analysis

A TASC for Nevada

Economic benefits for the Silver State of TASC-style spending control

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Executive Summary

The 2006 Tax and Spending Control (TASC) initiative was removed from Nevada's most recent November ballot by the state Supreme Court. Yet polls show that most Silver State residents strongly support additional constitutional limits on state and local government spending.

Of course, in certain quarters this idea remains controversial. Opponents argue that limiting Nevada government growth to benchmarks pegged to the growth of the economy would force government to sacrifice vitally important programs. Constitutional constraints on spending, they say, would eventually force public officials to shortchange vitally important programs, with damaging consequences to the entire state economy.

On the other side, TASC proponents of such limits argue that expansion of government spending is inherently damaging, economically. Such expansion, they contend, directs private financial resources away from the business investment and entrepreneurial innovation that create jobs and wealth for all communities. Instead, resources are routed into government projects that lack the private sector's market discipline and are marked instead by waste and submarginal productivity. For these reasons, they say, adoption of a TASC-style amendment should lead to measurable improvements in important indicators of economic activity.

To explore this question, NPRI contacted the Beacon Hill Institute at Suffolk University in Boston, Massachusetts, which performs statistical analyses on emerging public policy issues.

Specifically, the Beacon Hill team was asked to determine the likely economic impact on Nevada of a TASC-style constitutional amendment and whether such an amendment would undermine government's ability to provide its safety-net services.

To address the first question, the authors focused on a key measure of economic activity: Gross State Product per capita. Approaching the question historically, they asked, "How would GSP per capita have been affected, had Nevada adopted TASC in fiscal year 1997?" Because two versions of TASC had been inadvertently submitted to the Nevada Secretary of State's Office — occasioning the measure's eventual removal from the ballot — the authors performed a separate analysis for each version.

Under TASC supporters' preferred version, the authors found, gross state product per person in Nevada would, in 2004, after just seven years, have been 10.12 percent greater under TASC than it was in the amendment's absence. These results are consistent with several past studies showing that, when government has exceeded its optimal size, legal constraints on government spending redound to the benefit of the economy and substantial improvements in living standards.

The Beacon Hill Institute at Suffolk University

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Introduction

Continuing voter support for a TASC-style amendment to the Nevada constitution makes it important to examine the likely impact of such an amendment.

The 2006 Tax and Spending Control (TASC) initiative proposed to add a new article, designated 10A, to the Nevada Constitution. The initiative sought to limit the growth of state and local government spending to the sum of the rates of growth in inflation and state population. It also implicitly proposed to limit the disposition and growth of tax revenues. Not only would new taxes require the approval of the voters, but when growth of tax revenues exceeds allowable spending growth, the unused revenue must be transferred into reserves and even returned to taxpayers. First, such extra revenues go to an Emergency Reserve Fund and then to a Budget Stabilization Fund, which can be drawn upon to cover intermittent revenue shortfalls. Once these funds have reached their predetermined limits, any additional excess revenue would be refunded to taxpayers, unless the legislature and voters, together, elect to spend it.

On September 8, 2006 the TASC Initiative became moot for that election year when a majority of sitting Nevada Supreme Court justices voted to reject the TASC initiative, saying supporters failed to strictly comply with mandatory constitutional rules for ballot questions. The court rejected a lower court's judgment that petition circulators' "substantial compliance" had sufficed. The compliance issue arose because of a typographical error in one of two petitions filed with the Secretary of State.

Nevertheless, continuing voter support for the idea of a TASC-style amendment to the Nevada Constitution makes it important to examine the likely impact of such an amendment on state economic activity. Proponents argue that, because an expansion in government spending is inherently damaging to the economy, the adoption of a TASC-type amendment will lead to measurable improvements in important indicators of economic activity — for example, Gross State Product (GSP) per person. By limiting the growth of wasteful government projects, TASC will free up funds that can be used for productive purposes — most particularly, business investment. By limiting the fiscal pressure for tax hikes and increasing the opportunities for tax cuts, TASC reduces the disincentives to work and invest that taxes by their nature impose.

Opponents, on the other hand, argue that, by limiting the size of government to some artificial benchmark, TASC would force government to sacrifice vitally important programs. Forced to constrain spending, they say, the state would eventually find it necessary to shortchange one vitally important program in order to sustain another, with damaging consequences to the state economy.

The Purpose of this Study

In spring 2006, The Beacon Hill Institute conducted a study that identified the relationship between the size of state government and the growth of a state's economy. Using statistical analysis, we applied the results to ten states using a generic Taxpayer Bill of Rights (TABOR)[1]. The analysis of state spending in 50 states over a seven-year period found that elasticity of gross state product per capita – GSPP – with respect to government spending per dollar of gross state product (GSP) is 0.1013. This

implies that a 10 percent increase in the ratio of government spending to GSP reduces GSPP by 1.013 percent.

In this report we use a similar methodology and apply the results to the recently mooted TASC initiative in Nevada, which contains differences from the generic TABOR language used in our previous study. The TASC petition applied to spending at the local level, as well as state spending, and the two versions of the initiative filed contained different language bearing on the formula for calculating the initial spending limit at the state level. While accounting for these differences, we still address two matters. We first ask how a TASC measure in Nevada could be expected to affect one important measure of economic activity: Gross State Product per capita. Would GSP per capita rise, fall or remain the same under TASC? Next, we apply the different formulas contained in the two versions of the TASC initiative to see how the formulas affect GSPP. Finally, we ask whether a TASC amendment would, as its opponents claim, undermine the ability of government to perform its core functions. In an economic contraction, for example, would governments in Nevada be unable, under TASC, to provide a safety net for essential government services?

Effects on GSP Per Capita

We approach the task of identifying the effect on GSP per capita retrospectively, asking the following question: "Suppose Nevada had adopted TASC in fiscal year 1997. How would this adoption have affected GSP per capita in each year over the period FY 1997 to 2004?"

To answer this question, we first determine how the TASC initiative would have limited spending, that is, how much less the state and local governments would have spent, under TASC, in a

given year over this period, compared to what it did, in fact, spend. In 2004, Nevada state and local governments spent $16.18 billion, according to data from the U.S. Census Bureau; however, under TASC it would have only spent $13.49 billion. Thus, Nevada would have spent $2.69 billion, or 16.7 percent less had a TASC amendment become effective in 1997.

These numbers represent changes from a status quo or "baseline" in which there was no TASC constraint on spending to a hypothetical scenario with such a constraint. They do not represent changes from one year to another. State government spending continues to rise under TASC — just not as rapidly as it would have otherwise.

For our next step, we determine how the reduction in spending brought about by TASC would have affected GSP per capita, or as we shall call it, GSPP. As shown by the statistical analysis described in the Appendix, we find that, on the average, a 10 percent decrease in state spending per dollar of GSP is associated with a 1.92 percent increase in GSPP. Applying the same analysis to our data set, we find that, in FY 2004, at the end of the period, FY 1997 to 2004, TASC would have increased GSPP. Nevada's actual GSPP was $41,532 but TASC would have increased GSPP to $45,736. Thus, in 2004, under TASC, GSPP in Nevada would have been $4,205 or 10.12 percent greater per person than it was without TASC.

These results are consistent with several past studies showing that, when government has exceeded its optimal size, legal constraints on the size of government redound to the benefit of the economy. While the benefits vary with demographic trends, compelling evidence indicates that limitations on government have positive effects on state economies.

In 2004, under TASC, GSPP in Nevada would have been $4,205 or 10.12 percent greater per person than it was without TASC.

As mentioned above, a typographical error in one version of the TASC initiative filed with the Nevada Secretary of State occasioned a ruling by the Nevada Supreme Court that no version of TASC could go on the ballot. The two documents filed had inadvertently specified different time periods (2005-2009 and 2007-2009) to be used for calculating the initial spending limit for state government in the biennium beginning in 2009. Overruling the state's First District Court, a Supreme Court majority adopted the argument of TASC foes who contended that the additional two-year difference in calculation bases constituted a "substantive" and "massive" difference, working out to at least an additional $1.5 billion in state spending allowed during the first biennium TASC was in effect. TASC proponents disagreed,[2] but in light of the court's ruling, we chose to conduct *two* simulations, using the two time periods to calculate the initial biennium's spending limit. This would show how the different calculation periods assumed by TASC opponents would have affected spending and thus GSPP.

According to the results of our regression model, the more the TASC formula restricts the growth of government spending relative to the rest of the economy, the more Gross State Product per person will increase above the baseline case without TASC. Using the more generous formula (the estimated increase in inflation and population growth from January 1, 2005 to January 1, 2009), GSPP would increase by $88 in 2009. The more restrictive formula, on the other hand, yields an increase in GSPP of $383. Our modeling suggests that the TASC language using the shorter time period would produce an increase in Gross State Product per person that is

more than four times the increase using the less restrictive formula.

Can Government Maintain a Safety Net under TASC?

The last matter taken up by this study is whether TASC would permit government to maintain an adequate safety net for crucial governmental services. We find there is nothing in TASC that would prevent a state government from doing exactly that. The 2006 TASC initiative specifically calls for placing a portion of excess tax revenues in rainy-day funds during periods of economic expansion — allowing Nevada's state and local governments to avoid painful decreases in government spending per capita during periods of economic contraction.

Conclusion

We conclude that the TASC Initiative — had it been on the 2006 ballot — could have brought about substantial improvements in living standards, as measured by GSP per capita, even while permitting government to maintain critically important government services during periods of economic contraction. Furthermore, the TASC initiative that was filed with the Secretary of State, containing the two-year formula for calculating the initial spending limitation, would have brought about a larger improvement in the living standards of Nevada's citizens than the four-year version. Yet, like other initiatives of this type, TASC promotes economic expansion by constraining government when additional government is needed least, i.e., during periods of economic expansion. TASC also permits government to expand when additional government is needed most, i.e., during periods of economic contraction.

The Issue of Government Size

For the last 40 years, economists have debated two issues regarding the size and scope of government: First, is government too big? And second, should there be external constraints on government? Since 1929, total government spending in the United States, expressed as a fraction of Gross Domestic Product, has risen from 10.4 percent to 32.5 percent.[3]

Figure 1 provides another illustration. It tracks total state and local government spending as a fraction of total Gross State Product (GSP) from 1963 to 2003.[4] As the chart indicates, state and local spending surged from 6.9 percent of GSP in 1963 to a peak of 9.3 percent in 1975. After the 1975 peak, the fraction fell but has remained above 8 percent.

Roots in Public Choice

The argument that there should be external constraints on government spending has roots in Public Choice, the discipline that emerged in the 1960s largely as a result of the work of econo-

> **Since 1929, total government spending in the United States, expressed as a fraction of Gross Domestic Product, has risen from 10.4 percent to 32.5 percent.**

Figure 1: State & Local Government Spending as a Percentage of Total Gross State Product, All States

Source: U.S. Bureau of Economic Analysis

State & Local Spending % of GSP
Linear (State & Local Spending % of GSP)
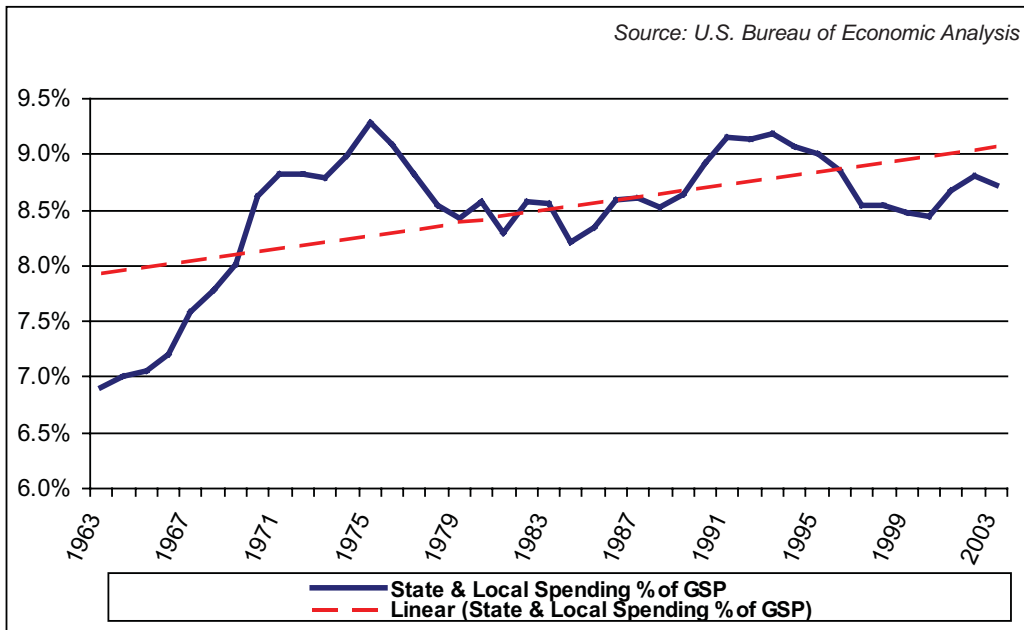
The upward trend in the ratio of spending to GSP, illustrated by the dashed line in Figure 1, can be explained in terms of a number of factors. Particularly important is the growing importance of non-discretionary spending on such programs as Medicaid and education, combined with the resulting pressure on state and local lawmakers to raise tax rates in order to avert revenue shortfalls. A ratchet effect is at work, whereby tax rates, increased during periods of economic contraction, remain in effect once the contraction has given way to expansion.

mists James M. Buchanan and Gordon Tullock. These Public Choice economists and their followers called into question the conventional view that, under democracy, lawmakers and other public officials could be trusted to behave as selfless promoters of the public interest.[5] Contrary to this idealized view, Buchanan, Tullock and their followers offered an alternative perspective – of government officials motivated by self interest as much as any businessman or consumer. Because those drawn to government seek power and influence, much as any self-interested businessman seeks profits or any consumer seeks utility, it is necessary to constrain their ability to manipulate policy to their personal ends through their tax, spending, regulatory or other powers.

Tax and expenditure limitation measures — "TELs" — are a response to the expansion of government and to concerns about the economic consequences of this expansion, combined with concerns about the political goals behind it. While variations exist, a TEL is generally a law, applied at the state and local level, which limits the growth in spending to the annual rate of inflation plus the growth of population.

TEL: Arguments for and against

Proponents of TELs argue that, because an expansion in government spending is inherently damaging to the economy, the adoption of a TEL will lead to measurable improvements in some indicator of economic activity, say, gross output or income per person. A TEL will limit the diversion to wasteful government projects of resources better put to productive uses such as business investment.

By itself, a TEL does not dictate which programs should be funded. Instead it sets what its proponents believe to be a

reasonable constraint on the growth rate of spending. The constraint forces lawmakers to spend prudently, to prioritize claims on their resources. A TEL does not limit the services that government can provide, but only what it can spend on services. Constrained by spending limits, lawmakers must find ways to get more services from fewer dollars.

Because a TEL keeps the "real" (inflation-adjusted) per-capita size of government constant and because real per-capita tax revenues rise during periods of economic growth, TELs also impose constraints on state tax policy. As tax revenues exceed allowable spending, the state must confront the issue directly and either cut tax rates, dispose of excess revenues by refunding them to taxpayers or put the moneys into a rainy-day fund. Ultimately, under a TEL, the redundancy of a substantial portion of tax revenues creates a presumption in favor of cutting tax rates.

A TEL provides potential benefits because of the changes in tax policy that it ultimately precipitates. If the state reduces tax rates, the economy will benefit from the resulting increase in the after-tax reward for working or living in the state. If the state puts excess revenues into a rainy-day fund, it will insulate itself against economic downturns. Finally, proponents argue that voters are always free to approve extra spending or taxes and that a TEL does not therefore hamper the "people's will" to expand government spending and taxation, should that be what the people desire.[6]

Opponents argue that, by limiting the size of government to some artificial benchmark, a TEL will force government to sacrifice vitally important programs.[7] Forced to constrain spending, the state may, for example, find it necessary to neglect roads and bridges in order to fund education. The resulting sacri-

fices would eventually damage the state economy, they say, because government spending, particularly spending on infrastructure, is vital to economic growth.

In evaluating these arguments, it is important to recognize that there are two issues to consider. One issue has to do with whether, as proponents argue, government has already grown too large and that a tax and expenditure limit of some kind is in order. If indeed, that argument is true, then it is merely a matter of crafting the TEL that would bring about the required contraction in government.

The second issue has to do with one's conception of the core role of government. Is that role one of providing an ever-expanding volume of public services in tandem with the expansion of the private sector? Or is it to provide a safety net – some minimum below which real government spending per capita should not be permitted to fall even in periods of economic contraction? Depending on

one's answers to these questions, a TEL either does or does not permit government to perform its core role.

One way to test the hypothesis that government has grown too large is to determine through regression analysis if shrinkage in government would redound to the benefit of the economy. Given that we can estimate the benefit to the economy from reducing spending, expressed here as a fraction of GSP, we can then determine the benefit to the economy, expressed here as a rise in GSP per capita, from adopting a TEL.

As for the second issue, the answer depends first on one's sense of what the core role of government should be. If the role should be mainly to provide a safety net, then the answer depends only on whether a state could perform that role with a TEL as adequately as it can without a TEL. Below we show that the answer to this question is, "Yes."

Actual government spending by 2004 was $16.18 billion while government spending that would have taken place had Nevada implemented TASC in 1997 would have been $13.49 billion — 16.7 percent lower, or $2.69 billion less.

The Effect of TASC on Spending

The capacity of TASC to restrict the growth of government spending derives from its compounding effect. The spending level for the period prior to the implementation of TASC constitutes the base period to which the TASC formula is first applied. The first year under a TEL usually results in a modest reduction in the growth rate of spending relative to the level of spending that would have taken place in the absence of TASC. However, in subsequent years the difference made by the TEL becomes more pronounced as the effects of the early reductions become compounded over time.

We simulate the state and local spending levels in Nevada, on the assumption that TASC was in effect from fiscal year 1997 to fiscal year 2004. (See the Appendix for details.) Actual government spending by 2004 was $16.18 billion while government spending that would have taken place by 2004 had Nevada implemented TASC in 1997 would have been $13.49 billion — 16.7 percent lower, or $2.69 billion less.

It is important to understand that these numbers represent changes (1) from a status quo or "baseline" in which there was no TASC to (2) a hypothetical scenario in which there would have been

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a TASC constraint. The numbers do not represent changes from one year to another under TASC. State government spending would continue to rise under TASC, though not as rapidly as it would have in the absence of the TASC constraint.

Now that we have seen the extent to which TASC would have slowed government spending, we can address the question of how TASC would have worked if such a measure should come to be adopted in Nevada.

The Effect of TASC on Nevada's Gross State Product Per Capita

After estimating and testing the model (see Appendix), we find that the elasticity of GSP per capita – GSPP – with respect to government spending per dollar of GSP is 0.1921. This implies that a 10 percent increase in the ratio of government spending to GSP reduces GSPP by 1.92 percent. This result is higher than those of our June 2006 study, but it is consistent with results from the academic literature surveyed in that study. The inclusion of local government spending is what produces the higher result, and it has significant ramifications for the debate over the desirability of adopting TASC.

The effect of TASC on the growth of GSPP reflects the compounding effect it has on state and local government spending. In the first year, TASC produces modest increases in GSPP, but in subsequent years, the increases become more pronounced as the compounding effect takes hold.

In 2004, under TASC, GSPP in Nevada would have been $4,205 or 10.1 percent greater than it was without TASC. The gains to GSPP are proportional to the spending cuts mandated by TASC provisions. In general, within the range of changes considered here, the greater the cut in government spending per dollar of GSP, the greater the increase in GSPP. Table 1 displays the results for each year.

Comparing the Different Initial Spending Limit Formulas

As mentioned previously, a typographical error in one version of the TASC Initiative, as interpreted by TASC opponents and the Nevada Supreme Court,[8] yielded two different time periods (2005-2009 and 2007-2009) for calculating the initial spending limit for state government spending in 2009. To see how these different calculations would affect spending and thus GSPP, we conducted two additional simulations using the two different time periods. Since the formula for calculating the initial spending limit only differed for computing the limit on

Table 1: Differences in Nevada Gross State Product Per Capita

Year	GSP Per Capita ($)		Difference	
	TASC	Actual	($)	(percent)
1997	35,102	34,576	526	1.5 percent
1998	36,449	35,521	928	2.6 percent
1999	38,368	36,875	1,492	4.0 percent
2000	37,930	36,098	1,831	5.1 percent
2001	39,000	36,492	2,508	6.9 percent
2002	40,035	37,014	3,022	8.2 percent
2003	41,874	38,386	3,488	9.1 percent

state spending we utilize the results from our previous study.

If the initial state spending limits under TASC for 2009 are calculated as suggested by TASC foes — using the combined increase in state population and CPI for the western states from January 1, 2005 through January 1, 2009, the amendment would achieve little in terms of spending restraint. According to the U.S. Census Bureau, the Nevada population is expected to grow by a total compound rate of 11.5 percent, and the Congressional Budget Office estimated that inflation would grow by 10.6 percent over the same period. Therefore, by using these criteria state and local spending for the 2009-2011 biennium could grow by 22.1 percent over the spending levels for the 2005-2007 biennium, representing little restraint on spending. According to U.S. Census data, between 1996 and 2004 total state and local government spending in Nevada grew at an annual rate of 12.9 percent. Therefore, spending would be restrained by only 3.7 percent over the period: (2 x 12.9 percent, or 25.8 percent, minus 22.1 percent).

If, instead, we follow the interpretation of TASC proponents and use the growth of inflation and population from January 1, 2007 to January 1, 2009 to calculate the initial spending limits under TASC, then spending would be limited to a total of 10 percent growth (4.4 percent inflation growth plus 5.6 percent increase in population). Assuming the federal population and CPI projections, this more restrictive formula would restrain the growth of state spending to 5 percent per year — representing a true restraint on spending that actually grew from 1996 to 2004 by an average of 12.9 percent per year. Spending would be restrained by 12.1 percent, or 6.5 percent per year. This is a difference of 8.4 percent over the more generous formula.

How would these two formulas for the calculation of the initial spending limit under TASC affect the growth of GSPP in Nevada, relative to the baseline case? The more the TASC formula restricts the growth of government spending relative to the rest of the economy, the more GSPP will increase above the baseline case of no restriction. Using the more generous formula (estimated increase in inflation and population growth from January 1, 2005 to January 1, 2009) GSPP would increase by $88 in 2009, while the more restrictive formula (estimated increase in inflation and population growth from January 1, 2007 to January 1, 2009) yields an increase in GSPP of $383.[9] The more restrictive TASC formula increases GSPP more than four times greater than the less restrictive formula.

TASC: Too Little Government or the Right Kind of Government?

The second issue we are addressing has to do with TASC and the core role of government. If that role is to expand government in tandem with growth in the rest of the economy, then TASC poses an obstacle to that role. Measured in "real" inflation-adjusted dollars, TASC will cause government spending to shrink relative to the rest of the economy when there is economic growth, that is, when GSPP is growing.[10]

On the other hand, if the core role of government is to provide a safety net of vital government services, then TASC poses no obstacle. The economy is subject to recession and, therefore, to periods of declining growth in real GSPP. The TASC initiative establishes an Emergency Reserve Fund, and a Budget Stabilization Fund — two rainy-day funds — and requires that a portion of any excess tax revenues be deposited in these funds. As a result, even in peri-

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We conclude that TASC ... would bring about substantial improvements in living standards as measured by GSP per capita.

ods of economic contraction, Nevada could avoid a reduction in real government spending per capita. Such periods would be characterized by increases, not decreases, in real government spending relative to real GSP.

Consider a period in which the growth of real GSP is less than the growth of population. Under these conditions, TASC permits the government to hold real government spending per capita constant while real GSP per capita is falling. It permits real government spending to grow faster than real GSP. (See the Appendix for a proof.) TASC thus provides a measure of security to the recipients of government services during periods of low real growth and high population growth.

TASC permits – indeed requires – government to create a safety net for the provision of its services. Through its Emergency Reserve and Budget Stabilization funds, TASC permits Nevada to maintain a floor beneath which government services are not permitted to fall, even when the economy as a whole is undergoing a contraction.

Conclusion

We conclude that TASC — under the more restrictive spending limits discussed earlier — would bring about substantial improvements in living standards as measured by GSP per capita. During periods of economic contraction, when revenue collections slow dramatically or even turn negative, but increased government services are needed, TASC measurably improves the ability of governments to continue providing important services. And yet, during periods of economic expansion, when additional government is needed least, TASC would produce a significant long-term boost to the Nevada economy by constraining government and thus facilitating increases in gross state product per person (GSPP). In addition, if voters approve, government can still expand.

Appendix

In our analysis, we use total expenditure, which includes intergovernmental, capital, debt interest and direct expenditures as our measure of state government spending. We draw the data from the Census Bureau's State and Local

Data Sources

Government Finances reports of population for July 1 of the corresponding year.[11] The Bureau of Economic Analysis publishes data for annual Gross State Product (GSP), which provides our measure of economic activity for each state.[12] We adjust the calendar-year GSP figures to a fiscal year basis so that they correspond with our expenditure data, which are reported on a fiscal year basis. The U.S. Bureau of Labor Statistics provides unemployment rate data for each state.[13] To be consistent with the rest of the data, we used the unemployment rate for the month in which the fiscal year ends.[14] The dataset covers the period from 1997 to 2004, the latest year data are available.

For the simulations of the different spending limits under TASC, we use estimates of the Consumer Price Index from the Congressional Budget Office's *Budget and Economic Outlook: Fiscal Years 2007-2016*.[15] The U.S. Census Bureau's Interim State Projections of Population by Sex: July 1, 2004 to 2030 for our estimates of Neveda's population growth.

In modeling any economic indicator such as GSP per capita (GSPP in the equations below), it is necessary to distinguish between values of the indicator that reflect its "time dependence," on the one hand, and the effects of other variables

The Model

reflecting the state of the economy and government policy, on the other. Time dependence has to do with the dependence of current values of a variable, here GSPP, on its past values. The other variables that we use to explain current GSPP are state spending per dollar of GSP (identified as GGSP), as potentially influenced by TASC and other policies, and the unemployment rate, chosen to control for the economic cycle.

In our estimations we use an autoregressive panel-data model. The panel setup assumes that the data generating process is the same for all states in the model. Since a panel is composed of both cross-sectional (state-varying) and time-varying variables, we must capture specific state and time effects. We assume that time affects the intercept in the model and is fixed in nature. We also assume that state-specific factors affect the intercept. Finally, because we want to estimate elasticities, we take the natural logarithm of the variables.

The setup for the Model is:

$$(1) \quad \ln\left(GSPP_{s,y}\right) = \phi_s + \theta_y + \beta_1 \ln\left(GGSP_{s,y}\right) + \beta_2 \ln\left(Unemp_{s,y}\right) + \beta_3 \ln\left(GSPP_{s,y-1}\right) + \varepsilon_{s,t}$$

Table 2: Variable Descriptions

Variable	Measure
GSPP	Gross State Product (GSP) per capita
GGSP	State Government Spending per dollar of GSP
Unemp.	State Unemployment Rate
$D_{93} - D_{00}$	Dummy Variables to capture specific level year effects

Table 2 provides descriptions of the variables. In equation (1), s represents the state and y the time period (year). The state specific level effects are captured by ϕ_s and the time specific ones by θ_y. Finally, $\varepsilon_{s,y}$ is the unobservable portion of the model.

The Model estimates the coefficients assuming that the state specific level effects are fixed. In our June 2006 report we performed the appropriate tests for the presence of both fixed and random effects. The tests confirmed the presence of both fixed and random effects at the 1% level of significance. From the Hausman test, we know that our fixed effect Model is better and this implies that unemployment does affect GSP per capita, but with a delay and that the state-specific effects are fixed, not random.

Calculation Methodology

We want to determine the difference TASC would have made in a given year y if a given state s had adopted it for implementation in fiscal year 1997. Let y = FY 1992, 1993, …, 2000, (we use these years because we include local level data which is not released at year 2001, 2002 and 2004. Since we use lags in the model, considering consistency, we have to use data before 2000.) and let s = 1, 2, …, 50. For a given state s and year y, we calculate the percentage increase in Gross State Product per capita for s and for y that is attributable to TASC as

$$(2) \qquad \%\Delta GSPP_{s,y} = \frac{GSPP_{s,y}^{T}}{GSPP_{s,y}^{NT}} - 1,$$

where $GSPP_{s,y}^{T}$ is Gross State Product per capita for state s in year y, under TASC, and $GSPP_{s,y}^{NT}$ is Gross State Product per capita for state s in year y, not under TASC. We compute $GSPP_{s,y}^{NT}$ as

$$(3) \qquad GSPP_{s,y}^{NT} = GSP_{s,y}^{NT} / POP_{s,y},$$

where $GSP_{s,y}^{NT}$ is Gross State Product, given that TASC has not been in effect, and $POP_{s,y}$ is the population of state s in year y.
We compute $GSPP_{s,y}^{T}$ as

$$(4) \qquad GSPP_{s,y}^{T} = EXP\left(\ln GSPP_{y,s}^{NT} + E\left(\Delta \ln GSPP_{s,y}^{T}\right)\right),$$

where $EXP\left(\ln GSPP_{y,s}^{NT} + E\left(\Delta \ln GSPP_{s,y}^{T}\right)\right)$ is the antilog of $\ln GSPP_{y,s}^{NT}$ $+E\left(\Delta \ln GSPP_{s,y}^{T}\right)$ and $E\left(\Delta \ln GSPP_{s,y}^{T}\right)$ is the expected difference between the log of $GSPP_{s,y}^{T}$ and the log of $GSPP_{s,y}^{NT}$ for state s in year y.

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Table 3: Coefficient Estimations and Specification Tests' Statistics

Variable	Model 1
Constant	4.752477 ***
	16.92
Ln(*GGSP*)	-0.1921459 ***
	-6.98
Ln(*Unemp.*$_t$)	-0.0265593 ***
	-2.77
Ln(*GSPP*$_{t-1}$)	0.5150462 ***
	12.02
D_{93}	
D_{94}	-0.0564561 ***
	-7.47
D_{95}	-0.0594543 ***
	-6.89
D_{96}	-0.0521097 ***
	-6.53
D_{97}	-0.0243165 ***
	-3.76
D_{98}	-0.0258117 ***
	-0.74
D_{99}	-0.0021108
	16.92
Number of obs	350
Number of groups	50
Joint Significance Test	774.6 ***
*** Significant at 1% ** Significant at 5% * Significant at 10%	

We compute $E\left(\Delta \ln GSPP_{s,1992}^{T}\right)$ as

(5) $E\left(\Delta \ln GSPP_{s,1992}^{T}\right)= \beta_1 \left[E\left(\Delta \ln GGSP_{s,1992}^{T}\right)\right]$

and $E\left(\Delta \ln GSPP_{s,y}^{T}\right)$, for y = 1993, …,2000, as

(6) $E\left(\Delta \ln GSPP_{s,y}^{T}\right)= \beta_1 \left[E\left(\Delta \ln GGSP_{s,y}^{T}\right)\right]+\beta_2 \left[E\left(\Delta \ln GSPP_{s,y-1}^{T}\right)\right],$

where

(7) β_1 = -0.1921 and

(8) $\beta_2 = 0.5150$

and where $E\left(\Delta \ln GGSP_{s,y}^{T}\right)$ is the expected difference between the natural logarithm of state government spending per dollar of GSP under TASC and the natural

logarithm of state government spending per dollar of GSP not under TASC:

$$(10) \qquad E\left(\Delta \ln GGSP_{s,y}^T\right) = E\left(\ln \frac{G_{s,y}^T}{GSP_{s,y}^T}\right) - \ln \frac{G_{s,y}^{NT}}{GSP_{s,y}^{NT}}.$$

Here $G_{s,y}^{NT}$ is state government spending for state s in year y, given that TASC is not in effect, and $G_{s,y}^T$ is state government spending in state s in year y, given that TASC is in effect. $G_{s,y}^T$ is constrained to grow at either the rate of population plus inflation for the benchmark year or at the rate that $G_{s,y}^{NT}$ actually grew, whichever is less. Let $g_{s,y}^{NT}$ denote the non-TASC (i.e., the actual) growth of $G_{s,y}^{NT}$, and let $g_{s,y}^T$ denote the TASC-constrained growth of state spending. The TASC constraint will apply when $g_{s,y}^{NT} \geq g_{s,y}^T$ but not when $g_{s,y}^{NT} < g_{s,y}^T$. Thus

$$(10) \qquad G_{s,1993}^T = (1 + g_{s,1993}^T)G_{s,1992}, \text{ where } g_{s,1993}^{NT} \geq g_{s,1993}^T$$

$$(11) \qquad G_{s,y}^T = (1 + g_{s,y}^T)G_{s,y-1}^T, \, y = 1994,\ldots,2000, \text{ where, } g_{s,y}^{NT} \geq g_{s,y}^T,$$

$$(12) \qquad G_{s,1993}^T = (1 + g_{s,1993}^{NT})G_{s,1992}, \text{ where } g_{s,1993}^{NT} < g_{s,1993}^T \text{ and }$$

$$(13) \qquad G_{s,y}^T = (1 + g_{s,y}^{NT})G_{s,y-1}^T, \, y = 1994,\ldots, 2000, \text{ where } g_{s,y}^{NT} < g_{s,y}^T.$$

We compute $g_{s,y}^{NT}$ as

$$(14) \qquad g_{s,y}^{NT} = \frac{G_{s,y}^{NT}}{G_{s,y-1}^{NT}} - 1$$

and $g_{s,y}^T$ as

$$(15) \qquad g_{s,y}^T = \pi_{s,b} + n_{s,b}, \text{ where}$$

$$(16) \qquad \pi_{s,b} = \text{ the inflation for state } s \text{ and}$$

$$(17) \qquad n_{s,b} = \text{ population growth for state } s$$

for the benchmark year b, as defined by the TASC measure being adopted.

$GSP_{s,y}^T$ is the value of Gross State Product which, we estimate, would have been[16] recorded for state s in year y, had TASC been implemented in 1993. We should think of this estimate as accounting for the effect of TASC on GSP in year y, given that TASC went into effect in 1993 and remained in effect through year $y-1$. It does not account for the effect on GSP in year y of the fact that TASC remains in effect

through that year. Thus

$$(18) \quad GSP^T_{s,1993} = GSP^{NT}_{s,1993} \text{ and}$$

$$(19) \quad GSP^T_{s,y} = E\left(GSPP^T_{s,y-1}\right)POP_{s,y-1}\left(\frac{GSP^{NT}_{s,y}}{GSP^{NT}_{s,y-1}}\right), y = 1994, \ldots, 2000.$$

Maintaining a Safety Net:
Can Government Grow Faster than GSP under a TASC measure?

Suppose that

$$(20) \quad g_{NGSP} = \text{the growth of nominal GSP,}$$

$$(21) \quad g_{RGSP} = \text{the growth of real GSP,}$$

$$(22) \quad g_{RGSPP} = \text{the growth of real GSP per capita}$$

$$(23) \quad g_{NG} = \text{the growth of nominal government spending,}$$

$$(24) \quad g_{RG} = \text{the growth of real government spending,}$$

$$(25) \quad g_{RGP} = \text{the growth of real government spending per capita,}$$

$$(26) \quad \pi = \text{the inflation rate and}$$

$$(27) \quad n = \text{the growth of population.}$$

Then

$$(28) \quad g_{RGSP} = g_{NGSP} - \pi,$$

$$(29) \quad g_{RGSPP} = g_{RGSP} - n,$$

$$(30) \quad g_{RG} = g_{NG} - \pi,$$

$$(31) \quad g_{RGP} = g_{RG} - n.$$

Under TASC, $g_{NG} \le \pi_b + n_b$. Assume $\pi_b + n_b \ge \pi + n$ and that the state draws revenue from a rainy-day fund, as needed, to keep the growth of spending at least equal to $\pi + n$. Then

$$(32) \quad g_{NG} \ge \pi + n,$$

$$(33) \quad g_{RG} \geq n \text{ and}$$

$$(34) \quad g_{RGP} \geq 0 \,.$$

Now assume that g_{RGSP}, i.e., the growth of nominal GSP minus the inflation rate, is less than the growth of population. That is,

$$(35) \quad g_{RGSP} = g_{NGSP} - \pi < n$$

Then

$$(36) \quad g_{RGSP} < g_{RG}$$

and

$$(37) \quad g_{RGSPP} < 0 \,.$$

The growth of real government spending exceeds the growth of real GSP. The growth of real GSP per capita is negative, while the growth of real government spending per capita is positive or zero.
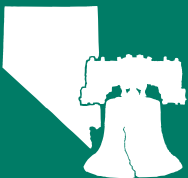
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Endnotes

1   David D. Tuerck, Paul Bachman, Alfonso Sanchex-Penalver and Emily Hausman, *Tabor for Ten: Applying a Taxpayer Bill of Rights to Ten States*, The Beacon Hill Institute, Boston, MA (June, 2006).

2   To reach the conclusion that it did, the court had to make two significant assumptions, say TASC proponents. First the court had to interpret subsection 4.4 in a way that none of its drafters had. Then it had to deny, they say, that alternative interpretations of that cause — even including the drafters' interpretation — were possible. The reason for this was Section 10 of the TASC initiative. It explicitly stated what courts were to do in any case where alternative reasonable interpretations of TASC provisions were proposed. In such circumstances, according to Section 10, the more *spending-restrictive* interpretation then governs.

3   U.S. Department of Commerce, Bureau of Economic Analysis, National Income and Product Accounts, Tables 1.1.5 and 3.1. Gross State Product is available from http://www.bea.gov/bea/regional/gsp/; Internet; accessed on 27 March 2006.

4   U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Accounts, Gross State Product; available from http://www.bea.gov/bea/regional/gsp/; Internet; accessed on 27 March 2006.

5   See, for example, James M. Buchanan and Gordon Tullock, *The Calculus of Consent* (Ann Arbor: University of Michigan Press, 1962).

6   Fred Holden, "A Decade of TABOR: Ten Years After: Analysis of the Taxpayer's Bill of Rights," Independence Institute, June 8, 2003, 2.

7   David A. Bradley and Karen Lyons, "A Formula For Decline: Lessons from Colorado for States Considering TABOR," Center on Budget and Policy Priorities, October 2005; http://www.cbpp.org/10-19-05sfp.htm; Internet; accessed 22 May 2006, 1.

8   Under that interpretation, the term "cumulative" referred to the addition of the rate of biennial population change to the rate of biennial inflation, as in subsection 4.1 — not the addition of two different biennial inflation rates to each other and the addition of two different biennial rates of population change to each other, followed by the combination of those two sums. TASC proponents also argue that the drafters' interpretation was the only one consistent with the purpose of proposing tax and spending control at all.

9   Since the different formulas only apply to the state spending calculation, for these simulations we apply the elasticities from our previous study: -.1013 for SGS per dollar of GSP and .4656 for GSP per capita.

10   This is not to say that government services must also shrink: By operating more efficiently, government can maintain or even expand services even when it reduces spending. We ignore this point here, however, in order to show how government can maintain a safety net under a TASC even when there is no scope for improving efficiency.

11   U.S. Census Bureau, Federal State and Local Governments: State Financial Data; available from   http://www.census.gov/govs/www/state.html; Internet; accessed 27 March 2006. The table also contains population estimates for each state.

12   U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Accounts, Gross State Product; available from http://www.bea.gov/bea/regional/gsp/; Internet; accessed 27 March 2006.

13   U.S. Department of Labor; Bureau of Labor Statistics; available from http://www.bls.gov/lau/home.htm; Internet: accessed 27 March 2006.

14   The end of the fiscal year is June 30th.

15   U.S. Congress, Congressional Budget Office, "Budget and Economic Outlook for Fiscal Years 2007 to 2016," Washington D.C: GPO, January 2006.

16   The benchmark year is ordinarily the calendar year that precedes the calendar year in which the fiscal year begins. For example, the benchmark inflation rate for FY 2004 is the inflation rate recorded for 2002.