average total surplus as a share of state product for the period 1965-1992. Once again a positive relationship appears. The regression line is as follows:

$$S = 0.0040 + 0.0004 \text{ FC} \quad (2)$$

(2.11)      (1.96)

N. of obs. 48     $R^2 = 0.08$

where S is the average surplus 1965-1992.

---

<sup>3</sup>The reason for truncating the data period at 1988 is that we were unable to obtain data on interest payments prior to 1988 from our data source (the WEFA group), although such data appear to exist. All other regressions use data from 1965-1992.

Figure 3 plots the standard deviation of the change in the surplus as a share of state product against the index of fiscal control. This figure shows a negative relationship between surplus variability and fiscal controls, indicating that these controls impose some rigidity in the budget balance. The regression line is as follows:

$$STS = 0.0082 - 0.0003 FC \quad (3)$$

(10.87)      (-2.83)

N. of obs: 48  $R^2 = 0.15$

where STS is the standard deviation of the change in the surplus as a share of state product over 1965-1992.

The next figure 4 confirms that the cyclical variability of surpluses is lower in states with more stringent fiscal controls. Following Bayoumi and Eichengreen (1995), this figure is obtained as follows. First we ran the following regression for each state for the sample 1965-1992.

$$DS_{jt} = a_j + b_j DY_{jt} + c_j S_{j(t-1)} \quad (4)$$

where  $(D)S_j$  is the (change in) the surplus as a share of output in state J and DY is the change in the logarithm of real output. Figure 4 plots the coefficients  $b_j$  against our measure of fiscal controls. The plot shows a negative correlation, indicating that more stringent controls are associated with less cyclical response of the budget. The regression line is as follows:

$$b = 0.120 - 0.0069 \text{ FC} \quad (5)$$

(4.70)    (-2.30)

N. of obs. 48  $R^2 = 0.10$

Thus, these simple plots and regressions show that tighter fiscal controls impose more budget discipline but also more budget rigidity.

The critical policy question, however, is whether the rigidity imposed by the fiscal control has economic costs. Figure 5 suggests that the answer is negative, at least if economic costs are measured in terms of the variability of real state product. This figure plots the standard deviation of the logarithm of the growth in real state product versus our measure of fiscal controls. No relationship appears to exist in the data. The regression line is as follows;

$$\text{YST} = 0.0003 - 0.0004 \text{ FC} \quad (6)$$

(9.13)    (-0.82)

N. of obs: 48  $R^2 = 0.01$

where YST is the standard deviation of state product for the sample 1965-92. The coefficient on the fiscal control variable not only is statistically insignificant, it also has the wrong sign.

In summary, the larger rigidity imposed by tighter fiscal controls does not seem to have an impact on state output variability.



### 3. Regression Analysis

We have run several regressions controlling for a variety of variables. Our results confirm the basic picture described by the simple plots of the previous section. Table 1 reports an example of these regressions. In these particular regressions we control for the size of the state, measured as the average of the logarithm of its nominal product between 1965 and 1992, a measure of its output composition, namely the average proportion of nominal output emanating from the mining sector between 1965 and 1992, and a regional dummy variable for Southern states. It is generally believed that Southern states have different fiscal behavior from the rest of the country, and this type of variable has been included in many earlier studies of fiscal policy across states (for example, Eichengreen, 1992 and Bohn and Inman, 1995).

In column 1, which corresponds to figure 1, the dependent variable is the average primary surplus as a share of state product (averaged from 1988-92). The coefficient on the fiscal control variable has the expected signs and is significant at the 5 per cent level. The same observation applies to column 2 which correspond to Figure 2. Here the depended variable is the average surplus as share of state product for the sample 1965-92. In the third and fourth column which correspond to figure 3 and 4 respectively the sign on the fiscal control variable is expected to be negative, and, in fact, it is significantly negative. Finally, the last column which corresponds to Figure 5 shows no correlation between our measure of fiscal control and state product variability. Hence, all of our basic results appear robust to the inclusion of these extra regressors in the regression.

The additional regressors generally have the expected sign and impact. For example, the results indicate that larger states have less variable fiscal surpluses and less variability of output, presumably because their output base is more diversified, but tend to run more counter-cyclical policies, possibly because fiscal leakages are perceived to be smaller. States with larger percentages of output devoted to mining and quarrying have greater variability of real output, run larger surpluses (possibly for prudential reasons) and have surpluses which vary less with the cycle. More surprising is that fact that Southern states are found to tend to run smaller surpluses than those in other regions, which appears somewhat out of keeping with the fiscal conservatism usually associated with the region.

We run several alternative specifications in addition to those reported in table 1. These included several intermediate regressions in which only some of the additional independent variables were included, and regressions where, in addition to the proportion of output associated with mining, we also controlled for the proportion of output in agriculture and in manufacturing. However, these additional variables were generally insignificant, and hence are not reported. The qualitative nature of the results was unchanged by these experiments.

Some insight into the reasons for the absence of a relationship between fiscal controls and output variables can be found by regressing the variability of state product on both the coefficients  $b_j$  from the regression of the state budget on output, as a measure of the contribution of anticyclical policies to stabilizing output, and on the variability of the change in the state surplus, as a measure of the destabilizing impact of undisciplined fiscal policies. This regression produced

the following results:

$$\text{YST} = 0.025 - 0.048 \text{ CYCLE} + 1.694 \text{ STS} \quad (7)$$

(5.99)    (2.30)            (2.47)

N. of obs: 48     $R^2 = 0.16$

where YST is the standard deviation of state product for the sample 1965-92, CYCLE is the cyclical coefficient discussed earlier, and STS is the standard deviation of the change in the budget surplus as a percentage of state product. Anticyclical policies lower the variability of real state product, but higher variability of the surplus in general raises it. As fiscal controls reduce both factors, the net impact on output variability is uncertain. For US states the two influences apparently approximately cancel out, leaving no direct impact from fiscal controls onto output variability. Unlike the earlier results, however, this regression is not robust to the inclusion of other explanatory variables. Adding the extra independent variables included in table 1 approximately halves the estimated coefficients and t-statistics on both anticyclical policies and the variability of the fiscal surplus, although none of the new independent variables are individually significant at conventional levels.

#### 4. Discussion

Tight fiscal controls which impose restrictions on deficits reduce average deficits and reduce budget flexibility. However this increased rigidity does not seem to affect the variability of state product. This result can have two non mutually exclusive explanations. First, it may be the

case that the stabilizing role of fiscal policy at the state level is simply not very important, so that reducing its impact does not have a significant effect on product variability. The second interpretation is that the fiscal restriction not only impede "good" anticyclical policies but also limit politically motivated and biased policies which may have a destabilizing effect.

These results on fiscal rules at the state level cannot be interpreted as an endorsement of balanced budget rules for national governments. A recent literature has shown that fiscal institutions matter for fiscal outcomes for national governments.<sup>4</sup> However, this literature does not imply that balanced budget rules are desirable. On the contrary, one may argue that appropriate procedures may enforce fiscal discipline without the need for too constraining balanced budget rules. In other words, for national governments the tax smoothing and Keynesian anticyclical policy arguments may be much more important than for state and local governments. If this is the case the results of this paper suggest that while balanced budget rules may be effective for subnational political jurisdictions they may not be so for national governments.

---

<sup>4</sup>See in particular Alesina et al. (1996), Eichengreen, Hausmann and von Hagen (1996), von Hagen and Harden (1994)

**Table 1: Fiscal Controls, Surplus and Variability**

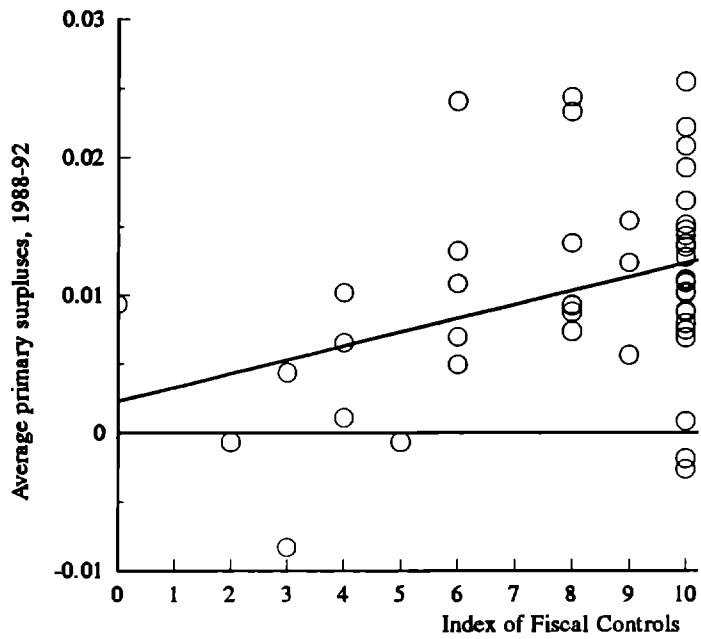
Dependent Variable	Average Primary Surplus (88-92) <sup>1</sup>	Average Surplus (65-92) <sup>1</sup>	Standard Deviation of Surplus (65-92)	Cyclical Coefficient	Standard Deviation of State Product (65-92)
Constant	0.0019 (0.17)	0.0016 (0.25)	0.0138 (5.29)	-0.0198 (-0.24)	0.0552 (4.17)
Fiscal Controls	0.0012 (3.05)	0.0005 (2.34)	-0.0002 (-2.61)	-0.0054 (-1.96)	-0.0003 (-0.65)
State Product	-0.0001 (-0.10)	0.0001 (0.22)	-0.0005 (-2.31)	0.0135 (1.92)	-0.0020 (-1.71)
Percentage of State Product from Mining	0.0412 (2.43)	0.0307 (3.20)	0.0003 (0.07)	-0.3989 (-3.29)	0.0400 (2.03)
South	-0.0043 (-1.91)	-0.0020 (-1.54)	-0.0009 (-1.69)	0.0043 (0.27)	-0.0041 (-1.56)
R <sup>2</sup>	0.27	0.27	0.32	0.38	0.22

<sup>1</sup>. In shares of state product  
t-statistics in parenthesis.

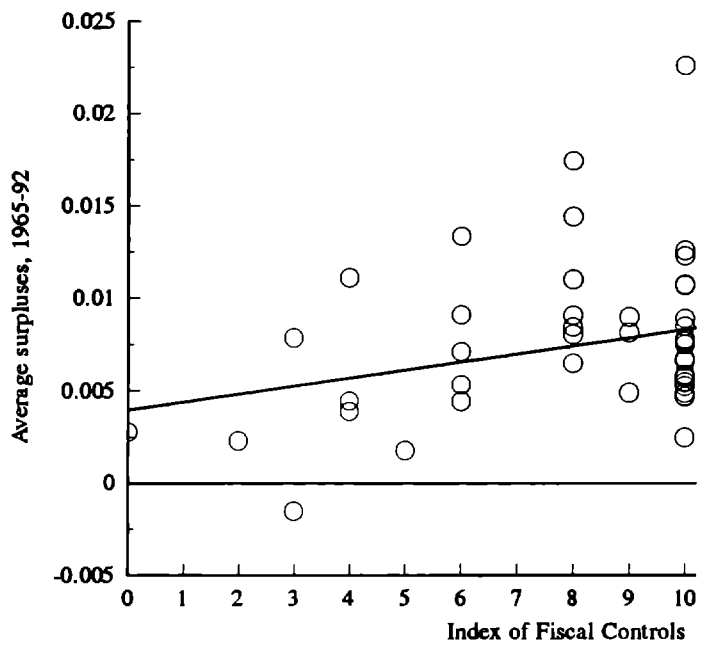
## References

- Alesina, Alberto, Ricardo Hausmann, Rudolf Hommes and Ernesto Stein, (1996): "Budget Institutions and Fiscal Performance in Latin America," unpublished.
- Alesina, A., and R. Perotti, (1995): "Budget Deficits and Budget Institutions," NBER Working Paper.
- Alt, J. and R. Lowry, (1994): "Divided Government and Budget Deficits: Evidence for the States," *American Political Science Review*.
- Anderson, G. and Advisory Commission on Intergovernmental Relations, (1987) *Fiscal Discipline in the Federal System: National Reform and the Experience of the States*, (Washington: ACIR).
- Barro, R., (1979): "On the Determination of the Public Debt," *Journal of Political Economy*, 87: 940-947.
- Bayoumi, T., and B. Eichengreen, (1995): "Restraining Yourself: The Implications of Fiscal Rules for Economic Stabilization," *IMF Staff Papers*, March 32-48.
- Bohn, H. and R. Inman (1995) "Constitutional Limitations and Public Deficits: Evidence from U.S. States," unpublished manuscript, University of California and Santa Barbara.
- Eichengreen, B., (1992): "Should the Maastricht Treaty be Saved?" *Princeton Studies in International Finance*, No. 74, December.
- Eichengreen, B., R. Hausmann and J. Von Hagen, (1996): "Reforming Fiscal Institutions in Latin America: The Case for a National Fiscal Council," unpublished, IDB.
- Lucas, R., and N. Stokey, (1983): "Optimal Fiscal and Monetary Policy in an Economy without Capital," *Journal of Monetary Economics*, 12:55-94.
- Rortba, J., (1994): "State Responses to Fiscal Crises: The Effects of Budgetary Institutions and Politics," *Journal of Political Economy*, August, 102:799-821.
- Ratchford, B. (1941) *American State Debts* (Durham, NC: Duke University Press).
- Von Hagen, J., and I.J. Harden, (1994): "National Budget Process and Fiscal Performance," unpublished.

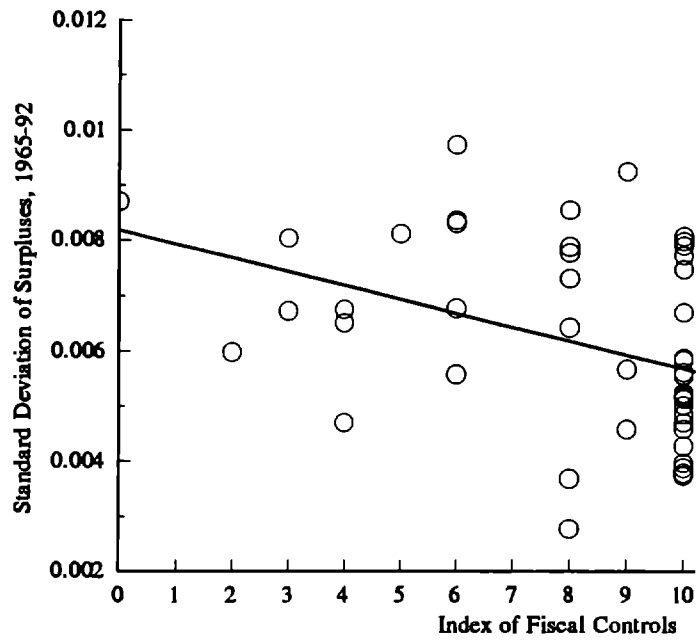
**Figure 1. Fiscal Controls and Primary Surpluses, 1988-92**



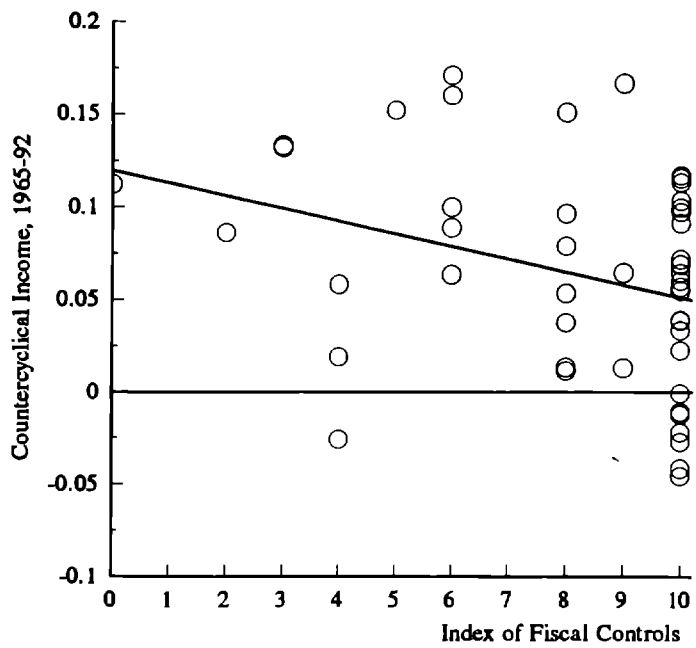
**Figure 2. Fiscal Controls and Total Surpluses, 1965-92**



**Figure 3. Fiscal Controls and the Variability of the Surpluses, 1965-92**



**Figure 4. Fiscal Controls and Countercyclical Policies, 1966-92**





**Figure 5. Fiscal Controls and Real Output Variability, 1965-92**

