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Budget Rules and State Business Cycles

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Levinson (1998) finds that large states with lenient balanced budget rules experience less cyclical variability. He concludes that state fiscal policy works. However, Levinson's finding is not robust to alternative methods of detrending the data. In addition, the 1984 Advisory Commission on Intergovernmental Relations (ACIR) analysis of state budget rules used by Levinson (and other researchers) is of questionable merit. Reestimation of Levinson's regressions using budget rule classifications in a U.S. General Accounting Office (GAO) study reverses his result. The results from this study suggest that existing empirical work using the ACIR index should be revisited.

Keywords: *balanced budget rules; business cycles; stabilization policy; state level public finance*

1. Introduction

The effectiveness of fiscal policy in stabilizing economic activity continues to be debated (Romer 1996; Auerbach 2002; Blanchard and Perotti 2002; Jones 2002). Variation across states in budget rules provides an alternative test of the impact of fiscal policy (Besley and Case 2003). If fiscal policy works, states with strict balanced budget rules should experience greater volatility in economic activity. Evidence that large states with lenient rules experience less volatility has been used to argue that fiscal policy is an effective tool at the state level (Levinson 1998).

Several issues cloud this finding. First, Levinson used a 1984 ACIR analysis to identify states with lenient budget rules. States are categorized as having lenient rules if their budget rules do not prohibit deficit carryover.

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The ACIR survey has been used elsewhere by researchers. Alt and Lowery (1994), Poterba (1994), Eichengreen and Bayoumi (1994, 1995), Bohn and Inman (1996), Sorensen, Wu, and Yosha (2001), and Fatás and Mihov (2006) all use the ACIR findings. However, the ACIR relied on self-reporting by state budget officers and may not be accurate.

A 1992-1993 study by the GAO (1993) has a greater claim to accuracy. Substituting the GAO measure of budget leniency for that of the ACIR in Levinson's regressions does not produce the same results. There is no statistical relationship between large states with lenient rules and state economic fluctuations. Not only does this raise doubts about Levinson's results, but it puts findings from the other studies in doubt as well.

Second, Levinson used only one method to detrend the quarterly income data used to measure business cycle variability. Other detrending methods are available and should be tested to evaluate the robustness of Levinson's results.

Third, Levinson used only one measure of state economic activity—quarterly real per capita personal income. Other measures are available, and the robustness of his results rests on confirmations using alternative measures of economic variability.

Finally, Levinson used a dummy variable for state size (equal to one for the largest twenty-five states). Given the substantial variation among states categorized as large, one could argue that this is a poor way to represent state size. Substituting the log of state population for the population dummy in Levinson's regressions and using the GAO categorization of the state budget rules, Levinson's finding is reversed. Large states with lenient rules (arguably those states that could engage in effective fiscal policy) have significantly greater variability in economic activity over time. If one were inclined to draw a conclusion about the effect of fiscal policy on economic stability from this result, one would have to conclude that fiscal policy increases business cycle fluctuations.

2. Balanced Budget Rules and Stabilization Policy

2.1. Balanced Budget Rules

All states except Vermont have some form of a balanced budget rule. Balanced budget rules apply for the most part to the general or operating budget, excluding capital spending and trust funds. Still, a significant portion of expenditures is affected by these rules. For thirty-nine states, more than 75 percent of expenditures are impacted by these rules (Poterba 1997).¹

As noted in the introduction, researchers interested in examining the impact of state budget rules have relied on a 1984 survey published by the ACIR (1987).² However, a 1992-1993 study by the GAO (1993) finds eleven states misclassified in the ACIR study. A search of the literature reveals several additional studies with conflicting results. Table 1 contains the data and sources. The National Association of State Budget Officers (NASBO) surveyed state budget officers in 1987. Both NASBO and ACIR reported twenty-one states with lenient budget rules but not the same twenty-one; twelve states shift categories. The next NASBO study was in 1989. In this tally, only nine states reported lenient budget rules.

In 1992, the GAO took on the task of characterizing state budget rules. The GAO used lawyers to identify rules that were in statutes or state constitutions. However, when they got to the issue of states being allowed to carry over the deficit (the specific issue relevant to the balanced budget rule literature), they found that few states had a reference to this in their statutes or constitutions:

... the language of the balanced budget requirements did not always clearly differentiate [states that require balance but allow carryover] from those in which budget officials said a deficit could never be carried over from one budget period to the next. (GAO 1993, 16)

According to Tom James, who worked on the GAO report,

We conducted structured interviews with state budget officials and had our lawyers review state constitutions to determine the number of states with balanced budget requirements and whether they were constitutional or statutory based. We took this approach because we did not want to rely on the information states self-reported to NASBO and others. (E-mail to the authors, August 16, 2005)

Both the NASBO and ACIR studies relied on self-reported information.³

The GAO report lists twenty-two states as having strict budget rules (no carryover of deficits allowed). Compared with the 1984 ACIR study and the 1992 NASBO study, there are many states that are not similarly classified but not the same ones; again, see Table 1. A related issue is the appropriateness of using one survey to characterize state regulations over two decades. Both Levinson (1998) and Bohn and Inman (1996) explicitly state that the laws do not change over time. Levinson writes,

Except for Tennessee, which passed a strict constitutional balanced budget rule in 1977, all of the states' balanced budget rules have been in place for many decades. Many belong to states' original constitutions and date from

Table 1
Surveys of State Balanced Budget Rules

<i>Published Source</i>	1 = May Carry Over Deficit (Lenient)						1 = Different Comparisons	
	ACIR	NASBO				GAO		
		1988-1987	1990-1991	1994-1995	1996-1997		1992-1993	GAO vs. ACIR
	<i>ACIR^a</i>	<i>BPS^b</i>	<i>BPS^b</i>	<i>BPS^b</i>	<i>BPS^b</i>	<i>GAO^c</i>		
<i>Data</i>	1984	1987	1989	1992	1995	1992-1993	1984 vs. 1992	Both 1992
Alabama							0	0
Alaska	1	1	1				1	0
Arizona			1	1	1	1	1	0
Arkansas							0	0
California	1		1	1	1	1	0	0
Colorado				1			0	1
Connecticut	1	1		1		1	0	0
Delaware						1	1	1
Florida							0	0
Georgia		1				1	1	1
Hawaii		1					0	0
Idaho							0	0
Illinois	1	1		1		1	0	0
Indiana					1		0	0
Iowa		1				1	1	1
Kansas							0	0
Kentucky							0	0
Louisiana	1	1	1		1	1	0	1
Maine		1					0	0
Maryland	1			1	1	1	0	0
Massachusetts	1	1	1	1		1	0	0
Michigan	1			1	1	1	0	0
Minnesota	1	1					1	0
Mississippi		1					0	0
Missouri							0	0
Montana							0	0
Nebraska		1				1	1	1
Nevada	1	1					1	0
New Hampshire	1		1			1	0	1
New Jersey				1			0	1
New Mexico							0	0
New York	1	1	1	1		1	0	0
North Carolina							0	0

Table 1 (continued)

North Dakota	1	1					1	0
Ohio							0	0
Oklahoma					1		0	0
Oregon	1	1			1		1	0
Pennsylvania	1	1	1	1		1	0	0
Rhode Island							0	0
South Carolina							0	0
South Dakota					1		0	0
Tennessee							0	0
Texas	1	1		1		1	0	0
Utah						1	1	1
Vermont	1	1	1	1	1	1	0	0
Virginia	1					1	0	1
Washington	1	1				1	0	1
West Virginia							0	0
Wisconsin	1	1		1	1	1	0	0
Wyoming	1					1	0	1
Total allow carryover	21	21	9	14	11	22	11	12
							different	different

Note: ACIR = Advisory Commission on Intergovernmental Relations; BPS = Budgetary (Budget) Processes in the States; GAO = U.S. General Accounting Office; NASBO = National Association of State Budget Officers.

a. *Fiscal Discipline in the Federal System: National Reform and the Experience of the States* (ACIR 1987).

b. Available in *The Book of the States* (Council of State Governments, various years).

c. *Balanced Budget Requirements: State Experiences and Implications for the Federal Government* (GAO 1993).

the 19th century (ACIR 1987). Therefore, there has been virtually no change in these requirements over time . . .” (Levinson 1998, 720)

Bohn and Inman (1996) include a footnote indicating that a review of state statutes and constitutions found no changes over time. However, we know from the GAO report that in most states the carryover provision is not explicitly stated in statutes and constitutions.

The discrepancies between the GAO and ACIR classifications raise a question about Levinson’s reliance on ACIR-reported balanced budget rules, in particular, the “no carryover” provisions. In our view, the best assumption is that the data did not change dramatically from year to year, certainly not as much as the year-to-year changes in the NASBO tables. The GAO’s reputation and methods appear to favor the GAO results over those produced by NASBO and the ACIR, which relied on self-reporting by state budget officials. We use the GAO characterizations to reestimate the regression equations in

Levinson (1998). Irrespective of our findings, all existing empirical work using the ACIR index should be revisited.

2.2. State Stabilization Policy

The effectiveness of fiscal policy in stabilizing the economy remains an important but still open question (Romer 1996; Auerbach 2002). Jones (2002) examined the impact of fiscal policy during the postwar period in the United States using a stochastic aggregate growth model. He finds little evidence supporting the notion that fiscal policy reduces the variability of output or lengthens expansions and shortens recessions. In contrast, using a structural vector autoregression model, Blanchard and Perotti (2002) find that government spending (or tax reductions) positively affect U.S. postwar output.

At the state level, economists have generally argued that stabilization policy cannot be effective (Oates 1972). First, states cannot conduct independent monetary policy to offset an economic downturn. Second, because states represent small open economies, a large portion of expenditures end up being directed at out-of-state goods and services and, as a result, are unlikely to provide much stimulus to the state economy. For these reasons, it seems unlikely that strict balanced budget rules would impact state business cycles.

Gramlich (1997) takes a less skeptical view of the ineffectiveness of state fiscal policy. He first points out that services are becoming an increasingly large component of expenditures. Since service expenditures are mostly local in nature, they are more likely to impact state output. He also points out that the size of the economy will influence the effectiveness of fiscal policy at the state level. He provides evidence showing that large state economies have lower average import propensities than small state economies and concludes that fiscal policy is more likely to be effective in states with large economies.

Working off Gramlich's point about the importance of a state economy's size, Levinson (1998) finds that large states with lenient balanced budget rules experienced less variability in personal income (measured as the standard deviation of linearly detrended quarterly real state per capita personal income). Based on this result, Levinson concludes that strict balanced budget rules add to state-level economic instability—at least in large states.

In related work, Eichengreen and Bayoumi (1994, 1995) and Sorensen, Wu, and Yosha (2001) find that strict balanced budget rules reduce the procyclical nature of state-level budget surpluses. Like Levinson (1998), they infer that strict balanced budget rules constrain the use of stabilization policy.

Fatás and Mihov (2006) find that strict balanced budget rules are not destabilizing. As a first step, they find that strict budget rules, as measured by the ACIR index, reduce variability in discretionary fiscal policy. Then

they find a positive relationship between the variability of discretionary fiscal policy and that of state output. They conclude that strict rules reduce state economic variability.

3. The Empirical Model and Specification Issues

3.1. Empirical Model

To examine the relationship between business cycle fluctuations and balanced budget constraints, Levinson (1998) calculates the variability of detrended quarterly personal income over the period from 1969 to 1995. The estimated measure of income variability is regressed on an indicator of the leniency of a state's balanced budget rule (deficit carryover allowed) and a set of control variables. Following Levinson (1998), using data he provided, we estimate equation (1) for the period from 1969 to 1995:

$$V_i = \beta_0 + \beta_1 \text{Lenient}_i + \beta_2 \text{Pop}_i + \beta_3 \text{Lenient} * \text{Pop}_i + \theta X_i + \varepsilon_i \quad (1)$$

where V_i is the measure of variability in output for state i ($i = 1, \dots, 50$), Lenient_i is a dummy variable that characterizes the balanced budget rule for state i (equal to one for states that allow deficit carryover from one year to the next and zero otherwise), Pop_i is population, a proxy for state size, and $\text{Lenient} * \text{Pop}_i$ is an interaction variable. If, as Levinson hypothesizes, large states with lenient balanced budget rules are able to effectively engage in fiscal policy, β_3 should be negative and significant. X_i represents a vector of state control variables, and ε_i is an error term. The control variables capture factors other than fiscal policy that influence state economic variability. Following Levinson (1998), the sample average growth rate in real per capita personal income and its initial level are included as control variables; variability is likely to be influenced by a state's growth rate and income level at the start of the period.⁴ The composition of output is also likely to influence state business cycles. For example, states with a large service sector may be less cyclical. We include output shares of agriculture, mining, services, and manufacturing in the regression. Because there are regional differences in business cycles, regional dummy variables are also included in the regression.

3.2. Specification Issues

Clearly, Levinson's inferences are not credible if they are reversed as a result of changes in model specification.⁵ We investigate the consequences of substituting two alternative methods of removing time trends from the

data. We also examine an alternative measure of state size, examine an alternative measure of economic activity, and replace ACIR classifications of budget rule strictness with those developed by the GAO.

3.2.a. Detrending the data. To measure business cycle fluctuations (V_t), long-run trends in the data must be removed. Most commonly, researchers take first differences (which assumes a constantly changing trend) or use the residuals from a regression of the time series variable on a constant and a time trend (this assumes a constant trend). Alternatively, the Hodrick-Prescott (HP) filter allows for a gradually changing trend component in the data (Hodrick and Prescott 1997). Researchers have not reached a definitive conclusion as to which method is best (Diebold and Rudebusch 2001; Crone 2003).

Levinson (1998) uses the constant trend method to remove trends from quarterly real per capita personal income. In this article, we investigate the consequences of using alternate detrending methods.

3.2.b. Alternate measure of state economic activity. Levinson (1998) uses real per capita income to measure state-level business cycle fluctuations. Personal income, however, has two weaknesses. First, personal income includes federal and state transfer payments that are not payments for current production. Second, it includes dividend and interest payments that are the result of production outside the state (Crone 2003). Given the problems with using real per capita income as a measure of state economic volatility, we introduce an alternative measure, the quarterly unemployment rate, available beginning in 1978.

3.2.c. Alternate measure of state size. Levinson (1998) stresses the importance of controlling for state size in an analysis of fiscal policy at the state level. Following Gramlich (1997), Levinson shows that small states, as measured by population, have a larger proportion of workers that commute across state lines than larger states. As a result, less income paid to workers in a large state is spent out of state, increasing the chances that fiscal policy will impact state economic activity. He also shows interstate commuting is negatively correlated with population and that states with large populations import less than states with small populations. He concludes that population is a good proxy for state size and the openness of the state economy.

Levinson (1998) groups the fifty states into two categories on the basis of population. For a state to be classified as large, it must be one of the twenty-five largest. In this case, Pop_i is a dummy variable equal to one for large states and zero otherwise. $Lenient*Pop_i$ is equal to one if state i is both

lenient and large. However, because there is considerable variation in population among the twenty-five largest states that are lumped together (see Figure 1), we suggest that the log of state population is a superior measure of state size. We examine the consequences of replacing Levinson's population dummy with the log of state population. When actual population is used to measure state size, $Lenient*Pop_i$ is equal to the log of population if a state has lenient balanced budget rules and zero otherwise.

4. Regression Results

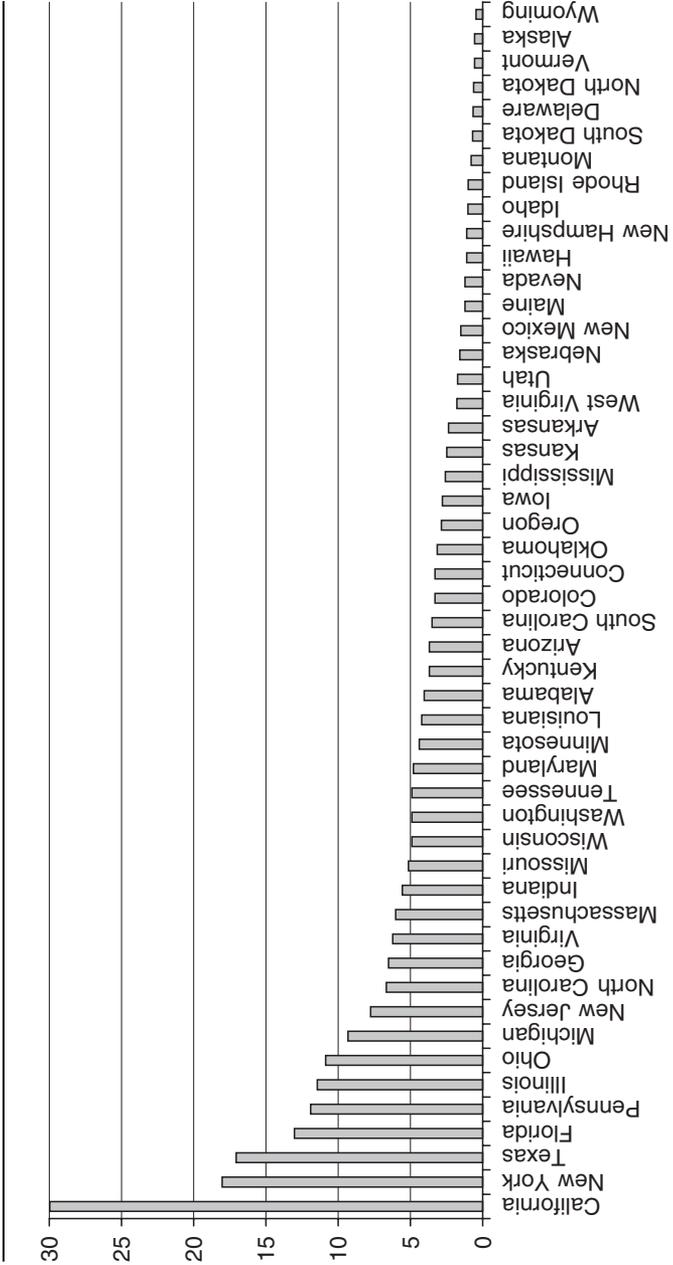
The results of the empirical tests are presented in Tables 2 and 3. Each equation is estimated using ordinary least squares. Heteroskedastic-consistent standard errors are reported (White 1980).

Regression results are reported using three alternate methods of detrending the time series data. In each of the tables, RES indicates that the time series state-level data are detrended using a regression with a constant and a time trend. The standard error of the residuals is used to measure variability in economic activity. D indicates that the series are first differenced. In this case, the standard error of the first differences is used to measure variability in economic activity. HP indicates that the trend component in the series was removed using an HP filter. The HP filter decomposes income into a trend and a cyclical component. The standard error of the cyclical component is used to measure variability in economic activity.

Table 2 presents results using Levinson's population dummy variable (largest twenty-five states are "large"). As in Levinson, when a constant trend is used to detrend the income data, we find that large states with lenient budget rules experience less income volatility. The coefficient of the $Lenient*Pop_i$ interacted variable, β_3 , is negative and significant at the 1 percent level in column 1. This is the result that led Levinson (1998) to conclude that fiscal policy is effective at the state level. The same holds true for the HP filter (column 3).

However, this result is not robust to other specifications. When we first difference the income data to remove the time trend (assumes a constantly changing trend), the result does not hold; large states with lenient budget rules do not experience less income variability (column 2). When the results of the GAO study are used to generate the dummy variables for states with lenient budget rules (deficit carryover is allowed), the coefficient of the $Lenient*Pop_i$ interacted variable, β_3 , is not significant, no matter what the detrending method (columns 4 through 6).

Figure 1
State Population (in millions)



Source: *Statistical Abstract of the United States.*

Table 2
Dependent Variable: Real PC Personal Income
(1969:Q1 to 1995:Q4) Population Measured by a
Population Dummy (Largest Twenty-Five States = 1)^d

	ACIR			GAO		
	RES ^a	D ^b	HP ^c	RES ^a	D ^b	HP ^c
	1	2	3	4	5	6
Constant	-0.157 0.44	-0.141 0.25	-0.092 0.41	-0.274 0.25	-0.148 0.17	-0.105 0.30
Pop dummy (large = 1)	0.002 0.69	-4.9E-4 0.88	0.001 0.62	-0.002 0.77	-0.002 0.51	2.34E-4 0.94
Lenient	0.029*** 0.00	0.005 0.31	0.013*** 0.01	-1.4E-4 0.98	-0.002 0.40	5.63E-4 0.85
Lenient*pop dummy	-0.026*** 0.00	-0.005 0.33	-0.014*** 0.01	0.004 0.59	0.004 0.30	-4.41E-4 0.91
Income 1969	0.028 0.14	0.017 0.14	0.013 0.20	0.043** 0.05	0.019* 0.06	0.017* 0.06
Average growth rate (Ln)	-1.139 0.76	-0.326 0.89	0.113 0.96	1.352 0.75	0.184 0.93	1.135 0.58
% agriculture	0.089 0.16	0.211*** 0.00	0.133*** 0.00	0.122 0.20	0.217*** 0.00	0.143*** 0.01
% manufacturing	-0.146*** 0.00	-0.046** 0.05	-0.052** 0.03	-0.165*** 0.01	-0.048* 0.06	-0.067** 0.05
% mining	0.124 0.19	-0.054 0.66	-0.081 0.35	0.202* 0.08	-0.037 0.70	-0.060 0.34
% service	-0.274*** 0.00	-0.055** 0.03	-0.083** 0.02	-0.434** 0.04	-0.113** 0.05	-0.200** 0.04
Northeast	0.009 0.11	0.007* 0.08	0.004 0.25	0.019*** 0.02	0.010** 0.04	0.010** 0.03
Midwest	-0.005 0.21	0.003 0.29	0.005* 0.07	-0.005 0.34	0.003 0.32	0.005 0.15
West	-0.012*** 0.00	-0.002 0.43	-0.002 0.38	-0.009* 0.06	-0.002 0.55	-0.001 0.72
R-bar squared	0.70	0.66	0.65	0.50	0.66	0.56
S.E. of estimate	0.011	0.007	0.007	0.014	0.008	0.008
Observations	50	50	50	49	49	49

Note: ACIR = Advisory Commission on Intergovernmental Relations; GAO = U.S. General Accounting Office.

a. Trend removed using a regression with a constant and a time trend. The standard error of the residuals is used to measure variability in economic activity.

b. Series are first differenced. The standard error of the first differences is used to measure variability in economic activity.

c. The trend component in the series was removed using a Hodrick-Prescott (HP) filter. The HP filter decomposes income into a trend and a cyclical component. The standard error of the cyclical component is used to measure variability in economic activity.

d. *p* values appear below coefficient estimates; ***, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively.

In Table 3, where the estimation of equation (1) is modified by replacing the population dummy with the log of population, columns 1 through 3 report results using the ACIR measure of budget leniency; columns 4 through 6 rely on the GAO measure. Again, using the ACIR measure of budget leniency, the *Lenient*Pop_i* coefficient is statistically significant for two methods of detrending the data but not for the third. Introducing the GAO survey results, we find that the coefficient of the *Lenient*Pop_i* interacted variable is significant and positive in every case. This is the opposite of the Levinson result.

We also ran the regressions replacing income with an alternative measure of state economic activity: the unemployment rate. These results are not reproduced here.⁶ When the ACIR budget rule classifications are used, in no case is the interactive term statistically significant. When the GAO budget rule classifications are substituted for those of the ACIR, the interactive term is positive and significant in two cases. Again, Levinson's result does not stand.

5. Conclusion

At issue is whether fiscal policy is an effective tool at the state level. Levinson's (1998) results support those who argue that it is. However, we find that his results are not robust to alternative specifications. His results are sensitive to the method used to deal with time trends in the data and to alternate measures of state population and economic activity. It seems premature to conclude that state fiscal policy works.

Concern over the classification of state budget rules by the ACIR (1987) led us to replace them in Levinson's regressions with classifications of state budget leniency produced by the GAO (1993). Teaming the GAO classifications of budget rule leniency with our preferred measure of state size, we find that large states with lenient rules experience greater cyclical variability than do other states. This conflicts with Levinson's theory that budget leniency allows large states to engage in stabilizing fiscal policy. If one were so inclined, one could conclude that large states with lenient budget rules attempt fiscal policy and that such efforts exacerbate business cycles.

This reversal of Levinson's results calls into question the conclusions of other studies that have relied on the ACIR budget rule classifications. They include work by Alt and Lowery (1994), Eichengreen and Bayoumi (1994, 1995), Poterba (1994), Bohn and Inman (1996), Sorenson, Wu, and Yosha (2001), and Fatás and Mihov (2006). The results of this article suggest that existing empirical work using the ACIR index should be revisited.

Table 3
Dependent Variable: Real PC Personal Income (1969:Q1 to 1995:Q4)
Population Measured by the Log of the Population^d

	ACIR			GAO		
	RES ^a	D ^b	HP ^c	RES ^a	D ^b	HP ^c
	7	8	9	10	11	12
Constant	-0.098 0.62	-0.119 0.31	-0.061 0.59	-0.310 0.11	-0.168* 0.07	-0.137* 0.08
Pop (Ln)	0.003 0.18	-0.570E-4 0.75	0.001 0.51	-0.008** 0.04	-0.006*** 0.01	-0.005*** 0.01
Lenient	0.178*** 0.00	0.017 0.69	0.087** 0.03	-0.105* 0.09	-0.099*** 0.00	-0.070** 0.03
Lenient*pop (Ln)	-0.011*** 0.00	-0.001 0.71	-0.005** 0.03	0.007* 0.08	0.007*** 0.00	0.005** 0.03
Income 1969	0.019 0.34	0.016 0.18	0.009 0.44	0.055*** 0.00	0.027*** 0.01	0.025*** 0.00
Average growth rate (Ln)	-4.362 0.33	-0.650 0.80	-1.295 0.62	3.164 0.37	1.513 0.42	2.465 0.13
% agriculture	0.114* 0.07	0.214*** 0.00	0.143*** 0.00	0.111 0.23	0.216*** 0.00	0.139*** 0.00
% manufacturing	-0.142*** 0.00	-0.044* 0.06	-0.048** 0.03	-0.119** 0.05	-0.017 0.46	-0.033 0.24
% mining	0.080 0.43	-0.056 0.66	-0.105 0.27	0.260** 0.05	0.019 0.81	-0.015 0.76
% service	-0.251*** 0.00	-0.048* 0.07	-0.069* 0.05	-0.290 0.12	-0.020 0.74	-0.098 0.24
Northeast	0.011** 0.04	0.007* 0.06	0.005 0.20	0.010 0.17	0.004 0.34	0.003 0.32
Midwest	-0.006 0.15	0.003 0.29	0.004 0.14	-0.005 0.38	0.003 0.27	0.005* 0.09
West	-0.010** 0.02	-0.002 0.50	-0.001 0.60	-0.011** 0.04	-0.003 0.32	-0.002 0.50
R-bar squared	0.68	0.65	0.63	0.53	0.70	0.59
S.E. of estimate	0.011	0.008	0.007	0.013	0.007	0.008
Observations	50	50	50	49	49	49

Note: ACIR = Advisory Commission on Intergovernmental Relations; GAO = U.S. General Accounting Office.

a. Trend removed using a regression with a constant and a time trend. The standard error of the residuals is used to measure variability in economic activity.

b. Series are first-differenced. The standard error of the first differences is used to measure variability in economic activity.

c. The trend component in the series was removed using a Hodrick-Prescott (HP) filter. The HP filter decomposes income into a trend and a cyclical component. The standard error of the cyclical component is used to measure variability in economic activity.

d. *p* values appear below coefficient estimates; ***, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively.

Notes

1. Poterba (1995, 1997) and Krol (1997) survey the empirical evidence on the effectiveness of various types of budget rules on state spending. However, this evidence includes work using the ACIR values that concern us here.
2. An index of 9 or 10 in the ACIR table indicates that a state is not allowed to carry over a deficit to the next fiscal year. Researchers have called the rules in these states "strict" and the rules in the remaining states "lenient."
3. Gary Anderson authored the 1987 ACIR report; Daphne Kenyon and Karen Benker were responsible for the budget rule survey. The footnote to the ACIR table reads, "ACIR staff compilation based on 1984 surveys of executive and legislative fiscal directors, and *Limitations on State Deficits*, Council of State Government, Lexington, KY, May 1976" (ACIR 1987, 40). In an e-mail message dated August 4, 2005, Nick Samuels of NASBO writes, "We compile the data in our publications, which are self-reported to us by state budget offices."
4. See Ramey and Ramey (1995), Dawson and Stephenson (1997), and Crain (2003) for a discussion of the relationship between the growth rate or level of economic activity and fluctuations.
5. Leamer (1983) emphasizes the importance of robustness in empirical work.
6. This is available from the authors.

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