DO TAX AND EXPENDITURE LIMITATIONS AFFECT THE SIZE AND GROWTH OF STATE GOVERNMENT?

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This paper focuses on citizens' ability to restrict the size and growth of state government through the use of tax and expenditure limitations (TELs). Most TEL laws are not designed to stop public sector growth but are intended to cap it relative to personal income growth. Evidence indicates that the design of TEL laws increases the elasticity of government size (and growth) with respect to income. Thus, TEL laws, as they currently are written, allow states with high income growth to keep increasing the size of the public sector. Meanwhile, they prevent states with low income growth from doing likewise. While TELs restrict government size and growth in states with below average income, in general they have no significant effect on the size or growth of government. Therefore, as long as income growth is high, TELs end up as little more than political cover for state legislatures.

I. INTRODUCTION

In 1994, voters elected a Republican congress, intent on giving more "fiscal" responsibilities to the states. Voters widely believed that giving states more fiscal responsibility would help control the overall size and growth of government. In the past 25 years, voters attempted to restrict both the size and growth of state and local government primarily by implementing tax and expenditure limitations (TELs). This study addresses the general question, "Do TELs affect the size and growth of state government?" Most TEL laws are not designed to stop public sector growth but are intended to cap it relative to personal income growth. Thus, answering this question requires considering two possible implications of TEL design: (i) TELs will increase the elasticity of government size (and growth) with respect to income and (ii) TELs will constrain states with little or no income growth more than states with high income growth.

Analyzing a panel data set on state government budgets (1972–1987), demonstrates four major points: (i) TELs significantly increase the elasticity of government size (and growth) with respect to income; (ii) on average, TELs have not limited either the size or the growth of state government; (iii) TELs do limit government size in states with below average income; and (iv) TELs decrease government growth in states with low income growth and increase government growth in states with high income growth.

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ABBREVIATION
TEL: Tax expenditure limitation

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II. SUMMARY OF TAX AND EXPENDITURE LIMITATION LAWS

Most state TEL activity took place between 1978 and 1980. Before 1978, only two states—New Jersey (1976) and Colorado (1977)—had adopted a TEL. Rhode Island is not included since its TEL is nonbinding. During the period 1978 to 1980, 12 additional states adopted TELs. This number does not include Nevada and Utah because Nevada's TEL is nonbinding and Utah never implemented its TEL (see table 1 for details). The following years saw very little new TEL activity. Between 1981 and 1987, only five states adopted TELs, bringing the grand total of TEL states to 19. Once adopted, a TEL tended to become a permanent feature of each state's budgetary process. Out of the 19 TEL states, only one state has allowed its TEL to expire—New Jersey in 1983.

Fourteen of the 18 state TEL laws used in this study restrict expenditures, while the remaining four restrict revenues. (Data for this study exclude those from Alaska because of the high volatility of its expenditures and revenues, which results from large amounts of oil revenues.) The most prevalent form of restriction is to limit growth of expenditures (or revenues) to growth in personal income—14 states employ such restrictions. California limits expenditures to growth in population and inflation (as does Alaska). For the remaining three states, Colorado limits expenditures to 7 percent growth, Delaware to 98 percent of estimated general funds plus the previous years' unencumbered funds, and Oklahoma to 12 percent growth (adjusted for inflation).

III. LITERATURE REVIEW

The question of TEL effectiveness is not new. Neither is the more fundamental and closely related question, "Why does government tend to grow over time?" In fact, numerous economists have investigated the reasons for government's increased role in the lives of private citizens (see Aronson and Ott, 1990, for a review of this literature). However, far less research has concentrated specifically on the impact of TELs on government growth. Those who have investigated the effect of TELs on government budgets include Bails (1982, 1990), Kenyon and Benker (1984), Howard (1989), Joyce and Mullins (1991), and Elder (1992).

Bails (1982) conducts a study to determine if TEL laws as currently written would have any significant effect on state budgets and finds that existing TEL laws would not significantly affect the overwhelming majority of the states' budgetary outcomes. Bails' (1990) next study essentially extends his 1982 work and does not change his main conclusion. Kenyon and Benker (1984) compare the growth of state government expenditures relative to the growth in personal income in TEL and non-TEL states over a period of six years (1977–1983) and conclude that there were no significant differences. In a similar study, Howard (1989) compares average state revenues and expenditures relative to personal income in TEL and non-TEL states from 1979 to 1987 and also finds no significant differences. Joyce and Mullins (1991) find that TEL states did experience a decline in revenues in the short run but experienced an increase in the long run. Thus, these studies generally conclude that TELs do not matter. However, previous theoretical and empirical research has shown that public spending is closely related, in levels and growth rates, to both income and population as well as to other economic variables (see Wagner, 1883; Borcherding and Deacon, 1972; Bergstrom and Goodman, 1973; Borcherding, 1977; Meltzer and Richards, 1983; Oates, 1985). The studies summarized above neglect to consider these factors when assessing a TEL's impact on state government. Elder (1992) does control for the effects of population and income on public sector growth and finds that TEL laws have had

TABLE 1
Summary of TEL Laws

YEAR OF ADOPTION	STATE	TYPE OF TEL	TEL LIMIT
1976	New Jersey[a]	Expenditure	Growth of state per capita personal income
1977	Colorado	Expenditure	7%
	Rhode Island[b]	Expenditure	6%
1978	Arizona	Expenditure	Growth of state personal income
	Hawaii	Expenditure	Growth of state personal income
	Michigan	Revenue	Growth of state personal income
	Tennessee	Expenditure	Growth of state personal income
	Texas	Expenditure	Growth of state personal income
1979	California	Expenditure	Growth of inflation and population
	Louisiana	Revenue	Growth of state personal income
	Nevada[b]	Expenditure	Growth of inflation and population
	Utah[b]	Expenditure	85% of growth in state personal income
	Washington	Revenue	Growth of state personal income
1980	Idaho	Expenditure	Growth of state personal income
	Missouri	Revenue	Growth of state personal income
	Oregon	Expenditure	Growth of state personal income
	South Carolina	Expenditure	Growth of state personal income
1981	Montana	Expenditure	Growth of state personal income
1982	Alaska[c]	Expenditure	Growth of inflation and population
1985	Delaware	Revenue	98% of estimated general fund revenue and prior years unencumbered funds
	Oklahoma	Expenditure	12% (in real terms)
1986	Massachusetts	Revenue	Growth in state personal income

Notes:

[a] = New Jersey's TEL expired in 1983.

[b] = Rhode Island and Nevada are not included in this study because their TELs are nonbinding. Utah is not included in this study since its TEL was never implemented.

[c] = Alaska is excluded from this study due to its volatile expenditures and revenues.

Data Source:

Significant Features of Fiscal Federalism, Advisory Commission on Intergovernmental Relations, various issues.

some effect on reducing government growth.

IV. SAMPLE STATISTICS AND DESCRIPTIVE ANALYSIS

The unit of observation for this study is the state. The time period is from 1972 to 1987. Most state TEL activity took place between 1978 and 1980, so the 1972–1987 time frame includes six years before and seven years after most significant TEL activity. The sample period thus allows one to assess whether or not TELs affect the size and growth of state government.

To indicate the amount of variation in the sample, table 2 contains the means and standard deviations of all variables used in this study. All variables are measured in real terms. For TEL and non-TEL states over the sample period, figure 1 presents the average level of own expenditures per capita and figure 2 presents the average growth of own expenditures per capita. (In the remainder of the paper, the terms "own expenditures per capita" and "own revenues per capita" are shortened to "expenditures" and "revenues," respectively.) A quick review of these figures should help provide an overall feel for the size and growth of state government spending as well as its possible relationship to TELs. Figure 1 shows the average expenditures were $956 in TEL states and $913 in non-TEL states, thus indicating that expenditures are higher in TEL states than in non-TEL states. The same was true for revenues. (This result suggests that TELs might be endogenous—i.e., states that impose TELs might do so because they have higher expenditures or revenues. The analysis tests for and rejects this possibility. Results indicate that neither the level nor growth of government before adopting a TEL can adequately explain why a state chose to adopt it.) Figure 2 shows that the average growth of expenditures was 1.91 percent in TEL states and 2.03 percent in non-TEL states, thereby indicating government growth was somewhat smaller in TEL states than in non-TEL states. Given these observations, one could conclude that TELs have had some effect on slowing the government growth rate but have had no impact on restricting the government size.

V. EMPIRICAL SPECIFICATION

The model estimated below is from the theoretical literature on the demand for public goods, stemming from the seminal work of both Borcherding and Deacon (1972) and Bergstrom and Goodman (1973). The model estimated for this study is

$$(5.1)\quad EXP = \alpha_0 + \alpha_1 POP_{it} + \alpha_2 INC_{it} + \alpha_3 MGRANTS_{it} + \alpha_4 NMGRANTS_{it} + \alpha_5 TEL_{it} + \alpha_6 TEL{*}INC_{it}\, SD_i + TD_t + e_{it}$$

where:

Exp = log of real own expenditures per capita

POP = log of population

INC = log of real per capita income

MGRANTS = log of real federal matching grants per capita

NMGRANTS = log of real federal non-matching grants per capita

TEL = a dummy variable for state *i* at time *t*

TEL*INC = an interactive dummy variable (TEL X INC)

SD = a set of state dummy variables

TD = a set of time dummy variables

The state and time dummy variables control respectively for state-specific invariant and time-invariant factors affecting state government size (and growth). The regression results presented below include models both with and without state dummies; all models include time dummies. Since the data set includes both cross-sectional and time series data, an appropriate statistical model is a cross-sectionally heteroskedastic timewise autoregressive model (see Kmenta, 1986, pp. 616–622). A Breush-Pagan-Godfrey test and a Durbin-Watson d test, confirm the appropriateness of this model, indicating the presence of heteroskedasticity and autocorrelation, respectively. The estimated coefficients in models without state dummies are simply generalized least squares (GLS) estimates. The models with state dummies provide fixed effect estimates. The fixed effects coefficients reflect only the variation within each state over time and not between

TABLE 2
Means and Standard Deviations

OBSERVATIONS = 735	MEAN	STANDARD DEVIATION
LEVELS (LOGS)		
EXP	6.814	0.227
REV	6.840	0.244
POP	7.978	0.988
INC	9.346	0.147
MGRANTS	4.534	0.444
NMGRANTS	5.463	0.301
GROWTH RATES (in % points)		
EXP	1.984	5.928
REV	2.272	5.541
POP	1.129	1.194
INC	1.573	4.013
MGRANTS	1.137	13.582
NMGRANTS	0.586	13.899

Variable Definitions:

EXP = (Real total direct general expenditures minus intergovernmental grants) per capita
REV = Real own source general revenues per capita
POP = State population
INC = Real personal income per capita
MGRANTS = Real federal matching intergovernmental revenues per capita
NMGRANTS = Real federal non-matching intergovernmental revenues per capita

Data Sources:

Federal Aid to the States (1972–1982) U.S. Treasury
- Aid to Families with Dependent Children and Medicaid (MGRANTS).

Federal Expenditures by State (1983–1987) U.S. Bureau of the Census
- Aid to Families with Dependent Children and Medicaid (MGRANTS).

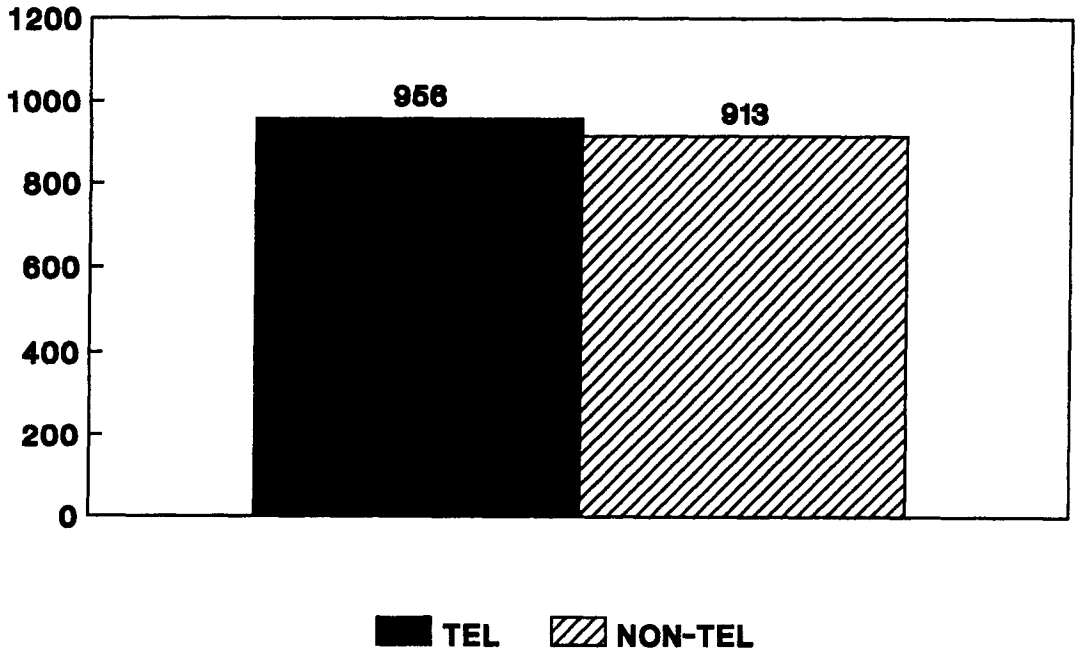
Monthly Labor Review (1972–1987) U.S. Bureau of Labor Statistics (April issues)
- Consumer Price Index.

State Government Finances (1972–1987) U.S. Bureau of the Census.
- State Expenditures, Revenues and Intergovernmental Revenue.

Statistical Abstract of the United States (various years)
- Population.

Survey of Current Business (1972–1987) U.S. Bureau of Economic Analysis
- Income.

FIGURE 1
Level of Expenditures by TEL Status



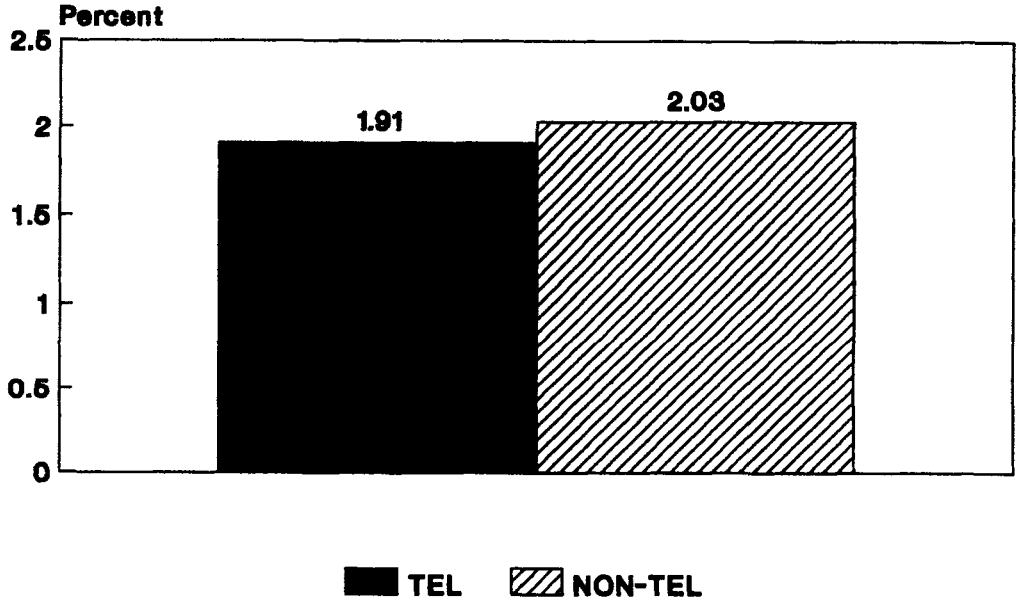
states (see Hsiao, 1989, pp. 25–32; Greene, 1993, pp. 464–478).

Following Elder (1992), the present study uses panel data in a fixed effect framework to examine the impact of TELs on state government. However, it differs in several fundamental ways, leading to different conclusions about the impact of TELs. First, by focusing solely on TEL states, Elder tests only whether or not TEL states had experienced a decline in government growth after their limitation laws were enacted. However, since TELs are arguably devised to constrain the growth of state government, TEL states should, *ceteris paribus*, have lower growth than non-TEL states. Thus, unlike Elder, who only includes TEL states, this study samples both TEL and non-TEL states. (Elder does state in a footnote that the regression results he obtains when including both TEL and non-TEL states in his sample are virtually the same, but not as robust.)

The second major difference concerns the measure of government size. Elder chooses to measure the size of state government as the aggregate level of real own taxes. This study measures government as own expenditure per capita (equation [5.1] also measures government size as own revenues per capita—all qualitative results involving TELs are the same). If one is interested in assessing the burden the public sector places on individual citizens, then measuring the size of government in per capita terms is more appropriate.

Third, the present study, like Elder (1992), examines the difference in the relationship between government size (and growth) and income in TEL and non-TEL states by including the interactive dummy variable TEL times income (TEL*INC) in

FIGURE 2
Growth of Expenditures by TEL Status



the model. Since most TEL states link the growth of government to growth in income, one expects the coefficient on TEL*INC to be positive, implying that the elasticity of government size is greater in TEL states than in non-TEL states. However, this study also seeks to ascertain the differential effects of TELs in low and high income growth states. Because government can increase spending only when income grows, TELs should be more binding in states with low income growth than in states with high income growth, since high growth states have their TEL constraints loosened as income increases more quickly.

The model also includes three control variables—population, income, and federal intergovernmental grants. Both theoretical and empirical evidence suggests that population and income will exert a positive influence on the size and growth of government. As Borcherding (1977) argues, population should have a positive effect on public sector size—assuming no congestion—since an increase in population reduces the overall cost of public goods per capita. Furthermore, Wagner's Law identifies a positive relationship between income and government size (and growth).

The third control variable is federal intergovernmental grants. The fact that many of these grants are matching grants presents an endogeneity problem since a state needs to spend more of its own money in order to get more federal monies. Controlling for this involves splitting federal intergovernmental grants into two components—matching and non-match-

ing. The matching portion includes Aid to Families with Dependent Children and Medicaid—the two major federal open-ended matching grant programs. All other grants are categorized as non-matching. (A Hausman specification test indicates that one should treat matching grants as endogenous when the dependent variable is expenditures and as exogenous when the dependent variable is revenues. Thus, all models below involving expenditures are estimated by two-stage least squares.) One expects that matching grants will exert a positive effect on government size and growth as they reward states that spend more on particular programs. However, if states simply increase spending in matching programs while they simultaneously decrease spending in non-matching programs, then matching grants may not have a significant effect on expenditures. The expected influence of non-matching grants is uncertain. Many economists believe that federal grants substitute for local revenues and therefore expect a negative sign. Others, like Logan (1986) and Grossman (1989), believe that federal money stimulates state and local public spending and therefore expect a positive sign.

VI. RESULTS

A. *Estimated TEL Effects on Government Size*

Table 3 presents the initial set of regression results. Prior to addressing the impact of TELs, one must consider the economic impact of the other variables. First, contrary to Borcherding's postulation, the coefficient on POP is negative and significant in all the GLS regressions. However, Heil (1991) and many others argue that a negative sign on POP simply implies scale economies in providing public goods. (This result could be due in part to the "built-in" negative tendency created by dividing expenditures by population. However, dividing expenditures by state income results in a negative coefficient on POP. This, along with the fact that all qualitative results involving TELs are robust to this change, provides additional credence to the "economies of scale" argument.) More specifically, the coefficients suggest that a state with a 10 percent larger population will tend to have 0.64 percent lower expenditures. The positive coefficient on INC indicates that states with higher real income per capita have more demand for public goods. Based on the GLS estimates, a state with 10 percent higher real income per capita will tend to have nearly 4 percent more expenditures. However, the fixed effects estimates imply only approximately 1.5 percent more expenditures for states with 10 percent higher real per capita income. The coefficient on MGRANTS is positive as expected in both GLS models but is never significant. On the other hand, NMGRANTS always has a significantly negative effect on expenditures, implying that federal grants act as a substitute for state spending. The magnitude of the fixed effect coefficients suggests that if non-matching federal grants were to increase by $100, $92 would be spent on public goods and $8 would be used to reduce state taxes.

Table 3 indicates that TELs have not had a very strong effect on limiting the size of state government. In both regressions, which exclude the interactive dummy TEL*INC, the coefficient on TEL is unexpectedly positive although insignificant; these results are exactly the opposite of Elder's (1992) results. This result implies that the limitation laws have not had any significant restraining effect on the size of state government. However, most TEL laws do not simply outlaw growth in government. Therefore, a TEL dummy alone may not pick up the impact of TEL laws. Since the majority of TEL laws limit growth in government to growth in state personal income, the model includes the variable TEL*INC. Dis-

TABLE 3
Effect of TELs on State Government Size

DEPENDENT VARIABLE	EXP A	EXP B	EXP C	EXP D	REV E
CONSTANT	3.201[a]	5.377[a]	3.889[a]	5.585[a]	5.179[a]
	(0.593)	(0.900)	(0.607)	(0.895)	(0.842)
POP	-0.064[a]	0.034	-0.064[a]	0.034	-0.107
	(0.014)	(0.085)	(0.013)	(0.083)	(0.079)
INC	0.397[a]	0.148[b]	0.382[a]	0.127[c]	0.274[a]
	(0.063)	(0.072)	(0.064)	(0.072)	(0.061)
MGRANTS	0.010	-0.0004	0.001	-0.001	-0.004
	(0.002)	(0.001)	(0.002)	(0.001)	(0.013)
NMGRANTS	-0.048[b]	-0.081[a]	-0.049[b]	-0.083[a]	-0.030[c]
	(0.020)	(0.019)	(0.020)	(0.019)	(0.016)
TEL	0.003	0.005	-1.544[b]	-1.597[b]	-1.641[a]
	(0.012)	(0.010)	(0.757)	(0.641)	(0.481)
TEL*INC	-	-	0.165[b]	0.171[b]	0.176[a]
			(0.080)	(0.068)	(0.051)
R^2	0.22	0.52	0.22	0.52	0.64
ESTIMATOR	GLS	F.E.	GLS	F.E.	F.E.

Notes:
All variables are measured in logs
All regressions contain year dummies
Standard errors in parentheses
[a] = Significant at the 1 percent level
[b] = Significant at the 5 percent level
[c] = Significant at the 10 percent level

cerning the impact of TELs when the model includes TEL*INC requires more than simply performing a t-test on the dummy variable TEL. One must evaluate the following expression:

$$(6.1)\quad \partial E[EXP]/\partial(TEL) = \alpha_5 + \alpha_6 * INC$$

and perform an F-test on the joint significance of α_5 and α_6. (An F-test indicates that α_5 and α_6 are jointly significant at the 5 percent level or better in models D and E.) Once TEL*INC is included in the model, the coefficient on TEL is significantly negative (as expected) in all regressions. The coefficient on TEL*INC is positive (as expected) and significant, implying that the marginal effect of having a TEL on expenditures increases with income. Both these results also contradict Elder (1992). The evaluation of equation (6.1) at the mean level of income indicates that TELs have a slightly positive effect on expenditures (0.24 percent). If a state's income is one standard deviation below the

mean, a TEL would have a slight negative effect on expenditures (–0.13 percent). Meanwhile, a TEL in a state with income one standard deviation above the mean would have a slight positive effect on expenditures (0.61 percent). Therefore, as long as a state's income is roughly equal to or greater than the mean, a TEL will not limit but actually will increase spending. In these cases, one can argue that TELs merely provide political cover for state legislatures. In other words, legislators can claim that the government is not growing too fast because a TEL law designed specifically to curtail state growth is in place.

To ascertain the effect of TELs on the elasticity of expenditures with respect to income, one must evaluate the following expression:

$$(6.2)\quad \partial E[EXP] / \partial(INC) = \alpha_2 + \alpha_6 * TEL$$

The estimated coefficients α_2 and α_6, for example in model D, imply that the elasticity of expenditures with respect to income is more than twice as high in TEL states than in non-TEL states. Thus, the results suggest that while TELs have only a small significant effect limiting the size of government, they do significantly increase the elasticity of government size with respect to income.

B. *Estimated TEL Effects on Government Growth*

The regression results presented in table 4 address the impact of TELs on the rate of state government growth. Before proceeding to the impact of TELs on the state government growth rate, one must consider the economic impact of the other variables. First, the coefficient on POP is positive and significant in all the Fixed Effects regressions. Thus, states with higher population growth over time have significantly higher growth in their public sector. The positive coefficient on INC indicates that as the growth of real income per capita rises, so does the demand for public goods. The coefficient on MGRANTS is typically positive as expected but never significant. On the other hand, the always negative and significant coefficient on NMGRANTS implies that non-matching federal grants act as a substitute for state spending.

The results in table 4 do not indicate a strong relationship between TELs and a slowdown in the state government growth rate. (The fixed effects present in the levels regressions possibly will drop out when first differences are taken to produce growth rates. However, some unmeasured factors may exist that allow states expenditures to grow faster in some states than in others. An F-test suggests that fixed effects are present when the model does not include TEL*INC.) The coefficient on TEL is negative in the GLS regressions but never significant (not even when TEL*INC is included). This suggests that TELs have not significantly limited the state government growth rate. The coefficient on TEL*INC is positive (but only significant in the GLS regressions). Thus, the marginal effect of having a TEL on expenditure growth increases as a state's income grows (the coefficients α_5 and α_6 are never jointly significant). The coefficients α_2 and α_6 are jointly significant in all regressions (at the 10 percent level or better), indicating that TELs increase the elasticity of expenditure growth with respect to income growth. More specifically, the coefficients α_2 and α_6 in model C suggest that the elasticity of expenditure growth with respect to income growth is three times higher in TEL states than in non-TEL states. These results indicate that while TELs may not restrain the rate of government growth, they do increase the elasticity of government growth with respect to income growth. Given that most TEL laws link growth in government to growth in state

TABLE 4
Effect of TELs on State Government Growth

DEPENDENT VARIABLE	EXP A	EXP B	EXP C	EXP D	REV E
CONSTANT	-0.014	-0.020	-0.012	-0.018	0.040[b]
	(0.010)	(0.016)	(0.010)	(0.016)	(0.019)
POP	0.249	1.430[a]	0.245	1.430[a]	0.922[a]
	(0.169)	(0.277)	(0.168)	(0.277)	(0.224)
INC	0.161[b]	0.118[c]	0.134[c]	0.097	0.090
	(0.072)	(0.070)	(0.074)	(0.072)	(0.064)
MGRANTS	0.004	0.002	0.004	0.002	-0.007
	(0.007)	(0.006)	(0.006)	(0.006)	(0.012)
NMGRANTS	-0.058[a]	-0.059[a]	-0.057[a]	-0.058[a]	-0.015
	(0.021)	(0.021)	(0.021)	(0.021)	(0.014)
TEL	-0.002	0.006	-0.004	0.004	-0.008
	(0.004)	(0.006)	(0.005)	(0.006)	(0.005)
TEL*INC	-	-	0.238[c]	0.189	0.451[a]
			(0.147)	(0.143)	(0.129)
R^2	0.21	0.28	0.22	0.28	0.48
ESTIMATOR	GLS	F.E.	GLS	F.E.	F.E.

Notes:
All variables are in growth rates
All regressions contain year dummies
Standard errors in parentheses
[a] = Significant at the 1 percent level
[b] = Significant at the 5 percent level
[c] = Significant at the 10 percent level

personal income, TELs should be more binding in states with low income growth than in states with high income growth. Splitting the sample into high and low income growth states tests for this possibility. (A state is defined as one of high or low income growth based on its income growth each year. A state that exhibits above average income growth for a particular year is defined as a high income growth state [HITEL] for that year, and a state that exhibits below average income growth for a particular year is defined as a low income growth state [LOWTEL] for that year. Thus, a state can be HITEL in some years and LOWTEL in other years. Only three states remain in the same category for the entire period—Delaware and Massachusetts in HITEL and Oklahoma in LOWTEL.)

Table 5 presents the results of the regressions with the split sample. As one expects, TELs lower spending growth in TEL states with low income growth while they increase spending growth in TEL states with high income growth. The coefficients on LOWTEL imply that expenditures (revenues) in states with low income growth

TABLE 5
Differential Effects of TELs on State Government Growth by HITEL and LOWTEL States

DEPENDENT VARIABLE	EXP A	EXP B	REV C	REV D
CONSTANT	-0.012	-0.018	0.045[a]	0.040[b]
	(0.010)	(0.016)	(0.007)	(0.019)
POP	0.262	1.434[a]	0.122	0.904[a]
	(0.168)	(0.277)	(0.132)	(0.223)
INC	0.132[c]	0.092	0.097	0.086
	(0.073)	(0.071)	(0.062)	(0.063)
MGRANTS	0.004	0.002	-0.005	-0.008
	(0.006)	(0.006)	(0.012)	(0.012)
NMGRANTS	-0.056[a]	-0.057[a]	-0.013	-0.014
	(0.021)	(0.021)	(0.013)	(0.014)
LOWTEL	-0.011[b]	-0.002	-0.020[a]	-0.019[a]
	(0.006)	(0.007)	(0.005)	(0.006)
HITEL	0.008	0.015[b]	0.015[a]	0.014[b]
	(0.006)	(0.007)	(0.005)	(0.006)
R^2	0.22	0.28	0.43	0.49
ESTIMATOR	GLS	F.E.	GLS	F.E.

Notes:

All variables are in growth rates

All regressions contain year dummies

Standard errors in parentheses

[a] = Significant at the 1 percent level

[b] = Significant at the 5 percent level

[c] = Significant at the 10 percent level

LOWTEL = TEL interacted with a dummy variable which takes the value of 1 (0) if the state has below (above) average income growth (60 percent of the TEL observations).

HITEL = TEL interacted with a dummy variable which takes the value of 1 (0) if the state has above (below) average income growth (40 percent of the TEL observations).

will become, over a five year period, approximately $50 ($100) lower than those in non-TEL states with low income growth. The coefficients on HITEL imply that expenditures in TEL states with high income growth will become, over a five year period, approximately $80 higher than in non-TEL states with high income growth. These results support the claim that TELs are more binding in low income growth states. Meanwhile, they also show that in states with high income growth TELs merely provide political cover for state legislatures. The same set of regressions run for the state government size, find no significant differences between high and low income growth states.

This study shows that TELs have had two significant effects on state government: (i) they have strengthened the elasticity of state government size (and growth) with respect to income and (ii) they have significantly decreased (increased) the state government growth in TEL states with low (high) income growth. If one believes that politicians try to maximize the size of government (see the "Leviathan" literature of Brennan and Buchanan, 1977, 1978, 1980) and that they can affect real income growth, then linking government growth to income growth is a good idea. In other words, linking government growth with income growth encourages politicians to explore new avenues for increasing income growth in their states. Unfortunately, a drawback exists to linking government growth with income growth: politicians in TEL states with high income growth tend to increase spending more than do their counterparts in non-TEL states.

VII. CONCLUDING REMARKS AND EXTENSIONS

The above results show that TELs: (i) significantly increase the elasticity of government size (and growth) with respect to income; (ii) have, on average, limited neither the size nor the growth of state government; (iii) do limit the size of government in TEL states with below average income; and (iv) decrease (increase) the growth of state government in TEL states with low (high) income growth.

Two avenues of related research seem promising. The first explores the question: Have TELs had any effect on the structure of state expenditures and revenues? In other words, have TELs forced states to give up certain traditional responsibilities and/or to look for alternative revenue sources? The second considers state legislatures that have imposed TELs not only on themselves but also on local governments. Whether the TELs that state governments have imposed on local governments are more binding, on average, than are the TELs they have imposed on themselves is an interesting empirical question.

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