

A project of the **TEXAS PUBLIC POLICY FOUNDATION**

ENHANCING TEXAS' ECONOMIC GROWTH THROUGH TAX REFORM



**Repealing property taxes and replacing
the revenues with a revised sales tax**

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UPDATED AUGUST 2012**



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Enhancing Texas' Economic Growth through Tax Reform

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Updated August 2012

EXECUTIVE SUMMARY

All taxes, by definition, impose a cost on the economy—what economists call the “tax wedge.” While all taxes create a negative impact, property taxes create a larger tax wedge than consumption taxes, and are therefore inferior to consumption taxes. Specifically, property taxes:

- Are less stable than consumption taxes;
- Create larger economic distortions;
- Are less related to taxpayers ability to pay;
- Are costlier and more complicated to administer; and,
- Discourage capital intensive industries from locating in Texas.

We found that if property taxes as a source of revenue were abandoned and that burden were placed on consumption, personal income in the state of Texas could potentially increase in the range of \$3.60 to \$3.68 billion in the first year. Over a five year period if the property tax burden were replaced dollar for dollar with a higher sales tax burden we estimated that personal income could, on a cumulative basis, increase between \$22.85 and \$63.0 billion; or an increase of 1.8 percent to 4.7 percent higher than it would have been otherwise. The proposed tax reform would lead to a net gain of new jobs, over a five year horizon, between 124.9 thousand and 337.4 thousand over the job growth Texas would have had if no tax reform were implemented.

Our proposal does not end the taxation of property. It instead simply taxes property when it is sold, which eliminates several other problems with the property tax. Currently property taxes are annually assessed based on an imagined (taxable) value of the property, which may or may not be the actual value of the property. Whether the value is accurate or not, for many homeowners the property tax results in a tax on unrealized capital gains. Levying a sales tax when the property is sold corrects these problems. The sales tax will be based on the property's transaction price—the actual market value. Additionally, the prospect of being taxed out of one's home is removed. Finally, the financial and economic burden of the property assessment structure with its thousands of employees is no longer necessary as the value of property no longer needs to be estimated.

Keeping the sale of property in the sales tax permits the total sales tax rate to be lower (due to the broader sales tax base) while still removing many of the adverse impacts from the property tax. Alternative tax rates and tax bases that include property sales in the sales tax base are:

- 15.7 percent if the current sales tax base is used; and,
- 11.0 percent if all services that are taxed in at least one state are taxed in Texas.

Texas has everything to gain from repealing its current property tax system. Such a reform will significantly enhance Texas' already competitive landscape and ensure Texas' relative economic prosperity will endure.

ENHANCING TEXAS' ECONOMIC GROWTH POTENTIAL THROUGH TAX REFORM

States tend to be large or fast growing, but not both. Texas is an exception. Although Texas is the 2nd largest state economy, over the past 10 years its economic growth rate has significantly out-performed the nation. On average, the Texas economy became 6.8 percent larger each and every year between 1998 and 2007, which was the 6th fastest growth rate compared to all 50 states and Washington D.C.

The Texas economy has also been weathering the current economic meltdown better than the average state. At the time of this report's first edition, February 2009, the unemployment rate in Texas was 6.5 percent, which was significantly below the 8.1 percent rate for the nation as a whole.¹ As of July 2012, the unemployment rate in Texas was 7.2 percent while the national average was 8.3 percent.

The Texas experience illustrates that when it comes to economic growth, size does not matter—policies do! As we demonstrate in more detail below, states that establish policies that discourage work, savings and investment experience slower economic growth. The reverse holds true for those states that establish policies that encourage work, savings and investment. For instance, the economy in the ten states with the lowest average tax burden between 1998 and 2007 (which includes Texas, the state with the 8th lowest tax burden) grew 5.5 percent per year; the 10 states with the highest average tax burden grew 5.1 percent; and overall, all states grew 5.3 percent per year.²

While Texas has benefited from its low tax environment, it is not simply the level of taxation that matters. The composition of a state's tax system is also important. As noted by 19th century American economist Henry George:

*The mode of taxation is, in fact, quite as important as the amount. As a small burden badly placed may distress a horse that could carry with ease a much larger one properly adjusted, so a people may be impoverished and their power of producing wealth destroyed by taxation, which, if levied in any other way, could be borne with ease.*³

The composition of Texas' tax system can be improved. Texas does not impose a state personal income tax, providing a real competitive advantage for the state. However, more than 3,977 localities in Texas impose property taxes that include school districts, counties, cities, and special districts. All together, these taxes raised \$40 billion in 2009.⁴ Property tax rates vary significantly across the state. For instance, of the county tax rates levied King County has the highest property tax rate in Texas at \$1.10 per \$100 of valuation. Jim Hogg County follows closely behind with a rate of \$1.050759. They are the only two counties

with a tax rate of more than \$1 per \$100 of valuation. Freestone County has the lowest rate at \$0.205000.⁵

Property taxes are not as desirable as consumption taxes. Because property taxes violate many of the principles of sound taxation, they impose excessive economic burdens on residents compared to consumption based taxes. States can improve their overall economic efficiency by switching the tax burden from property taxes to consumption taxes. This paper presents the theory and evidence that illustrate the inferiority of property taxes compared to consumption taxes and provides several tax reform options for Texas that repeals the complex local property tax structure throughout the state and replaces the revenues with a reformed sales tax. Such reforms will improve Texas' pro-growth environment and increase the state's economic growth potential.

SECTION I: THE PRINCIPLES OF SOUND TAXATION

There is general agreement with respect to the basic principles of a sound tax system, regardless of ideology. For instance according to three organizations that represent different perspectives across the ideological spectrum:

- The Institute on Taxation and Economic Policy (ITEP) states that the principles of a sound tax system are: "... equity, adequacy, simplicity, exportability, efficiency, and balance."⁶
- The Tax Foundation claims that principles of sound taxation (particularly for the state and local level) include: transparency, neutrality, broad base, simplicity, stability, no retroactivity, low burdens, and consistency.⁷
- The National Conference of State Legislatures (NCSL) has stated that the principles for solid tax sources include: reliability, equity, compliance and administration, economic neutrality, and accountability.⁸

Comparing these lists there are many similarities. Starting with the similarities, in many instances these organizations are using different terms to describe the same principle. Grouping these concepts together, and giving them a precise definition, there are four broad principles that organizations from across the political spectrum (as represented by these organizations) can agree form the basis of a sound tax system:

- **Adequacy** (which includes the concepts of stability and reliability): An adequate revenue source provides state and local governments with a stable revenue stream that does not exhibit wild and unexpected fluctuations. The revenue stream should also be capable

of experiencing sufficient revenue growth such that the necessary public services are fully funded now and in the future.

- **Simplicity** (which includes compliance and administration, and consistency): A simple tax system minimizes the costs of compliance by taxpayers, the costs of administration by the government, and the amount of confusion created by the tax system for taxpayers and the government alike. Tax systems that violate these principles divert resources away from productivity enhancing activities that increases the state's economic growth rate toward tax administration/compliance/avoidance activities that diminish productivity enhancing activities. The result is lower overall economic growth. Part of a simple tax system, as emphasized by the Tax Foundation is consistency with other taxing jurisdictions with respect to definitions, procedures and rules. States that apply inconsistent tax definitions, rules and procedures significantly increase the amount of tax complexity for businesses and individuals that operate in multiple states and with respect to the federal tax system.
- **Efficiency** (which includes the concepts of economic neutrality and a broad tax base): ITEP uses the term efficiency, but states that this term is interchangeable with economic neutrality (the term used by the Tax Foundation and NCSL to convey this principle).

Economic growth is enhanced when investment projects are based on their economic merits and the tax code avoids picking “winners and losers.” In the ideal, no economic decisions would be altered due to the tax system unless such altered incentives were explicitly desired (e.g. a tax on carbon to reduce carbon emissions).

Taxes rarely meet this standard in reality. However, an efficient tax system strives for the economic neutrality ideal. In such a system, the economic merits of a project are the primary investment driver, investment is not politically driven, and the tax codes influence on economic decisions is minimized.

Just as importantly, efficient tax systems should not be subject to constant tinkering and changes by the Legislature which will often materially impact the plans of businesses and individuals, which creates economic winners and losers based on the tax laws, not the economic merits.

A broad tax base is the mechanism that creates an efficient (economically neutral) tax system. For instance, narrow tax bases, by definition, pick economic

winners and losers—those sectors lucky enough to avoid the tax win, while those unlucky enough to bear the brunt of the tax lose. Inefficiently narrow tax systems also necessitate higher marginal tax rates that diminish overall economic incentives. Consequently, ensuring a broad tax base is the means to create an efficient (economically neutral) tax system.

- **Accountability** (which includes the concept of transparency): Tax systems that are not transparent are rife with narrow tax bases and loopholes that reduce the overall system's economic neutrality and are typically overly complex. Ensuring a transparent tax system is the means to ensure the other desired tax principles are not eroded over time. Transparent tax systems are also a precursor for addressing issues of equity, which is discussed below.

Another principle should be added: avoiding double taxation. Double taxing income, assets, or consumer purchases violates three of the commonly agreed upon tax principles. Systems that double tax the same activity are complex, difficult to comprehend, and biases an economy away from the activity that is being taxed multiple times. Because profits are often taxed multiple times, our current tax system discourages the accumulation of profits.

Principle Differences

There are differences across principles. While these differences are important, they are not pertinent with respect to the proposal here to replace property taxes with a reformed consumption tax.

ITEP's list of sound tax principles includes two principles that are not universally held. The first principle, exportability, is simply an extension of the equity concept. ITEP is concerned that residents from other states pay their “fair” share of a state's tax burden. According to ITEP, residents from other states (state A) gain benefits from government services from another state (state B) when state A residents visit state B, or when residents of state B that have received publicly provided capital enhancing services (such as a public education) move to state A. ITEP therefore emphasizes the importance of “exporting” a proper portion of the tax burden to other states to compensate for these costs. Regardless of the merits of this argument, such concerns clearly fall into the “equity” concept. We discuss equity concerns below.

The second unaddressed ITEP principle, balance, is incorrect. Balance is not a sound tax principle, it is simply a common practice based on erroneous assumptions. As illustrated in Section IV, the perceived stability and benefits gained from levying all major state and local tax sources (income, sales and property taxes) is an illusion.

Unstable revenues are caused by progressive tax structures that create excessive revenues during good times and severe revenue shortages during bad times. Therefore, instead of focusing on an arbitrarily picked tax-threesome as the optimal tax mix, state governments should focus on establishing a tax system that most closely follows the principles of a sound tax system. Furthermore, stable tax revenues in times of economic duress simply mean that the government is balancing its budget by unbalancing the budget of its citizens. The first rule of government should be *primum non nocere*, or, first do no harm.

There are also two Tax Foundation principles not found on the other lists: no retroactivity and low tax burdens. While we believe that both of these concepts are important, we will not consider them with respect to the current proposal. Additionally, as developed below, the proposal to eliminate property taxes in Texas will be revenue neutral on a static basis—the plan is designed to keep the size of state and local governments exactly the same. Whether or not government should be larger or smaller is a different debate that can be accommodated under either tax system and should be addressed at a different time. Therefore the size of the tax burden is outside the scope of the current proposal. A similar rationale holds for the concept of retroactivity.

However, there is one aspect of a low tax burden that we will apply to the analysis. As stated by ITEP, “The fundamental purpose of taxation is to raise the revenue necessary to fund public services.”⁹ As illustrated in Section II, higher tax rates diminish economic growth. It follows that the tax rate should be as high as necessary, but no higher. Alternatively, the tax burden should be as low as possible while still capable of funding the necessary government services. For this reason, the proposal to replace property taxes will establish the lowest possible tax rate that provides a statically revenue neutral revenue source for state and local governments.

This leaves one tax principle where there is general disagreement: the concept of equity. This is one of the key disagreements that lead to different tax policy recommendations. It has also been at the center of many philosophical and moral debates throughout time. After all, what is fair?

Tax equity is typically measured in two ways: horizontal equity and vertical equity. A horizontally equitable tax system treats people in similar economic circumstances similarly. Horizontal equity considerations are insignificant with respect to switching from a property tax to a consumption tax—both tax sources are horizontally equitable.

Vertical equity refers to the tax treatment of people with different economic circumstances. Many left-leaning tax policy groups will argue that a vertically equitable tax system takes a larger share of income from wealthier individuals; while many

right-leaning tax policy groups will argue that a vertically equitable tax system takes the same share of income from all individuals, which still results in taking more money from the wealthy.

As we illustrate in Sections II – IV, replacing property taxes with consumption taxes does not impact the equity debate. Property taxes are paid by homeowners directly. But, they are also paid by renters indirectly because the property tax is a cost to the landlord that is capitalized into the cost of rent. Everyone pays the property tax currently in proportion to the amount of “housing services” they use, or their personal housing investment. Switching from a consumption tax to a property tax does not change the aggregate tax burden imposed on different economic groups. Equity distributions, whatever they may be currently, will not change from switching from property taxation to consumption taxes.

Summary of Guiding Principles

Our review of the commonly accepted tax principles illustrates that the alternative property tax replacement proposals meet the generally accepted tax principles that define a good tax system. Specifically, the revised sales tax system that replaces the property tax will:

- Be statically revenue neutral, therefore providing the state and local governments with the exact same amount of expected revenues as under the current system (adequacy).
- Provide stable tax revenues over time (adequacy).
- Be applied to a broad tax base, with the lowest possible marginal tax rate to the necessary revenues (efficiency).
- Have a relatively simple structure (simplicity and transparency).

SECTION II: TAX WEDGES, TAX BURDENS AND ECONOMIC GROWTH

Based on overall tax revenues raised—the tax burden—Texas’ tax system is highly competitive. Consistently economic growth in the states with the highest tax burdens lags economic growth in the states with the lowest tax burdens. **Table 1** summarizes the latest results.¹⁰ Economic performance in the 10 states with the lowest tax burdens, defined as total state and local taxes as a percentage of personal income (including Texas), exceeds the economic growth in the 10 states with the highest tax burdens. Overall economic growth as measured by residents’ total personal income has been significantly higher in the low-tax states. Not surprisingly, stronger economic growth led to more jobs and higher population growth in the low-tax states as more and more people choose to relocate to the lower-taxed states.

TABLE 1: STATE AND LOCAL TAX BURDEN VS. 10-YEAR ECONOMIC PERFORMANCE
(2007 STATE & LOCAL TAX BURDEN VS. ECONOMIC PERFORMANCE BETWEEN 1997 AND 2007, UNLESS OTHERWISE NOTED)

	2007 S&L Tax Burden	Personal Income Growth	Population Growth	Net Domestic In-Migration as a % of Population	Non-Farm Payroll Employment Growth	Unemployment Rate
South Dakota	\$87.40	76.0%	5.2%	-1.8%	14.5%	3.2%
Tennessee	\$88.99	63.6%	11.9%	4.3%	9.6%	5.2%
Alabama	\$90.44	61.6%	6.1%	0.8%	8.0%	3.5%
New Hampshire	\$90.51	73.0%	13.2%	6.0%	15.9%	3.4%
Colorado	\$94.00	88.5%	21.9%	5.1%	19.5%	4.4%
Missouri	\$98.48	56.6%	7.8%	1.3%	7.3%	4.8%
Texas	\$99.49	87.2%	20.6%	2.1%	20.8%	5.0%
Oklahoma	\$100.21	70.1%	7.2%	0.1%	13.8%	3.9%
Oregon	\$101.10	65.0%	14.3%	4.7%	16.0%	5.4%
Georgia	\$102.50	78.1%	23.8%	6.4%	15.7%	4.7%
10 States with Lowest Tax Burden	\$95.31	72.0%	13.2%	2.9%	14.1%	4.4%
10 States with Highest Tax Burden	\$132.31	59.5%	5.5%	-2.3%	12.9%	4.4%
Connecticut	\$119.41	61.6%	5.6%	-3.1%	5.6%	4.3%
Wisconsin	\$121.73	59.8%	6.8%	0.6%	10.3%	4.7%
West Virginia	\$123.38	46.3%	-0.4%	-0.5%	8.2%	4.8%
Rhode Island	\$125.32	60.5%	5.8%	-1.9%	11.8%	5.3%
Alaska	\$131.39	52.6%	9.8%	-3.9%	19.4%	6.8%
Hawaii	\$133.05	46.9%	6.5%	-6.5%	16.5%	2.6%
Maine	\$134.56	62.6%	6.3%	3.7%	13.1%	4.6%
Wyoming	\$140.43	86.0%	5.0%	-2.0%	23.9%	3.2%
Vermont	\$143.29	64.9%	5.8%	1.0%	11.9%	3.5%
New York	\$150.52	53.8%	3.9%	-10.1%	8.3%	4.5%

The relationships in Table 1 were not unique to 2007. Figure 1 compares each state’s average tax burden between 1998 through 2007 and the average annual growth rate in personal income in each state. Each dot in **Figure 1** represents a state. There is a clear negative relationship in Figure 1 between a state’s average tax burden over the 10 years between 1998 and 2007 and the average annual growth in personal income during this period. The states with a lower average tax burden experienced higher average growth in personal income; and, reciprocally, the states with a higher average tax burden experienced lower average growth in personal income. In short, the size of the tax burden matters. High tax burdens discourage economic growth while low tax burdens encourage economic growth.

Similar to the experience of the low tax states, economic growth in the states with no personal income tax (including Texas) exceeds economic growth in the states with the highest personal income tax rates. **Table 2** illustrates this relationship.

Texas clearly benefits from its current tax system with a relatively low tax burden. As shown in Table 1, personal income growth in Texas exceeded the growth rate in each one of the states with the highest tax burdens. Table 2 shows that the same holds true for those states with the highest personal income tax rates.

Improvements can be made in the distribution, however. Appendix I comprehensively reviews the impact of taxes on macroeconomic performance.¹¹ Because taxes create a wedge—a discrepancy between the after-tax costs versus the after-tax returns—taxes have an adverse impact on economic activity. Taxes that impose larger tax wedges create larger adverse economic impacts (they are less efficient) and provide a more unsustainable revenue source for the government—especially in the longer term.

The loss of output associated with the imposition of a tax wedge implies directly that an increase in tax rates will lead to a

FIGURE 1: AVERAGE TAX BURDEN COMPARED TO AVERAGE ANNUAL PERSONAL INCOME GROWTH RATE 1998 - 2007

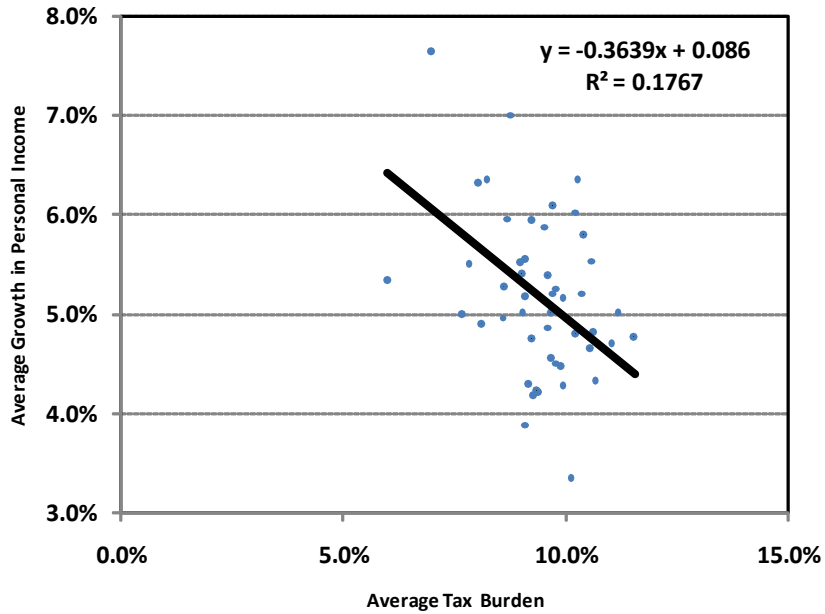


TABLE 2: TOP MARGINAL PERSONAL INCOME TAX RATE (STATE & LOCAL) VS. 10-YEAR ECONOMIC PERFORMANCE, 2007

	Top PIT Rate	Personal Income Growth	Population Growth	Net Domestic In-Migration as a % of Population	Non-Farm Pay-roll Employment Growth	Unemployment Rate
Alaska	0.00%	52.6%	9.8%	-3.9%	19.4%	6.8%
Florida	0.00%	83.9%	22.4%	8.9%	30.4%	3.2%
Nevada	0.00%	120.1%	52.7%	20.5%	52.9%	4.1%
New Hampshire	0.00%	73.0%	13.2%	6.0%	15.9%	3.4%
South Dakota	0.00%	76.0%	5.2%	-1.8%	14.5%	3.2%
Tennessee	0.00%	63.6%	11.9%	4.3%	9.6%	5.2%
Texas	0.00%	87.2%	20.6%	2.1%	20.8%	5.0%
Washington	0.00%	70.6%	14.7%	3.1%	18.6%	5.0%
Wyoming	0.00%	86.0%	5.0%	-2.0%	23.9%	3.2%
9 States With No PIT	0.00%	79.2%	17.3%	4.1%	22.9%	4.3%
9 States With Highest Marginal PIT Rate	9.12%	59.6%	7.6%	-1.8%	12.1%	4.6%
Kentucky	8.20%	61.0%	7.4%	1.7%	10.4%	5.8%
Hawaii	8.25%	46.9%	6.5%	-6.5%	16.5%	2.6%
Maine	8.50%	62.6%	6.3%	3.7%	13.1%	4.6%
Ohio	8.87%	45.0%	2.3%	-2.8%	3.0%	5.4%
New Jersey	8.97%	63.3%	7.9%	-4.2%	12.1%	4.8%
Oregon	9.00%	65.0%	14.3%	4.7%	16.0%	5.4%
Vermont	9.50%	64.9%	5.8%	1.0%	11.9%	3.5%
California	10.30%	74.1%	14.0%	-3.5%	17.7%	4.8%
New York	10.50%	53.8%	3.9%	-10.1%	8.3%	4.5%

less than proportionate increase in tax revenues. At some point, tax rates may be so high as to be counterproductive, such that an increase in tax rates would lead to a more than offsetting contraction in the tax base, and vice versa. Lord Keynes, the immortal founder of modern day liberal economics, once stated it this way:

Nor should the argument seem strange that taxation may be so high as to defeat its object, and that, given sufficient time to gather the fruits, a reduction of taxation will run a better chance than an increase of balancing the budget. For to take the opposite view today is to resemble a manufacturer who, running at a loss, decides to raise his price and when his declining sales increase the loss, wrapping himself in the rectitude of plain arithmetic, decides that prudence requires him to raise the prices still more—and who, when at last his account is balanced with nought on both sides, is still found righteously declaring that it would have been the act of a gambler to reduce the price when you were already making a loss.¹²

Four basic points emerge from a proper understanding of the tax wedge that is described in detail in Appendix I:

1. Changes in tax rates affect output in a direct fashion. Lower tax rates correspond to higher output.
2. Changes in tax rates affect the employment of all factors directly. Lower tax rates on one factor of production increase employment for other factors.
3. The constellation of tax rates, holding government spending unchanged, affects output. How taxes are collected is important, as is the total amount of taxation and spending.
4. Lowered tax rates on any one factor may or may not lower total revenue.

The specific shapes of the curves and the responsiveness of the effects of tax rates and total taxation or spending depend upon the innate characteristics of the factors and the production process. Those factors which are elastic in supply (sensitive to price changes) bear progressively less of the burden of taxation irrespective of the incidence. This is because a small decrease in the price received would yield a large change in the quantity supplied. Inevitably, the burden is passed to those factors that are inelastic in supply. By definition, it is these factors that have the fewest alternatives to providing their services, even if there is a reduction in the price received. Also by definition, the narrower tax bases are more elastic than broader tax bases. Consequently, narrow or narrowing tax bases should be avoided and/or replaced with broad tax bases.

SECTION III: PROPERTY TAXES VERSUS SALES TAXES—THE EVIDENCE

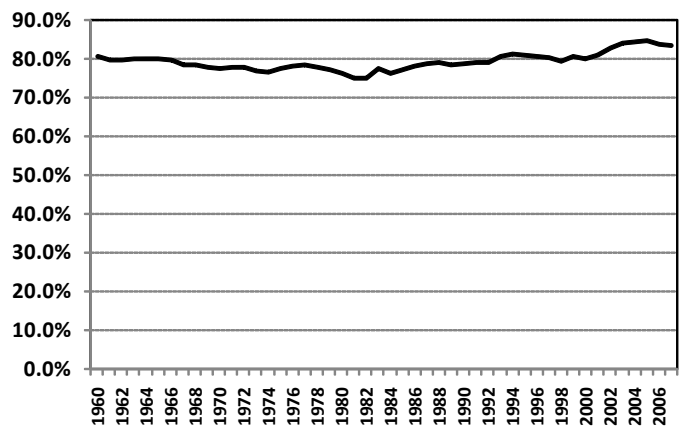
The two major tax revenue sources in Texas—property taxes and the general sales tax—comprise approximately 80 percent of the tax revenue in Texas. Evaluating these two tax sources in light of the four generally accepted principles of Section I shows a broad based sales tax more closely follows the principles and thereby creates a smaller tax wedge than property taxes. The implication is that a realignment of the tax burden in Texas can increase personal income growth in the state while maintaining the exact same amount of state and local revenues.

Adequacy

Within reasonable government expenditure levels, both a property tax and a consumption tax can be established to provide a set amount of revenues for state and local governments in Texas. Therefore, the adequacy of consumption taxes versus property taxes depends upon the stability and reliability aspects of the alternative revenue sources. Evaluating the tax sources on these criteria requires an evaluation of the underlying tax bases.

Consumption by its very nature is closely tied to personal income. **Figure 2** tracks total consumption expenditures in the United States as a share of personal income since 1960. While longer-term consumption and savings trends are evident, overall consumption has been traditionally around 80 percent of personal income for the past 48 years.¹³ Because sales taxes are a tax on consumption, the strong relationship between consumption and personal income implies that changes in sales tax revenues should be closely associated with changes in personal income. And, this is the case at the national level and for the state of Texas as well.

FIGURE 2: TOTAL U.S. PERSONAL CONSUMPTION EXPENDITURES AS A PERCENT OF TOTAL U.S. PERSONAL INCOME, 1960-2007

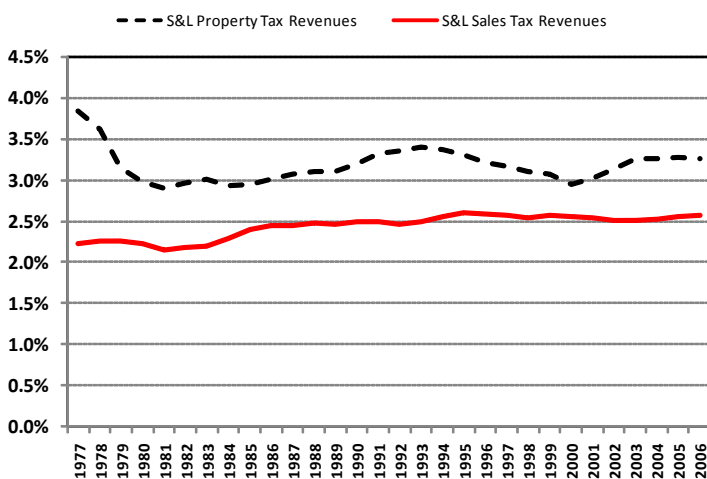


Nationally, there is a very strong correlation (+0.83) between the percent change in total general sales tax receipts and change in personal income. For the state of Texas, the correlation between the percent change in total general sales tax receipts and the change in personal income is (+0.53). This strong relationship means that when personal income is growing, so are sales tax revenues; and when personal income is stagnating, sales tax revenues are stagnating as well. Consequently, the tax burden grows in line with taxpayers' ability to afford it.

Contrast this to property taxes. Nationally, the correlation between the growth in property tax revenues and the growth in personal income is unrelated (a correlation coefficient of -0.06). The growth in property tax payments is just as likely to outpace personal income growth as it is to underperform personal income growth. For Texas, there is a slightly stronger relationship between growth in property tax revenues and personal income growth (a correlation coefficient of +0.24). But, such a relationship is still weak meaning that property tax revenues in Texas do not grow similarly to residents' ability to pay them.

The empirical stability of sales tax revenues with respect to personal income compared to property tax revenues is illustrated in **Figure 3**. Figure 3 presents the total state and local sales tax revenues as a percent of personal income compared to the total state and local property tax revenues as a percent of personal income for the nation from 1977 through 2007. As is clear from Figure 3, total sales tax revenues are much more stable with respect to personal income compared to property tax revenues.

FIGURE 3: TOTAL STATE AND LOCAL SALES TAX REVENUES AND PROPERTY TAX REVENUES AS A PERCENT OF NATIONAL PERSONAL INCOME, 1977-2007



Some of the volatility in property tax revenues as a percent of personal income in Figure 3 is due to major property tax cuts. However, as illustrated in Appendix III, the tendency for proper-

ty tax growth to exceed people's income growth is behind many of the major property tax reforms and revolts throughout history including:

- The property tax revolt during the Great Depression
- California's Proposition 13
- Massachusetts' Proposition 2 1/2, and
- Florida's Save Our Homes.

The lack of correlation between changes in property taxes and the population's ability to afford the taxes reduces the stability and reliability of property taxes compared to sales taxes.

Simplicity

With respect to simplicity, perhaps no more needs to be said than the fact that 3,977 localities in Texas impose property taxes, including school districts, counties, cities, and special districts. With so many different tax jurisdictions levying taxes on the same property, complexity is bound to follow.

Property taxes are levied each and every year, but property market transactions are rarer. On top of the sheer volume of local jurisdictions levying a property tax, the value of the property, the basis on which the taxes are assessed, are difficult to value. Assessing the actual property value is not straightforward, consequently.

Consumption or sales taxes, while facing issues of their own, are simpler to levy. First, there are fewer taxing jurisdictions. The actual sales price is also easier to determine as an actual market transaction takes place every time the tax is levied. Therefore the value of the tax base is easier to determine than with a property tax.

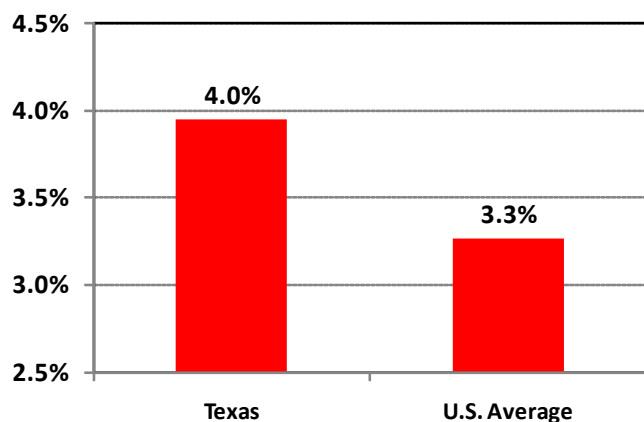
Efficiency

In the ideal, no economic decisions would be altered due to the tax system. From this perspective, property taxes impact the economic decisions of people and companies to a much greater extent than sales taxes.

For instance, Texas' property tax imposes the 14th highest property tax burden in the U.S., which in 2006 was 21 percent higher as a percentage of personal income than the average property tax burden (see **Figure 4**). This relatively higher tax burden creates a significant additional cost for capital intensive companies in Texas, such as telecommunication companies. Due to the extra costs artificially created by the tax wedge on property in Texas, capital intensive companies are discouraged from locating in Texas while those companies that are already in Texas, such as telecommunication companies face an additional profitability impediment.

Further problems with property taxes in general, and for Texas is the way it is levied. Property taxes as imposed in Texas and elsewhere in the U.S. are akin to an income tax not a tax on land. This is central to the notion of "full valuation" of property;

FIGURE 4: PROPERTY TAXES AS A PERCENTAGE OF PERSONAL INCOME TEXAS COMPARED TO THE U.S. AVERAGE, 2006



the value of the land and its improvements—whether they be a house, an apartment building, or a factory—being a proxy for the implicit income provided to the owner. Moreover, it is far from clear what factors bear the burden of the property tax as it is levied today. Examination of the post-Proposition 13 situation in California reveals the essence of the statement. While Proposition 13 reduced solely the incidence of taxation on the value of property, its benefits accrued more to the unemployed and disadvantaged than they did to property owners. The reason for this result is simply that the supply of housing and other property augmenting assets is quite elastic, or price sensitive, and the demand for housing services is highly inelastic, or price insensitive.

Compare this impact to the effect of consumption taxes on the economy. A consumption tax levied against the broadest possible tax base provides many benefits. A low flat rate tax on consumption would not discourage any corporation from locating in Texas, regardless of whether it requires large amounts of physical or human capital. Additionally, by being applied to the broadest tax base, the tax rate would be as low as possible therefore minimizing the tax wedge imposed on any single sector, see Appendix I.

Texas' current sales tax base can be improved and does not meet this definition. But, a tax reform that eliminated the property tax and raised the same amount of revenues on a static basis through an expanded sales tax base would effectively eliminate a tax that discourages against businesses that require large amounts of taxable property and simultaneously increase the efficiency of the sales tax. From an efficiency perspective, consequently, such a reform is a win-win proposition.

Accountability

While property owners will receive a bill for their property tax payments, the ultimate burden of a property tax is not clear to many people who ultimately bear its burden. For instance, while

the property tax payment on a new home may be clearly understood the day it is purchased, this is not necessarily the case 1, 5 or 10 years after the date of purchase. Due to rising property values, or more accurately rising perceived value based on the property assessment, property taxes can increase significantly on a homeowner. More troubling, typically such increases cannot be controlled by the homeowner.

Renters also face current and rising property taxes. When the owner of a property rents out a house or apartment, he is doing so under the expectation of making a profit. The profit is calculated as total revenues net of all costs—including property tax costs. Therefore, the property tax burden will be passed along to the renter in the form of higher rents or rent increases. Many renters may not be aware of the size of the tax burden they are paying, or even that they are implicitly paying property taxes at all. Due to the disconnect between the actual property tax burden and people's knowledge of what this burden is, or that they may be paying this burden at all, property taxes do not score well on the accountability criteria.

Sales taxes, on the other hand, are significantly more visible—especially sales taxes paid by the purchaser at the final point of sale. Additionally, consumers can exercise greater control over their sales tax burdens compared to property taxes. Whereas there are numerous documented cases of people being literally taxed out of their homes, this is not the case with respect to sales taxes. From this perspective, sales taxes are a much more visible and accountable tax than property taxes.

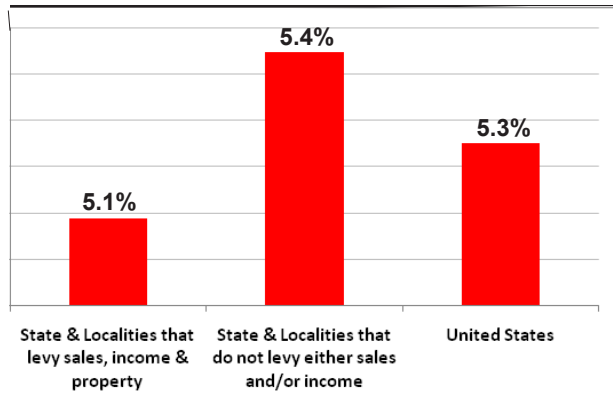
SECTION IV: STATES THAT RELY ON INCOME, SALES, AND PROPERTY TAXES ARE WORSE OFF

The belief that states benefit from levying an income, sales and property taxes (the three legged stool analogy) is simply false. The states that levy all three taxes are not necessarily economically better off. The evidence shows just the opposite—the states that do not levy the entire tax-threesome (either the sales or income tax) have experienced superior economic performance. Tax revenue growth for the states that do not levy either a sales or income tax has also outpaced those states where all three tax sources are levied. Consequently, arguments that all three tax sources are necessary to adequately fund the government are simply not supported by the facts.

The Empirical Evidence

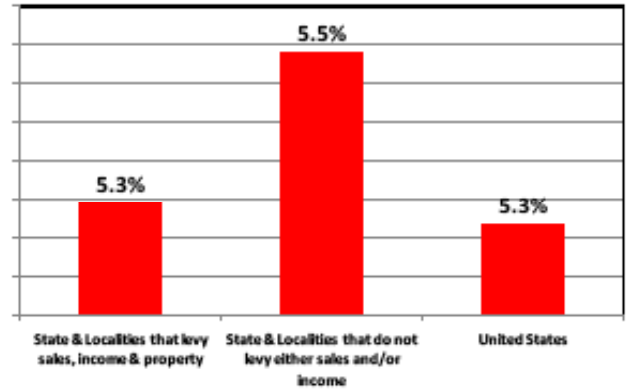
As the current revenue crises around the country exemplify, those states that rely on all three main revenue sources do not exhibit more stable revenues, nor do they necessarily raise revenues that are more sufficient to meet desired spending levels. Perhaps more importantly, economic and employment growth lags the growth in states that do not rely on all three main revenue sources.

FIGURE 5: AVERAGE GROWTH RATE IN STATE GDP STATES THAT LEVY SALES, INCOME, AND PROPERTY TAX COMPARED TO STATES THAT DO NOT 1997-2007



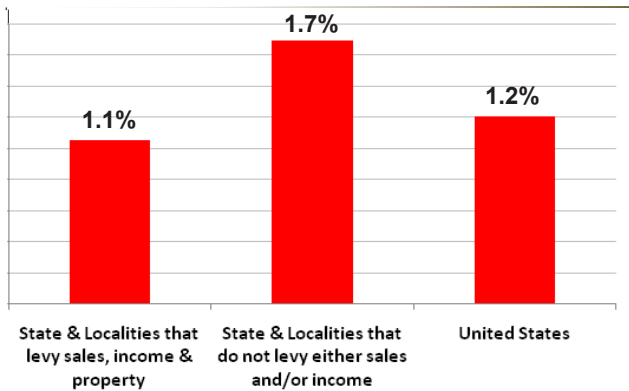
Source: Bureau of Economic Analysis, www.bea.gov.

FIGURE 6: AVERAGE GROWTH RATE IN STATE PERSONAL INCOME STATES THAT LEVY SALES, INCOME, AND PROPERTY TAX COMPARED TO STATES THAT DO NOT 1990-2007



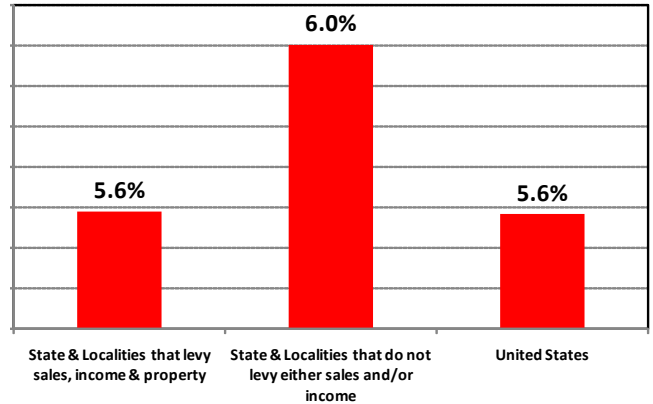
Source: Bureau of Economic Analysis, www.bea.gov.

FIGURE 7: AVERAGE ANNUAL GROWTH RATE IN STATE MONTHLY EMPLOYMENT TRENDS STATES THAT LEVY SALES, INCOME, AND PROPERTY TAX COMPARED TO STATES THAT DO NOT JAN. 2005 - NOV. 2008



Source: Bureau of Labor Statistics, www.bls.gov.

FIGURE 8: AVERAGE ANNUAL GROWTH RATE IN TOTAL STATE & LOCAL TAX REVENUES STATES THAT LEVY SALES, INCOME, AND PROPERTY TAX COMPARED TO STATES THAT DO NOT 1990-2006



Source: U.S. Census Department, www.census.gov.

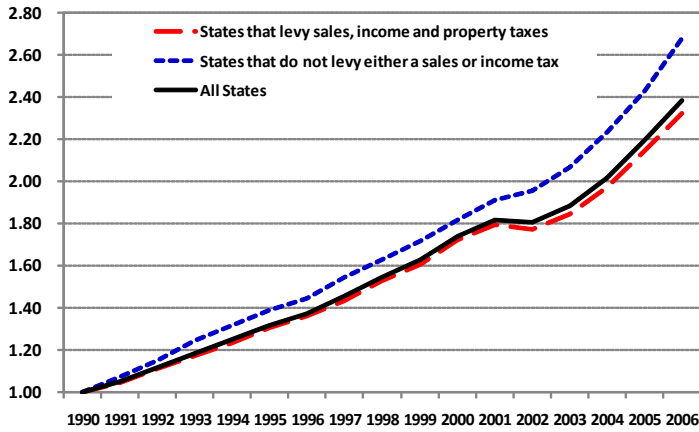
Starting with economic performance, the analysis compares the 12 states that do not levy either a sales or income tax—Alaska, Delaware, Florida, Montana, Nevada, New Hampshire, Oregon, South Dakota, Tennessee, Texas, Washington, and Wyoming—to the 38 states that do (thereby levying all three sources at the state and local level).

The Bureau of Economic Analysis (BEA) tracked GDP, a measure of total economic activity in a state, beginning in 1963, but it changed its methodology in 1997. **Figure 5** illustrates that the average growth rate in GDP in the states that do not

levy all three tax sources (+5.4%) exceeds the average growth in those states that do levy all three sources (+5.1%) between 1997 and 2007.

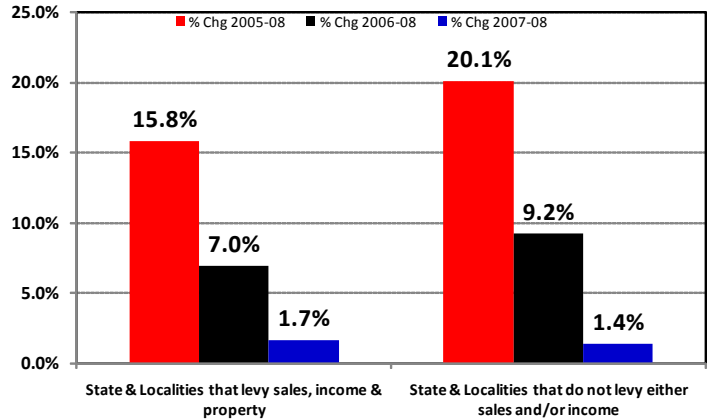
The BEA tracks personal income, a measure of total income earned by residents of a state, for a longer period of time. **Figure 6** presents the average growth rate in personal income for those states that do not levy all three taxes (+5.5%) compared to the average growth rate in personal income for those states that do levy all three taxes (+5.3%) between 1990 and 2007.

FIGURE 9: GROWTH RATE IN TOTAL STATE AND LOCAL TAX REVENUES STATES THAT LEVY SALES, INCOME, AND PROPERTY TAX COMPARED TO STATES THAT DO NOT 1990-2006



Source: U.S. Census Department, www.census.gov.

FIGURE 10: COMPARATIVE GROWTH RATE IN TOTAL STATE TAX REVENUES STATES THAT LEVY SALES, INCOME, AND PROPERTY TAX COMPARED TO STATES THAT DO NOT



Source: U.S. Census Department, www.census.gov.

Whether economic welfare is measured by growth in GDP or growth in Personal Income, not having all three taxes has not been an impediment to economic growth: in fact it has been helpful. Stronger overall economic growth has also led to improved employment growth, see **Figure 7**. Looking at the recent employment trends in those states where all three taxes (income, sales and property taxes) are not levied compared to those states where all three tax revenues are levied reveals the same trend (see above for list of states). The states that do not levy either the income or sales tax have experienced stronger average employment growth than the states that do.

As opposed to being a hindrance, Figures 5 through 7 illustrates that states that do not levy an income or sales tax experience an economic benefit from doing so. The belief that states need all three primary revenue sources clearly falls short from an economic growth potential. The same holds true for tax revenue growth as well.

Starting first with overall tax revenue growth at the state and local level, for the past 17 years, the states that do not levy all three taxes have actually experienced stronger total tax revenue growth on average than the states that do levy all three taxes, see **Figure 8**. And, it is not simply higher average annual growth.

Figure 9 traces out the growth in total tax revenues divided by the two groups of states. In **Figure 9**, the total tax revenues for each group of states are scaled to 1.0 in 1990. As illustrated in **Figure 9**, states that do not levy either a sales or income tax have experienced faster growth than the states who levy all three major tax sources.

Beyond the faster growth rate, the states that do not levy either a sales or income tax also did not experience as steep a decline in revenues as the states that do levy all three major tax sources during the recession of 2001. Having more tax sources did not provide revenue stability during the last revenue downturn, consequently.

A similar dynamic appears to be happening during the current downturn. The latest comparative tax revenues from the U.S. Census are through the first quarter of 2008 and are for states only—not the state and local revenues presented in **Figures 8 and 9**. Nevertheless, the states that do not levy either a sales or income tax do not seem to be performing worse than the states that do have all three. **Figure 10** presents the evidence.

The red bars in **Figure 10** (above) compare the growth rate in state tax revenues between 2005Q1 and 2008Q1 (a 3 year growth rate). Based on this comparison, the states that do not levy either a sales or income tax have seen faster tax revenue growth (+20.1%) than the states that do levy all three tax sources (+15.8%).

The same pattern holds over the 2-year period between 2006Q1 and 2008Q1—the black bars in **Figure 10**. Over this period the states that do not levy either a sales or income tax grew (+9.2%) compared to (+7.0%) for the states that levy all three.

The blue bars in **Figure 10** present the 1-year growth in tax revenues between 2007Q1 and 2008Q1. Under this comparison, the states that do not levy either a sales or income tax grew slightly slower (+1.4%) compared to (+1.7%) for the states that do levy all

three; the difference is slight, however. Furthermore, the greater growth rates over the 2-year and 3-year time horizons coupled with the better performance during the 2001 recession provides evidence that not levying all three tax revenue sources does not hurt revenue growth and stability, and perhaps even helps.

Theoretical Justification

Milton Friedman once said, “Those who let the data speak for themselves listen to a fool.” Empirical results need to be substantiated by solid theoretical foundations. In the case of the purported tax-threesome, there are theoretical problems with the approach that are consistent with the empirical results presented above, however.

All three tax sources supposedly provide greater government revenue stability. However, the approach assumes that increasing overall government revenues during tough economic times is a good thing. However, governments can only raise money in bad times by taking more money away from the private sector. No phrase should be more important for Texas to adhere to than *primum non nocere* (first do no harm). Unbalancing citizens’ budgets typically worsen recessions; it does not help the economy recover. A slower growing economy diminishes the vitality of the private sector from which government revenues are paid, and ultimately leads to weaker revenue growth for the government.

Perhaps more importantly, stability in government revenues are determined by the expenditure commitments of the government—especially those expenditure commitments made during the strong economic times. Expenditure commitments are related to the state’s tax system. The more progressive a state’s tax system, the greater the revenue surge during strong economic times, and the greater the temptation to over-spend. The greatest example of this process is California which exemplifies that progressive taxes drive you progressively broke.

Politicians in Sacramento inevitably paint themselves into a corner. The tax code is steeply progressive, with the richest 10 percent of earners paying almost 75 percent of the income tax. Perhaps more troubling, in 2000 the number of reported millionaires in California was 44,000. And yet those 44,000 millionaires contributed \$15 billion to the state treasury in 2000, meaning that the richest 0.15 percent of the population contributed roughly 20 percent of the total income tax revenues. California’s economic situation reversed dramatically between 2000 and 2002, and the number of millionaires in California fell from 44,000 to 29,000. Revenues in the state subsequently plummeted.

This setup showers riches on the state during periods of prosperity, which are of course immediately spent. Then when

the downturn comes, state revenues are hit disproportionately because of the loss of high income earners. Yet since budgets are much easier to expand than contract, the revenue shortfalls lead to massive deficits. To close the gap, the “solution” all too often is to hike taxes even more, which serves to further discourage employment and output—and hence the tax base. Because of the dynamic effects (as illustrated by the Laffer Curve), the tax hikes don’t raise as much revenue as predicted, and thus the budget deficits persist.

At the same time, welfare rolls and other support programs expand because of rising unemployment. The downward spiral is arrested when the public is finally fed up and demands drastic tax relief. Yet old habits die hard; the vicious cycle resumes once again in a few years when the public has forgotten the lesson. But at each new cycle the tax and spending problems ratchet up further and further. California may just be testing how far this vicious cycle can go.

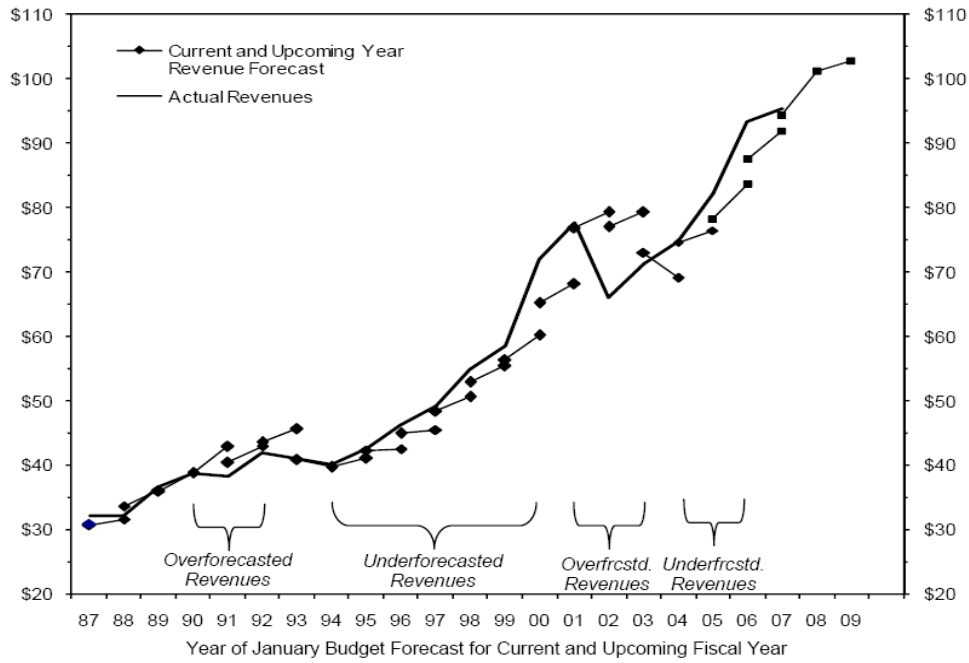
This instability in revenues also leads to massive over- and underestimates of general fund revenues, see **Figure 11**. The three-legged stool analogy misses this important budget stability fundamental. The number of tax sources does not change this boom-bust dynamic. Instead, consumption taxes (or other flat tax systems) can smooth out the revenue cycle more effectively than relying on all three tax sources. Additionally, it is unclear how combining less efficient tax sources with more efficient tax sources creates a more efficient overall tax structure.

SECTION V: THE ECONOMIC IMPACT ON TEXAS FROM PROPERTY TAXES VERSUS SALES TAXES

Having outlined the theory of sound taxation and refuting the idea of a three-legged stool tax system, the next task was to evaluate the current situation in Texas and provide insight into what the implications for Texas’ economy from replacing property taxes with a reformed sales tax. To evaluate the impact on the economy, we focused: personal income growth, population growth and employment growth.

It is important to note that the models and forecasts are from a policy perspective. Policy models empirically estimate the differences in economic outcomes due to specific policy changes. Consistent with this methodology, the economic impact of the proposed tax reform is generated by comparing two different scenarios. The first scenario, the baseline, is a forecast based on Texas’ current average growth rate potential given the current tax system. The impacts from the current economic crisis are not included. The second scenario, the tax reform scenario, is a forecast based on the potential average growth rate in Texas if the property tax burden was eliminated and replaced with a consumption tax burden. Similarly, the impacts from the current economic crisis are not included.¹⁴

FIGURE 11: CALIFORNIA GENERAL REVENUE: FORECAST VERSUS ACTUAL (IN BILLIONS \$)



Source: U.S. Census Department, www.census.gov.

Personal income is the aggregate income that all people receive, after a few adjustments, from all sources. It's a good proxy for why people work, produce, employ and invest. Remember, people don't work or invest simply because there are jobs or opportunities; rather, they work for an after-tax wage and invest for an after-tax return. As such, we wanted to see if Texas' historical figures, and our subsequent results, would support the claim that property taxes, when compared to consumption taxes, have a more depressing effect on the amount of income people earn from work and investment. Using personal income as our main target variable we found that property taxes did have a more negative shock on the broader economy.

We used two separate approaches to estimate the negative economic impact from the two types of taxes on personal income: vector autoregression (VAR) and pooled regression techniques. For the VAR, we used data for all 50 states and for over 30 years. The model examined the interaction between personal income, property taxes as a share of total tax revenues, consumption taxes as a share of total tax revenues, and population. This analysis examined how the dependency on various sources of tax revenues, and population, interacts with personal income. The vector autoregression (VAR) analysis examines all of the variables together, and each variable is explained by its lagged values and the lagged values of all the other variables in the system. The question of interest from this model was whether greater reliance on property taxes had a larger negative impact on personal income than greater reliance on sales taxes.

The second methodology employed to examine the relative attractiveness between consumption and property taxes was pooled regression analysis. The pooled regression analysis more closely resembles a traditional regression analysis. In this analysis we examined the impact that changes in a state's property tax burden, sales tax burden, and income tax burden have on changes in state personal income, while accounting for changes in the national economy (changes in national GDP).

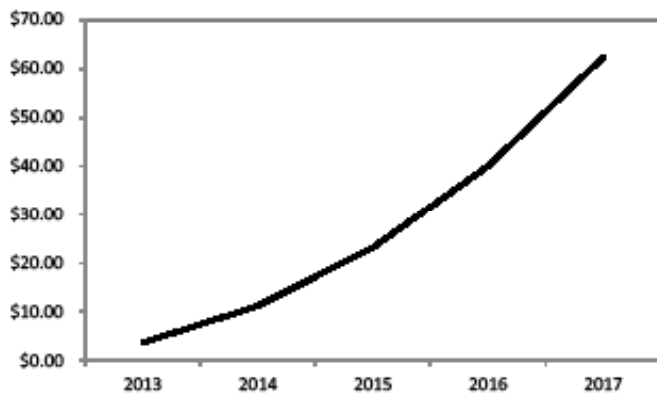
Both approaches arrived at very similar results. We found that if property taxes as a source of revenue were abandoned and that burden were placed on consumption, personal income in the state of Texas could potentially increase in the range of \$3.60 to \$3.68 billion in the first year. Over a five year period we estimated that personal income could, on a cumulative basis, increase between \$22.85 to \$63.0 billion; this means if the property tax burden were replaced dollar for dollar with a higher sales tax burden, personal income in Texas would be 1.8 percent to 4.7 percent higher than it would be otherwise. The year by year projections can be seen in Table 3 and the cumulative effects on personal income can be seen graphically in Figure 12 (see next page). Note all cumulative figures are plots of the higher values over a five year time horizon.

The figures on the next page show that Texas can experience a real and significant boost to the state's overall economic growth rate by simply, to paraphrase Henry George, levying its tax burden in a different way.

TABLE 3: IMPACT ON PERSONAL INCOME IN TEXAS FROM REPLACING PROPERTY TAXES WITH SALES TAXES (BILLIONS \$)

	Personal Income Baseline (no tax reform)		Personal Income with Tax Reform		Cumulative Increase in Personal Income	
	Lower	Upper	Lower	Upper	Lower	Upper
2013	\$1,078.31	\$1,089.70	\$1,081.91	\$1,093.39	\$3.60	\$3.68
2014	\$1,123.07	\$1,146.93	\$1,127.77	\$1,154.52	\$8.30	\$11.28
2015	\$1,169.70	\$1,207.17	\$1,174.67	\$1,219.27	\$13.27	\$23.38
2016	\$1,218.26	\$1,270.56	\$1,223.18	\$1,287.65	\$18.19	\$40.47
2017	\$1,268.83	\$1,337.29	\$1,273.49	\$1,359.82	\$22.85	\$63.00

FIGURE 12: AVERAGE CUMULATIVE INCREASE IN PERSONAL INCOME GROWTH (BILLIONS \$)



Source: U.S. Census Department, www.census.gov.

The benefits on Texas' economy from such a strong growth will go beyond personal income. Every day people and firms vote with their feet by relocating their home or business. Overall, Texas' total economic environment has been attractive enough to retain, on the aggregate, all of its current U.S. residents and businesses plus attract many more. But, making the state even more competitive would in turn attract even more people and businesses thus increasing output, production and employment within the state. As discussed above, eliminating the property tax would also remove the state's current discrimination against capital intensive industries, thereby providing significant encouragement for these businesses to locate to Texas.

Understanding how any tax system impacts employment is actually quite simple. Firms base their decisions to employ workers, in part, on the workers' total cost to the firm. Holding all else equal, the greater the cost to the firm of employing each additional worker, the fewer workers the firm will employ. Conversely, the lower the marginal cost per worker, the more workers the firm will hire. For the firm, the decision to employ is based upon

gross wages paid, a concept which encompasses all costs borne by the firm.

Workers, on the other hand, care little about the cost to the firm of employing them. Of concern from a worker's standpoint is how much the worker receives for providing work effort, net of all deductions and taxes. Workers concentrate on net wages received. The greater net wages received, the more willing a worker is to work. If wages received fall, workers find work effort less attractive and they will do less of it. The difference between what it costs a firm to employ a worker and what that worker receives net is the tax wedge. If the tax wedge is smaller under the proposed tax reform, then what we should find is an increase in the number of people that firms are willing to hire and a greater number of workers who are willing to supply their labor.

As part of the pro-growth impacts from replacing property taxes with sales taxes, the number of jobs created in the state would also rise. Our analysis showed that the proposed tax reform would lead to a net gain of new jobs, over a five year horizon, between 124.9 thousand to 337.4 thousand over the job growth Texas would have had if no tax reform were implemented. **Table 4** and **Figure 13** (next page) summarize these results.

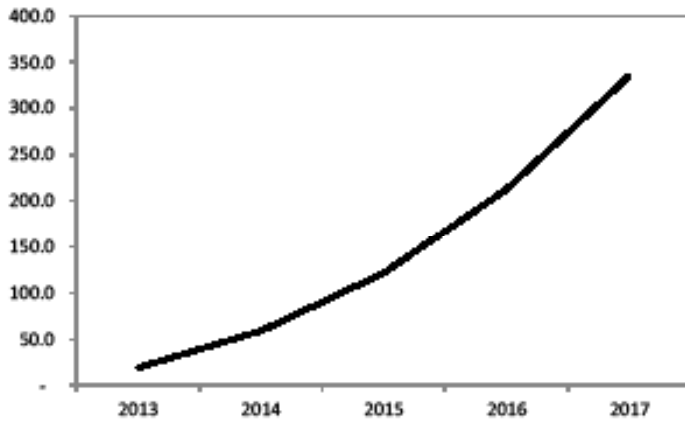
Due to the stronger economy and employment growth, Texas would also experience an inflow of people above and beyond what would occur given no change in the current tax system. Over a five year period, Texas would experience a cumulative additional increase of new residents above the baseline scenario between 344.7 thousand and 929.8 thousand; see **Table 5** and **Figure 14** (next page).

All in all our analyses supports our belief that property taxes are not as desirable as consumption taxes and demonstrate that Texas has an opportunity to improve its overall economic well being by implementing a state wide consumption tax while at the same time eliminating the use of property taxes as a source of government revenues.

TABLE 4: IMPACT ON STATE EMPLOYMENT GROWTH IN TEXAS FROM REPLACING PROPERTY TAXES WITH SALES TAXES (NONFARM PAYROLLS, SEASONALLY ADJUSTED IN THOUSANDS)

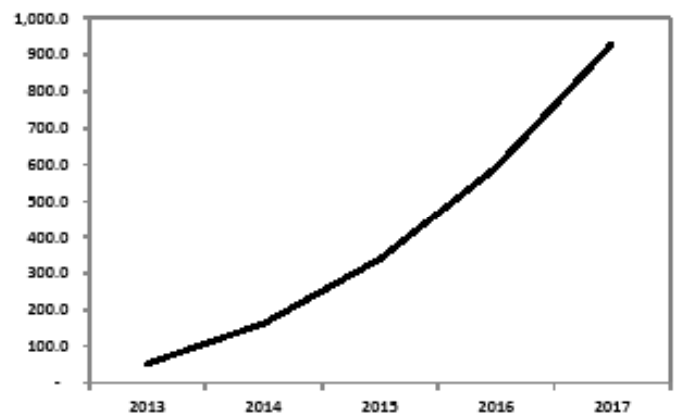
	Employment Baseline (no tax reform)		Employment with Tax Reform		Cumulative Increase in Employment	
	Lower	Upper	Lower	Upper	Lower	Upper
2013	10,987	11,057	11,005	11,077	17.7	19.3
2014	11,443	11,638	11,468	11,678	43.0	49.1
2015	11,918	12,249	11,946	12,312	70.6	122.3
2016	12,413	12,893	12,440	12,986	97.6	214.5
2017	12,928	13,570	12,956	13,692	124.9	337.4

FIGURE 13: CUMULATIVE NET EMPLOYMENT GROWTH POST TAX REFORM (THOUSANDS)



Source: U.S. Census Department, www.census.gov.

FIGURE 14: CUMULATIVE NET POPULATION GROWTH POST TAX REFORM (THOUSANDS)



Source: U.S. Census Department, www.census.gov.

TABLE 5: IMPACT ON STATE POPULATION GROWTH IN TEXAS FROM REPLACING PROPERTY TAXES WITH SALES TAXES

	Population without Tax Reform		Population with Tax Reform		Cumulative Increase in Population	
	Lower	Upper	Lower	Upper	Lower	Upper
2013	26,925,576	27,115,687	26,976,393	27,168,506	50,817.6	52,819.1
2014	28,043,367	28,539,747	28,113,483	28,649,493	20,934.0	162,565.5
2015	29,207,562	30,038,595	29,282,681	30,215,239	196,052.9	339,208.8
2016	30,420,087	31,616,160	30,495,354	31,868,640	271,320.0	591,688.2
2017	31,682,950	33,276,575	31,756,324	33,614,727	344,694.4	929,839.4

SECTION VI: IMPROVING ECONOMIC EFFICIENCY IN TEXAS THROUGH FUNDAMENTAL TAX REFORM

Section V illustrates that Texas' economy could benefit by switching the property tax burden to a sales tax burden. However, Section V does not address how this switch can be achieved. There are many considerations for replacing the property tax revenues with sales tax revenues. For instance, what should be the sales tax base? Should services be taxed? What about health care services? How can the sales tax system best avoid taxing retail sales that are inputs into production, thereby avoiding double taxation? What sales tax rate provides a revenue neutral tax replacement? Many of these questions are inherently political. This section provides several options that are available to Texas.

The main question that needs to be addressed is the sales tax base. Once the sales tax base has been established, determining the appropriate tax rate on a static basis is simply an arithmetic

exercise. To provide perspective on the range of tax rates that are feasible, we begin this analysis with two reasonable extremes with respect to the sales tax base. At the lower end of the sales tax base range (therefore leading to the highest necessary sales tax rate) is the current sales tax base assuming no adjustments at all. At the upper end of the sales tax base range (therefore leading to the lowest necessary sales tax rate) is if all final goods and services were taxed, adjusting for several key consumption areas.

Starting with the current sales tax base, **Table 6** presents total Texas state and local sales tax revenues between 2005 and 2009. Based on the state tax revenues and the state sales tax rate, the approximate state sales tax base can also be calculated. This estimate is presented in the second row of Table 6. Row 4 summarizes the sales tax rates necessary to replace all property tax revenues and current sales tax revenues (the sum of rows 1 and 3 in Table 6) if the current sales tax base is going to be used.

TABLE 6: CURRENT TEXAS SALES TAX REVENUES, TAX BASE, AND SALES TAX RATE NECESSARY TO REPLACE ALL PROPERTY TAX REVENUES USING CURRENT SALES TAX BASE, 2005-2009

	2005	2006	2007	2008	2009
State & Local Sales Tax Revenues (000's)	20,786,570	23,399,941	25,810,525	27,520,030	26,917,635
Sales Tax Base (millions)	261,005.0	292,403.4	324,327.6	345,665.4	336,225.0
Property Tax Revenues (000's)	30,973,635	33,478,990	35,114,597	38,979,970	40,034,356
Necessary Sales Tax Rate	19.83%	19.45%	18.79%	19.24%	19.91%

Source: Window on State Government: Texas, www.window.state.tx.us, and author calculations.

Table 6 illustrates that over a 5-year period (2005-09), the static sales tax rate that would have been necessary to replace all property tax revenues based on the current sales tax base ranged from 18.8 percent to 19.9 percent, with an average value of 19.5 percent.

At the other end, the broadest possible sales tax base, and the most ideal, is to tax all final consumption once and only once. This tax base is the equivalent to the state's GDP (the value of all goods and services consumed in the state). While taxing GDP is not feasible, for reasons developed below, it provides a useful lower bound estimate for the possible sales tax rate. Another caveat with respect to a sales tax base derived from GDP is the difficulty of actually capturing this tax base with a final retail sales tax.

The resulting sales tax rate using GDP as the sales tax base is presented in **Table 7** (next page). Over a 5-year period (2005-09), the static sales tax rate that would have been necessary to replace all property tax revenues based on a GDP sales tax base ranged from 5.3 percent to 5.9 percent, with an average value of 5.5 percent.

Although the GDP sales tax base is unrealistic, it is instructive with respect to the beneficial impacts that can be achieved with respect to broadening the sales tax base. In this example, the necessary sales tax rate to create a statically revenue neutral tax reform would drop to an average of 5.5 percent compared to an average sales tax rate of 19.5 percent based on the current sales tax base.

While taxing GDP is not feasible, with some adjustments, a GDP-based sales tax base can be created. GDP includes expenditures of the government, federal, state and local. It makes no sense to tax state and local government expenditures, and it is not possible to tax federal government expenditures. Consequently, government expenditures should be subtracted out of Texas' GDP.¹⁵ Similarly, GDP includes what the BEA calls imputed rent. Imputed rent measures the rental value of owner-occupied homes. Because most homeowners in Texas probably do not physically write a check to themselves for rent, we assume that charging a sales tax on this value is politically unpalatable. Finally, due to the unique features of health care expenditures, we assume that health care and social welfare expenditures will not be taxable as well.¹⁶

TABLE 7: CURRENT TEXAS SALES TAX REVENUES, TAX BASE, AND SALES TAX RATE NECESSARY TO REPLACE ALL PROPERTY TAX REVENUES USING TOTAL GDP AS THE SALES TAX BASE, 2005-2009

	2005	2006	2007	2008	2009
State & Local Sales Tax Revenues (000's)	20,786,570	23,399,941	25,810,525	27,520,030	26,917,635
Sales Tax Base (millions)	968,553.0	1,054,414.0	1,147,404.0	1,209,267.0	1,129,537.0
Property Tax Revenues (000's)	30,973,635	33,478,990	35,114,597	38,979,970	40,034,356
Necessary Sales Tax Rate	5.34%	5.39%	5.31%	5.50%	5.93%

Source: Window on State Government: Texas, www.window.state.tx.us; Bureau of Economic Analysis, www.bea.gov; and author calculations.

TABLE 8: CURRENT TEXAS SALES TAX REVENUES, TAX BASE, AND SALES TAX RATE NECESSARY TO REPLACE ALL PROPERTY TAX REVENUES USING ADJUSTED TOTAL GDP AS THE SALES TAX BASE, 2005-2009

	2005	2006	2007	2008	2009
State & Local Sales Tax Revenues (000's)	20,786,570	23,399,941	25,810,525	27,520,030	26,917,635
Sales Tax Base (millions)	725,513.2	794,298.3	869,148.8	911,983.1	821,253.7
Property Tax Revenues (000's)	30,973,635	33,478,990	35,114,597	38,979,970	40,034,356
Necessary Sales Tax Rate	7.13%	7.16%	7.01%	7.29%	8.15%

Source: U.S. Census Department, www.census.gov, and author calculations.

The resulting sales tax rate using the adjusted GDP as the sales tax base is presented in **Table 8**. Over a 5-year period (2005-09), the static sales tax rate that would have been necessary to replace all property tax revenues based on the adjusted GDP sales tax base ranged from 7.0 percent to 8.2 percent, with an average value of 7.3 percent. A more realistic GDP tax base would, consequently, require approximately a 1.00 percentage point increase in the sales tax rate in order to replace all property tax revenues.

Taxing GDP in the above manner using a retail sales tax may not be feasible. There are other options to expanding the sales tax base, however. According to the Federation of Tax Administrators (FTA) there are 168 different categories of services that are taxed by states, or could be taxed by states see Appendix IV for a complete listing of services that are taxed by at least one state.¹⁷ Texas currently taxes 83.¹⁸ While taxing all of these services may not be desirable, the value of these services provides a basis from which to form an expanded sales tax base. In fact, the Center for Budget Policies and Priorities (CBPP) found that Texas could have increased their 2001 sales tax revenues by \$5 billion (or nearly a quarter of the revenues necessary to replace the total property tax revenues for the year) by expanding the sales tax base to those services that CBPP believes are “readily taxable,” which excludes services such as legal and banking from taxation.¹⁹

We evaluate the resulting sales tax rate from expanding the current sales tax base in Texas by including the value of all taxable services as defined by the FTA. The total value of these ser-

vices in Texas is estimated based on the total receipts reported by the U.S. Census as part of the 2002 Economic Census.²⁰ The results are summarized in **Table 9** (next page). Over a 5-year period (2005-09), the static sales tax rate that would have been necessary to replace all property tax revenues based on the adjusted GDP sales tax base ranged from 12.4 percent to 13.0 percent, with an average value of 12.7 percent. Based on this sales tax base, the sales tax rate would need to be increased by approximately five percentage points over the current state and average local sales tax rate of 8.0 percent in order to replace all property tax revenues.

There is one further sales tax base consideration: the sales tax can be levied on the sale of property. This adjustment expands the sales tax base, lowering the necessary tax rate across the two sales tax based scenarios presented above. It also corrects for many of the problems associated with property taxes. For instance, currently property taxes are annually assessed based on an imagined (taxable) value of the property, which may or may not be the actual value of the property. Whether the value is accurate or not, for many homeowners the property tax results in a tax on unrealized capital gains. Levying a sales tax when the property is sold corrects for these problems. The sales tax will be based on the property's transaction price—the actual market value. Additionally, the prospect of being taxed out of one's home is removed. Finally, the financial and economic burden of the property assessment structure with its thousands of employees is no longer necessary as the value of property no longer needs to be estimated.

TABLE 9: CURRENT TEXAS SALES TAX REVENUES, TAX BASE, AND SALES TAX RATE NECESSARY TO REPLACE ALL PROPERTY TAX REVENUES EXPANDING CURRENT SALES TAX BASE BY THE FTA DEFINED TAXABLE SERVICES, 2005-2009

	2005	2006	2007	2008	2009
State & Local Sales Tax Revenues (000's)	20,786,570	23,399,941	25,810,525	27,520,030	26,917,635
Sales Tax Base (millions)	415,563.1	453,830.0	489,766.8	517,156.5	515,886.4
Property Tax Revenues (000's)	30,973,635	33,478,990	35,114,597	38,979,970	40,034,356
Necessary Sales Tax Rate	12.46%	12.53%	12.44%	12.86%	12.98%

Source: U.S. Census Department, www.census.gov, Federation of Tax Administrators, www.taxadmin.org, and author calculations.

According to The Real Estate Center at Texas A&M University, the average number of home sales in Texas between 2005 and 2009 were around 261 thousand and the average home prices were \$187 thousand. Consequently, the total average increase to the sales tax base would have been \$49.0 billion. Total U.S. commercial property sales were \$270 billion and \$317 billion in 2005 and 2006 respectively.²¹ Real Capital Analytics, in a continuation of the recovery in the commercial market, expects national property sales to be around \$300 billion in 2012. Based on Texas' share of the national economy and an estimated \$300 billion market, this implies approximately \$24 billion in commercial property sales in Texas. Table 10 adjusts the sales tax rates in the previous scenarios based on the increase in the sales tax base from taxing residential and commercial property sales. **Table 10** illustrates that by expanding the tax base to include the sale of property, the sales tax rate on all other transactions can be reduced.

Based on Texas' current retail sales tax system, and assuming that Texas levied the sales tax on the sale of property in the state as well as all services currently taxed by at least one state, a sales tax rate of approximately 11.0 percent would be sufficient to repeal all current property taxes currently levied in Texas. If the entire value of goods and services were able to be taxed (adjusted GDP), then a tax rate of around 7.35 percent would be sufficient to repeal all current property taxes currently levied in the state.

There are different strengths, weaknesses, and trade-offs inherent in each one of these scenarios. Within reasonable parameters, the sales tax base can be broadened to a large enough extent to only require a marginal increase in the current state and average local sales tax rate. Additionally, expanding the sales tax base to cover more services is a reform that Texas needs to address eventually due to the growing importance of services to the economy, relative to the value of goods.

CONCLUSION

Tax policy matters because Texas must compete with other states for tomorrow's growth industries. Economists in general acknowledge that reduced tax rates and a competitive economic landscape improve economic incentives thereby creating long-run benefits to a state. However, they tend to underestimate how quickly the economy responds to the economic incentives. Ignoring the incentive effects is perilous and lead to incorrect forecasts.

While all taxes create a negative impact, property taxes are particularly onerous. Based on the generally accepted principles of sound taxation, property taxes are inferior to sales or consumption taxes. These theoretical deficiencies are borne out by the data. The heavy burden of property taxes has led to multiple "tax revolts" throughout the history of the United States.

TABLE 10: ALTERNATIVE SALES TAX RATE NECESSARY TO REPLACE ALL PROPERTY TAX REVENUES INCLUDING THE VALUE OF PROPERTY SALES, AVERAGE 2005 THROUGH 2009

	Average Tax Base 2005-2009 (millions)	Average Tax Rate
Current Tax Base Including Real Estate	385,257	15.73%
Taxing All FTA Services Including Real Estate	551,773	10.98%
Adjusted GDP Tax Base	824,439	7.35%
GDP Tax Base	1,101,835	5.50%

Source: Window on State Government: Texas, <http://www.window.state.tx.us>; Bureau of Economic Analysis, www.bea.gov; Real Capital Analytics (2012) "2012 Predictions for the US Commercial Real Estate Capital Markets;" and author calculations.

Empirically, property taxes impose a larger burden on a state's productive sector than a sales tax. Consequently, property taxes reduce overall economic performance more than necessary to raise the same amount of tax revenues compared to a sales tax. This larger cost created by property taxes compared to sales taxes creates a tax reform opportunity for Texas.

Regardless of the sales tax reform that is ultimately implemented, based on the theory of sound taxation and the empirical evidence Texas should replace its current property tax revenue system with an expanded sales tax. Such a reform creates many benefits for the state without changing the total tax revenues that the state and local governments currently raise. These benefits include:

- Enhanced economic growth
- Stronger job growth
- Increased population growth
- A stronger competitive environment

- A revenue stream that is more closely aligned with the citizen's ability to pay

The reality is that the economic growth that follows the implementation of pro-growth economic landscapes often exceeds the most optimistic projections due to the dynamic impacts they generate. The longer a pro-growth economic landscape is in place, the greater these gains and the more prosperous a state's economy becomes. During prosperous times, when economic growth is greater, there is the added benefit of falling demand for government social spending programs (e.g., unemployment, welfare, etc.) that further benefits a state's budget.

The current economic crisis enhances the benefits Texas can gain from reforming its tax system. Difficult times expose the stresses inherent in current tax systems. They also amplify the benefits from pro-growth tax reforms. Consequently, the timing for a pro-growth tax reform in Texas could not be better. Texas has everything to gain from repealing its current property tax system. Such a reform will significantly enhance Texas' already competitive landscape and ensure Texas' relative economic prosperity will endure. ★

APPENDIX I: THE TAX WEDGE

Taxes are necessary to raise money for the state. But, all taxes impose a “tax-wedge” on the economy due to the difference between the price paid by the buyer and the price received by the seller. Understanding the economic impact of the tax-wedge and the different tax-wedges created by the different forms of taxation in Texas—mainly property taxes and sales taxes—provides the proper framework in which to establish the most efficient state tax system. The development of modern macroeconomics has deemphasized the importance of the tax-wedge’s economic impact to the detriment of sound public finance. Like most modern macroeconomic debates, it begins with Keynes.

With the publication of *The General Theory* by John Maynard Keynes began the major conversion of the academic profession from a classical perspective to the perspective of aggregate demand management. By the early 1950s, the conversion was complete. Virtually every major academic institution in America was dominated by economists with a distinct orientation toward aggregate demand as the most appropriate form of economic analysis to explain, diagnose, and thus prescribe the behavior of macroeconomic variables.

Classical thought had all but disappeared and once eminent classical economists were held in disrepute. As striking an example can be was the total reversal of Harvard Professor Alvin Hansen. When *The General Theory* first appeared, Professor Hansen wrote a review which effectively dismissed the book as not being economics. Within a few years, however, he had become Keynes’ most ardent advocate in the United States and his book, *A Guide to Keynes* was *de rigeur* in any classroom where macroeconomics was taught.²²

The aggregate demand perspective is still prevalent today. As evidence, one needs to look no further than the proposed economic stimulus plans coming out of Washington D.C. all of which rely on “increasing aggregate demand” as the proper economic tonic to the current economic recession.

While great diversity exists among alternative formulations, the Keynesian income-expenditure approach distinguishes two forms of aggregate demand. Demand can be either induced or autonomous. Induced expenditures are those expenditures which depend on income, while autonomous expenditures depend upon factors other than income. In simple terms, investment, government spending and exports are representative categories of autonomous expenditures. Imports and consumption, on the other hand, represent induced expenditures.

Whether induced or autonomous, each of these categories represents demand. Supply demarcations are omitted in their entirety. Within the framework of Keynesian economics the level of output, and thus total employment, is hinged upon

the magnitude of autonomous expenditures, the magnitude of induced spending for consumption and imports per unit of income, and the increase in tax payments per unit of income. The higher autonomous expenditures are the greater will be output and employment. Likewise, a high marginal propensity to consume will also result in high output and employment.

For imports and tax payments, the reverse is true. High tax payments and imports result in low income and employment. As a result, government policies which have the effect of increasing investment, exports or government spending will, *pari passu*, increase output and employment. Likewise, those government policies which increase consumption at the expense of savings or imports or tax payments, will also increase output and employment.

It follows directly, therefore, that the Keynesian prescription for alleviating either slow growth or a low level of output at the state level would include the following types of policy measures:

- i. Increase government spending , thereby directly increasing aggregate demand;
- ii. Lower taxes, especially through rebates that will have the highest probability of raising consumption;
- iii. Raise taxes on savings and imports to discourage those activities and thereby increase consumption.

In the early stages of its development, the Keynesian framework basically dismissed the inflationary consequences of government policies as being of little consequence. As the post World War II era unfolded, however, inflation rates increased, and inflation itself became an ever-increasing focus for government policy. The adaptation of inflation into the general Keynesian framework was based on the work of a British economist named Phillips, who discovered a close and persistent inverse relationship between rates of inflation and rates of unemployment in the 19th century United Kingdom data. The formulation of this relationship—the Phillips Curve—postulates that increased demand resulting in lessened unemployment will also heighten inflationary pressures. As a consequence, there is a drawback, or trade-off, to stimulative monetary and fiscal policies such as increased government spending, increased money growth, reduced taxes, or even currency devaluation in the form of higher inflation. A policy conflict or frustration therefore emerged. The range of policy prescriptions extends from all those fiscal policies that have the effect of reducing aggregate demand, to specific incomes policies such as wage and price controls.

Almost at its inception, Keynesian demand oriented income/expenditure analysis faced intellectual opposition from yet another demand oriented framework called monetarism. The earliest champion of the monetarist school of thought was

an economist named Clark Warburton. The rise of monetarism, however, must be attributed to the indefatigable efforts of Professor Milton Friedman. In his presidential address for the American Economic Association, he presented as clear an exposition of the basic tenets of monetarism as can be found.²³ The central feature of monetarism, as in Keynesian fiscalism, is the exclusive focus on aggregate demand. The supply of goods and services is presumed to accommodate itself to any and all changes in aggregate demand. An exception is found in the analysis of the very long run, when supply does come to the fore.

Following Friedman's delineations, the immediate effect of an increase in the supply of money is an increase in the dollar price of bonds and a commensurate fall in interest rates. The fall in interest rates stimulates investment demand, as was also the case in Keynesian analysis. Because it takes time for investment spending to increase, the actual increase in demand does not occur at the moment of the increase in the supply of money. For the monetarist, the stimulus to demand takes on a second aspect as well. Consumption demand is augmented as well through the direct effect of excessive money balances in the hands of consumers. This effect, too, takes time to materialize.

Given sufficient time, the combined effects on aggregate demand of an increase in the supply of money will elicit an increase in output and employment. The supply of goods and services will merely accommodate this increase in aggregate demand. In due course, however, increased production of goods and services will lead to heightened wage demands, and tendencies on the part of goods and service producers to raise prices. Inflation is the end result. Therefore, in the shortest of runs, an increase in the supply of money reduces interest rates and sets the stage for an increase in aggregate demand. In the intermediate term, output increases are the direct consequence of the increased stock of money. And finally, the price level rises and output falls back to where it otherwise would have been.

Whether one concentrates on the Keynesian or monetarist form of demand analysis, nowhere in the explicit formulations does one find a distinction between the wages paid by the firm for a worker and the wages a worker receives net after tax. Likewise, the distinction between pretax and post tax yields on capital is nonexistent. Basically, in demand types of analyses, people work because there are jobs, not because they are paid. Similarly, people save because their incomes are high, not because they earn an after tax yield on their savings. Incentives on an individual basis do not play a substantive role, at least not in the short run, in demand types of analyses.

As a result, macroeconomic analysis cannot be integrated with the theory of the firm or individual behavior. While the controversies between the monetarists and the Keynesians have often been heated, their domination of post-war economic thought literally has precluded classical economics. Public policy

has increasingly turned to demand analysis, and the incumbent structure that accompanies such views.

Therefore, on the Federal level, and on the level of state and local governments, whenever the economy appears sluggish, policy makers' minds turn to increased government spending, increased money growth, reduced taxation, or currency depreciation. For state and local governments, several of these avenues are proscribed. They cannot, for example, depreciate the U.S. currency, nor can they effectuate a change in the growth rate of the supply of money. As a result, state and local governments look to the output and employment effects of increased spending or reduced taxation. In some instances, they are placed in concert with specific forms of price controls. Often these price controls are centered on items that cannot without considerable difficulty leave the jurisdiction of the governing body. Rent controls are a favorite target for state and local governments.

A Classical Approach to Economic Analysis

The essential tenet of classical economic analysis is that people alter their behavior when economic incentives change. If the incentives for doing an activity increase relative to alternative activities, more of the now more attractive activity will be done. Likewise, if impediments are imposed upon an activity, less of the now diminished-incentive activity will be forthcoming. Basically, people have both time and resource constraints in the quest for self-fulfillment. With limited resources and time, the explicit attainment of objectives necessitates prudent management within the structure of constraints imposed by nature and man. Thus, government, with its full power of enforcement, has the ability to alter the constraints encountered by the vast array of economic factors. Changes in the structure of these governmentally imposed constraints alter the economy's behavior.

The forms of the constraints emanating from government are solely limited by the expansiveness of man's own mind. In the area of economics, taxes, subsidies, regulations, restrictions, and requirements are but a few of the virtually endless series of possible government actions. The composition, as well as the magnitude of government spending, will also impact the range of private activity, as will the methods of government financing. The general precepts of classical economics are founded on the role played by incentives, and the effect government actions have on those incentives.

Firms base their decisions to employ workers or acquire capital assets, in part, on the total cost to the firm of employing workers or acquiring capital, always with an eye to enhancing the value of the firm for its owners. Holding all else equal, the greater the cost to the firm of employing each worker, the fewer workers the firm will employ. Conversely, the lower the cost per worker, the more workers the firm hires. Incorporated in the decision making process are all costs associated with each worker's

employment, including filing requirements, payroll taxes, rest facilities, and fringe benefits, among others. For the firm, the decision to employ is based upon gross wages paid, a concept which encompasses all costs borne by the firm.

A symmetric set of criteria apply equally when the decision to acquire capital is contemplated. Again, from the perspective of the firm, the explicit objective is to garner surplus value from each decision and thereby enhance the value of the firm.

The worker and the saver, on the other hand, care little about the cost to the firm of employing each worker, or acquiring each unit of capital. Of far greater concern from the worker's standpoint is how much he receives for providing his work effort, net of all deductions and taxes. Savers also do not save as a matter of social conscience. Savers abstain from consuming in order to earn an after tax return on that savings. Within the classical framework, workers concentrate on net wages received, while savers are preoccupied with their yields on savings after tax. The greater net wages received the more willing the worker is to work; the higher the net yield on savings, the greater will be total savings. Conversely, if net wages received fall, workers will find work effort less attractive and they will do less of it. Savers will also save less if the net yield to savings declines.

The difference between what it costs a firm to employ a worker or acquire a unit of capital, and what that worker or saver receives net, is the tax wedge (Figure A1). From the standpoint of a single worker or a single unit of capital, an increase in the wedge has two types of effects. An increase in the wedge raises the cost to the employer in the form of higher wages paid or higher yields paid for capital. Clearly, firms will employ fewer

workers and acquire less capital. On the supply side, an increase in the wedge reduces net wages received and the net yields savers receive. Again, less work effort will be supplied and savings will be less.

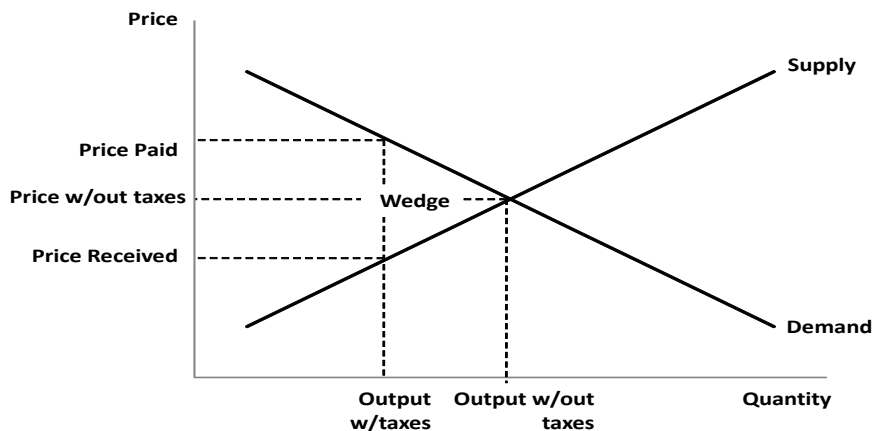
In sum, an increase in the wedge reduces the demand for, and the supply of, productive factors. An increase in the wedge, therefore, is associated with less employment, less investment and lower output. In dynamic formulations, as the wedge grows, output growth falls, and vice versa. Within the context of classical economics, regulations, restrictions, and requirements, along with explicit taxes, are all parts of the wedge.

The Laffer Curve

A comprehensive perspective on the impact of fiscal policy on economic activity from a classical point of view can be gained by including two factors of production in the analysis. For discussion purposes, these will be characterized as capital (e.g., property) and labor. The results derived with only one factor, of course, are still applicable: An increase in the wedge increases the price paid for and reduces the price received by a factor of production, reducing both the demand for and supply of that factor. A lower level of economic activity ensues. For example, an increase in the tax wedge on labor will raise wages paid, lower wages received, and reduce the amount of labor employed.

In a two factor model, though, the process does not stop here. With fewer employed workers, the value of each unit of capital, from the employer's perspective, is lessened. Therefore, the demand for capital falls, less capital will be employed and both yields paid, and yields received, fall. Taking the process to its final state, an increase in the tax wedge on labor will lower:*

FIGURE A1: THE TAX WEDGE



- Output,
- The quantities of both capital and labor employed,
- Wages received,
- Yields to capital, both paid and received.

In addition, it will raise wages paid. Similarly, an increase in the tax wedge on the returns to capital will lower:

- Output,
- The amount of both capital and labor employed,
- Wages received and paid,
- Yields received by the owners of capital.
- Yields paid for capital will rise.

Within this two factor model containing capital and labor as well as one market output, the effect on total tax receipts of an increase in the tax on either factor of production has conflicting influences. For example, an increase in the tax wedge on labor will elicit the following revenue responses:

- More revenue will be collected per worker employed, thus tending to increase revenues,
- Less workers will be employed thus lowering revenue,
- Less capital will be employed thus lowering revenue.

Under certain circumstances, the additional revenue collected per worker (effect i) will dominate, and an increase in the tax wedge on labor will raise revenues. Sometimes the second two effects dominate, and less revenue will be forthcoming. The same set of conditions pertains to changes in the tax wedge on capital.

In actual practice, of course, a number of additional influences are felt. With higher tax rates, there will be more tax avoidance and evasion, thus aggravating the offsetting revenue impact accompanying tax rate increases. Where possible, factor substitution will reduce the economy's reliance on the now higher taxed factor: the longer the time period allowed to elapse, the greater the offsets. The higher the initial level of tax rates, the greater will be the offsets. Overall, the relationship between tax rates and tax revenues is far from obvious. As often as not, higher tax rates yield less revenue. They always yield less output. When a tax rate increase yields higher revenues, the tax is in the normal range. When a tax rate increase leads to lower revenues it is in the prohibitive range. The relationship between tax rates and tax revenues is summarized in Figure A2—the Laffer Curve.

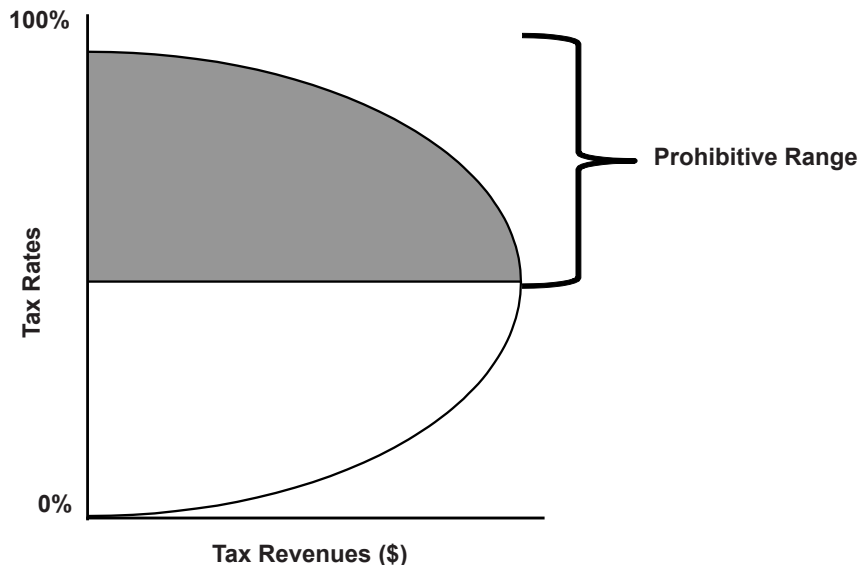
Tax Incidence versus Tax Burden

The incidence of a tax structure is very different from the burden of that tax structure. The person upon whom a tax is levied may well experience no loss in net income if he passes the tax forward onto consumers or backward on suppliers. Likewise, a person upon whom no tax has been levied may well suffer large net income losses as a consequence of taxes levied (incidence) on others. Such considerations are paramount when comparing the tax burdens of the property tax compared to the sales tax.

In the words of Nobel Laureate Paul Samuelson:

Even if the electorate has made up its mind about how the tax burden shall be borne by individuals, the following difficult problems remain: Who ultimately pays a particular tax? Does its burden stay on the person on whom it is first levied? One cannot assume that the person Congress says a tax is levied on will

FIGURE A2: THE LAFFER CURVE



end up paying that tax. He may be able to shift the tax; shift it 'forward' on his customers by raising his price as much as the tax; or shift it 'backward' on his suppliers (wage earners, rent, and interest receivers) who end up being able to charge him less than they would have done had there been no tax.

Economists therefore say: We must study the final incidence of the tax totality of its effects on commodity prices, factor-prices, resource allocations, efforts, and composition of production and consumption. Tax incidence, thus, is no easy problem and requires all the advanced tools of economics to help toward its solution.²⁴

In more intuitive terms, as often as not, taxing capital to spare labor will damage labor. Similarly, taxing the rich is sometimes a good way to further impoverish the poor. Various examples of the fallacy of the so-called "Robin Hood" economics exist over a broad spectrum of economic subject. One such example pertains to the age-old notion that there is an inherent conflict between wages and employment on the one hand, and profits and capital formation on the other. Many people have the distinct feeling that workers and capitalists are hostile entities within the economic universe. To the extent reason exists, it is widely thought that workers' ability to raise real wages comes directly out of capitalists' pool of profits. Likewise, if capitalists gain an increase in real profits, the gain must have come at the expense of the real wage of workers.

Such arguments are the essence of static analysis. The vitriolic debates between national labor leaders and big business executives point up this perception. One group warns that salvation of America depends entirely on the containment of labor unions. The other points to the exorbitant profits enjoyed by the

undeserving robber barons at the expense of the working man in America. This monotonous brace of diatribes describes a world where profits and wages are mutually exclusive and inimical. Profits and wages are not, of course, mutually exclusive. Fundamentally, profits and wages are complements, not substitutes.

Since 1948, the positive relationship between real after-tax economic profits and total employee compensation is unmistakable (Figure A3). Higher profits, more often than not, are associated with higher wages. Higher wages also are consistent with higher profits. Also unmistakable are the greater growth in employee compensation and greater volatility of corporate profits.

Imagine what the wages of a labor group such as truck drivers would be if there were no trucks. In order to earn a living, truck drivers need trucks to drive. Now the only way there will ever be enough trucks around for truck drivers to drive is to provide people—savers and investors—with an after-tax rate of return on savings. Saving must be profitable enough—provide an incentive—to entice people either to abstain from consuming, or to work harder in order to provide the requisite real resources to acquire a capital stock of trucks. If capital is overtaxed, there will be less capital formation, fewer trucks and the wages of truck drivers will be low. Lowering tax rates on capital will increase the capital stock, and, more important, will raise the wages of truck drivers and other workers. High wages and high profits are far from opposing objectives. Returns to capital and returns to labor are, in fact complements. Policies that reduce either are inimical to both.

One such policy is the tax on capital earnings, or in the case of Texas, a tax on property. A reduction in the rate of taxation on the earnings from capital would result in more investment

FIGURE A3: GROWTH IN INFLATION ADJUSTED CORPORATE PROFITS AND INFLATION ADJUSTED EMPLOYEE COMPENSATION, 1948 - 2007

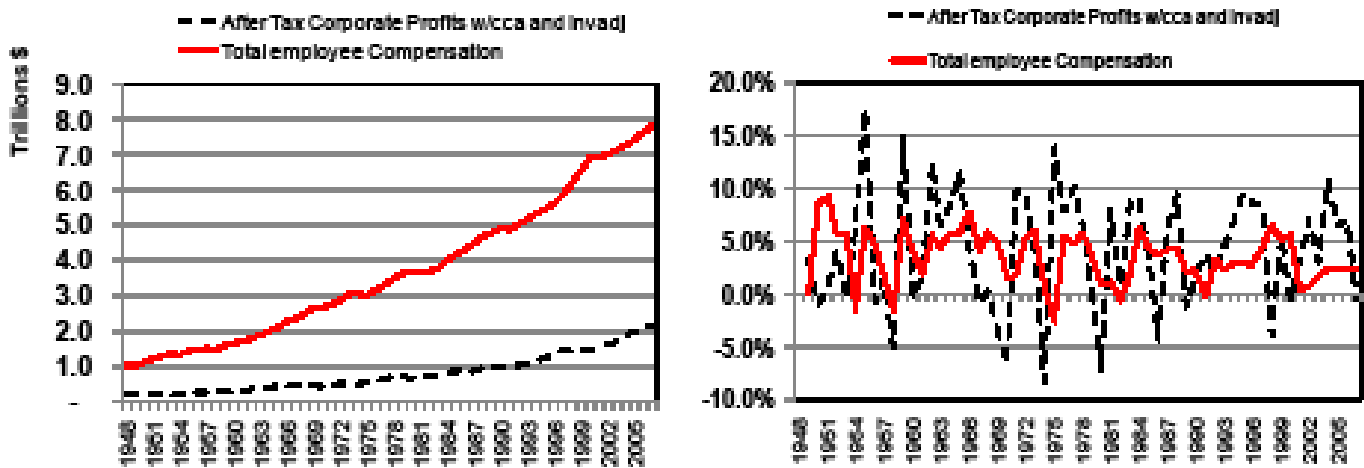
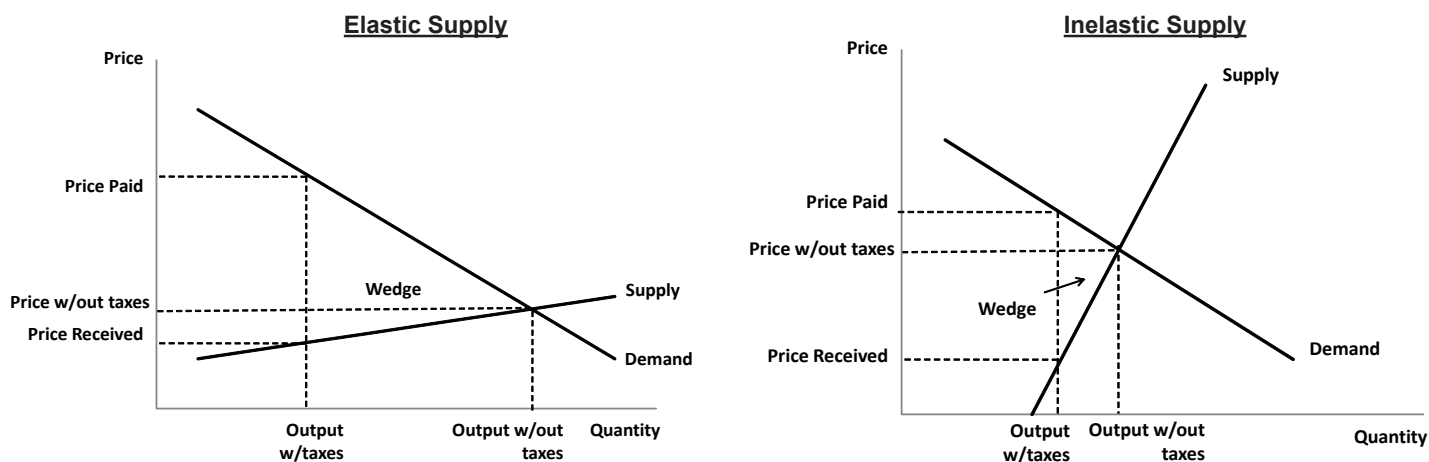


FIGURE A4: INCIDENCE VERSUS BURDEN OF A TAX WEDGE



—which would raise wages. Lower tax rates on wages would increase employment and thereby cause profits to rise. Capitalists and workers alike are thus helped by lower rates of taxation on either capital or income. Within the political structure, this relationship is well known—and often ignored. As President John F. Kennedy said in June 1963 “... a rising tide lifts all boats,” an explicit reference to this complementarity.

To summarize, we have five basic points:

1. Changes in tax rates affect output in a direct fashion. Lower tax rates correspond to higher output.
2. Changes in tax rates affect the employment of both factors directly. Lower tax rates on either factor of production increase employment for both factors.
3. The constellation of tax rates, holding government spending unchanged, affects output. How taxes are collected is important, as is the total amount of taxation and spending.
4. Lowered tax rates on any one factor may or may not lower total revenue.
5. Changes in the pairing of tax rates, holding revenue unchanged, may shape the distribution of after tax spending power, but only indirectly. As often as not, when one factor’s tax rate is raised and the other’s is lowered, the second factor will end up in worse economic shape.

The specific shapes of the curves and the responsiveness of the effects of tax rates and total taxation or spending depend upon the innate characteristics of the factors and the production process. Those factors which are elastic in supply (sensitive

to price changes) bear progressively less of the burden of taxation irrespective of the incidence. The price received falls very little with the imposition of a tax wedge. This is because a small decrease in the price received would yield a large change in the quantity supplied (Figure A4). Inevitably, the burden is passed to those factors that are inelastic in supply. By definition, it is these factors that have the fewest alternatives to providing their services, even if there is a reduction in the price received.

The longer the time horizon, the greater will be the revenue losses from tax rate increases. With time, the mobility of most factors of production is increased. Machinery is not repaired or replaced. New job opportunities lure labor out of the taxing district, or a lack of opportunities leads to a below average growth in employment. Thus, over time, any economy becomes more sensitive to the imposition of the wedge; the elasticity of both the supply and demand for factor services increases. Revenue increases realized in the very short horizon may be more than undone over distant horizons. More elaborate models would provide additional enrichment, but only at the expense of much more complexity.

The Economy’s Dynamics: Understanding Income and Substitution Effects

An increase in tax rates will bring about two effects that work in opposite directions. The income effect examines the changed behavior that directly arises from changes in income or wealth. For example, people will tend to increase the amount of consumption in response to an increase in income. The substitution effect examines the changed behavior that arises from changes in the relative costs of different goods or activities. For example, a switch in tax policy that reduces the costs of one good compared to another will provide incentives for people to consume more of the former at the expense of the latter.

Theory provides an explicit answer to the net effects of an increase or decrease of tax rates on work effort. The answer becomes apparent from the following example:

1. For an individual taken by himself, it is clear that at zero or negative take-home wages he will work less than he will at any positive take-home wages. Therefore over the entire range of possible wages the supply of work effort is unambiguously increased by the total increase in take-home wages.
2. Within take-home wage regions, however, which may cover a wide range of take-home wages, an individual may choose to work fewer hours as take-home wages rise. In such a case the income effect of higher total take-home wages more than offsets the substitution effect of more take-home pay for the last unit of work.

To see the distinction clearly, imagine the following: a person earns pretax wages of \$4,000 per month. He takes one month per year in unpaid vacation. He pays a flat 50 percent tax on all wages such that his take-home pay is \$2,000 per month, or for the 11-month year \$22,000. Let us analyze now the following two sets of circumstances.

- a) He wins a once-for-all lottery of an \$11,000 after tax yearly stipend.
- b) He has a permanent reduction in his tax rates to 25 percent.

If he works the same 11 months per year under conditions a), he will receive \$33,000 ($.5 * \$44,000$ plus \$11,000) after tax and under conditions b) he will also receive \$33,000 ($.75 * \$44,000$).

If he works one month less, or 10 months, under a) he will take home \$31,000, while under b) he will take home only \$30,000. His lost income is greater if he takes one more month of leisure when tax rates are cut as opposed to when he received a windfall lottery.

Likewise, if he works an extra month under condition a), he will have \$35,000 take-home pay, and under condition b) he will have \$36,000 take-home.

What is clear is that the income effect of a tax rate reduction lowers work effort and the substitution effect raises work effort. If we neutralize the income effect of a tax rate cut (the desire to increase leisure and reduce work effort) there will be more total work due to the substitution effect. For any one person we cannot be sure whether the income effect dominates the substitution effect or not within the relevant range. For the economy as a whole, however, the effect of a tax rate cut can be presumed to

lead to more work effort. If the income effects across individuals roughly similar, then the work impact of the income effect will net to zero. The substitution effect will, consequently, dominate leading to greater work effort and output from reductions in tax rates.

The best laymen's illustration of the correct general equilibrium statement is found in *The Wall Street Journal* of April 16, 1976, in their "Review and Outlook" section:

...M.I.T. economist Lester C. Thurow also speaks favorably of a net-wealth tax and the full taxation of capital gains. He argues that private capital would still be formed because every tax has an income effect and a substitution effect, and he says the former dominates the latter. If you boost the tax on wealth, people will work harder to achieve their desired level of wealth (the income effect), even as the higher tax discourages them from more work (the substitution effect). But by our reckoning, if you tax \$100 from Jones, thus forcing him to work harder, and give the \$100 to Smith, Smith is required to work less to achieve his desired level of wealth. The income effect washes out, and all that's left is substitution.²⁵

The theoretical analysis underlying this example can be found in any number of sources; the classics are Hicks' Value and Capital, or perhaps Harberger's Taxation and Welfare. Higher tax rates imply more of both tax evasion and avoidance. The more tax that is either evaded or avoided the less revenue the government will collect per unit of the taxable base. Furthermore, it is generally true that the more evasion and avoidance that exists, the more spending the government will be required to monitor and enforce the tax codes. The existence of tax evasion and avoidance, therefore, further enhances the beneficial fiscal effects of tax rate reductions. It still remains an empirical question, however, as to what the full effects of changes in tax rates are on the overall fiscal solvency of the relevant government unit.

APPENDIX II: TECHNICAL METHODOLOGIES AND RESULTS

To empirically examine that property taxes are not as desirable as consumption taxes, we employed two methodologies. The first methodology, vector autoregression (VAR) analysis, on the surface resembles a simultaneous equation model in that we examine several endogenous variables together. However, each endogenous variable is explained by its lagged values and the lagged values of all other variables in the system; typically exogeneity is not assumed in the model. The second methodology employed to examine the relative attractiveness between consumption and property taxes was pooled regression analysis. As you'll see, both approaches arrived at very similar results.

Vector Autoregression (VAR) Analysis

The theory behind VAR analysis is quite simple and relies on the thought that if one believes there to be true simultaneity among a set of variables, then all variables should be allowed to compete on a level playing field. Traditionally in simultaneous, or structural, equation models some variables are treated as exogenous while others are considered endogenous. Some folks are critical of these models because before the model can be estimated it must be either exactly identified or over identified. Identity is only achieved by assuming that some exogenous variables are relevant in some equations while not germane in others. It was these facts that lead Christopher Sims to develop his VAR model.²⁶

Specifically for this project, we attempted to explain how the dependency, by state and local governments, on various sources of tax revenues interacts with personal income while concomitantly taking into account population figures amongst the states. We used a panel data set of all 50 states in the nation, excluding Washington, D.C., across the time frame of 1977 to 2006, annually. The precise variables in the model include personal income (PI), property taxes as a share of total tax revenues (PTSTR), consumption taxes as a share of total tax revenues (CTSTR) and population (POP). We excluded income taxes as a share of total tax revenues to account for the collinearity inherent in the dataset and to make the analysis more of a horse race between consumption and property taxes.

The exact model can be specified as:

$$\begin{bmatrix} PI_t \\ PTSTR_t \\ CTSTR_t \\ POP_t \end{bmatrix} = \begin{bmatrix} \alpha_1 \\ \alpha_2 \\ \alpha_3 \\ \alpha_4 \end{bmatrix} + \begin{bmatrix} \beta_{11} & \beta_{12} & \beta_{13} & \beta_{14} \\ \beta_{21} & \beta_{22} & \beta_{23} & \beta_{24} \\ \beta_{31} & \beta_{32} & \beta_{33} & \beta_{34} \\ \beta_{41} & \beta_{42} & \beta_{43} & \beta_{44} \end{bmatrix} \begin{bmatrix} PI_{t-1} \\ PTSTR_{t-1} \\ CTSTR_{t-1} \\ POP_{t-1} \end{bmatrix} + \begin{bmatrix} \phi_{11} & \phi_{12} & \phi_{13} & \phi_{14} \\ \phi_{21} & \phi_{22} & \phi_{23} & \phi_{24} \\ \phi_{31} & \phi_{32} & \phi_{33} & \phi_{34} \\ \phi_{41} & \phi_{42} & \phi_{43} & \phi_{44} \end{bmatrix} \begin{bmatrix} PI_{t-2} \\ PTSTR_{t-2} \\ CTSTR_{t-2} \\ POP_{t-2} \end{bmatrix} + \begin{bmatrix} \epsilon_{1t} \\ \epsilon_{2t} \\ \epsilon_{3t} \\ \epsilon_{4t} \end{bmatrix}$$

The VAR was run using a lag structure to minimize the Akaike and Schwarz criteria and the output can be seen in **Table A1** (next page).

Now with the above results, we focused on the first column where we wanted to isolate how personal income behaves amongst the other variables, specifically how it interacts with property taxes as a share of total tax revenues and consumption taxes as a share of total tax revenues. We postulated that due to the inefficiencies inherent in property taxes, an economy's well being, using personal income as a proxy for well being, will be cardinal better under a system relying on consumption tax revenues to fund budget obligations as opposed to a reliance on property taxes.

The basis of VAR analysis is ordinary least squares regression analysis and as such the above output can be interpreted in the traditional fashion of appraising each coefficient on an individual basis. However, with multiple lags and the innate multicollinearity in the data, some of the estimated coefficients will be statistically insignificant and/or not intuitively clear. That's alright because the sine qua non of VAR analysis is to look at the system in the aggregate given the standard F test and to evaluate the impulse response functions. Given that the above F statistic of 236635.0 is so large, we cannot reject the hypothesis that all of the lagged variables are statistically significant in the aggregate. Furthermore, the impulse response functions displayed results that we found to be intuitively clear given our arguments regarding sound taxation.

An impulse response function is the response of an assumed dependent variable given shocks, or innovations, to each of the cross variables. In our case, we applied one standard deviation shocks to property taxes as a share of total tax revenues and consumption taxes as a share of total tax revenues respectively and traced out the response of personal income over time (over five years). The response functions are below.

It is clear from the graphic that a shock to property taxes clearly has a greater deleterious impact on personal income compared to a shock in consumption taxes.

When analyzing Texas specifically, using the time-series pertinent to Texas' economy, we found similar results. Using the estimated coefficients in Table A1, we proceeded to forecast personal income forward using the appropriate lags in all other cross variables. Once the forecast was made, we asked ourselves the questions of what would personal income look like under the assumption that state and local budget officials eliminated their reliance on property taxes, shifting that burden to consumption taxes and finally what would personal income look like under the assumption that state and local governments eliminated the consumption tax all together and relied heavily on property taxes?

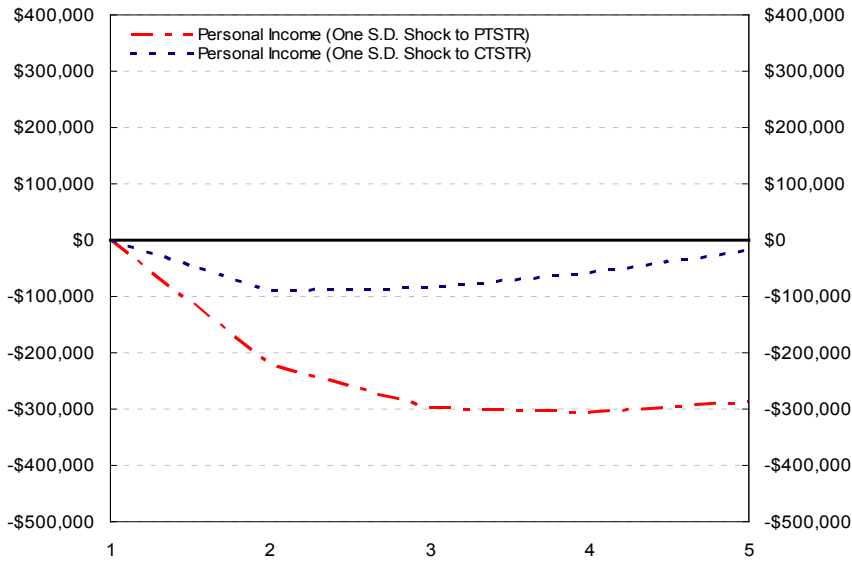
Under the first scenario, when the reliance burden was shifted from property tax revenues to consumption tax revenues, we found that personal income in the following period increased 0.34 percent, or roughly \$3.3 billion, over what personal income would be under the status quo residual mix of both property and consumption taxes. The flip side to that coin is that when the reliance burden was shifted from consumption tax revenues to property tax revenues, we found that personal income fell 0.40 percent, or by roughly \$3.9 billion when compared to what personal income would have been under a reliance on both consumption and property taxes. Given these results, we wanted to conduct similar analysis using a different methodology.

TABLE A1: VECTOR AUTOREGRESSION OUTPUT

Sample (adjusted): 1979 2006
 Included observations: 1400 after adjustments
 Standard errors in () & t-statistics in []

	PI	PTSTR	CTSTR	POP
PI(-1)	1.398004 (0.02846) [49.1256]	-3.14E-10 (1.1E-10) [-2.80839]	-2.05E-10 (9.4E-11) [-2.18245]	0.001284 (0.00015) [8.52507]
PI(-2)	-0.374038 (0.02926) [-12.7821]	3.38E-10 (1.1E-10) [2.93883]	1.97E-10 (9.6E-11) [2.03838]	-0.001354 (0.00015) [-8.74457]
PTSTR(-1)	-14511124 (6937130) [-2.09181]	1.009187 (0.02724) [37.0533]	0.056071 (0.02287) [2.45135]	-71861.46 (36712.3) [-1.95742]
PTSTR(-2)	16796537 (6900944) [2.43395]	-0.030453 (0.02709) [-1.12399]	-0.053485 (0.02275) [-2.35056]	82968.95 (36520.8) [2.27182]
CTSTR(-1)	-6649951. (8353601) [-0.79606]	-0.052856 (0.03280) [-1.61159]	0.999421 (0.02754) [36.2846]	65908.90 (44208.5) [1.49086]
CTSTR(-2)	8314481. (8370280) [0.99333]	0.050842 (0.03286) [1.54711]	-0.005344 (0.02760) [-0.19362]	-54715.35 (44296.8) [-1.23520]
POP(-1)	6.579260 (1.85475) [3.54726]	1.20E-08 (7.3E-09) [1.64132]	3.77E-09 (6.1E-09) [0.61647]	1.925165 (0.00982) [196.133]
POP(-2)	-6.306421 (1.87618) [-3.36130]	-1.22E-08 (7.4E-09) [-1.65477]	-3.36E-09 (6.2E-09) [-0.54286]	-0.924344 (0.00993) [-93.0949]
C	-1482888. (678910.) [-2.18422]	0.005935 (0.00267) [2.22646]	0.000547 (0.00224) [0.24417]	-7849.428 (3592.89) [-2.18471]
R-squared	0.999266	0.971860	0.987958	0.999984
Adj. R-squared	0.999262	0.971699	0.987889	0.999984
Sum sq. resids	2.54E+16	0.391005	0.275777	7.10E+11
S.E. equation	4270348.	0.016766	0.014080	22599.32
F-statistic	236635.0	6005.131	14265.49	10902628

FIGURE A5: IMPULSE RESPONSE FUNCTIONS: ONE S.D. INNOVATIONS +/- 2 S.E.



Pooled Regression Analysis Controlling for Random Effects

Given our results using VAR analysis, we wanted to see if we could replicate our findings using a different technique. Pooled regression analysis is based on the use of panel data; a combination of time series and cross-sectional data. There are a couple reasons why we chose to use pooled regression techniques. The first reason is that with the use of panel data, one can better get a feel for the effects that typically cannot be observed using time series or cross-sectional data alone. Additionally, pooled regressions using panel data allows us to understand complicated behavioral models, such as the behavior of an economy in response to various sources of tax revenues.

Again, as in the VAR analysis, we utilized the panel data set that included a cross-section across all 50 states from the years 1977 to 2006. The primary difference under this methodology is that we made a strict assumption on endogeneity and exogeneity. More specifically, the endogenous variable under this framework was the year over year percent change in personal income (PI). The exogenous, or independent, variables in the model were the percent change in real GDP (RGDP), the percent change in state population (POP), the percent change in the property tax burden (PROPB), the percent change in the consumption tax burden (CONSB) and the percent change in the income tax burden (INCB). The various tax burdens are defined as the appropriate tax revenue source as a share of personal income. The basic structure of the model is:

$$PI = \beta_1 + \beta_2RGDP_{2it} + \beta_3POP_{3it} + \beta_4PROPB_{4it} + \beta_5CONSB_{5it} + \beta_6INCB_{6it} + \varepsilon_{it}$$

where,

$$\beta_{i,t} = \beta_i + v_i \quad i = 1, 2, \dots, 50$$

Given that the unobserved heterogeneity seemed to be uncorrelated with the regressors in the model, we ran the model using estimated generalized least squares controlling for random effects.²⁷ The results can be seen in **Table A2** (next page).

Now using the above results, we asked ourselves similar questions that we asked ourselves earlier, with the main difference in that we are not looking at relative tax dependencies, rather, we are looking at relative tax burdens.

According to our model specifications from the 2006 data, if the property tax burden were eliminated and shifted onto the consumption tax burden, personal income would be roughly \$3.1 billion, or 0.33 percent, greater when compared to the existing mix of property and consumption tax burdens. Now looking at the inverse scenario, if the consumption tax burden were eliminated and folded into the property tax burden, personal income would be diminished by approximately \$2.4 billion, or 0.26 percent, when compared to the current system involving both consumption and property taxes.

Looking at our two models in the aggregate, shifting from property taxes towards consumption taxes would increase per-

TABLE A2: POOLED REGRESSION OUTPUT

Sample: 1977 2006
 Included observations: 30
 Cross-sections included: 50
 Total pool (balanced) observations: 1500
 Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.012166	0.003430	3.547234	0.0004
RGDP	0.659834	0.030937	21.32805	0.0000
POP	0.997698	0.049745	20.05620	0.0000
PROPB	-0.220501	0.052702	-4.183905	0.0000
CONSB	-0.121849	0.059218	-2.057653	0.0398
INCB	-0.052914	0.046862	-1.129133	0.2590
Random Effects (Cross)				
TEXAS--C	1.38E-05			
Effects Specification				
			S.D.	Rho
Cross-section random			0.000495	0.0005
Idiosyncratic random			0.021169	0.9995
Weighted Statistics				
R-squared	0.362146	Mean dependent var	0.031945	
Adjusted R-squared	0.360011	S.D. depen	0.027317	
S.E. of Regression	0.021853	Sum squared resid	0.713489	
F-statistic	169.6459	Durbin-Watson stat	1.970751	
Prob(F-statistic)	0.000000			

sonal income, in period t+1, by approximately \$3.2 billion, or 0.34 percent. On the contrary, shifting the current system to a system of property taxes with no consumption taxes would decrease personal income by approximately \$3.1 billion, or -0.33 percent, support our earlier findings.

Updating the results for 2009 data, we should expect a personal income increase from \$3.6 billion to \$3.68 billion if the property tax were replaced by an expanded consumption tax.

APPENDIX III: PROPERTY TAX REFORM CASE STUDIES

Due to the aforementioned disconnect between property taxes and people’s ability to pay them, property tax revolts have emerged throughout time. For instance, Beito (1989) documented the widespread property tax revolt that occurred during the Great Depression.²⁸ During early part of the 20th Century, property taxes were the major revenue source for state and local governments. The combination of plummeting incomes but only mildly declining property values caused the real property tax burden to soar at exactly the wrong moment: when the economy was entering the Great Depression. According to Beito:

As a percentage of the national income, perhaps the most pertinent measure of the burden’s impact, taxes nearly doubled from 11.6 percent in 1929 to 21.1 in 1932. In just three years, the tax load on the American people increased more than it had in the 1920s. Not even during World War I had taxes ever taken such a large percentage of the national income. Taxes at the local level more than doubled, rising from 5.4 percent of the national income in 1929 to an unheard of 11.7 percent in 1932. Surging even faster, state taxes went from 1.9 percent in 1929 to 4.6 in 1932. At the same time, federal tax collections stayed relatively constant, inching up from 4.2 percent in 1929 to 4.7 in 1932.²⁹

The nearly doubling of the tax burden had consequences. Due to the oppressive property tax burden, an anti-tax movement formed with the goal of rolling back the property tax. According to Thornton and Weise (2001),

... the anti-tax movement was a genuine success... This success took two major forms. The first and most obvious was the tax limitation movement, which provided the political pressure to cut taxes and establish limitations on property tax rates. The second, which was both more important and far less obvious, was the passage of the Twenty-first Amendment, which repealed

alcohol prohibition.... Under intense political pressure from the tax revolt, politicians supported Repeal in order to provide federal, state, and local government with increased revenues to offset cuts in property taxes while simultaneously providing a drastic decrease in the price of alcohol, and, in effect, granting the American public a gigantic tax cut.³⁰

Due to the fundamental flaws in the property tax, the history of property tax revolts and reforms has continued and have included Proposition 13 in California, Proposition 2 ½ in Massachusetts, Save Our Homes in Florida, and even the recent property tax reforms that occurred in Texas. While Propositions 13 and 2 ½ were great successes, due to the narrowness of Save Our Homes in Florida, it has been less successful. Save Our Homes also provides evidence that while reforming property taxes can be beneficial, repealing them altogether is even better.

California Proposition 13

In 1978, a force that had been building strength for several years finally brought a huge and dramatic change to the California economy. The public's frustration with high and rising state and local (particularly property) taxes found expression in the passage of Proposition 13—an initiative to limit state and local spending and taxation. In June 1978, Proposition 13 rolled the entrenched political establishment. Proposition 13 was a constitutional amendment that (1) set property taxes not to exceed 1 percent of a property's value (down from the 3.5 percent rate that existed at the time), (2) rolled assessed property tax values back to their 1976 levels, (3) allowed the base value to grow no more than 2 percent per year unless the property changed hands, and (4) required that all new or increased taxes be voted in by a supermajority of the electorate. Proposition 13 won in a landslide.

Following on Proposition 13's heels was an elimination of the state's inheritance tax, an indexing of the state's income tax, and an elimination of the state's business inventory tax. In 1979, Proposition 4 passed, locking the tax gains into place by requiring (1) spending to grow no faster than the sum of population growth and inflation and (2) all surplus revenues to be returned to the taxpayers.

Due to these reforms, California's economy prospered:

- In 1977, California per capita personal income was 15 percent above the national average. Three years later, it was 18 percent above the national average;
- California's unemployment rate was 1.2 percentage points higher than the U.S. rate in 1977; in 1980 the California rate was lower than the national rate by 0.4 percentage points;
- Between 1978 and 1988 the number of jobs in California increased by 32 percent, twice the 16 percent in-

crease in jobs nationwide. The population in California increased 24 percent from 1978 to 1988, over twice the national increase of 10.7 percent.

Prop 13 did what it was advertised to do. The historical record also shows that Proposition 13 did not have any long-term deleterious effect on the finances of the state's various levels of government. The Great California Tax Revolt more than paid for itself.

The private sector of the economy fared beautifully in the aftermath of Proposition 13, and the fears of citizens concerned about maintaining adequate levels of state and local government services were allayed very soon after the changes were enacted.

First looking at revenues, Proposition 13 passed on June 6, 1978, one month prior to the end of FY1978. State and local property tax revenues fell \$5.0 billion, from \$11.0 billion in FY1978 to \$6.0 billion in FY1979, far short of the static revenue loss forecasts of \$7 billion. In addition, this drop was largely offset by higher revenues in every other major tax category. Total state and local revenues fell by only \$1.1 billion that first year.

Looking at the bigger picture, the combined state and local tax burden per \$1,000 of personal income fell from \$124.57 in FY1978 to \$94.93 in FY1982, a 24 percent reduction. Yet in spite of the precipitous fall in the state's average tax rate, state and local revenues did not fall proportionately. In fact, total tax revenue grew by 19 percent from \$27.4 billion in FY1978 to \$32.5 billion in FY1982. The tax base expanded more than enough to offset the reduction in tax rates. Even after adjusting for inflation, which can distort economic data during this high inflationary period, tax revenues fell much less than the reduction in the state and local tax burden.

Economic expansion and higher property values led to healthy property tax growth over the following years, and by FY1985 property tax collections were back to their FY1978 \$11.0 billion level. The disruptive shortage of funds so widely anticipated never materialized.

The state's balanced budgets during this period reflect the remarkable success of combining lower tax rates and increased output, employment and production with restrained spending. California's experience following Proposition 13 exemplifies the types of pro-growth dynamics that follow sound tax reform.

Massachusetts Proposition 2 ½

Like its predecessor in California, Massachusetts economy was losing competitiveness vis-à-vis the rest of the nation in the late 1970's. Between 1957 and 1967, the tax burden and public welfare expenditures advanced in Massachusetts somewhat more than in the rest of the country, and especially compared to the high growth states. Not surprisingly, Massachusetts' growth between 1957 and 1967 began to lag the nation:

- Population growth – MA +11.1%, US +15.6%;
- Employment growth – MA +15.7%, US +16.1%
- Real personal income growth – MA +41.8%, US +52.5%; and,
- Real per capita personal income growth – MA +27.7%, US +32.0%.

The discrepancy between Massachusetts and the high growth states was even starker.

Then, during the 1970's, Massachusetts implemented substantial increases in taxation and public welfare expenditures compared with the U.S. average and the high growth states. The increase in taxation decreased the incentives to work and produce in Massachusetts relative to the rest of the nation. During this period, personal income growth languished and employment growth slipped from near the national average during the ten years ending in 1967 to only half the national average in the subsequent 10 years. For the latter period, employment growth in Massachusetts of 9.3 percent was a small fraction of the 50 percent growth rate that was experienced in the states with the highest economic growth rate.

In response to the rising tax burdens and declining economic growth Proposition 2 ½ was passed. Approved by the voters in 1980, Proposition 2 ½ sets a ceiling on municipal property taxes at 2.5 percent of the full and fair value of the property; prohibits the state from passing laws that require local spending without also providing the money; and, prohibits counties, districts or authorities from increasing costs on local governments by more than 2.5 percent per year.

In 1980 property tax revenues were 5.2 percent of personal income, compared to 3.0 percent for the nation overall. Following the implementation of Proposition 2 ½, Massachusetts' property tax burden fell to 3.9 percent in 1982. The property tax burden continued to fall throughout the 1980's, and has never risen above 3.7 percent of personal income since.³¹

Massachusetts' economy responded immediately. Personal income growth, which had lagged the national average for the past 2 decades, now exceeded the national average for most of the 1980s. Population growth had been declining since 1975. Following Proposition 2 ½, population growth reversed course and nearly closed the gap with the U.S. by 1988, a gap that has persisted since 1964.

Also similar to California, other tax reforms in the late 1980's began to erode the beneficial impacts of Massa-

chusetts' property tax cuts. Nevertheless, Proposition 2 ½ achieved its goals. In its wake, the property tax burden was significantly reduced and in so doing, the state's economic growth soared.

Florida's Save Our Homes

In response to the rising property tax burden, Florida implemented the Save Our Homes initiative in 1992. Save Our Homes works by capping the annual growth rate in the tax assessed value of a homestead property. As described by the Broward County Property Tax Assessment Office:

Pursuant to the 1992 "Save Our Homes" Amendment to the Florida Constitution, the assessed value of your Homestead property can increase by no more than 3 percent above last year's assessed value (or the consumer price index, whichever is less). The Department of Revenue certifies the consumer price index—and the Department set that amount at 3 percent for 2005.

To give you an example: if your Homestead property was assessed at \$100,000 in 2004, and its market value increases to \$125,000 in 2005, your maximum 2005 assessment is \$103,000.

The only way your assessment can increase more than this is if there is a change in ownership, or you made physical improvements (build an addition, converted a garage into a new room, etc.) to your property that were not included in last year's assessment.

If the market value of your property declined since last year, this year's market value will reflect that decline in the market. However, your assessed value will continue to increase by 3 percent or the consumer price index, whichever is less, as long as the assessed value is less than the market value.³²

Homesteaded properties account for approximately one-half of all property in Florida. Property's that are not covered by Save Our Homes include commercial property, second homes, and property owned by "snow-birds. Additionally, the assessed value for any property that is bought following the Save Our Homes initiative is tied to the purchase price. A qualified resident can subsequently apply the Save Our Homes cap to the newly purchased home at the market price.

The goal was to cap the growing burden that rising property taxes were imposing on residents. The reform achieved this goal for some Florida residents, but not all. It has led to skyrocketing property taxes on others. Because Save Our Homes narrowed the tax base, and increased the taxes paid as a percentage of income, the reform did not achieve its objectives. Furthermore, the adverse impacts caused by the reform are beginning to hurt the competitiveness of Florida's econ-

omy. As a result, it is imperative that these issues be addressed.

The adverse impacts of Save Our Homes arise due to simple arithmetic. The total dollar amount of property taxes a resident must pay is the product of two variables: the property tax values and the tax rate. During the bubble years, Florida's property values grew at double digit rates. Save Our Homes addresses this problem by "capping" the value of homesteaded property for tax purposes. This is not the case for non-homesteaded properties. Save Our Homes does not address property tax rates.

The tax basis for properties that are not homesteaded is the property's market value. Because sufficient adjustments were not made to the tax rate, property tax burdens on non-Homesteaded property grew in step with property tax values. Consequently, Florida's overall property tax burden continued to grow despite

Save Our Homes. This distorted growth in Florida's property values also created many economic distortions. For some Homesteaded property owners, they became "trapped" in their homes because they could not afford the property taxes on their home if their assessed value was reset to the market value. Property investors, who by definition were not covered by Save Our Homes, also faced distortions and altered their investments in light of the sky high property taxes.

The experience of Save Our Homes exemplifies the economic difficulties that property taxes create due to the disconnect between a rising property tax burden and the residents' ability to afford them. Save Our Homes also exemplifies the difficulties that often arise with the proposed solutions to rising property tax burdens.

APPENDIX IV: LIST OF SERVICES TAXED BY AT LEAST ONE STATE

The following table, from the Federation of Tax Administrators, provides a comprehensive list of all services that are taxed in at least one state. An "E" denotes a service that is not taxed in Texas. In total, Texas taxes 83 of these 168 taxed services.

Agricultural Services		Electricity	6.25
Soil prep., custom baling, other ag. services	E	Water	E
Veterinary services (both large and small animal)	E	Natural gas	6.25
Horse boarding and training (not race horses)	E	Other fuel (including heating oil)	6.25
Pet grooming	6.25	Sewer and refuse, industrial	6.25
Landscaping services (including lawn care)	6.25		
Industrial and Mining Services		Utility Service - Residential Use	
Metal, non-metal and coal mining services	E	Intrastate telephone & telegraph	6.25
Seismograph & Geophysical Services	E	Interstate telephone & telegraph	6.25
Oil Field Services	2.42	Cellular telephone services	6.25
Typesetting service; platemaking for the print trade	6.25	Electricity	E
		Water	E
		Natural gas	E
		Other fuel (including heating oil)	6.25
		Sewer and refuse, residential	6.25
Construction		Finance, Insurance and Real Estate	
Gross Income of Construction Contractors	6.25	Service charges of banking institutions	E
Carpentry, painting, plumbing and similar trades.	6.25	Insurance services	6.25
Construction service (grading, excavating, etc.)	6.25	Investment counseling	E
Water well drilling	E	Loan broker fees	E
		Property sales agents (real estate or personal)	E
		Real estate management fees (rental agents)	E
		Real estate title abstract services	E
		Tickertape reporting (financial reporting)	6.25
Transportation Services		Personal Services	
Income from intrastate transportation of persons	E	Barber shops and beauty parlors	E
Local transit (intra-city) buses	E	Carpet and upholstery cleaning	6.25
Income from taxi operations	E	Dating services	E
Intrastate courier service	6.25	Debt counseling	E
Interstate air courier (billed in-state)	6.25	Diaper service	6.25
		Income from funeral services	E
		Fishing and hunting guide services	E
		Garment services (altering & repairing)	6.25
		Gift and package wrapping service	E
		Health clubs, tanning parlors, reducing salons	6.25
		Laundry and dry cleaning services, coin-op	E
		Laundry and dry cleaning services, non-coin op	6.25
		Massage services	6.25
		900 Number services	6.25
		Personal instruction (dance, golf, tennis, etc.)	E
Storage			
Automotive storage	6.25		
Food storage	E		
Fur storage	6.25		
Household goods storage	E		
Mini -storage	E		
Cold storage	E		
Marina Service (docking, storage, cleaning, repair)	6.25		
Marine towing service (incl. tugboats)	E		
Travel agent services	E		
Packing and crating	E		
Utility Service - Industrial Use			
Intrastate telephone & telegraph	6.25		
Interstate telephone & telegraph	6.25		
Cellular telephone services	6.25		

Shoe repair	6.25	Automotive rustproofing & undercoating.	E
Swimming pool cleaning & maintenance	6.25		
Tax return preparation	E	Admissions & Amusements	
Tuxedo rental	6.25	Pari-mutuel racing events.	6.25
Water softening and conditioning	E	Amusement park admission & rides	6.25
		Billiard parlors	6.25
Business Services		Bowling alleys	6.25
Sales of advertising time or space:		Cable TV services	6.25
Billboards	E	Direct Satellite TV	6.25
Radio & television, national advertising	E	Circuses and fairs (admission and games)	6.25
Radio & television, local advertising	E	Coin operated video games	E
Newspaper	E	Admission to school and college sports events	E
Magazine	E	Membership fees in private clubs.	6.25
Advertising agency fees (not ad placement)	E	Admission to cultural events	6.25
Armored car services	6.25	Pinball and other mechanical amusements	6.25
Bail bond fees	E	Admission to professional sports events	6.25
Check & debt collection	6.25	Rental of films and tapes by theaters	E
Commercial art and graphic design.	6.25	Rental of video tapes for home viewing	6.25
Commercial linen supply	6.25		
Credit information, credit bureaus	6.25	Professional Services	
Employment agencies	E	Accounting and bookkeeping	E
Interior design and decorating	E	Architects	E
Maintenance and janitorial services	6.25	Attorneys	E
Lobbying and consulting	E	Dentists	E
Marketing	E	Engineers	E
Packing and crating	E	Land surveying	6.25
Exterminating (includes termite services)	6.25	Medical test laboratories	E
Photocopying services	6.25	Nursing services out-of-hospital	E
Photo finishing	6.25	Physicians	E
Printing	6.25		
Private investigation (detective) services	6.25	Leases and Rentals	
Process server fees	E	Personal property, short term (generally)	6.25
Public relations, management consulting	E	Personal property, long term (generally)	6.25
Secretarial and court reporting services	E	Bulldozers, draglines and const. mach., short term	6.25
Security services	6.25	Bulldozers, draglines and const. mach., long term	6.25
Sign construction and installation	E	Rental of hand tools to licensed contractors.	6.25
Telemarketing services on contract	E	Short-term automobile rental	6.25
Telephone answering service	6.25	Long-term automobile lease	6.25
Temporary help agencies	E	Limousine service (with driver)	E
Test laboratories (excluding medical)	E	Aircraft rental to individual pilots, short term	6.25
Tire recapping and repairing	E	Aircraft rental to individual pilots, long term	6.25
Window cleaning	6.25	Chartered flights (with pilot)	E
		Hotels, motels, lodging houses	6.00
Computer		Trailer parks - overnight	E
Software - package or canned program	6.25		
Software - modifications to canned program	6.25	Fabrication, Installation and Repair Services	
Software - custom programs - material	6.25	Custom fabrication labor	6.25
Software - custom programs - professional serv.	6.25	Repair material, generally	6.25
Internet Service Providers-Dialup	6.25	Repair labor, generally	6.25
Internet Service Providers-DSL or other broadband	6.25	Labor charges on repair of aircraft	E
Information services	6.25	Labor charges - repairs to interstate vessels	E
Data processing services	6.25	Labor charges - repairs to intrastate vessels	E
Mainframe computer access and processing serv.	6.25	Labor - repairs to commercial fishing vessels	E
		Labor charges on repairs to railroad rolling stock	E
Computer Online Services		Labor charges on repairs to motor vehicles	E
Online Data processing services New	6.25	Labor on radio/TV repairs; other electronic equip.	6.25
Software - Downloaded New	6.25	Labor charges - repairs other tangible property	6.25
Books - Downloaded New	6.25	Labor - repairs or remodeling of real property	6.25
Music - Downloaded New	6.25	Labor charges on repairs delivered under warranty	E
Movies/Digital Video - Downloaded New	6.25	Service contracts sold at the time of sale of TPP.	6.25
Other Electronic Goods - Downloaded New	6.25	Installation charges by persons selling property	6.25
		Installation charges - other than seller of goods	E
Automotive Services		Custom processing (on customer's property)	6.25
Automotive washing and waxing.	E	Custom meat slaughtering, cutting and wrapping	E
Automotive road service and towing services	E	Taxidermy	6.25
Auto service (except repairs, incl. painting & lube)	E	Welding labor (fabrication and repair)	6.25
Parking lots & garages	6.25		

Source: The Federation of Tax Administrators, www.taxadmin.org

Endnotes

¹ Source: the Bureau of Labor Statistics, www.bls.gov.

² Economic growth is the compound annual growth rate (CAGR) in state GDP between 1998 and 2007. Tax Burden is from the Tax Foundation (www.taxfoundation.org) and is measured as total state and local revenues as a share of state personal income.

³ Henry George, *Progress and Poverty*, 1879.

⁴ Combs, Susan (2010) "Annual Property Tax Report Tax Year 2009," Texas Comptroller of Public Accounts December, <http://www.window.state.tx.us/taxinfo/proptax/annual09/ch01.html>.

⁵ Ibid.

⁶ ITEP "Tax Principles: Building Blocks of A Sound Tax System" Policy Brief #9, 2008.

⁷ "Ten Principles of Sound Tax Policy," Tax Foundation.

⁸ Fiscal Affairs Program (2003) "Tax Policy Handbook for State Legislators" National Conference of State Legislators, 2nd Edition, April.

⁹ Ibid.

¹⁰ The latest results are based on data through 2007. The data presented describe the relationship between the tax burden and economic variables as of the period described. Economic indicators have significantly worsened across the board, especially through the end of 2008. The data presented in Table 1 is not meant to be an accurate assessment of the current state of the state economies.

¹¹ For the sake of expediency, a summary of the implications of a tax wedge analysis is presented here. For a comprehensive understanding of the tax-wedge and the importance of a tax system to minimize this wedge, the reader is encouraged to review Appendix I.

¹² (1972) *The Collected Writings of John Maynard Keynes, Vol. IX, Essays in Persuasion*, MacMillan St. Martin's Press for the Royal Economic Society University Printing House Cambridge.

¹³ The 80% figure is larger than the 70% figure often referred to in the media. The difference is due to the differences in Personal Income versus GDP. Personal income plus corporate profits plus depreciation is approximately equal to Gross Domestic Product, or GDP. The assertion that consumption is 70% of the economy refers to consumption as a share of GDP, not personal income.

¹⁴ See Appendix II for a detailed explanation of our methodologies and results.

¹⁵ Technically speaking there are complications with respect to properly valuing government consumption expenditures at the state level. GDP can be calculated by summing up all of the expenditures of a sector, or all of the income. When the BEA calculates the state level GDP, the income approach is used, with some modifications. Therefore, the government's contribution to Texas' GDP may not necessarily be equal to the total value of goods and services purchased by the government. In practice this does not seem to be a problem. The government's contribution to state GDP in 2009 was \$138.1 billion. Total government (state and local) revenues in 2009, including paying employees whose purchases would be taxed, was \$201.6 billion. Because a large portion of the government's budget goes to paying employees, the \$138 billion figure is a good approximation of actual government consumption.

¹⁶ In order to keep the tax base as broad as possible, no other exemptions are allowed, such as food. Political judgments can adjust these proposed sales tax bases, for instance exempt certain food purchases but include certain health care expenditures.

¹⁷ See the Federation of Tax Administrators, www.taxadmin.org.

¹⁸ Ibid.

¹⁹ Mazerov, Michael (2003) "Expanding Sales Taxation of Services: Options and Issues" Center for Budget Policies and Priorities, June 19.

²⁰ Source: U.S. Census, www.census.gov, and author calculations.

²¹ Johnson Ben (2007) "Riding the Deal Wave to New Heights" *National Real Estate Investor*, April 1.

²² Hansen, Alvin (1953), *A Guide to Keynes*, McGraw-Hill, New York.

²³ Friedman, Milton (1967) "Presidential Address at the 80th meeting of the American Economic Association, December 29, 1967" *American Economic Review* (March) 1-17.

²⁴ Samuelson, Paul (1973), *Economics*, McGraw-Hill, New York.

²⁵ (1976) "Review and Outlook," *The Wall Street Journal*, April 16.

²⁶ C.A. Sims, "Macroeconomics and Reality," *Econometrica*, Vol. 48, 1980, pg. 1-48.

²⁷ A Hausman Test was conducted with a Chi-Square statistic being equal to zero. As such, there was a failure to reject the null hypothesis suggesting that a random effects model is appropriate.

²⁸ Beito, David T. (1989) *Taxpayers in Revolt: Tax Resistance During the Great Depression*, Chapel Hill: University of North Carolina Press.

²⁹ Ibid.

³⁰ Thornton, Mark and Weise, Chetley (2001) "The Great Depression Tax Revolts Revisited" *Journal of Libertarian Studies* Volume 15, no. 3 (Summer) 95-105.

³¹ While Proposition 2 ½ significantly cut the property tax burden in Massachusetts, the property tax burden in the state still exceeded the national average. Consequently, while the tax cut made a major improvement in Massachusetts competitive position and provided "security" in the form of a tax cap, the cuts did not make Massachusetts a low-property tax burden state.

³² Broward County Property Appraiser's Office, <http://www.bcpa.net/index.cfm?page=SOH>

Biographies of Key Personnel

Donna Arduin

Donna Arduin, Partner, ALME, served as California Governor Arnold Schwarzenegger's Director of Finance from November 2003 until October 2004, where she was the Governor's Chief Fiscal Advisor and was a member of over 70 boards and authorities. Prior to her appointment as Director, Schwarzenegger asked Arduin to undertake an outside, independent audit of California government and state finances.

Prior to working for Governor Schwarzenegger, Arduin served governors from three additional states, including Florida, New York, and Michigan. Arduin was Governor Jeb Bush's Director of the Florida Office of Policy and Budget for five years, where she managed the formulation of the governor's policy and fiscal recommendations, created the nation's first interactive "e-budget," and implemented performance-based budgeting and long-range planning. Additionally, Arduin served Governor George Pataki throughout his first term as First Deputy Budget Director and led his successful efforts to reduce and simplify property taxes in New York and reduce the size of state government. She also served Governor John Engler for three years during his first term, as Chief Deputy Director of the Michigan Department of Management and Budget, as well as the executive director of his reinventing government commission and his appointee to the Michigan Municipal Bond Board of Trustees.

Arduin offers extensive experience in bringing government spending under control through long-term policy planning and fiscally conservative budgeting. Her Governors have consistently received high marks on the Cato Institute's fiscal report cards during her tenure with their administrations. Arduin also sat on Governor Bush's Council of Economic Advisors and his Property Tax Reform Committee.

A graduate of Duke University, Arduin graduated magna cum laude with honors in economics and public policy. She worked as an analyst in New York and Tokyo in the private financial markets for Morgan Stanley and Long-Term Credit Bank of Japan.

Arthur B. Laffer, Ph.D.

Dr. Laffer's economic acumen and influence in triggering a world-wide tax-cutting movement in the 1980s have earned him the distinction in many publications as The Father of Supply-Side Economics. One of his earliest successes in shaping public policy was his involvement in Proposition 13, the ground-breaking California initiative that drastically cut property taxes in the state in 1978.

Years of experience and success in advising on a governmental level have distinguished Dr. Laffer in the business community as well. He has sat on the board of directors of several public companies, which include: Petco Animal Supplies Inc. (PETC), Nicholas-Applegate Growth Equity Fund (NAPGX), MPS Group Inc. (MPS), Oxigene Inc. (OXGN) and Provide Commerce (PRVD). He has also sat on the board of directors or board of advisors of a number of private companies including: HNTB, Affinia Hospitality, Retirement Capital Group, Vizional Technologies, The Mayfair Group, ValuBond, U.S. Script and Castle Creek Capital.

Dr. Laffer is a founding member of the Congressional Policy Advisory Board, a select group of advisors who assist in shaping legislative policies for the 105th, 106th and 107th United States Congress.

Dr. Laffer was a member of President Reagan's Economic Policy Advisory Board for both of his two terms (1981-1989). He was a member of the Executive Committee of the Reagan/Bush Finance Committee in 1984 and was a founding member of the Reagan Executive Advisory Committee for the presidential race of 1980.

He was formerly the Distinguished University Professor at Pepperdine University and a member of the Pepperdine Board of Directors. He also held the status as the Charles B. Thornton Professor of Business Economics at the University of Southern California from 1976 to 1984. He was an Associate Professor of Business Economics at the University of Chicago from 1970 to 1976 and a member of the Chicago faculty from 1967 through 1976.

During the years 1972 to 1977, Dr. Laffer was a consultant to Secretary of the Treasury William Simon, Secretary of Defense Don Rumsfeld and Secretary of the Treasury George Shultz. He was the first to hold the title of Chief Economist at the Office of Management and Budget (OMB) under Mr. Shultz from October 1970 to July 1972.

Dr. Laffer has been widely acknowledged for his economic achievements. Recently he was noted in *TIME* Magazine's March 29, 1999, cover story "The Century's Greatest Minds" for inventing the Laffer Curve, which it deemed one of a few of the advances that powered this extraordinary century. He was listed in "A Dozen Who Shaped the 80s," in the *Los Angeles Times* on Jan. 1, 1990, and in "A Gallery of the Greatest People Who Influenced Our Daily Business," in the *Wall Street Journal* on June 23, 1989. His creation of the Laffer Curve was deemed a memorable event in financial history by the *Institutional Investor* in its July 1992 Silver Anniversary issue, "The Heroes, Villains, Triumphs, Failures and Other Memorable Events."

The awards that Dr. Laffer has received for his economic work include: two Graham and Dodd Awards from the Financial Analyst Federation for outstanding feature articles published in the Financial Analysts Journal; the Distinguished Service Award by the National Association of Investment Clubs; the Adam Smith Award for his insights and contributions to the Wealth of Nations; and the Daniel Webster Award for public speaking by the International Platform Association. Dr. Laffer also earned the Father of the Year award from the West Coast Father's Day Committee in 1983.

Dr. Laffer received a B.A. in economics from Yale University in 1963. He received a MBA and a Ph.D. in economics from Stanford University in 1965 and 1972 respectively.

Wayne H. Winegarden, Ph.D.

Dr. Winegarden manages Arduin Laffer & Moore's policy studies and analyses; advises clients on the business implications from changes in government policies and economic trends including regulatory, tax, and fiscal policies. His economic trends research details the impact on clients and industries from current macroeconomic, market and industry trends. Additionally, Dr. Winegarden performs economic impact analysis for proposed investment projects and legislative/regulatory proposals. Dr. Winegarden presents his research findings to clients, conferences, and in the media including *Bloomberg News* and *CNN-fn*.

Previously, Dr. Winegarden worked as an economist in Hong Kong and New York City for Altria Companies Inc. His responsibilities included forecasting the economic trends for East-Asian Economies; creating economic, fiscal, and pricing models that were leveraged as part of the company's 5-year planning process; and, managing the company's tax and budget analyses and government affairs argumentation.

Prior thereto, Dr. Winegarden worked for policy and trade associations in Washington D.C. As an economist with the National Association of Federal Credit Unions, he analyzed the economic impact from proposed legislation on the financial industry and advised association members on the implications from domestic economic trends. Dr. Winegarden was also an Earhart Fellow/Policy Analyst with Citizens for a Sound Economy where he authored papers and editorials on timely tax, budget, and regulatory issues.

Dr. Winegarden is the author of several policy and academic papers. He has taught economics at Marymount University, and is currently a columnist for Townhall.com. Dr. Winegarden has a Ph.D. in economics from George Mason University.

Ian McDonough

Ian McDonough renders services for a wide array of clientele. Projects that he has worked on have included the creation of economics based asset allocation models for environmental commodities and traditional assets, the construction of valuation models for new, patent pending investment vehicles, the execution of ad hoc analyses on various model portfolios in order to extrapolate viable investment strategies and the design and implementation of economic and financial databases. Ian has rendered services for CE2 Capital Partners, TGG Capital, Laffer Associates, A&S Capital Management and various other private individuals.

Prior to his current position, McDonough was employed by Laffer Associates where he was directly involved in the investment process including the creation, testing, and implementation of quantitative asset allocation models and economic forecasts. Additionally, he was responsible for assisting in a wide array of the firm's economic research, including the authoring and editing of weekly research publications as well as conducting analysis on various outside research projects.

Before joining Laffer Associates, McDonough worked as a Graduate Research Assistant at Utah State University and was funded by the Utah Division of Water Resources to conduct an econometric analysis on the "Effectiveness of Fish License Marketing in Utah."

McDonough has received a B.S. in Information Systems with an emphasis in Management Information Systems and an M.S. in Economics; both from Utah State University.

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