Chasing the Magic Bullet:
What tax strategies do states use to bring in revenue?

by
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Abstract

In light of the spate of recent budget shortfalls caused by a litany of ballooning expenses, state governments can no longer afford to maintain their tax systems at the status quo and hope that enough revenue will come in to avoid collapse. This study seeks to identify not only which states have been most successful at raising revenue, but what methods they have used to do it, in order that other states might gain from that knowledge. Beginning with the position that a sales tax is the best tool available for states, the study evaluates quantitative regression analyses of the taxes levied by each of the fifty states from 1961 to 2010 and the resulting revenue those taxes brought in. By making the historical data the subject of the study, instead of merely an input, this paper fills a gap in the current scholarly literature on the topic of state revenue that has sought too often to project questionable assumptions into the future instead of learning from the past. The results of such an analysis will highlight the most successful ways states have been able to keep their coffers full. The study aims to provide a resource for state policymakers who, in many parts of the United States, face a ticking time bomb of future expenditures.

Key words: State taxation, revenue, tax rates

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1. Introduction

One trillion dollars. By the end of 2010, the combined unfunded liabilities of the fifty state-level public sector pension funds crossed the $1 trillion threshold. Some economists warn even that estimate is overly optimistic (Leonard, 2011). To make matters worse, during the recent recession, states across the country from Rhode Island to California have faced distressingly large budget deficits that will force that number even higher.

The last time a state defaulted on its debt was Arkansas in 1933. A US state has never gone into bankruptcy, and it is legally dubious whether one could do so if such a situation arose. But one or both courses of action are definitely in play for states that cannot put their fiscal house in order before the bulk of their massive Baby Boomer pensions come due. Some states have tried to restructure these pensions, but that rarely goes over well; it comes off as unilaterally modifying a contract that was signed and ratified decades ago, and American citizens tend to react negatively to such overtures. The only remaining option is to raise much more revenue over the coming years to avoid cutting state budgets to the bone or having to engage one of the last-gasp options just mentioned. As of September 2012, unfunded state pension liabilities had climbed to $2.8 trillion (Eucalitto, 2012). That number equates to the combined 2011 revenues of the Fortune 15. Imagine if the 15 largest companies in the United States, companies like Wal-Mart, GE, and Ford, channeled every dollar of sales for an entire year into this gap; they would only succeed in bringing the fifty states to the breakeven point. That's just revenue, let alone actual profits, which would require three and a half times the 2011 earnings of the entire Fortune 500. That helps put the magnitude of the issue in perspective.

But the pension situation is only one of several fiscal time bombs that these states will have to face in the next quarter century. Total debt across the fifty states, including the pension situation, has crossed the $4 trillion threshold, with many states close to maxed out on the bond market (Eucalitto, 2012). The outlays required of each state, especially for pension payments and debt service, are only getting bigger and bigger, yet unlike the federal government, these state governments cannot simply sit back and watch the debt pile up. Every state but Vermont has some kind of balanced budget requirement, either enshrined in their state constitutions or enacted in their statutory law. And to meet those requirements and their increasing fiscal demands, states are going to have to raise money in unprecedented quantities. Under the circumstances, one question certainly needs to be asked: which states are the best at raising revenue, and how do they do it?

The need for states to raise revenue is older than the U.S. itself. Once upon a time, both the federal government and the individual states could bring in the lion's share of necessary revenue through tariffs and licenses alone, but those days are long gone. At various points in history, both the sales tax and income tax have been regarded as the best way for states to raise revenue. Certain states have been successful with excise and severance taxes, but most have not. There is simply very little consensus on what needs to be done as states struggle to understand the new fiscal reality. The peculiar thing, then, is that there seems to be very little empirical research into what tools in a state's taxation toolbox seem to work the best. There have been dozens of theoretical studies in the past several decades trying to project the effects of different tax policy changes into the future. This is all well and good, but there is something to be said for learning from history, not least of which is the idea that a researcher can deal with hard facts instead of questionable assumptions.

This paper attempts to provide some remedy to this state of affairs by assessing the tax policies in place across the fifty states over a fifty year period from 1961-2010. Three different types of taxes will be a part of the analysis, including sales taxes, personal income taxes, and corporate income taxes. This thesis looks at the revenues gathered by the states in each category and the tax rates that produced those revenues. That data set is statistically analyzed along two different avenues. The primary avenue is the question of whether particular taxes or particular rates correlate in a statistically significant manner to state revenue. The secondary avenue is to search for potential situations where the taxes do not act as common sense might suggest they would.

This paper begins with the hypothesis that those state governments relying primarily on a state sales tax to fund their operations are more effective at raising revenue than those states relying on another type of tax. This hypothesis is grounded primarily in Schiller's (2010) theory that consumers will attempt to hold their levels of spending constant during a recession. If this is indeed the case, the resulting effects would favor a sales tax. The primary tax base for an income tax is the income paid by employers to their employees. In a recession, many employers scale back operations, cut wages, or lay off workers. Thus, this tax base will decrease because it is controlled by employers, not consumers. The sales tax, on the other hand, has as its tax base consumer purchases. This tax base is controlled by consumers, consumers who often see the types of purchases they make, and the lifestyles they provide for themselves and their families, as status symbols. The alternative to holding their spending, and thus this tax base, constant is a loss of standing in the eyes of neighbors or coworkers. Therefore, in the case of an economic downturn, the sales tax will be more productive. But at the same time, it will not necessarily be any less productive in the case of an economic upswing. Given the opportunity, consumers will take some of the new economic benefit to build up or replenish savings, while increasing their discretionary spending at the same time. The benefits to the state sales tax base will increase proportionately.

In evaluating this research question, the major contribution of this paper will be the culling of a vast amount of data into a form where correlations can be found between tax rates and the revenues they generate. It is left to future researchers the task of investigating those correlations for the possibility of true causation, although this thesis will propose an explanation for any particularly interesting findings as a conclusion to the paper. But ultimately, academia is not meant to be the main beneficiary of this work. Every citizen and every consumer in the U.S. has a stake in this research. They are the ones, after all, subject to the tax policies under discussion. Every business in the U.S. has a stake in this research. These taxes determine the nature of the business environment they will be operating in, the magnitude of the tax expense they will have to pay, and the ability of their customers to purchase their goods. But the most important audience is that of the policymakers who, in their legal capacities, have generated the data set that is the subject of this study. They are the ones, after all, who will enact the policies that will expand this data set in the future. In the face of looming expenses of unprecedented magnitude, they are the ones chasing the magic bullet.

The following section of this paper will go into more detail on the existing literature that has addressed this topic, focusing specifically on the themes of elasticity, timeframe, and political considerations. I will then proceed to outline how my hypotheses are connected to that literature and the framework under which each of them will be considered. A description of my results, aided by relevant tables and figures, will be succeeded by a discussion of what has been uncovered and the implications thereof.

2. Literature Review

This thesis seeks to address the question of how states best generate revenue from a purely quantitative perspective. Several pertinent past studies centered on the 2001 recession and the challenges states faced in the budget cycles that immediately followed it. Seven years later, as the 2008 recession deepened, researchers have returned to the topic. It is important to note that policymakers are not only looking for the best way to generate a high amount of revenue; they are also looking for the most stable ways to generate revenue in order to cope with increasingly inflexible budgets. In response, much of the research in the genre has looked first and foremost at the variability in state revenue, as opposed to the real levels of that revenue, while leaving this latter corner of the topic unexplored. The existing literature on the subject is mostly theoretical in nature, seeking either to explain observed trends qualitatively or to create a model for forecasting future performance.

Two facets of the issue are particularly prominent amongst this literature and merit some discussion here. The function of elasticity is absolutely critical to an understanding of the topic. Elasticity, in turn, is closely related to the time window a study is seeking to address. These two themes, elasticity and time frame, are often influenced by another, more subtle undercurrent that is concerned with the fairness and social equity of any change in the way states collect revenue, but as a largely unquantifiable variable it will not be discussed here. This study is focused not on how tax legislation is enacted, but the results produced after enactment and whether states are able to meet their revenue needs. As such, this literature review will seek to address the two major pieces in turn by fitting them into the stability narrative that dominates much of the discussion on this topic.

2.1 The Overarching Importance of Elasticity

The ability of states to collect revenue through taxation seems like a simple concept. If a state needs more money to fill a hole in its budget, many legislatures look exclusively at raising various tax rates to bring in the necessary funds. The problem, as highlighted from the outset by Brinner and Brinner (2002), is that any tax increase automatically produces adverse economic consequences. Even if policymakers decide the benefits of government programs outweigh the economic costs, they are not making taxation decisions in a vacuum. The rise of supply-side economics in the 1970s, aided by the promulgation of the Laffer Curve, made it more acceptable to wonder whether higher taxes, in addition to causing economic harm, even produced the greater amounts of revenue policymakers said they would. The theory that developed around the amusingly-named bell-shaped curve even raised the possibility that tax revenues could *rise* when tax rates *dropped*.

A host of academic studies in the late 1980s and early 1990s concluded that the Laffer Curve in its purest form did not exist, but the novelty of the idea persisted. Goolsbee (1999) bridged the gap between pure Laffer Curve theory and a more practical set of ideas he called New Tax Responsiveness (NTR) by evaluating five tax events that predated the Reagan-era tax events frequently studied by Laffer Curve enthusiasts. While his study ultimately failed to find statistically significant support for the NTR principles he tested, Goolsbee also acknowledged the incredible complexity of the issue and concluded that Laffer Curve-based theories had at least some, but not much, effect on behavior. The implicit unanswered question was: just how much of an effect does it have, and what happens to revenue as a result? For example, if the tax base in the prior year was $1,000,000 for a state income tax, raising the rate by one percentage point will not automatically correspond to a $10,000 increase in tax revenue. Determining the actual result is where elasticity takes center stage. Elasticity, as applied to taxation, is the concept that the subjects of a tax will change their behavior based on changes to that tax. If policymakers had easy access to the correct elasticity figures applicable to a particular type of tax, they would be able to see immediately whether raising a tax rate would actually raise revenue, or whether changes in consumer behavior would cancel out the intended consequence.

Young and Varner (2011), in regards to state income taxes, sum up the issue this way: "States have long been fearful of taxing people—particularly top income earners—to the point of migration" (p. 256). If a higher tax rate causes a wage earner to leave the state and move elsewhere, the state government has actually lost the source of the income it had hoped to gain by raising the tax rate in the first place. In a similar outcome, a higher tax rate could also discourage a wage earner from achieving full potential if the benefits of working hard, i.e. increased personal income at the margin, simply end up going to the government as tax. These two outcomes are the main determinants of elasticity in the state income tax. Young and Varner, using a small dataset from the state of New Jersey, determined that retirees and/or residents who live off of investment income will move away at a relatively high rate when the personal income tax rate increases dramatically. This is one small example of the elasticity of higher taxation on one small subset of the population; it will be different or insignificant for any number of other different subsets. The elasticity of a state sales tax is significantly simpler to illustrate. The only question that needs to be asked is this: if the sales tax rate goes up, how much will consumers cut back on spending subject to that rate in order to avoid the tax? Or, instead of cutting back, savvy consumers may start avoiding the tax instead. They could cross the state line to make major purchases, or perhaps turn to online markets that the states are just now looking at taxing. The likelihood of all three actions plays a role in determining the elasticity of issue at hand.

Past research seeking to determine the actual value of a given elasticity at the state level is actually rather well-developed. It would be convenient, for the purposes of this study, if there were broad, well-established elasticities available that applied to the entire country. It is hardly that simple. Dye (2004) points out that research has shown a wide variety of different elasticities for each different tax depending on which state is implementing it. This is largely "because each tax in each state is structured differently" (p. 139), but a host of other factors are also in play, including income levels, standard of living, and culture. To make things even more complicated, each state does not have just one elasticity figure. Research has shown that states have a short-run and a long-run elasticity for any given change in tax policy, as well as a different elasticity for the actual tax base to which any particular tax may be applied (Dye, 2004). In fact, not only do the 50 states have different elasticities, Brinner and Brinner (2002) argue that states will, in many cases, end up with more revenue from one year to the next even if they do nothing at all, thanks to the elasticity-related phenomenon they call "economic bias towards surplus."

To further complicate matters, these elasticities may very well be changing right now. McGranahan and Mattoon (2012) find that revenue variability in general, and variability amongst personal income tax collections in particular, has been magnified since the turn of the last century. They point out that personal income tax collections are highly dependent upon what the federal government decides to do in any given year due to piggybacking from the federal income tax return to the state income tax return. So even though the economy has moved through more than one full business cycle since 2000, states have not been able to reap the full rewards of climbing stock prices during that period because of capital gains and dividend tax measures at the national level. In this case, that means that state revenue collections from the personal income tax have been much more volatile in relation to the business cycle than they have at any time since at least 1980. The authors illustrate that elasticity is not purely an economic phenomenon, but one that is influenced by policymakers even as that same elasticity affects what policymakers are able to accomplish.

In sum, this research demonstrates two things. First, any single adjustment to tax policy is going to be the cause of more than one effect, and the research on elasticity shows that a high level of sophistication has been gained in academia's understanding of those effects. But secondly, by extension, it would take more than a little bit of scholarly knowledge for the average lawmaker to be able to apply all of that research to any given tax proposal. If research on tax policy is not useful to the people who influence that policy, what real use does it have?

Researchers have given substantial attention to elasticity largely because a better understanding of elasticity should lead to a better understanding of state revenue variability. Budgetary constraints, notably balanced budget requirements but also increasing levels of nondiscretionary spending, often require lawmakers to value revenue stability over revenue maximization. The existing literature often suggests increased use of one particular type of tax based on the elasticities that study found and whether the authors determined that elasticity to suggest a sufficient degree of stability. Brinner and Brinner (2002) argue that the state personal income tax should take primacy, while Schiller (2010) provides a countering argument in favor of the state sales tax. This latter paper presents the most concrete link between elasticity and revenue.

Using two decades of data from 1987 to 2007, Schiller (2010) observes that the variability in state sales tax revenues is remarkably stable, with the change in total collections never exceeding 5% in either direction from one year to the next. The paper argues that when the economy enters a recessionary phase, consumers will attempt to maintain their standard of living by drawing on savings when earned income declines. Even if employers are cutting the amount of income subject to state personal income taxes, and experiencing decreased corporate profits subject to state corporate income taxes at the same time, consumers still have the option to hold state sales tax-subject spending steady. In many cases, they are able to sustain that level of spending through a short recessionary phase until the economy begins to grow again. This, in turn, creates a steady revenue stream for state governments to tide them through a recession. Schiller's argument suggests that the general elasticity of a state sales tax is much lower than that of a state income tax, especially when taking the economic cycle into account. Policymakers, then, may be able to place increased reliance on state sales taxes when formulating budget plans going forward, and when looking for new sources of revenue. Schiller's paper provides a link between theoretical discussions of elasticity and how the concept plays out in the real economy.

This logical train of thought receives mild support from a quantitative perspective in the form of data procured by Dye and Merriman (2005). Using a different and larger dataset than Schiller (2010), the authors generated both long- and short-run elasticities for each of the fifty states in total taxes, general sales taxes, and personal income taxes. In the aggregate, the numbers did not allow the authors to come to any statistically significant conclusions, but the data does show some very interesting trends. The elasticity results for the personal income tax supported the view that this tax is more prone to variability, with no states having very low long-run elasticities, while the short-run elasticities were scattered across a very wide range. West Virginia, Maine, and Louisiana showed especially high volatility in the long run, while the short-run analysis yielded results scattered from the sky-high elasticity of Kansas to the negative elasticity of Delaware. The sales tax elasticities, however, mimic Schiller's results: all but six states (Wisconsin chief among them) had very low long-run elasticities, while the short-run elasticities were slightly more concentrated than their personal income tax counterparts. This is another interesting angle on elasticity that underscores the distinction between different types of taxes.

Elasticities, and the ways in which each one influences others, are critical to understanding the effects of a change in tax policy. Their inherent limitation is that they cannot suggest a starting point or an ideal level. In this era of political gridlock, it is largely unrealistic to expect a certain tax policy to be rehashed each and every year while lawmakers struggle to understand how their state's elasticities come into play. The purpose of this paper is to yield a potential starting point for policymakers, set at an optimal level based on the suggestions of historical research, including the effect of elasticity.

2.2 The Importance of Short-term vs. Long-term

The period of time over which a certain tax policy is evaluated can turn out to be an important determinant of its success. Many researchers have pointed out that economies do not always behave the same way in the short term as they do in the long term. That statement is just as true in the specific niche of state tax policy as it is in the general economy. As aforementioned, elasticities will not be the same in the short run as in the long run. This divergence was first pointed out by Williams, Anderson, Froehle, and Lamb (1973), who observed that high-growth taxes in the short term usually underperformed more stable taxes in the long run. Including their finding of substantial differences in the short- and long-term elasticities of the different taxes was tangential to the original research question, but this byproduct has been more useful to subsequent researchers than the main results. Their model predicted that excise, sales, and individual income taxes were all more elastic in the long run than in the short run, while corporate income taxes were the opposite. This makes a large degree of intuitive sense, as consumers often will not change behaviors right away after a change in tax policy, but if that policy remains unchanged for a substantial period of time, they may begin to adjust to it in the future. On the other hand, many older companies have established important roots over time in particular states and will only consider leaving if an adverse tax policy is particularly extreme, while younger and more entrepreneurial companies will naturally flock to states with more favorable tax policy since it is easier for a typical start-up to pack up and move lock, stock, and barrel.

The more fascinating discovery related to time frame was made by Enomoto, Erickson, and Ghosh (1992). Using a detailed model based on extensive data from the state of New Mexico, the researchers found that if a state keeps a tax rate steady for an extended period of time, the state can gain more revenue than if it was adjusting the rate every year to meet budgetary requirements. This obviously requires no small amount of restraint on the part of lawmakers, to commit to a long-term budget plan that allows for such rate stability, but if they can do so the state will be better off financially. In this particular case, the authors were arguing that balanced budget amendments were detrimental to state finances because of the inherent revenue variances associated with the business cycle. If policymakers had the opportunity to balance a budget over a five or ten year period, as opposed to the annual or biennial plans now required, the tax policy landscape could change markedly. This argument is echoed only a year later by Braun, Johnson, and Ley (1993), who argued that attempting to adjust tax rates and the scope of government operations too frequently would create major inefficiencies that could be destabilizing to the local economy.

The difficulty for policymakers, in addition to the restraint mentioned above, is that the increased levels of revenue from a stable taxation system may still be too variable to support the government's yearly operations over the same time period. Dye & Merriman (2005) point out that over the course of a business cycle, all types of tax revenue make significant diversions from the underlying trend line. The magnitude of those diversions depends on the state. The study found that the negative diversions could range from 0% to 34%, and the overall findings suggested that accumulating a rainy-day fund in boom times to cover this endemic variability over the course of a business cycle, even amongst sales-tax-reliant states, would be an almost-superhuman challenge. One salient reason for this is that legislators tend to see excess revenue over the amount they budgeted for as an opportunity for additional spending.

The main finding and admonishment in this part of the research is best summarized as follows: "When policy makers are designing tax policy, they should consider not only what the rates will be, but for how long they will be set and over what phase of the business cycle" (Enomoto et al., 1992, p. 93). This thesis will be able to address this facet of the issue by making use of fifty years of data, which should allow ample opportunity to observe both long-run and short-run changes. In light of the literature on this topic, the question that comes to mind is whether states that have been able to create an environment of tax stability, either by accident or by design, are any better off than those states that whip tax rates up and down like a yo-yo.

In conclusion, the existing literature on the subject of state revenue evaluates different tax alternatives mostly through the lens of elasticity, with consideration given to the time frame applicable for the policy under consideration. More often than not, these studies are searching for ways to cut down on state revenue variability to compensate for the lack of budgetary flexibility afforded by balanced budget requirements. While often using historical data to inform the process, these papers often seek to project conclusions forward in time with the aid of a complex economic model or logical framework. This thesis seeks instead to address revenue maximization, taking into account the major themes of elasticity and time frame as factors influencing states' ability to achieve that maximization. It will look to historical data not simply as an input, but as real evidence that can highlight the most effective ways for states to generate revenue. This thesis is guided by the proverb that those who cannot learn from history are doomed to repeat it.

3. Methodology

As seen above, the existing literature on the subject makes use of historical data in order to inform forward-looking studies; very little backward-looking analysis exists on what has generated actual results in states' quests to fill their coffers. My study seeks to fill some part of that gap by making the historical data the subject of the investigation and not just as an input to a series of future projections. It will be guided at the outset by the hypothesis that states using a sales tax to raise the majority of their revenue will be more successful in that enterprise than those states that do not. The efficacy and elasticity of the sales tax at various rates will be addressed in turn, and the thesis will conclude with a brief comparison of these results to the elasticity of personal and corporate income taxes. A proper investigation of these hypotheses can only be made by examining the historical data.

3.1 Data Collected and Measures Utilized

The data that I have collected consists of four components that will make up my overall dataset. That dataset covers a time period of fifty years, from 1961 to 2010. This time period was chosen because 2010 was the most recent year of revenue data available at the commencement of this project, and fifty years, across all fifty states, makes for a robust statistical sample that will allow the observation of long-term effects. The four different components follow.

First, the centerpiece of the dataset is the set of tax rates that produced the revenue in question. These rates will be the major independent variable. They are measured as a percent and include personal and corporate income tax rates in addition to the sales tax rates that are the primary focus of this study. Also included here is supplementary information on state sales tax exemptions, which will be incorporated as dummy variables in my analysis. I obtained the vast majority of my tax rate data from the Book of the States series, with some supplementary data taken from the State Tax Handbook series.

The second component is state-by-state revenue data from the U.S. Census Bureau broken down by type of tax, the same data used by Dye (2004) and Schiller (2010) in their papers on this topic. Third, this study will begin to analyze those figures using the metric revenue per capita, which will be found using population figures also taken from the U.S. Census Bureau in conjunction with the second data component. This component will comprise the dependent variable under study, measured as the number of dollars of revenue raised divided by the number of residents in a state. To control for inflation in my analysis, these figures have all been converted to real dollars per capita using inflation data from the Bureau of Labor Statistics CPI-U metric, the most commonly referenced variant of the Consumer Price Index, measured in 1967 dollars.

Finally, the data will be supplemented by the final component, a set of economic controls that will provide the other data that has been collected with more comparability when under analysis. These include controlling for economic growth and controlling for unemployment. The economic growth control is based on GDP data taken from the Bureau of Economic

Analysis and measured in yearly percent growth as a way to account for the health of the national economy. The unemployment data was procured from the Bureau of Labor Statistics using the official U-3 metric, known to the public as the unemployment rate.

3.2 Hypotheses

The foundation of this study is a question relating to the efficacy of sales taxes. Existing literature has concluded time and again, often with strong statistical significance, that sales taxes are the most stable way to raise revenue thanks to their tight elasticity, even if the authors disagree as to efficacy (Brinner and Brinner, 2010; Dye, 2004; Schiller, 2010). However, a stable stream of revenue means nothing to state governments if the level at which the revenue is generated is below the level of what the budget requires. To use bonds and stocks as an example, high stability does not necessarily correlate to high profitability. Historically, a diversified stock portfolio has outperformed one of bonds, despite the fact that stocks are usually much more variable in their returns; is the same true of sales taxes that produce revenue at a solid, predictable rate when compared with other, more volatile revenue streams? Consider that a state that relies predominantly on a sales tax should be able to afford lower income tax rates, leaving more disposable income in the pockets of its citizens and businesses to spend on items subject to the sales tax. In addition, the stability of the sales tax referenced by the existing literature should also prevent these states from facing major revenue shortfalls when the economy sours. With the aid of the long term view afforded by my dataset, my first hypothesis is as follows:

Hypothesis 1: States that procure a plurality of their revenue from a state sales tax will produce higher total revenue per capita than those states that procure a plurality of their revenue from a different source.

Once I have established the efficacy of sales taxes as a primary generator of state revenue, I will look more specifically at the numbers themselves. There are a couple of reasons why state lawmakers should be able to raise state tax rates almost with impunity. The first is the way prices are usually advertised in the United States. Rarely, if ever, do formal businesses advertise their prices with the sales tax included. Thus, consumers predominantly make their purchasing decisions based on the price of a product alone and simply expect to pay a little bit extra at the register for sales tax. For example, residents of high-tax metropolises like New York or Chicago might gripe about their high sales tax levels- but only when they look at their receipts after they have made their purchases and the state has already pocketed its sales tax proceeds. Alm and Melnik (2005) found support for this concept when they discovered that the ability to shop online without a sales tax, while statistically significant, was an extremely small influence on consumers' shopping habits. The second reason is that, as mentioned in the preceding literature review, consumers have several different motivators for increasing, or at the very least holding constant, their level of retail spending. The nature of this elasticity indicates that the sales tax base should always be in a state of at least minimal expansion, irrespective of what the sales tax rate is, up until the point where the sales tax becomes truly punitive. In light of these reasons, my second hypothesis is as follows:

Hypothesis 2A: There will be a positive relationship between the sales tax rate and revenue per capita regardless of economic conditions.

Assuming that consumers weather a recessionary phase in the economy without cutting back on their levels of regular sales tax-eligible spending, they will face a choice once the economy begins to grow again. As discretionary income rebounds, consumers can use it to either replenish the savings that they utilized during the recession or to finally make that bigticket purchase they had their eye on during the downturn. Once again drawing on the propensity to create and maintain a certain standard of living for the public to observe, it is most likely that consumers will opt for increased purchases as they celebrate the end of belt-tightening. The degree to which each consumer will increase spending will vary, as many will make at least some attempt to replenish savings, but it is highly unlikely that a large segment of the population would pour all of their renewed income back into savings. The tendency will be to spend at a higher level, a level that will then have to be maintained once the business cycle comes back around. Thus, to test the propensity of the state sales tax base to not only hold steady, but to expand in a step fashion with each business cycle, I will also test this related hypothesis:

Hypothesis 2B: There will be a positive relationship between the sales tax rate and revenue per capita when controlling for economic conditions.

Finally, to lend further context to the advantages of the state sales tax to state governments, I will compare the effects of changes in state sales tax rates with those of its two biggest broad-based competitors: the individual and corporate income taxes. When a state raises the sales tax, consumers usually only have one recourse, which is to purchase less. As already discussed, they are usually loath to do this, especially in the short run. Further, when states raise their sales tax rates it is usually in small increments, no more than a percentage point. Changes in income tax rates, on the other hand, are usually more dramatic, and therefore draw more attention. They also present more opportunities to avoid them, from the simple (donating more money to charity to lower tax liability) to the extreme (moving to another state). As such, my third hypothesis is as follows:

Hypothesis 3: Among states with a change in tax rate, the relationship between tax rate and revenue per capita will be more positive for changes to the sales tax as compared to changes to the personal or corporate income tax rates, after controlling for economic conditions.

3.3 Statistical Analysis Approach

In my statistical analysis, I will be using both a 2-sample t-test as well as two different multivariate regression equations to evaluate my hypotheses. Hypothesis 1 will be investigated using a 2-sample t-test. The first sample consists of those records where a state has raised a plurality of its revenue in a given year from a general sales tax (when compared to all other revenue sources), and I refer to this sample as the test group. The second sample consists of all remaining records, and I refer to this sample as the alternate group. The outcome data itself will be the total revenue per capita figures taken in by the states from all sources.

Hypothesis 2 will involve a traditional multivariate regression. The primary equation upon which I will be basing my analysis uses each of the aforementioned data components, including dummy variables for sales tax exemptions for food and prescription drugs.

Statistical model for Hypothesis 2:

$$RevCap_{st} = \beta_0 + \beta_1 SalesTaxRate_{st} + \beta_2 Foodexempt_{st} + \beta_3 PDexempt_{st} + \varphi controls_t + \varepsilon$$

where s is one of the fifty states and t is a year between 1961 and 2010 inclusive. When testing Hypothesis 2A, the controls term will be omitted; when testing Hypothesis 2B, it will include both the GDP and unemployment terms. For this equation, the revenue per capita figures will be derived just from that revenue that was taken in by the general sales tax in each state.

Hypothesis 3 will be assessed using three multivariate regressions, one each for the sales tax, personal income tax, and corporate income tax. My target, as implied by the hypothesis, is the correlations between changes in rates and the changes in the corresponding tax rates. In other words, which of the three types of changes will demonstrate the greatest amount of explanatory power relative to the change in revenue per capita? The amount that each of the three types of taxes influences the change in revenue after a change in tax rate will be evaluated at the surface level by comparing the magnitude of the statistical coefficients for the explanatory variable. While I may not be able to draw solid conclusions from such a model, the results may be interesting in comparison to those of my other two hypotheses and could provide a starting point for future, more rigorous, research on the topic. My data records for this hypothesis will be different from that of the first two hypotheses, as I am looking at changes only. Each data point corresponds to a year in which a state made a change in its sales tax rate, personal income tax rate, or corporate income tax rate over the time period. As a result, instead of working with 2,500 data points, Hypothesis 3 will be tested using 860 data points, divided into three groups for each of the three types of taxes, that correspond to these changes, instead of the absolute rate and absolute revenue per capita.

Statistical model for Hypothesis 3:

$$\Delta RevCap_{st} = \beta_0 + \beta_1 \Delta TaxRate_{st} + \varphi controls_t + \varepsilon$$

where *s* is one of the fifty states and *t* is a year between 1961 and 2010 inclusive.

3.4 Appropriateness of Methodology

The strengths of my methodology center on the fact that the data itself is the most important part of the study. A relatively simple set of equations and tests will allow the data to speak by projecting a minimum of commentary or conjecture onto it in the form of complicated statistics that might obscure a meaningful result. Fifty years of data from all fifty states lends my dataset a significant and sufficient magnitude from which conclusions can be drawn. Since the vast majority of the data came from the same source, there should not be any abnormalities attributable to the data collection itself. There was no estimation or active creation of the data on my part, but it was instead gathered from various government entities that have the compilation of these figures as part of their official duties. The outcomes I am most interested in can efficiently be addressed by regression equations, as I have a clear independent variable and a clear dependent variable. The strength of the relationship between the two, if any, is precisely what a regression analysis can be used for.

It is often instructive to recognize the limitations of a particular line of research. The most obvious limitation to the study design being proposed is the relative lack of the ability to identify causation. It must be noted, however, that the academic stringency of an undertaking of that kind is simply beyond the scope of what this paper is trying to accomplish. A second limitation that could prove to be an obstacle would be the lack of a sufficiently comprehensive set of controls. If the data does indeed have information to convey, it would be highly unfortunate to miss out on it for lack of controls to bring the numbers into focus. I am making the assumption that controlling for inflation alone in one model and the business cycle in a second will be enough to uncover any findings that may exist, as other controls that have been considered either cannot be easily integrated into the current model or the related information cannot be procured for the entire dataset. A third limitation is the relative impossibility of coding a state's entire income tax structure into a form appropriate for a regression equation. As such, my data only utilizes the top marginal rate in situations with multiple tax brackets. Surprisingly few states over the course of the data set utilized a graduated corporate income tax, so this assumption does not have a very big effect on that part of the analysis. For personal income taxes, the assumption is made appropriate by the fact that the vast majority of states over the time period fall into one of the following categories: flat-tax state, only a few tax brackets, or tax brackets with highly condensed thresholds and/or a very low top bracket threshold. Lastly, where my research found that a tax rate had changed in the middle of the year, I coded the data point with a weighted-average figure that reflects the period over which each rate applied.

Despite these limitations and assumptions, the study design remains appropriate. Above all else, this method is appropriate for answering the proposed research question simply because there is so little out there like it in the existing literature on the subject. So much of the writing on this issue is purely theoretical. This study has been created in the hope that, by attaching real numbers to the issue, it can generate interest, however limited, outside the academic community. To do something that fails to address the quantitative aspect of the topic would not be using the data effectively, nor could it be much more than conjecture without further collection of data of an entirely different sort.

4. Results

The results of the analysis predominantly supported the hypotheses. While it was disappointing that the hypothesis upon which the thesis was built, Hypothesis 1, was not supported, there was support for each of the other hypotheses that proceeded from it. I was not expecting the support for these hypotheses to be so strong, but the size of my data set lent considerable statistical power to the analysis. The results of each test will be presented in turn.

My 2-sample t-test for Hypothesis 1 did not turn out the way I expected. Not only did the results not support my hypothesis, they actually found support for the exact opposite outcome. I was counting on the increased variability of the alternate group to pull the mean for that group below that of the test group. As shown in Figure 1, the alternate group has more variability than the tight normal distribution of the test group, but it is not nearly variable enough to tilt the result in favor of the test group. I performed the 2-sample t-test with a total of 1,122 data points in the test group and the remaining 1,378 data points in the alternate group. The final result was a mean of 259.54 for the test group and 300.06 for the alternate group, which corresponded to a mean difference of -40.5207 and a p-value of $1.73*10^{-15}$ in favor of the alternate group. These results are reflected in Table 1, Panel A.

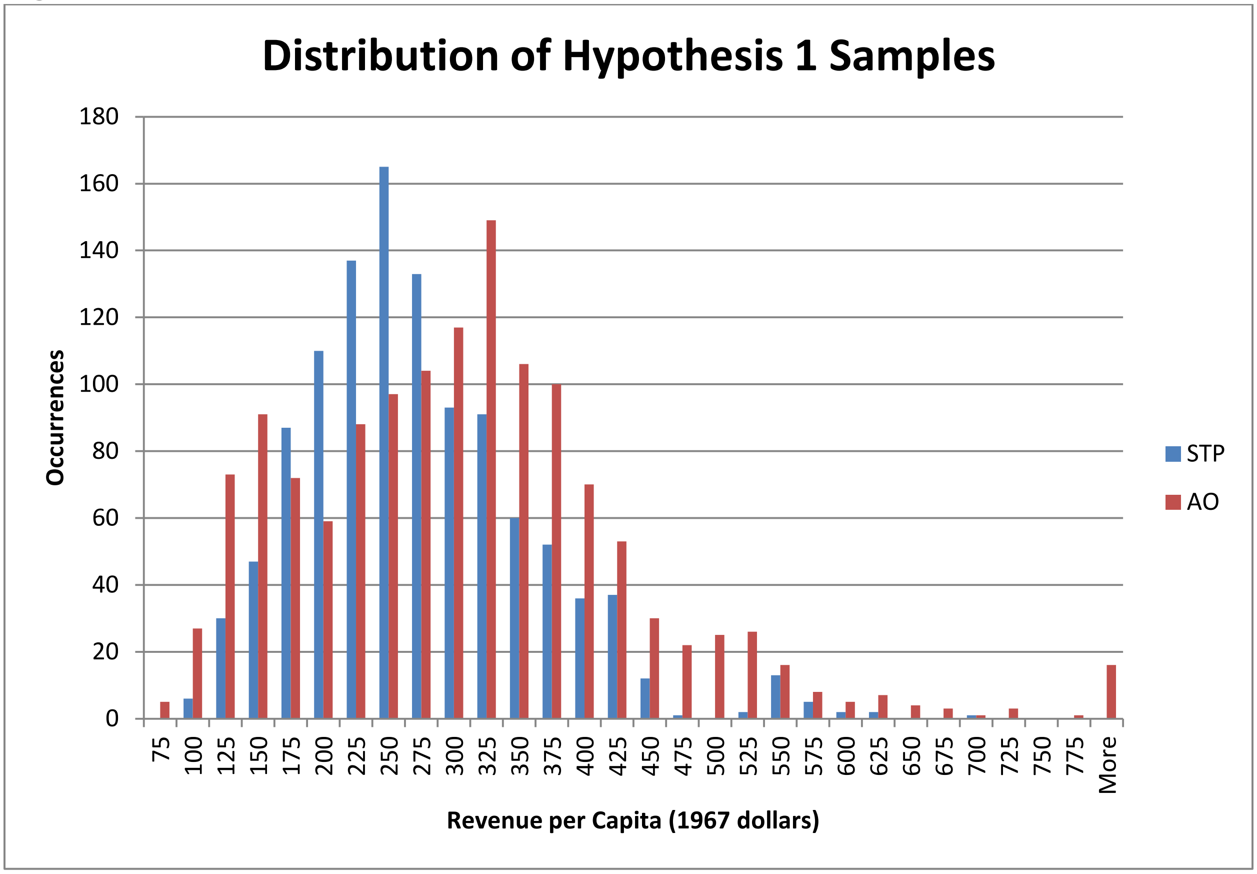
Table 1

Variable	Test Group	Alternate Group	Outliers
Panel A			
N=	1122	1378	
Mean	$259.54	$300.06	
Standard deviation	$88.09	$160.21	
Test Statistics	**MeanDiff = -$40.5207**	**p = <.0001**	
Panel B			
N=	1122	1363	15
Mean	$259.54	$289.53	$1256.90
Standard deviation	$88.09	$118.21	$107.49
Test Statistics	**MeanDiff = -$29.9906**	**p = <.0001**	

Note: The means and standard deviations depicted above are presented in 1967 dollars.

It was evident that most of the top data points in the alternate group were from states that are rich in natural resources, like Alaska and Wyoming, and the severance taxes that accompany them. Obviously, severance taxes are not a viable revenue option for the majority of states because natural resources have already been depleted or harvesting operations are too small to produce much revenue. It was immediately my hope that eliminating some of these clear outliers would restore some balance to the results. I reran the test after eliminating fifteen outliers from the alternate group by using Chauvenet's criterion, but the result barely changed, as Panel B of Table 1 shows. The mean for the alternate group with the adjustment dropped to 289.53 (mean difference of -29.9906), but the p-value remained impressively small at $6.05*10^{-13}$. The standard error figures bare out that the test group was more stable, with the test group displaying a standard error of 88.09 versus a standard error of 160.21 for the alternate group (outliers included), but on the whole Hypothesis 1 was not supported.

Figure 1



(where the left-hand bars correspond to the data points in the test group, sales tax plurality [STP] states, and the right-hand bars correspond to the data points in the alternate group, all other [AO] states)

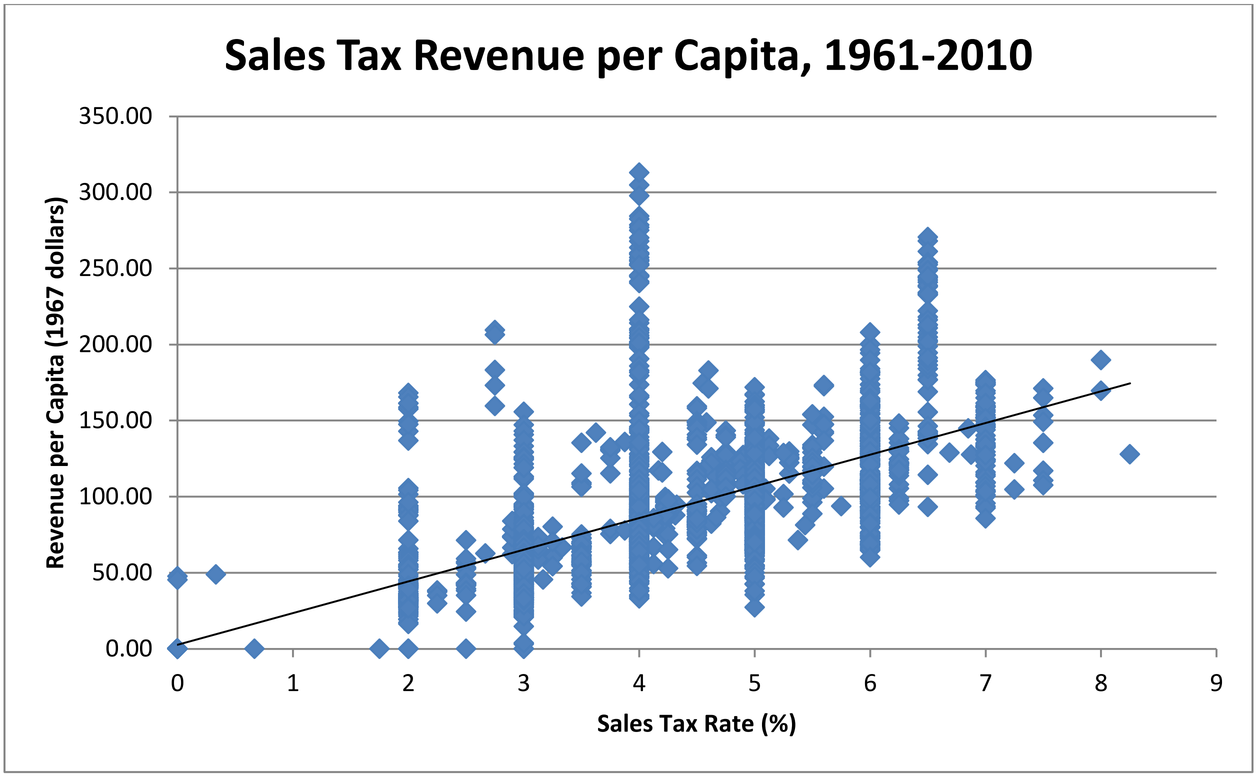
Even though the lack of support for Hypothesis 1 was surprising, the support that I found for both parts of Hypothesis 2 was even greater than suspected. This regression analysis was performed with all 2,500 data points. The chief independent variable under observation, the sales tax rate, displayed a p-value so small that the statistical output was 0 in the tests for Hypotheses 2A and 2B. The regression for Hypothesis 2A did not include the control terms for GDP growth and unemployment. The nonexistent p-value is confirmed by the astronomical t-stat of 44.7611. Support for Hypothesis 2B, which did include the two control terms, was almost equally as strong, with a t-stat of 44.3361. The strong linear trend in the graphical depiction of the data points (Figure 2) was confirmed by the large correlation coefficients of .7534 without controls and .7552 with controls. An equally fascinating aspect of this test was the regression equation coefficient values, which are summarized in Table 2 and will be discussed further in the next section. Table 2 also shows that the explanatory value of each of the other variables was also exceptional, as all of them were statistically significant at some level. In sum, both Hypotheses 2A and 2B were overwhelmingly supported.

Table 2

Variable	Coefficient	Standard Error	p-value
Hypothesis 2A			
Intercept	1.0544	1.6132	.5134
Sales Tax Rate	21.6803 ***	.4844	0
FoodExempt Dummy	-14.5121 ***	1.6801	<.0001
RxDrugExempt Dummy	6.7645 ***	2.1413	.0016
Regression Statistics	**R^2 = .5676**	**R = .7534**	**N = 2,500**
Hypothesis 2B			
Intercept	11.3032 ***	3.7385	.0025
Sales Tax Rate	21.5050 ***	.4850	0
FoodExempt Dummy	-14.3958 ***	1.6760	<.0001
RxDrugExempt Dummy	6.6610 ***	2.1437	.0019
GDP Control	-1.3131 ***	.3344	<.0001
Unemployment Control	-.9064 *	.4717	.0548
Regression Statistics	**R^2 = .5694**	**R = .7552**	**N = 2,500**

Note: The coefficients and standard error results depicted above are presented in 1967 dollars.

Figure 2



The results also supported the idea behind Hypothesis 3. Here I was most interested in the coefficient of the explanatory variable, the change in tax rates. The results for the personal income tax regression and corporate income tax regression were fairly similar to what was expected, with demonstrated trend lines very close to flat. The graphical representation of the data points (Figures 3, 4, & 5) reinforces the idea that adjusting tax rates in these two areas will by no means produce predictable results. The sales tax data points, while far from conclusive on their own, at least point to a positive correlation. These observations are backed up by the statistical results. The sales tax regression, which had the strongest correlation coefficient out of the three regressions, had a positive coefficient of 3.1003 for the explanatory variable, compared to coefficients of .9765 and -.0398 for the personal and corporate income taxes, respectively. Many of the variables for these three regressions were statistically significant, and implications of these will be discussed in the next section. These results are summarized in Table 3, and overall they point to Hypothesis 3 being supported.

Table 3

Variable	Coefficient	Standard Error	p-value
ΔSales Tax Rates			
Intercept	-4.5164 *	2.3451	.0553
Change in Rate	3.1003 ***	.7342	<.0001
GDP Control	.5993 **	.2516	.0180
Unemployment Control	.7059 **	.3111	.0242
Regression Statistics	**R^2 = .1064**	**R = .3262**	**N = 245**
ΔPersonal Income Tax Rates			
Intercept	3.1712	3.0821	.3043
Change in Rate	.9765 ***	.2743	.0004
GDP Control	1.0058 ***	.3358	.0029
Unemployment Control	-.5976	.4207	.1564
Regression Statistics	**R^2 = .0760**	**R = .2757**	**N = 337**
ΔCorporate Income Tax Rates			
Intercept	1.5805	1.1125	.1565
Change in Rate	-.0398	.1453	.7844
GDP Control	.2252 *	.1168	.0548
Unemployment Control	-.2945 **	.1494	.0467
Regression Statistics	**R^2 = .0393**	**R = .1982**	**N = 278**

Note: The coefficients and standard error results depicted above are presented in 1967 dollars.

Figure 3

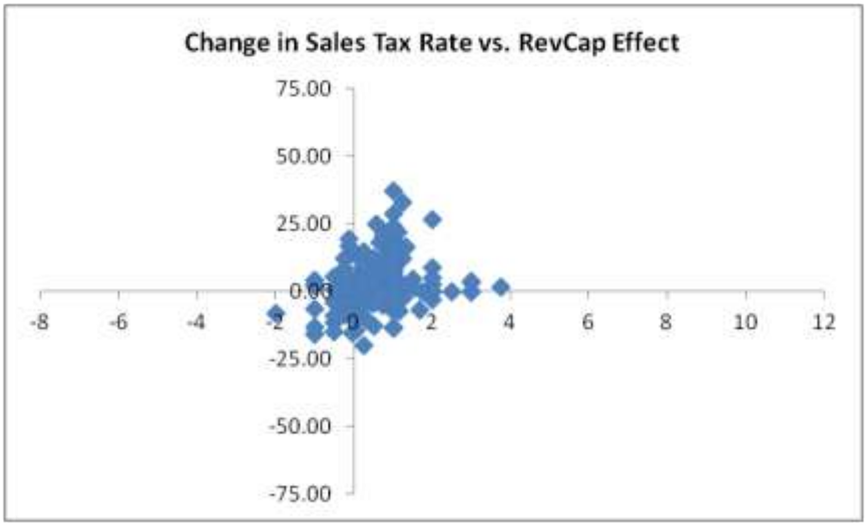


Figure 4

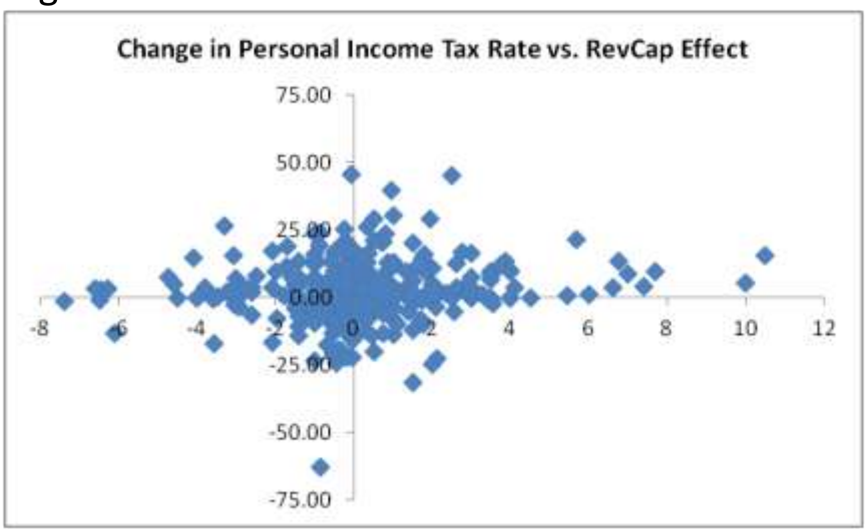
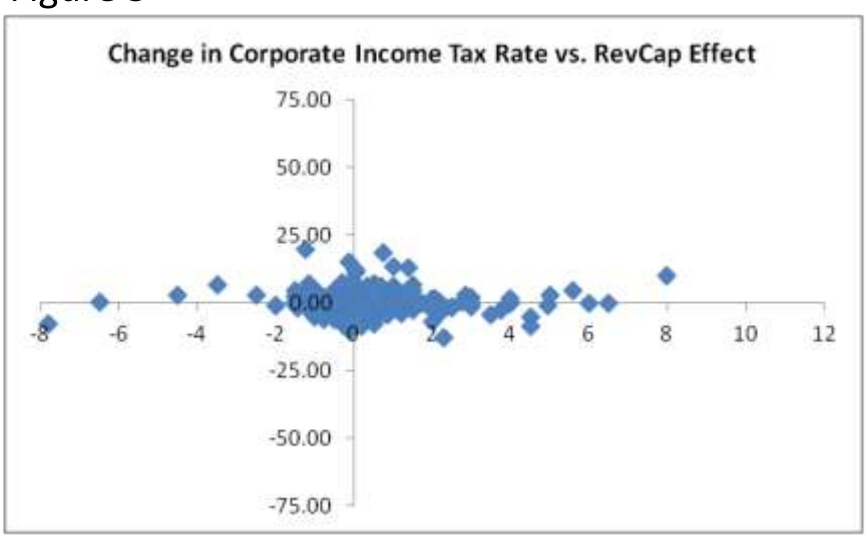


Figure 5



5. Discussion

The theory behind Hypothesis 1 was that the demonstrated stability of state sales taxes when it came to raising revenue would provide an advantage over more volatile alternatives. And indeed, the distribution of the data points in the test group of states that relied primarily on a sales tax is impressively normal, with a textbook bell shape and only a handful of observations falling outside of the hypothetical boundaries of that shape. This kind of concentrated distribution around a central point demonstrates the stability and predictability of sales tax-driven tax revenues over time. A relatively tight standard deviation for this group only adds to the argument. Where the support begins to fall apart is with the alternative group of states that relied primarily on other revenue sources. I expected the values for this group to be spread out and highly variable; in fact, I was not expecting it to generate any kind of identifiable graphical shape at all. In actuality, not only did the alternate group generate a graphical shape, it generated a shape that was easily comparable to the test group. Though the alternate group did display a standard deviation almost twice that of the test group, the graphical results show that the distribution still bears close resemblance to the concentrated shape given by the test group. The results, as shown in Figure 1, show that the peak of this curve is at a greater point than that of the test group. The greater level of volatility, while present, was not nearly enough to depress the mean below that of the test group, resulting in the numbers that required rejection of this hypothesis.

The application of this finding is straightforward and consistent with theory mentioned in the literature review. States that are looking for stability should focus on the sales tax. The mean revenue per capita value I found for states that did so corresponds to $1,789.43 per capita in today's dollars. States that are willing to risk more revenue volatility in exchange for larger periodic windfalls might look into alternate solutions, of which the personal income tax is by far the most prevalent. The alternate group of values checked in at $2,068.80 per capita in today's dollars with the outliers included, and $1,996.20 per capita with the outliers removed. It is illustrative of how the size and cost of government has grown over the past fifty years that the budget for the state of Minnesota in 2013 will need to raise approximately $3,500 per capita; perhaps naturally, Minnesota relies predominantly on a personal income tax for raising revenue, as such a budget would require pursuing the higher revenues that the personal income tax potentially affords.

Not only was Hypothesis 2 supported in my results, but as a regression equation it also provided more insight into the topic under study. The strength of the trend line suggested by the data has one major implication for policymakers: if there is a percent level where the sales tax starts to become less effective, it has not been found yet. The data points show a marked upward trend without any sign of flattening out, much less turning negative. These results are not surprising in theory. However, they demonstrate that the data of the past fifty years supports the idea that the sales tax is relatively inelastic and offer a potential opportunity for policymakers seeking to maximize revenue.

One data cluster of note is at the 4% line. After Alaska, whose coffers were enriched primarily by severance taxes, Hawaii was the most effective state at raising revenue over the data period. They did it by relying primarily on a sales tax in all fifty years, and that sales tax was set at 4% for all but the first few years in the sample. Two unique circumstances come to mind here as well. Hawaii has a strong tourism industry that allows it to capture revenue from non-Hawaiians and boost its revenue per capita figure higher than it otherwise would be. More importantly, the high cost of living in the islands as a result of having to ship almost all consumer goods to their location in the middle of the Pacific Ocean provides a more robust tax base for a sales tax. A 4% sales tax on a $100 restaurant bill on the mainland will not bring in as much revenue as an identical restaurant bill that, as a result of being from Hawaii, checked in at $130.

So if not at 4%, where might a state want to go with its sales tax rate? Connecticut, California, and Washington are three other states that found success at raising revenue primarily with a sales tax, but their rates averaged over 6% over the course of the sample. If Hawaii's 4% data points were removed from Figure 2, the area between 6% and 7% would be the next logical place to focus the eye. For states without special advantages, this is the range where the data suggests a sales tax can have the most benefit…for now. Until more data has been generated in the area above 7%, it is simply impractical to speculate on where the true optimal level for a sales tax might be.

Several of the coefficients generated by the analysis displayed in Table 2 are worth discussing further here. The main coefficient in question, that of the sales tax rate itself, is $21.68 in 1967 dollars, which corresponds to $149.48 today. That is, for every 1% of the sales tax rate, the data suggests that a state can raise $149.48 from each of its consumers over the course of the year. Of course, the rate itself is not the only thing that determines how much revenue a state can bring in. Most states have a plethora of exemptions from their state sales tax, the two most notable of which are the food exemption and the prescription drug exemption. An exemption for food tends to be fairly detrimental to the efficacy of a sales tax, as this variable demonstrated a coefficient around -$14.40, which corresponds to -$99.28 in today's dollars. For example, if a state decided to raise its sales tax rate from 4% to 5%, but to add a new exemption for food, they would only realize about 1/3 of the amount the rate increase alone would suggest.

That the food exemption has such a dramatic effect certainly makes sense, as food is arguably the most important, if not the biggest, part of consumer budgets, so the potential to bring in sales tax revenues will always be high. It is nevertheless enlightening to see the effect quantified side-by-side with the sales tax rate itself.

Perhaps the most puzzling number of this entire study is the coefficient associated with the prescription drug exemption. At a positive $6.76 with the highest level of statistical significance, it would seem to indicate that a state could take in an additional $46.61 per capita today by implementing a sales tax exemption for prescription drugs. Of course, this would only be helpful to the state of Illinois, which is the last state to not fully exempt prescription drugs, and therein likely lies some of the explanation. The prescription drug exemption is widespread and has been for many years. As sales tax revenue ticked up over the years, the fact that most states had already implemented the exemption likely skewed the number upward. Even if this is the case, it is a fascinating number to contemplate. Another possible explanation is the expansion of pharmacies in supermarkets and the expansion of pharmacies like CVS and Walgreens into mini-supermarkets. Once upon a time, there was not much more to purchase, and pay sales tax on, at the pharmacy than the prescription that was the object of the trip. As consumers have been presented with other significant purchase opportunities concurrent with picking up a prescription, it is possible that they increased their spending at the same time. This would be effected by an increase in impulse purchases. Start with the base assumption that the enactment of a prescription drug exemption would encourage at least some increased purchases, and therefore increased trips, by consumers to their pharmacies. Imagine a shopper coming to pick up a prescription at their local pharmacy intending only to run in, pay, and run out. But on the way in, the shopper might espy a display of the latest seasonal candy and decide that a chocolate treat might be nice. And the next aisle over, there is a sign advertising a big sale on a specific toiletry product, so another container is added to the sale. And on and on it might go.

The two control variables from Hypothesis 2B also merit a brief discussion. While the controls did cause a marginally tighter correlation in the regression, the rather insignificant effect they had on the remainder of the regression supports the overall idea that a sales tax in a stable tool in both the short-term and the long-term, across any business cycle and in almost any conditions. The negative coefficient on the GDP control of -$1.31 per capita, or -$9.03 today, would actually suggest that the sales tax performs better in a contracting economy than an expanding one. While this is unlikely to literally be the case, I find it to be exceptionally strong evidence for the premise that sales tax revenues will, at least at the onset, hold steady as the economy enters a recession. The statistical significance and standard error of this figure would seem to rule out the idea that the sign of the coefficient is some kind of fluke. The best conclusion that can be drawn is that, at the least, the state sales tax will demonstrate markedly different behavior than that of a state income tax.

Although the numbers behind Hypothesis 3 are truly fascinating, the nature of the hypothesis and methodology mean that reading too much into them may not be advisable. One thing is abundantly clear, and it should be a caution for policymakers everywhere. Simply stated, there is no way of knowing how a change in a personal or corporate income tax is actually going to affect the revenue the tax generates. The hypothesis was supported because the coefficient related to a change in the state sales tax rate versus the resulting effect on revenue per capita generated was greater than those of its two studied competitors. But given what has already been discussed in this thesis, the superiority of the sales tax is not a surprise. As a matter of course, the coefficients on the controls are all about where they would be expected. These coefficients suggest in all three regressions that a tax rate increase will produce more revenue when the economy is growing, while the income taxes will not fare as well when unemployment is high, incomes are dropping, and their tax bases are shrinking. The interesting data here relates instead to the income taxes and, especially, the corporate income tax that will be discussed next.

Looking at the graphical representations of the changes in the two income taxes over the fifty-year time period (Figures 4 & 5), one can see that states have made changes in their rates ranging from the nigh-insignificant to the extreme. And while Figure 4 seems to exhibit the faintest of positive trend lines if stared at long enough (it does have a small positive coefficient of .9765, after all), Figure 5 appears to exhibit about the flattest trend line possible for a cluttered scatter plot with 278 data points. Said a different way, raising corporate tax rates may antagonize a state's business community without having the benefit of any positive revenue effect whatsoever. In fact, though the figure is not statistically significant, the coefficient corresponding to the change in the corporate tax rate, -.0398, suggests that raising the rate might actually depress revenue.

First of all, this highlights a fundamental problem with raising money from corporate income taxes. Most state corporate income taxes use the federal corporate income as a starting place, just as they do with personal income taxes. Unfortunately for the states, the federal tax code allows for so many deductions and write-offs for corporations that the resulting taxable income figure is often only a fraction of the company's total profit. Because corporations can do so much to alter revenues and expenses, and in so doing manipulate their contribution to the tax base, there is simply no way to know whether a change in the tax rate will do what it is expected to or not. Secondly, the data does not necessarily suggest that lowering the corporate tax rate will bring additional companies and employment, and thus additional revenue, to the state. As was covered earlier, the process of moving a business from one state to another is not exactly a simple task.

This is not to say that raising the corporate tax rate will have no effect at all. Illinois offers a recent example of what can go wrong. After enacting a significant increase in the corporate income tax rate at the beginning of 2011, several high-profile Chicago-area companies hopped the border into Wisconsin and Indiana, or threatened to do so until granted special exemptions. It was a perfect example of the sort of elasticities that are more commonly at work with the personal income tax being applied to its corporate counterpart. When the dust settles, it will be interesting to see just how much money the increase raised and how well it met its projection. This analysis certainly suggests that meeting projections with a corporate tax rate change is a difficult trick indeed.

The necessity of raising increasing amounts of revenue at the state level is only going to grow in the future. Beyond the numbers studied in this thesis, there are two hindrances to raising revenue that should be discussed. This thesis examines the effectiveness of several different taxes, but as always, it is useful to remember that lawmakers are rarely solely concerned with the amount of revenue a particular policy will bring in. There is always consideration given to the question of where, exactly, the revenue will come from. What income levels will be most affected? Will the benefactors of the increased government service also be paying for it through tax, or should another section of the population bear the burden? This facet of the problem, usually referred to as the “fairness issue” or the “equity consideration,” can rarely be quantified in research. And yet researchers who supposedly are influenced only by the data they collect take it into account all the same. Most notable in this department is Brinner and Brinner (2002). Arguing in favor of the prominence of the state personal income tax, they go so far as to use the presumption that such a tax "spreads the burden most equitably" (p. 22) as a major justification for their conclusion. Such a justification, based solely on opinion and political preference, seems out of place in a research paper. Even if the researchers had been able to quantify some kind of variable or weighting factor related to fairness for use in their analysis, the result would still be skewed by the political worldview of the authors. For example, a researcher who favors the flat tax would likely generate a completely different variable in this department than a researcher who favors a progressive tax, even given the same set of facts from which to work. On the other hand, the same justification of fairness is commonplace amongst policymakers, and it must be remembered as a possible explanation for what otherwise may be regarded as an ineffective tax.

The importance of sound public policy is often just as key to lawmakers as fairness. The increasing ineffectiveness of certain excise taxes, notably the tobacco tax, is often ignored because such taxes have become established as part of public policy. Schiller (2010) argues that states could take in substantially more revenue from licensing operations if they so chose, but public policy dictates that license fees match up with the services that the fees fund. In fact, the public policy justification can be used for just about any change to the revenue structure, no matter how ineffective that change might be. This thesis looks to draw conclusions from raw data, but it is impractical to expect that policymakers are looking only at the economic cause and effect of any given issue. They want to know who is paying, what they are paying, and whether they happen to be constituents, among other things. Any explanation of the raw data must take into account the other factors that are in play. Those factors transform the background on this thesis's research question from a simple matter of cause and effect into a multivariate maze of revenue, motives, outdated rules, and favoritism. Untangling this maze in any way that would allow for the assignment of causation in this academic exercise is well beyond the scope of this paper, but each part should be considered as an enhancement, or hindrance, to the maximization of revenue when discussing the results of any given piece of revenue policy.

6. Conclusion

The purpose of this thesis, ultimately, was the compilation of a large amount of data related to revenue generation at the state level and to present that information in a meaningful way. It will have fulfilled its purpose wherever it is successful in adding to the knowledge of the effects of taxation, whether to citizens or to legislators. The men and women meeting in state capitols across the country have a tremendous challenge ahead of them when it comes to ensuring the ongoing success and viability of the governments they make up. The question of how to bring in the money is secondary only to the question of just how much money can realistically be collected in the first place. This thesis chose to perform an examination of the issue using the state sales tax as its avenue of investigation. Though the overall supremacy of the sales tax as a revenue-raising tool was not established, the effectiveness of the sales tax where it has been given primacy, its potential for generating additional revenue, and its superior stability in results were demonstrated.

In focusing on the data, this thesis largely stayed away from the assignment of causation to the observed effects. This is the primary area of opportunity for future study. Any number of findings suggested by the results of this study are ripe targets for a more sophisticated examination of the factors that created them. Perhaps foremost in this area would be a study of the limits of the sales tax, as existing data does not seem to suggest a logical stopping place for states interested in nudging the rate higher and higher. A more thorough examination of the revenue that made up the alternate group in the test of Hypothesis 1 could probably identify more data points resulting from abnormal circumstances not easily replicated, maybe to the point that the difference in the means is eliminated or even reversed. Such examinations would not be amiss. Though it is unlikely that the perfect mix of revenue-generating tools will ever be found, the more information available to policymakers in the coming years the better.

The final conclusion of this thesis can be summarized into two points. First, states that are willing to do so may be able to ride a significant sales tax to fiscal solvency and stability. The windfall from income taxes is great in the boom times, but the very uncertain nature of the current recovery calls into question when, and if, another boom time will ever arrive. States that sit back and wait for it will find that their expenses are not going to sit back and wait with them and, in fact, will probably grow faster. Secondly, the actual result of a change in tax rates is inherently uncertain, especially in the case of income taxes. All of the different factors discussed in the course of this thesis combine to ensure that an increase of 1% on a tax base of $1 million will not result in a $10,000 increase in revenue. The data simply does not support such a contention. This research was meant to raise issues for consideration for states and their revenue generation requirements. It is my hope that deliberate study of the factors that influence revenue generation will result in better choices for individual states, given their own unique economic circumstances. Such future research may identify an effective, reliable tool for revenue generation at the state level. But until that day, policymakers are left to face the coming storm clouds with the tools already available to them. They are still chasing the magic bullet.

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Appendix 1

Underlined values were calculated (weighted average for mid-year changes or variable tax structure)
Blank values represent unconventional tax structures and were not used in the analysis

Tax Rate Data Year→	1960 (included for reference)				1961				1962				1963			
State↓	S-Ex	Sales	P. Inc.	C. Inc.	S-Ex	Sales	P. Inc.	C. Inc.	S-Ex	Sales	P. Inc.	C. Inc.	S-Ex	Sales	P. Inc.	C. Inc.
Alabama	-	3	5	3	-	3	5	3	-	3	5	3	-	4	5	3
Alaska	-	0	12.74	9.36	-	0	14.56	9.36	-	0	14.56	9.36	-	0	14.56	9.36
Arizona	D	3	4.5	5	D	3	4.5	5	D	3	4.5	5	D	3	4.5	5
Arkansas	-	3	5	5	-	3	5	5	-	3	5	5	-	3	5	5
California	F	3	7	5.5	F,D	3	7	5.5	F,D	3	7	5.5	F,D	3	7	5.5
Colorado	-	2	9	5	-	2	9	5	-	2	9	5	-	2	9	5
Connecticut	F,D	3	0	3.75	F,D	3.5	0	5	F,D	3.5	0	5	F,D	3.5	0	5
Delaware	-	0	8	5	-	0	11	5	-	0	11	5	-	0	11	5
Flordia	F,D	3	0	0	F,D	3	0	0	F,D	3	0	0	F,D	3	0	0
Georgia	-	3	6	4	-	3	6	4	-	3	6	4	-	3	6	4
Hawaii	-	3.5	9	5.5	-	3.5	9	5.5	-	3.5	9	5.5	-	3.5	9	5.5
Idaho	-	0	9.5	9.5	-	0	9.5	9.5	-	0	9.5	10	-	0	10.5	10.5
Illinois	D	3	0	0	D	3.5	0	0	D	3.5	0	0	D	3.5	0	0
Indiana	-	0	0	0	-	0	0	0	-	0	0	0	-	0.333	2	2
Iowa	-	2	3.75	3	-	2	3.75	3	-	2	3.75	9.5	-	2	3.75	9.5
Kansas	-	2.5	5.5	3.5	-	2.5	5.5	3.5	-	2.5	5.5	3.5	-	2.5	5.5	3.5
Kentucky	D	3	7.8	7	D	3	6	7	D	3	6	7	D	3	6	7
Louisiana	F,D	2	6	4	F,D	2	6	4	F,D	2	6	4	F,D	2	6	4
Maine	F,D	3	0	0	F,D	3	0	0	F,D	3	0	0	F,D	4	0	0
Maryland	F,D	3	3	5	F,D	3	3	5	F,D	3	3	5	F,D	3	3	5
Massachusetts	-	0	3.075	6.765	-	0	3.075	6.765	-	0	3.075	6.765	-	0	3.075	6.765
Michigan	-	3	0	0	-	4	0	0	-	4	0	0	-	4	0	0
Minnesota	-	0	11.55	9.3	-	0	12.075	10.23	-	0	10.5	10.23	-	0	10.5	10.23
Mississippi	-	3	6	6	-	3	5.5	5.5	-	3	5	5	-	3	4.5	4.5
Missouri	-	2	4	2	-	2	4	2	-	2	4	2	-	3	4	2
Montana	-	0	7	4.5	-	0	7	4.5	-	0	7	4.5	-	0	7	4.5
Nebraska	-	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0
Nevada	-	2	0	0	-	2	0	0	-	2	0	0	-	2	0	0
New Hamshire	-	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0
New Jersey	-	0	0	1.75	-	0	0	1.75	-	0	0	1.75	-	0	0	1.75
New Mexico	-	2	4	2	-	2	6	3	-	2	6	3	-	3	6	3
New York	-	0	10	5.5	-	0	10	5.5	-	0	10	5.5	-	0	10	5.5
North Carolina	F,D	3	7	6	D	3	7	6	D	3	7	6	D	3	7	6
North Dakota	D	2	11	6	D	2	11	6	D	2	11	6	D	2.25	11	6
Ohio	F	3	0	0	F,D	3	0	0	F,D	3	0	0	F,D	3	0	0
Oklahoma	-	2	6	4	-	2	6	4	-	2	6	4	-	2	6	4
Oregon	-	0	9.5	6	-	0	9.5	6	-	0	9.5	6	-	0	9.5	6
Pennsylvania	F,D	4	0	6	F,D	4	0	6	F,D	4	0	6	F,D	5	0	6
Rhode Island	F,D	3	0	5.5	F,D	3	0	6	F,D	3	0	6	F,D	3	0	6
South Carolina	-	3	7	5	-	3	7	5	-	3	7	5	-	3	7	5
South Dakota	-	2	0	0	-	2	0	0	-	2	0	0	-	2	0	0
Tennessee	-	3	0	3.75	-	3	0	3.75	-	3	0	3.75	-	3	0	4
Texas	F,D	0	0	0	F,D	0.667	0	0	F,D	2	0	0	F,D	2	0	0
Utah	-	2	5	4	-	2.5	5	4	-	2.5	5	4	-	3	5	4
Vermont	-	0	7.5	5	-	0	7.5	5	-	0	7.5	5	-	0	7.5	5
Virginia	-	0	5	5	-	0	5	5	-	0	5	5	-	0	5	5
Washington	-	4	0	0	-	4	0	0	-	4	0	0	-	4	0	0
West Virginia	-	2	0	0	-	3	5.46	0	-	3	5.46	0	-	3	5.5	0
Wisconsin	F,D	0	10.2	7	F,D	0	10	7	F,D	3	10	7	F,D	3	10	7
Wyomina	-	2	0	0	-	2	0	0	-	2	0	0	-	2	0	0
Average		1.8400	4.3123	3.6835		1.9233	4.5184	3.7471		2.0100	4.4769	3.8771		2.1317	4.5277	3.9221
Avg less 0s		2.7059	6.9553	5.1160		2.7476	7.0600	5.2043		2.7917	6.9952	5.3849		2.8806	6.8602	5.3001

Appendix 1

Underlined values were calculated (weighted average for mid-year changes or variable tax structure)
Blank values represent unconventional tax structures and were not used in the analysis

Tax Rate Data Year→	1964				1965				1966				1967			
State↓	S-Ex	Sales	P. Inc.	C. Inc.	S-Ex	Sales	P. Inc.	C. Inc.	S-Ex	Sales	P. Inc.	C. Inc.	S-Ex	Sales	P. Inc.	C. Inc.
Alabama	-	4	5	5	-	4	5	5	-	4	5	5	-	4	5	5
Alaska	-	0	14.56	9.36	-	0	14.56	9.36	-	0	14.56	9.36	-	0	14.56	9.36
Arizona	D	3	4.5	5	D	3	5.9	6.6	D	3	5.9	6.6	D	3	5.9	6.6
Arkansas	-	3	5	5	-	3	5	5	-	3	5	5	-	3	5	5
California	F,D	3	7	5.5	F,D	3	7	5.5	F,D	3	7	5.5	F,D	4	10	7
Colorado	-	2	8	5	D	3	8	5	D	3	8	5	D	3	8	5
Connecticut	F,D	3.5	0	5	F,D	3.5	0	5	F,D	3.5	0	5.25	F,D	3.5	0	5.25
Delaware	-	0	11	5	-	0	11	5	-	0	11	5	-	0	11	5
Flordia	F,D	3	0	0	F,D	3	0	0	F,D	3	0	0	F,D	3	0	0
Georgia	-	3	6	5	-	3	6	5	-	3	6	5	-	3	6	5
Hawaii	-	3.5	9	5.5	-	4	9	5.5	-	4	11	6.435	-	4	11	6.435
Idaho	-	0	10.5	10.5	-	3	9	6	-	3	9	6	D	3	9	6
Illinois	D	3.5	0	0	D	3.5	0	0	D	3.5	0	0	-	4.25	0	0
Indiana	-	2	2	2	D	2	2	2	D	2	2	2	D	2	2	2
Iowa	-	2	3.75	3	-	2	4.5	4	-	2	4.5	4	-	3	5.25	8
Kansas	-	2.5	5.5	3.5	-	3	6.5	4.5	-	3	6.5	4.5	-	3	6.5	4.5
Kentucky	D	3	6	7	D	3	6	7	D	3	6	7	D	3	6	7
Louisiana	F,D	2	6	4	F,D	2	6	4	F,D	2	6	4	F,D	2	6	4
Maine	F,D	4	0	0	F,D	4	0	0	F,D	4	0	0	F,D	4.5	0	0
Maryland	F,D	3	3	5	F,D	3	3	5	F,D	3	3	5	F,D	3	5	5.25
Massachusetts	-	0	3.075	6.765	-	0	3.075	6.765	F,D	3	3.075	6.765	F,D	3	3.075	6.765
Michigan	-	4	0	0	-	4	0	0	-	4	0	0	-	4	0.65	0
Minnesota	-	0	10.5	10.23	-	0	12	10.23	-	0	12	10.23	F,D	3	12	11.33
Mississippi	-	3.5	4	4	-	3.5	3.5	3.5	-	3.5	3	3	-	3.5	3	3
Missouri	-	3	4	2	-	3	4	2	-	3	4	2	-	3	4	2
Montana	-	0	7	4.5	-	0	7.9	5.25	-	0	7.9	5.25	-	0	10	5.5
Nebraska	-	0	0	0	-	0	0	0	-	0	0	0	D	2.5	0	0
Nevada	-	2	0	0	-	2	0	0	-	2	0	0	-	2	0	0
New Hamshire	-	0	0	0	-	0	0	0	-	0	0	0	-	0	0	0
New Jersey	-	0	0	1.75	-	0	0	1.75	F,D	3	0	3.25	F,D	3	0	3.25
New Mexico	-	3	6	3	-	3	6	3	-	3	6	3	-	3	6	3
New York	-	0	10	5.5	F,D	2	10	5.5	F,D	2	10	5.5	F,D	2	10	5.5
North Carolina	D	3	7	6	D	3	7	6	D	3	7	6	D	3	7	6
North Dakota	D	2.25	11	6	D	2.25	11	6	D	2.25	11	6	D	3	11	6
Ohio	F,D	3	0	0	F,D	3	0	0	F,D	3	0	0	F,D	4	0	0
Oklahoma	-	2	6	4	-	2	6	4	-	2	6	4	-	2	6	4
Oregon	-	0	9.5	6	-	0	9.5	6	-	0	9.5	6	-	0	9.5	6
Pennsylvania	F,D	5	0	6	F,D	5	0	6	F,D	5	0	6	F,D	5	0	7
Rhode Island	F,D	3.5	0	6	F,D	4	0	6	F,D	4	0	6	F,D	5	0	6
South Carolina	-	3	7	5	-	3	7	5	-	3	7	5	-	3	7	5
South Dakota	-	2	0	0	-	3	0	0	-	3	0	0	-	3	0	0
Tennessee	-	3	0	4	-	3	0	4	-	3	0	4	-	3	0	5
Texas	F,D	2	0	0	F,D	2	0	0	F,D	2	0	0	F,D	2	0	0
Utah	-	3	5	4	-	3	6.5	6	-	3	6.5	6	-	3	6.5	6
Vermont	-	0	7.5	5	-	0	7.5	5	-	0	7.5	5	-	0	17.5	5
Virginia	-	0	5	5	-	0	5	5	D	2	5	5	D	2	5	5
Washington	-	4	0	0	-	4.2	0	0	-	4.2	0	0	-	4.5	0	0
West Virginia	-	3	5.5	0	-	3	5.5	0	-	3	5.5	0	-	3	5.5	3
Wisconsin	F,D	3	10	7	F,D	3	10	7	F,D	3	10	7	F,D	3	10	7
Wyomina	-	2	0	0	-	2.5	0	0	-	2.5	0	0	-	3	0	0
Average		2.1850	4.4977	3.8421		2.3690	4.5987	3.8691		2.5290	4.6287	3.9128		2.7750	4.9987	4.1548
Avg less 0s		2.9527	6.8147	5.1920		3.0372	6.9677	5.2285		3.0107	7.0132	5.2876		3.1534	7.3510	5.4668

Appendix 1

Underlined values were calculated (weighted average for mid-year changes or variable tax structure)
Blank values represent unconventional tax structures and were not used in the analysis

Tax Rate Data Year→	1968				1969				1970				1971			
State↓	S-Ex	Sales	P. Inc.	C. Inc.	S-Ex	Sales	P. Inc.	C. Inc.	S-Ex	Sales	P. Inc.	C. Inc.	S-Ex	Sales	P. Inc.	C. Inc.
Alabama	-	4	5	5	-	4	5	5	-	4	5	5	-	4	5	5
Alaska	-	0	14.56	9.36	-	0	14.56	9.36	-	0	14.56	9.36	-	0	14.56	9.36
Arizona	D	3	8	8	D	3	8	8	D	3	8	8	D	3	8	8
Arkansas	-	3	5	5	-	3	5	6	-	3	5	6	-	3	7	6
California	F,D	4	10	7	F,D	4	10	7	F,D	4	10	7	F,D	4	10	7
Colorado	D	3	8	5	D	3	8	5	D	3	8	5	D	3	8	5
Connecticut	F,D	3.5	0	5.25	F,D	4.25	0	8	F,D	5	0	8	F,D	5.375	0	8
Delaware	-	0	11	5	-	0	11	6	-	0	11	6	-	0	11	6.5
Flordia	F,D	4	0	0	F,D	4	0	0	F,D	4	0	0	F,D	4	0	0
Georgia	-	3	6	5	-	3	6	6	-	3	6	6	-	3	6	6
Hawaii	-	4	11	6.435	-	4	11	6.435	-	4	11	6.435	-	4	11	6.435
Idaho	D	3	9	6	D	3	9	6	D	3	9	6	D	3	9	6
Illinois	-	4.25	0	0	-	4	2.5	4	-	4	2.5	4	-	4	2.5	4
Indiana	D	2	2	2	D	2	2	2	D	2	2	2	D	2	2	2
Iowa	-	3	5.25	8	-	3	5.25	8	-	3	5.25	8	-	3	7	10
Kansas	-	3	6.5	4.5	-	3	6.5	4.5	-	3	6.5	6.75	-	3	6.5	6.75
Kentucky	D	5	6	7	D	5	6	7	D	5	6	7	D	5	6	7
Louisiana	F,D	2	6	4	F,D	2	6	4	F,D	3	6	4	F,D	3	6	4
Maine	F,D	4.5	0	0	F,D	5	3	4	F,D	5	6	4	F,D	5	6	4
Maryland	F,D	3	5	7	F,D	4	5	7	F,D	4	5	7	F,D	4	5	7
Massachusetts	F,D	3	4	7.5	F,D	3	4	8.55	F,D	3	4	8.55	F,D	3	5	8.55
Michigan	-	4	2.6	5.6	-	4	2.6	5.6	-	4	2.6	5.6	-	4	3.14167	7.8
Minnesota	F,D	3	12	11.33	F,D	3	12	11.33	F,D	3	12	11.33	F,D	3.167	13.5	11.665
Mississippi	-	5	4	4	-	5	4	4	-	5	4	4	-	5	4	4
Missouri	-	3	4	2	-	3	6	5	-	3	6	5	-	3	6	5
Montana	-	0	10	5.5	-	0	12.1	6.25	-	0	12.1	6.25	-	0	15.4	6.75
Nebraska	D	2.5	7	2	D	2	7	2.6	D	2.5	9.1	2.6	D	2.5	7	2
Nevada	-	2	0	0	-	2	0	0	D	2	0	0	D	2	0	0
New Hamshire	-	0	0	0	-	0	0	0	-	0	0	6	-	0	0	7
New Jersey	F,D	3	0	4.25	F,D	3	0	4.25	F,D	5	0	4.25	F,D	5	0	4.25
New Mexico	-	3	6	3	-	4	9	5	-	4	9	5	-	4	9	5
New York	F,D	2	14	7	F,D	3	14	7	F,D	3	14	7	F,D	4	14	9
North Carolina	D	3	7	6	D	3	7	6	D	3	7	6	D	3	7	6
North Dakota	D	3	11	6	D	4	11	6	F,D	4	11	6	F,D	4	11	6
Ohio	F,D	4	0	0	F,D	4	0	0	F,D	4	0	0	F,D	4	0	0
Oklahoma	-	2	6	4	-	2	6	4	-	2	6	4	-	2	6	4
Oregon	-	0	9.5	6	-	0	10	6	-	0	10	6	-	0	10	6
Pennsylvania	F,D	6	0	7	F,D	6	0	7.5	F,D	6	0	7.5	F,D	6	1.34167	12
Rhode Island	F,D	5	0	7	F,D	5	0	7	F,D	5	0	7	F,D	5	10.5	7
South Carolina	-	3	7	5	-	4	7	6	-	4	7	6	-	4	7	6
South Dakota	-	3	0	0	-	4	0	0	-	4	0	0	-	4	0	0
Tennessee	-	3	0	5	-	3	0	5	-	3	0	5	-	3.25	0	5.54167
Texas	F,D	3	0	0	F,D	3	0	0	F,D	3	0	0	F,D	3.5	0	0
Utah	-	3	6.5	6	-	4	6.5	6	-	4	6.5	6	-	4	6.5	6
Vermont	-	0	17.5	5	F,D	1.75	20.125	6	F,D	3	20.125	6	F,D	3	17.5	6
Virginia	D	2.5	5	5	D	3	5	5	D	3	5	5	D	3	5	5
Washington	-	4.5	0	0	-	4.5	0	0	-	4.5	0	0	-	4.5	0	0
West Virginia	-	3	5.5	6	D	3	5.5	6	D	3	9.6	6	D	3	9.6	6
Wisconsin	F,D	3	10	7	F,D	3	10	7	F,D	3	10	7	F,D	3	10.4	7.4
Wyomina	-	3	0	0	-	3	0	0	-	3	0	0	-	3	0	0
Average		2.9150	5.3382	4.5345		3.1100	5.6527	5.0075		3.2200	5.8367	5.1725		3.2658	6.1889	5.4400
Avg less 0s		3.3125	7.6260	5.6681		3.4556	7.6388	5.9613		3.5778	7.8874	6.0145		3.6287	7.9344	6.3256

Appendix 1

Underlined values were calculated (weighted average for mid-year changes or variable tax structure)
Blank values represent unconventional tax structures and were not used in the analysis

Tax Rate Data Year→ / State↓	1972 S-Ex	Sales	P. Inc.	C. Inc.	1973 S-Ex	Sales	P. Inc.	C. Inc.	1974 S-Ex	Sales	P. Inc.	C. Inc.	1975 S-Ex	Sales	P. Inc.	C. Inc.
Alabama	-	4	5	5	-	4	5	5	-	4	5	5	-	4	5	5
Alaska	-	0	14.56	9.36	-	0	14.56	9.36	-	0	14.56	9.36	-	0	14.5	9.4
Arizona	D	3	8	8	D	3	8	8	D	3	8	10.5	D	4	8	10.5
Arkansas	-	3	7	6	-	3	7	6	-	3	7	6	-	3	7	6
California	F,D	3.875	10	7.6	F,D	3.75	11	8.3	F,D	4.5	11	9	F,D	4.25	11	9
Colorado	D	3	8	5	D	3	8	5	D	3	8	5	D	3	8	5
Connecticut	F,D	6.5	0	8	F,D	6.5	0	8	F,D	6	0	8	F,D	7	0	10
Delaware	-	0	11	7.2	-	0	12.1	7.2	-	0	19.8	7.2	-	0	19.8	7.2
Flordia	F,D	4	0	5	F,D	4	0	5	F,D	4	0	5	F,D	4	0	5
Georgia	-	3	6	6	-	3	6	6	-	3	6	6	-	3	6	6
Hawaii	-	4	11	6.435	-	4	11	6.435	-	4	11	6.435	-	4	11	6.435
Idaho	D	3	9	6.5	D	3	9	6.5	D	3	7.5	6.5	D	3	7.5	6.5
Illinois	-	4	2.5	4	-	4	2.5	4	-	4	2.5	4	-	4	2.5	4
Indiana	D	2	2	2	F,D	4	2	3	F,D	4	2	5	F,D	4	2	5.5
Iowa	-	3	7	10	-	3	7	10	F,D	3	7	10	F,D	3	7	10
Kansas	-	3	6.5	6.75	-	3	6.5	6.75	-	3	6.5	6.75	-	3	6.5	6.75
Kentucky	F,D	5	6	5.8	F,D	5	6	5.8	F,D	5	6	5.8	F,D	5	6	5.8
Louisiana	F,D	3	6	4	F,D	3	6	4	F,D	3	6	4	F,D	3	6	4
Maine	F,D	5	6	4	F,D	5	6	5	F,D	5	6	7	F,D	5	6	7
Maryland	F,D	4	5	7	F,D	4	5	7	F,D	4	5	7	F,D	4	5	7
Massachusetts	F,D	3	5	8.55	F,D	3	5	8.55	F,D	3	5	8.55	F,D	5	5.375	9.405
Michigan	-	4	3.9	7.8	-	4	3.9	7.8	-	4	3.9	7.8	F,D	4	4.367	
Minnesota	F,D	4	15	12	F,D	4	15	12	F,D	4	15	12	F,D	4	15	12
Mississippi	-	5	4	4	-	5	4	4	-	5	4	4	-	5	4	4
Missouri	-	3	6	5	-	3	6	5	-	3	6	5	-	3	6	5
Montana	-	0	12.1	6.75	-	0	12.1	6.75	-	0	12.1	6.75	-	0	12.1	6.75
Nebraska	D	2.5	10.5	3	D	2.5	9.1	3.75	D	2.5	7.7	2.75	D	2.5	8.4	3.3
Nevada	D	2	0	0	D	2	0	0	D	2	0	0	D	2	0	0
New Hamshire	-	0	0	7	-	0	0	7	-	0	0	7	-	0	0	7
New Jersey	F,D	5	0	5.5	F,D	5	0	5.5	F,D	5	0	5.25	F,D	5	0	7.5
New Mexico	-	4	9	5	-	4	9	5	-	4	9	5	-	4	9	5
New York	F,D	4	15	9	F,D	4	15	9	F,D	4	15	9	F,D	4	15	10
North Carolina	D	3	7	6	D	3	7	6	D	3	7	6	D	3	7	6
North Dakota	F,D	4	11	6	F,D	4	11	6	F,D	4	10	6	F,D	4	10	6
Ohio	F,D	4	3.5	8	F,D	4	3.5	8	F,D	4	3.5	8	F,D	4	3.5	8
Oklahoma	-	2	6	4	-	2	6	4	-	2	6	4	-	2	6	4
Oregon	-	0	10	6	-	0	10	6	-	0	10	6	-	0	10	6
Pennsylvania	F,D	6	2.3	11.5	F,D	6	2.3	11	F,D	6	2	9.5	F,D	6	2	9.5
Rhode Island	F,D	5	10.5	8	F,D	5	10.5	8	F,D	5	10.5	8	F,D	5	11.9	8
South Carolina	-	4	7	6	-	4	7	6	-	4	7	6	-	4	4	6
South Dakota	-	4	0	0	-	4	0	0	D	4	0	0	D	4	4	0
Tennessee	-	3.5	0	6	-	3.5	0	6	-	3.5	0	6	-	3.5	3.5	6
Texas	F,D	4	0	0	F,D	4	0	0	F,D	4	0	0	F,D	4	4	0
Utah	-	4	6.5	6	-	4	6.5	6	-	4	7.25	6	-	4	4	6
Vermont	F,D	3	17.5	6	F,D	3	17.5	6	F,D	3	17.5	7.5	F,D	3	17.5	7.5
Virginia	D	3	5.75	6	D	3	5.75	6	D	3	5.75	6	D	3	3	6
Washington	-	4.5	0	0	-	4.5	0	0	D	4.5	0	0	D	4.5	4.5	0
West Virginia	D	3	9.6	6	D	3	9.6	6	D	3	9.6	6	D	3	3	6
Wisconsin	F,D	4	11.4	7.9	F,D	4	11.4	7.9	F,D	4	11.4	7.9	F,D	4	4	7.9
Wyomina	-	3	0	0	-	3	0	0	-	3	0	0	D	3	3	0
Average		3.3375	6.3822	5.8129		3.3750	6.3962	5.8719		3.3800	6.4812	5.9909		3.4550	6.4588	6.1008
Avg less 0s		3.7083	7.9778	6.4588		3.7500	7.9953	6.5243		3.7556	8.1015	6.6566		3.8389	7.1765	6.7941

Appendix 1

Underlined values were calculated (weighted average for mid-year changes or variable tax structure)
Blank values represent unconventional tax structures and were not used in the analysis

Tax Rate Data Year→	1976				1977				1978				1979			
State↓	S-Ex	Sales	P. Inc.	C. Inc.	S-Ex	Sales	P. Inc.	C. Inc.	S-Ex	Sales	P. Inc.	C. Inc.	S-Ex	Sales	P. Inc.	C. Inc.
Alabama	-	4	5	5	-	4	5	5	-	4	5	5	-	4	5	5
Alaska	-	0	14.5	9.4	-	0	14.5	9.4	-	0	14.5	9.4	-	0	14.5	9.4
Arizona	D	4	8	10.5	D	4	8	10.5	D	4	8	10.5	D	4	8	10.5
Arkansas	-	3	7	6	-	3	7	6	-	3	7	6	D	3	7	6
California	F,D	4.75	11	9	F,D	4.75	11	9	F,D	4.75	11	9	F,D	4.75	11	9.6
Colorado	D	3	8	5	D	3	8	5	D	3	8	5	F,D	3	8	5
Connecticut	F,D	7	0	10	F,D	7	0	10	F,D	7	0	10	F,D	7	0	10
Delaware	-	0	19.8	7.2	-	0	19.8	8.7	-	0	19.8	8.7	-	0	13.5	8.7
Flordia	F,D	4	0	5	F,D	4	0	5	F,D	4	0	5	F,D	4	0	5
Georgia	-	3	6	6	-	3	6	6	-	3	6	6	-	3	6	6
Hawaii	-	4	11	6.435	-	4	11	6.435	-	4	11	6.435	-	4	11	6.435
Idaho	D	3	7.5	6.5	D	3	7.5	6.5	D	3	7.5	6.5	D	3	7.5	6.5
Illinois	-	4	2.5	4	-	4	2.5	4	-	4	2.5	4	3% F,D	4	2.5	6.85
Indiana	F,D	4	2	5.5	F,D	4	2	6	F,D	4	2	6	F,D	4	2	6
Iowa	F,D	3	13	10	F,D	3	13	10	F,D	3	13	10	F,D	3	13	10
Kansas	-	3	6.5	6.75	D	3	9	6.75	D	3	9	6.75	D	3	9	6.75
Kentucky	F,D	5	6	5.8	F,D	5	6	5.8	F,D	5	6	5.8	F,D	5	6	5.8
Louisiana	F,D	3	6	4	F,D	3	6	8	F,D	3	6	8	F,D	3	6	8
Maine	F,D	5	6	7	F,D	5	10	7	F,D	5	10	6.93	F,D	5	10	6.93
Maryland	F,D	4	5	7	F,D	5	5	7	F,D	5	5	7	F,D	5	5	7
Massachusetts	F,D	5	5.375	9.4962	F,D	5	5.375	9.4962	F,D	5	5.375	9.4962	F,D	5	5.375	9.4962
Michigan	F,D	4	4.6		F,D	4	4.6		F,D	4	4.6		F,D	4	4.6	
Minnesota	F,D	4	15	12	F,D	4	15	12	F,D	4	17	12	F,D	4	16	12
Mississippi	-	5	4	4	-	5	4	4	-	5	4	4	D	5	4	4
Missouri	-	3	6	5	-	3.125	6	5	D	3.125	6	5	D	3.125	6	5
Montana	-	0	12.1	6.75	-	0	12.1	6.75	-	0	12.1	6.75	-	0	12.1	6.75
Nebraska	D	2.667	11.9	4.125	D	3.25	12.6	4.95	D	3	11.2	4.4	D	3	12.6	4.95
Nevada	D	2	0	0	D	2	0	0	D	2	0	0	F,D	2	0	0
New Hamshire	-	0	0	7	-	0	0	8	-	0	0	8	-	0	0	8
New Jersey	F,D	5	0	7.5	F,D	5	2.5	7.5	F,D	5	2.5	7.5	F,D	5	2.5	7.5
New Mexico	-	4	9	5	-	4	9	5	-	3.875	9	5	-	3.75	9	5
New York	F,D	4	15	10	F,D	4	15	10	F,D	4	14	10	F,D	4	14	10
North Carolina	D	3	7	6	D	3	7	6	D	3	7	6	D	3	7	6
North Dakota	F,D	4	10	6	F,D	3	10	6	F,D	3	7.5	8.5	F,D	3	7.5	8.5
Ohio	F,D	4	3.5	8	F,D	4	3.5	8	F,D	4	3.5	8	F,D	4	3.5	8
Oklahoma	-	2	6	4	-	2	6	4	-	2	6	4	-	2	6	4
Oregon	-	0	10	6.5	-	0	10	7	-	0	10	7.5	-	0	10	7.5
Pennsylvania	F,D	6	2	9.5	F,D	6	2	10.5	F,D	6	2.2	10.5	F,D	6	2.2	10.5
Rhode Island	F,D	5	11.9	8	F,D	6	11.9	8	F,D	6	13.3	8	F,D	6	13.3	8
South Carolina	-	4	7	6	D	4	7	6	D	4	7	6	D	4	7	6
South Dakota	D	4	0	0	D	4	0	0	D	4	0	0	D	4	0	0
Tennessee	-	3.5	0	6	D	4.5	0	6	D	4.5	0	6	D	4.5	0	6
Texas	F,D	4	0	0	F,D	4	0	0	F,D	4	0	0	F,D	4	0	0
Utah	-	4	7.75	6	D	4	7.75	4	D	4	7.75	4	D	4	7.75	4
Vermont	F,D	3	17.5	7.5	F,D	3	17.5	7.5	F,D	3	17.5	7.5	F,D	3	16.1	7.5
Virginia	D	3	5.75	6	D	3	5.75	6	D	3	5.75	6	D	3	5.75	6
Washington	D	4.5	0	0	D	4.6	0	0	2.3% F,D	4.6	0	0	F,D	4.55	0	0
West Virginia	D	3	9.6	6	D	3	9.6	6	D	3	9.6	6	2.5% F,D	3	9.6	6
Wisconsin	F,D	4	11.4	7.9	F,D	4	11.4	7.9	F,D	4	11.4	7.9	F,D	4	10	7.9
Wyomina	D	3	0	0	D	3	0	0	D	3	0	0	D	3	0	0
Average		3.4683	6.7435	6.1297		3.5245	6.9375	6.2792		3.5170	6.9115	6.3278		3.5135	6.7375	6.4094
Avg less 0s		3.8537	8.4294	6.8263		3.9161	8.4604	6.9928		3.9078	8.4287	7.0468		3.9039	8.2165	7.1378

Appendix 1

Underlined values were calculated (weighted average for mid-year changes or variable tax structure)
Blank values represent unconventional tax structures and were not used in the analysis

Tax Rate Data Year→	1980				1981				1982				1983			
State↓	S-Ex	Sales	P. Inc.	C. Inc.	S-Ex	Sales	P. Inc.	C. Inc.	S-Ex	Sales	P. Inc.	C. Inc.	S-Ex	Sales	P. Inc.	C. Inc.
Alabama	-	4	5	5	D	4	5	5	D	4	5	5	D	4	5	5
Alaska	-	0	0	9.4	-	0	0	9.4	-	0	0	9.4	-	0	0	9.4
Arizona	F,D	4	8	10.5	F,D	4	8	10.5	F,D	4	8	10.5	F,D	4	8	10.5
Arkansas	D	3	7	6	D	3	7	6	D	3	7	6	D	3	7	6
California	F,D	4.75	11	9.6	F,D	4.75	11	9.6	F,D	4.75	11	9.6	F,D	4.75	11	9.6
Colorado	F,D	3	8	5	F,D	3	8	5	F,D	3	8	5	F,D	3.333	8	5
Connecticut	F,D	7.25	0	10	F,D	7.5	0	10	F,D	7.5	0	10	F,D	7.5	0	11.5
Delaware	-	0	13.5	8.7	-	0	13.5	8.7	-	0	13.5	8.7	-	0	13.5	8.7
Flordia	F,D	4	0	5	F,D	4	0	5	F,D	4	0	5	F,D	5	0	5
Georgia	-	3	6	6	-	3	6	6	-	3	6	6	-	3	6	6
Hawaii	-	4	11	6.435	-	4	11	6.435	-	4	11	6.435	-	4	11	6.435
Idaho	D	3	7.5	6.5	D	3	7.5	6.5	D	3	7.5	6.5	D	4.5	7.5	7.7
Illinois	3% F,D	4	2.5	6.85	3% F,D	4	2.5	6.85	2% F,D	4	2.5	6.5	F,D	4	3	7.3
Indiana	F,D	4	1.9	6	F,D	4	1.9	6	F,D	4	1.9	6	F,D	5	3	7
Iowa	F,D	3	13	10	F,D	3	13	10	F,D	3	13	10	F,D	4	13	12
Kansas	D	3	9	6.75	D	3	9	6.75	D	3	9	6.75	D	3	9	6.75
Kentucky	F,D	5	6	6	F,D	5	6	6	F,D	5	6	6	F,D	5	6	6
Louisiana	F,D	3	6	8	F,D	3	6	8	F,D	3	6	8	F,D	3	6	8
Maine	F,D	5	10	6.93	F,D	5	10	6.93	F,D	5	10	6.93	F,D	5	10	8.93
Maryland	F,D	5	5	7	F,D	5	5	7	F,D	5	5	7	F,D	5	5	7
Massachusetts	F,D	5	5.375	9.4962	F,D	5	5.375	9.4962	F,D	5	5.375	9.4962	F,D	5	5.375	9.4962
Michigan	F,D	4	4.6		F,D	4	4.6		F,D	4	4.6		F,D	4	6.35	
Minnesota	F,D	4	16	12	F,D	4.5	16	12	F,D	5	16	12	F,D	6	16	12
Mississippi	D	5	4	4	D	5	4	4	D	5	4	4	D	5	5	5
Missouri	D	3.125	6	7	D	3.125	6	7	D	3.125	6	5	D	4.125	6	5
Montana	-	0	12.1	6.75	-	0	11	6.75	-	0	11	6.75	-	0	11	6.75
Nebraska	D	3	11.9	4.675	D	3	10.5	4.675	D	3	7.5	4.125	F,D	3.75	9	6.3
Nevada	F,D	2	0	0	F,D	2	0	0	F,D	2	0	0	F,D	2	0	0
New Hamshire	-	0	0	8	-	0	0	8.54	-	0	0	9.08	-	0	0	9.56
New Jersey	F,D	5	2.5	9	F,D	5	2.5	9	F,D	5	2.5	9	F,D	6	3.5	9
New Mexico	-	3.75	9	5	-	3.625	6	6	-	3.5	6	6	-	3.75	7.8	7.2
New York	F,D	4	14	10	F,D	4	14	10	F,D	4	14	10	F,D	4	14	10
North Carolina	D	3	7	6	D	3	7	6	D	3	7	6	D	3	7	6
North Dakota	F,D	3	7.5	8.5	F,D	3	7.5	7	F,D	3	7.5	7	F,D	4	9	10.5
Ohio	F,D	4	3.5	9.2	F,D	4.125	3.5	8.7	F,D	5	3.5	8.7	F,D	5	9.165	9.2
Oklahoma	-	2	6	4	D	2	6	4	D	2	6	4	D	2	6	4
Oregon	-	0	10	7.5	-	0	10	7.5	-	0	10	7.5	-	0	10.8	7.5
Pennsylvania	F,D	6	2.2	10.5	F,D	6	2.2	10.5	F,D	6	2.2	10.5	F,D	6	2.45	10.5
Rhode Island	F,D	6	13.3	8	F,D	6	13.3	8	F,D	6	9.5	8	F,D	6	13.375	8
South Carolina	D	4	7	6	D	4	7	6	D	4	7	6	D	4	7	6
South Dakota	D	4.667	0	0	D	4.5	0	0	D	4	0	0	D	4	0	0
Tennessee	D	4.5	0	6	D	4.5	0	6	D	4.5	0	6	D	4.5	0	6
Texas	F,D	4	0	0	F,D	4	0	0	F,D	4	0	0	F,D	4	0	0
Utah	D	4	7.75	4	D	4	7.75	4	D	4	7.75	4	D	4.625	7.75	4
Vermont	F,D	3	16.1	7.5	F,D	3	16.1	7.5	F,D	3	11.5	7.5	F,D	4	13	7.5
Virginia	D	3	5.75	6	D	3	5.75	6	D	3	5.75	6	D	3	5.75	6
Washington	F,D	4.5	0	0	F,D	4.583	0	0	F,D	5.5	0	0	F,D	6.5	0	0
West Virginia	1.5% F,D	3	9.6	6	.5% F,D	4.167	9.6	6	F,D	5	9.6	6	F,D	5	13	8.05
Wisconsin	F,D	4	10	7.9	F,D	4	10	7.9	F,D	4	10	7.9	F,D	5	10	7.9
Wyomina	D	3	0	0	D	3	0	0	D	3	0	0	D	3	0	0
Average		3.5308	6.4315	6.5038		3.5675	6.3215	6.4944		3.6175	6.0935	6.4462		3.8867	6.6063	6.8423
Avg less 0s		3.9232	8.0394	7.2429		3.9639	7.9019	7.2324		4.0194	7.6169	7.1788		4.3185	8.2579	7.6198

Appendix 1

Underlined values were calculated (weighted average for mid-year changes or variable tax structure)
Blank values represent unconventional tax structures and were not used in the analysis

Tax Rate Data Year→ / State↓	1984 S-Ex	1984 Sales	1984 P. Inc.	1984 C. Inc.	1985 S-Ex	1985 Sales	1985 P. Inc.	1985 C. Inc.	1986 S-Ex	1986 Sales	1986 P. Inc.	1986 C. Inc.	1987 S-Ex	1987 Sales	1987 P. Inc.	1987 C. Inc.
Alabama	D	4	5	5	D	4	5	5	D	4	5	5	D	4	5	5
Alaska	-	0	0	9.4	-	0	0	9.4	-	0	0	9.4	-	0	0	9.4
Arizona	F,D	5	8	10.5	F,D	5	8	10.5	F,D	5	8	10.5	F,D	5	8	10.5
Arkansas	D	4	7	6	D	4	7	6	D	4	7	6	D	4	7	6
California	F,D	4.75	11	9.6	F,D	4.75	11	9.6	F,D	4.75	11	9.6	F,D	4.75	9.3	9.3
Colorado	F,D	3.25	8	5	F,D	3	8	5	F,D	3	8	5	F,D	3	5	6
Connecticut	F,D	7.5	0	11.5	F,D	7.5	0	11.5	F,D	7.5	0	11.5	F,D	7.5	0	11.5
Delaware	-	0	13.5	8.7	-	0	10.7	8.7	-	0	9.7	8.7	-	0	7.7	8.7
Flordia	F,D	5	0	5	F,D	5	0	5.5	F,D	5	0	5.5	F,D	5	0	5.5
Georgia	-	3	6	6	1.5%D	3	6	6	D	3	6	6	D	3	6	6
Hawaii	-	4	11	6.435	-	4	11	6.435	-	4	11	6.435	D	4	10	6.4
Idaho	D	4.5	7.5	7.7	D	4	7.5	7.7	D	4	7.5	7.7	D	5	8.2	8
Illinois	F,D	5	2.75	6.9	F,D	5	2.5	6.5	F,D	5	2.5	6.5	F,D	5	2.5	6.5
Indiana	F,D	5	3	7	F,D	5	3	7	F,D	5	3	7	F,D	5	3.2	7.7
Iowa	F,D	4	13	12	F,D	4	13	12	F,D	4	13	12	F,D	4	13	12
Kansas	D	3	9	6.75	D	3	9	6.75	D	3	9	6.75	D	4	9	6.75
Kentucky	F,D	5	6	6	F,D	5	6	7.25	F,D	5	6	7.25	F,D	5	6	7.25
Louisiana	F,D	3	6	8	F,D	4	6	8	F,D	4	6	8	F,D	4	6	8
Maine	F,D	5	10	8.93	F,D	5	10	8.93	F,D	5	10	8.93	F,D	5	10	8.93
Maryland	F,D	5	5	7	F,D	5	5	7	F,D	5	5	7	F,D	5	5	7
Massachusetts	F,D	5	5.375	9.4962	F,D	5	5.375	9.4962	F,D	5	5.1875	9.4962	F,D	5	5	9.4962
Michigan	F,D	4	6.1		F,D	4	5.35		F,D	4	5.1		F,D	4	4.6	
Minnesota	F,D	6	16	12	F,D	6	9.9	12	F,D	6	9.9	12	F,D	6	9	9.5
Mississippi	D	6	5	5	D	6	5	5	D	6	5	5	D	6	5	5
Missouri	D	4.125	6	5	D	4.225	6	5	D	4.225	6	5	D	4.225	6	5
Montana	-	0	11	6.75	-	0	11	6.75	-	0	11	6.75	-	0	11	6.75
Nebraska	F,D	4	10	7	F,D	3.5	9.5	6.65	F,D	3.5	9.5	6.65	F,D	4	5.9	6.65
Nevada	F,D	2	0	0	F,D	2	0	0	F,D	2	0	0	F,D	2	0	0
New Hamshire	-	0	0	9.56	-	0	0	8.125	-	0	0	8.25	-	0	0	8.125
New Jersey	F,D	6	3.5	9	F,D	6	3.5	9	F,D	6	3.5	9	F,D	6	3.5	9
New Mexico	-	3.75	7.8	7.2	-	3.75	7.8	7.2	-	3.75	8.5	7.2	-	4.75	8.5	7.6
New York	F,D	4	14	10	F,D	4	13.75	10	F,D	4	13.5	10	F,D	4	8.75	9
North Carolina	D	3	7	6	D	3	7	6	D	3	7	6	D	3	7	7
North Dakota	F,D	4	9	10.5	F,D	4	9	10.5	F,D	4	9	10.5	F,D	5	5.25	10.5
Ohio	F,D	5	9.5	9.2	F,D	5	9.025	9.2	F,D	5	8.55	9.2	F,D	5	8.55	9.2
Oklahoma	D	2	6	4	D	3.25	6	5	D	3.25	6	5	D	4	6	5
Oregon	-	0	10.7	7.5	-	0	10	7.5	-	0	10	7.5	-	0	9	6.6
Pennsylvania	F,D	6	2.45	10.5	F,D	6	2.35	9.5	F,D	6	2.2	9.5	F,D	6	2.1	8.5
Rhode Island	F,D	6	13	8	F,D	6	11.575	8	F,D	6	11.105	8	F,D	6	9.0321	8
South Carolina	D	4	7	6	D	4	7	6	D	5	7	6	D	5	7	6
South Dakota	D	4	0	0	D	4	0	0	D	4	0	0	D	5	0	0
Tennessee	D	4.5	0	6	D	5.5	0	6	D	5.5	0	6	D	5.5	0	6
Texas	F,D	4	0	0	F,D	4.125	0	0	F,D	4.125	0	0	F,D	5.4375	0	0
Utah	D	4.625	7.75	4	D	4.625	7.75	5	D	4.625	7.75	5	D	5.09375	7.75	5
Vermont	F,D	4	13	7.5	F,D	4	13	9	F,D	4	13	9	F,D	4	9.933	9
Virginia	D	3	5.75	6	D	3	5.75	6	D	3	5.75	6	D	3.5	5.75	6
Washington	F,D	6.5	0	0	F,D	6.5	0	0	F,D	6.5	0	0	F,D	6.5	0	0
West Virginia	F,D	5	13	8.05	F,D	5	13	7.525	F,D	5	13	7	F,D	5	6.5	8.375
Wisconsin	F,D	5	10	7.9	F,D	5	7.9	7.9	F,D	5	7.9	7.9	F,D	5	6.93	7.9
Wyomina	D	3	0	0	D	3	0	0	D	3	0	0	D	3	0	0
Average		3.9700	6.6135	6.8484		4.0145	6.3045	6.8798		4.0345	6.2629	6.8717		4.2051	5.5789	6.8495
Avg less 0s		4.4111	8.2669	7.6266		4.4606	7.8806	7.6616		4.4828	7.8286	7.6525		4.6724	6.9736	7.6279

Appendix 1

Underlined values were calculated (weighted average for mid-year changes or variable tax structure)
Blank values represent unconventional tax structures and were not used in the analysis

Tax Rate Data Year→	1988				1989				1990				1991			
State↓	S-Ex	Sales	P. Inc.	C. Inc.	S-Ex	Sales	P. Inc.	C. Inc.	S-Ex	Sales	P. Inc.	C. Inc.	S-Ex	Sales	P. Inc.	C. Inc.
Alabama	D	4	5	5	D	4	5	5	D	4	5	5	D	4	5	5
Alaska	-	0	0	9.4	-	0	0	9.4	-	0	0	9.4	-	0	0	9.4
Arizona	F,D	5	8	10.5	F,D	5	8	10.5	F,D	5	8	10.5	F,D	5	7	9.3
Arkansas	D	4	7	6	D	4	7	6	D	4	7	6	D	4.5	7	6.5
California	F,D	4.75	9.3	9.3	F,D	4.75	9.3	9.3	F,D	5	9.3	9.3	F,D	6	11	9.3
Colorado	F,D	3	5	6	F,D	3	5	5.5	F,D	3	5	5.4	F,D	3	5	5.2
Connecticut	F,D	7.5	0	11.5	F,D	8	0	11.5	F,D	8	0	13.8	F,D	6	1.5	13.8
Delaware	-	0	7.7	8.7	-	0	7.7	8.7	-	0	7.7	8.7	-	0	7.7	8.7
Flordia	F,D	5	0	5.5	F,D	6	0	5.5	F,D	6	0	5.5	F,D	6	0	5.5
Georgia	D	3	6	6	D	4	6	6	D	4	6	6	D	4	6	6
Hawaii	D	4	10	6.4	D	4	10	6.4	D	4	10	6.4	D	4	10	6.4
Idaho	D	5	8.2	8	D	5	8.2	8	D	5	8.2	8	D	5	8.2	8
Illinois	F,D	5	2.5	6.5	F,D	5	2.75	6.9	1% F,1% D	5	3	7.3	1% F,1% D	5	3	7.3
Indiana	F,D	5	3.4	7.9	F,D	5	3.4	7.9	F,D	5	3.4	7.9	F,D	5	3.4	7.9
Iowa	F,D	4	9.98	12	F,D	4	9.98	12	F,D	4	9.98	12	F,D	4	9.98	12
Kansas	D	4	9	6.75	D	4.25	5.95	6.75	D	4.25	5.95	6.75	D	4.25	5.95	6.75
Kentucky	F,D	5	6	7.25	F,D	5	6	7.25	F,D	5	6	7.25	F,D	6	6	8.25
Louisiana	F,D	4	6	8	F,D	4	6	8	2%F,D	4	6	8	2.5%F,D	4	6	8
Maine	F,D	5	10	9.93	F,D	5	8.5	8.93	F,D	5	8.5	8.93	F,D	6	9.89	9.823
Maryland	F,D	5	5	7	F,D	5	5	7	F,D	5	5	7	F,D	5	5	7
Massachusetts	F,D	5	5	9.4962	F,D	5	5	9.5	F,D	5	5.375	9.5	F,D	5	6.25	9.5
Michigan	F,D	4	4.6		F,D	4	4.6		F,D	4	4.6		F,D	4	4.6	
Minnesota	F,D	6	8	9.5	F,D	6	8	9.5	F,D	6	8	9.5	F,D	6	8.5	9.8
Mississippi	D	6	5	5	D	6	5	5	D	6	5	5	D	6	5	5
Missouri	D	4.225	6	5	D	4.275	6	5	D	4.325	6	6.5	D	4.225	6	6.5
Montana	-	0	11	6.75	-	0	11	6.75	-	0	11	6.75	-	0	11	6.75
Nebraska	F,D	4	5.9	6.65	F,D	4	5.9	6.65	F,D	4	5.9	6.65	F,D	5	6.92	7.81
Nevada	F,D	2	0	0	F,D	2	0	0	F,D	2	0	0	F,D	2	0	0
New Hamshire	-	0	0	8	-	0	0	8	-	0	0	8	-	0	0	8
New Jersey	F,D	6	3.5	9	F,D	6	3.5	9.1875	F,D	6	3.5	9.375	F,D	7	7	9.375
New Mexico	-	4.75	8.5	7.6	-	4.75	8.5	7.6	-	4.75	8.5	7.6	-	5	8.5	7.6
New York	F,D	4	8.75	9	F,D	4	7.875	9	F,D	4	7.375	9	F,D	4	7.875	9
North Carolina	D	3	7	7	D	3	7	7	D	3	7	7	D	4	7.75	11.5
North Dakota	F,D	5.5	12	10.5	F,D	5.25	14.57	10.5	F,D	5	14.6	10.5	F,D	5	12	10.5
Ohio	F,D	5	6.9	8.9	F,D	5	6.9	8.9	F,D	5	6.9	8.9	F,D	5	6.9	8.9
Oklahoma	D	4	6	5	D	4	6	5	D	4	6	5	D	4.5	7	6
Oregon	-	0	9	6.6	-	0	9	6.6	-	0	9	6.6	-	0	9	6.6
Pennsylvania	F,D	6	2.1	8.5	F,D	6	2.1	8.5	F,D	6	2.1	8.5	F,D	6	2.6	12.25
Rhode Island	F,D	6	6.4288	8	F,D	6	6.4288	9	F,D	6	6.4288	9	F,D	7	8.525	9
South Carolina	D	5	7	6	D	5	7	5.5	D	5	7	5	D	5	7	5
South Dakota	D	5	0	0	D	4	0	0	D	4	0	0	D	4	0	0
Tennessee	D	5.5	0	5	D	5.5	0	6	D	5.5	0	6	D	5.5	0	6
Texas	F,D	6	0	0	F,D	6	0	0	F,D	6	0	0	F,D	6.25	0	0
Utah	D	5.09375	7.75	5	D	5.09375	7.2	5	D	5	7.2	5	D	5	7.2	5
Vermont	F,D	4	7	8.25	F,D	4	7	8.25	F,D	4	7	8.25	F,D	5	10.54	8.25
Virginia	D	3.5	5.75	6	D	3.5	5.75	6	D	3.5	5.75	6	D	3.5	5.75	6
Washington	F,D	6.5	0	0	F,D	6.5	0	0	F,D	6.5	0	0	F,D	6.5	0	0
West Virginia	F,D	5	6.5	9.75	D	6	6.5	9.75	D	6	6.5	9.45	D	6	6.5	9.15
Wisconsin	F,D	5	6.93	7.9	F,D	5	6.93	7.9	F,D	5	6.93	7.9	F,D	5	6.93	7.9
Wyomina	D	3	0	0	D	3	0	0	D	3	0	0	D	3	0	0
Average		4.2264	5.4938	6.8577		4.2774	5.4307	6.8697		4.2765	5.4338	6.9409		4.4245	5.7392	7.1736
Avg less 0s		4.6960	6.8672	7.6370		4.7526	6.7883	7.6504		4.7517	6.7922	7.7297		4.9161	6.9990	7.9888

Appendix 1

Underlined values were calculated (weighted average for mid-year changes or variable tax structure)
Blank values represent unconventional tax structures and were not used in the analysis

Tax Rate Data Year→	1992				1993				1994				1995			
State↓	S-Ex	Sales	P. Inc.	C. Inc.	S-Ex	Sales	P. Inc.	C. Inc.	S-Ex	Sales	P. Inc.	C. Inc.	S-Ex	Sales	P. Inc.	C. Inc.
Alabama	D	4	5	5	D	4	5	5	D	4	5	5	D	4	5	5
Alaska	-	0	0	9.4	-	0	0	9.4	-	0	0	9.4	-	0	0	9.4
Arizona	F,D	5	7	9.3	F,D	5	7	9.3	F,D	5	7	9.3	F,D	5	5.6	9
Arkansas	D	4.5	7	6.5	D	4.5	7	6.5	D	4.5	7	6.5	D	4.5	7	6.5
California	F,D	6	11	9.3	F,D	6	11	9.3	F,D	6	11	9.3	F,D	6	11	9.3
Colorado	F,D	3	5	5.3	F,D	3	5	5.2	F,D	3	5	5	F,D	3	5	5
Connecticut	F,D	6	4.5	12.65	F,D	6	4.5	11.5	F,D	6	4.5	11.5	F,D	6	4.5	11.25
Delaware	-	0	7.7	8.7	-	0	7.7	8.7	-	0	7.7	8.7	-	0	7.7	8.7
Flordia	F,D	6	0	5.5	F,D	6	0	5.5	F,D	6	0	5.5	F,D	6	0	5.5
Georgia	D	4	6	6	D	4	6	6	D	4	6	6	D	4	6	6
Hawaii	D	4	10	6.4	D	4	10	6.4	D	4	10	6.4	D	4	10	6.4
Idaho	D	5	8.2	8	D	5	8.2	8	D	5	8.2	8	D	5	8.2	8
Illinois	1% F,1% D	5	3	7.3	1% F,1% D	5	3	7.3	1% F,1% D	5	3	7.3	1% F,1% D	5	3	7.3
Indiana	F,D	5	3.4	7.9	F,D	5	3.4	7.9	F,D	5	3.4	7.9	F,D	5	3.4	7.9
Iowa	F,D	4	9.98	12	F,D	5	9.98	12	F,D	5	9.98	12	F,D	5	9.98	12
Kansas	D	4.25	5.95	6.75	D	4.9	7.75	7.35	D	4.9	7.75	7.35	D	4.9	7.75	7.35
Kentucky	F,D	6	6	8.25	F,D	6	6	8.25	F,D	6	6	8.25	F,D	6	6	8.25
Louisiana	3%F,D	4	6	8	3.5%F,D	4	6	8	D	4	6	8	D	4	6	8
Maine	F,D	6	8.6	9.823	F,D	6	8.5	8.93	F,D	6	8.5	8.93	F,D	6	8.5	8.93
Maryland	F,D	5	5	7	F,D	5	6	7	F,D	5	6	7	F,D	5	5	7
Massachusetts	F,D	5	5.95	9.5	F,D	5	5.95	9.5	F,D	5	5.95	9.5	F,D	5	5.95	9.5
Michigan	F,D	4	4.6		F,D	4	4.6		F,D	4	4.6		F,D	6	4.4	
Minnesota	F,D	6	8.5	9.8	F,D	6	8.5	9.8	F,D	6	8.5	9.8	F,D	6	8.5	9.8
Mississippi	D	6	5	5	D	7	5	5	D	7	5	5	D	7	5	5
Missouri	D	4.225	6	6.5	D	4.225	6	6.25	D	4.225	6	6.25	D	4.225	6	6.25
Montana	-	0	11	6.75	-	0	11	6.75	-	0	11	6.75	-	0	11	6.75
Nebraska	F,D	4	6.92	7.81	F,D	5	6.99	7.81	F,D	5	6.99	7.81	F,D	5	6.99	7.81
Nevada	F,D	2.75	0	0	F,D	2.75	0	0	F,D	2.75	0	0	F,D	2.75	0	0
New Hamshire	-	0	0	8	-	0	0	8	-	0	0	7.5	-	0	0	7
New Jersey	F,D	7	7	9.375	F,D	6	7	9.375	F,D	6	7	9	F,D	6	6.37	9
New Mexico	-	5	8.5	7.6	-	5	8.5	7.6	-	5	8.5	7.6	-	5	8.5	7.6
New York	F,D	4	7.875	9	F,D	4	7.875	9	F,D	4	7.59375	9	F,D	4	7.59375	9
North Carolina	D	4	7.75	10.9825	D	4	7.75	9.75	D	4	7.75	8.75	D	4	7.75	7.75
North Dakota	F,D	5	12	10.5	F,D	5	12	10.5	F,D	5	12	10.5	F,D	5	12	10.5
Ohio	F,D	5	6.9	8.9	F,D	5	7.5	8.9	F,D	5	7.5	8.9	F,D	5	7.5	8.9
Oklahoma	D	4.5	7	6	D	4.5	7	6	D	4.5	7	6	D	4.5	7	6
Oregon	-	0	9	6.6	-	0	9	6.6	-	0	9	6.6	-	0	9	6.6
Pennsylvania	F,D	6	2.95	12.3	F,D	6	2.8	12.25	F,D	6	2.8	12.25	F,D	6	2.8	10.75
Rhode Island	F,D	7	8.525	9.99	F,D	7	10.89	9	F,D	7	10.89	9	F,D	7	10.89	9
South Carolina	D	5	7	5	D	5	7	5	D	5	7	5	D	5	7	5
South Dakota	D	4	0	0	D	4	0	0	D	4	0	0	D	4	0	0
Tennessee	D	5.5	0	6	D	6	0	6	D	6	0	6	D	6	0	6
Texas	F,D	6.25	0		F,D	6.25	0		F,D	6.25	0		F,D	6.25	0	
Utah	D	5	7.2	5	D	5	7.2	5	D	5	7.2	5	D	4.875	7.2	5
Vermont	F,D	5	10.54	8.25	F,D	5	13.464	8.25	F,D	5	13.464	8.25	F,D	5	9.9	8.25
Virginia	D	3.5	5.75	6	D	3.5	5.75	6	D	3.5	5.75	6	D	3.5	5.75	6
Washington	F,D	6.5	0	0	F,D	6.5	0	0	F,D	6.5	0	0	F,D	6.5	0	0
West Virginia	D	6	6.5	9.3	D	6	6.5	9	D	6	6.5	9	D	6	6.5	9
Wisconsin	F,D	5	6.93	7.9	F,D	5	6.93	7.9	F,D	5	6.93	7.9	F,D	5	6.93	7.9
Wyomina	D	3	0	0	D	4	0	0	D	4	0	0	D	4	0	0
Average		4.4195	5.7744	7.3152		4.5025	5.9446	7.2243		4.5025	5.9390	7.1810		4.5400	5.8031	7.1071
Avg less 0s		4.9106	7.0420	7.9802		5.0028	7.2495	7.8810		5.0028	7.2426	7.8339		5.0444	7.0769	7.7532

Appendix 1

Underlined values were calculated (weighted average for mid-year changes or variable tax structure)
Blank values represent unconventional tax structures and were not used in the analysis

Tax Rate Data Year→	1996				1997				1998				1999			
State↓	S-Ex	Sales	P. Inc.	C. Inc.	S-Ex	Sales	P. Inc.	C. Inc.	S-Ex	Sales	P. Inc.	C. Inc.	S-Ex	Sales	P. Inc.	C. Inc.
Alabama	D	4	5	5	D	4	5	5	D	4	5	5	D	4	5	5
Alaska	-	0	0	9.4	-	0	0	9.4	-	0	0	9.4	-	0	0	9.4
Arizona	F,D	5	5.6	9	F,D	5	5.17	9	F,D	5	5.2	9	F,D	5	5.04	8
Arkansas	D	4.5	7	6.5	D	4.5625	7	6.5	D	4.625	7	6.5	D	4.625	7	6.5
California	F,D	6	11	9.3	F,D	6	9.3	9.3	F,D	6	9.3	8.84	F,D	6	9.3	8.84
Colorado	F,D	3	5	5	F,D	3	5	5	F,D	3	5	5	F,D	3	4.75	4.75
Connecticut	F,D	6	4.5	10.75	F,D	6	4.5	10.5	F,D	6	4.5	9.5	F,D	6	4.5	8.5
Delaware	-	0	7.1	8.7	-	0	6.9	8.7	-	0	6.9	8.7	-	0	6.4	8.7
Flordia	F,D	6	0	5.5	F,D	6	0	5.5	F,D	6	0	5.5	F,D	6	0	5.5
Georgia	3.5%F,D	4	6	6	1.75%F,D	4	6	6	.75%F,D	4	6	6	F,D	4	6	6
Hawaii	D	4	10	6.4	D	4	10	6.4	D	4	10	6.4	D	4	8.75	6.4
Idaho	D	5	8.2	8	D	5	8.2	8	D	5	8.2	8	D	5	8.2	8
Illinois	1% F,1% D	5	3	7.3	1% F,1% D	5	3	7.3	1% F,1% D	5	3	7.3	1% F,1% D	5	3	7.3
Indiana	F,D	5	3.4	7.9	F,D	5	3.4	7.9	F,D	5	3.4	7.9	F,D	5	3.4	7.9
Iowa	F,D	5	9.98	12	F,D	5	8.98	12	F,D	5	8.98	12	F,D	5	8.98	12
Kansas	D	4.9	7.75	7.35	D	4.9	7.75	7.35	D	4.9	7.75	7.35	D	4.9	6.45	7.35
Kentucky	F,D	6	6	8.25	F,D	6	6	8.25	F,D	6	6	8.25	F,D	6	6	8.25
Louisiana	D	4	6	8	3.5%F,D	4	6	8	3%F,D	4	6	8	3%F,D	4	6	8
Maine	F,D	6	8.5	8.93	F,D	6	8.5	8.93	F,D	6	8.5	8.93	F,D	5.5	8.5	8.93
Maryland	F,D	5	5	7	F,D	5	5	7	F,D	5	4.95	7	F,D	5	4.8	7
Massachusetts	F,D	5	5.95	9.5	F,D	5	5.95	9.5	F,D	5	5.95	9.5	F,D	5	5.95	9.5
Michigan	F,D	6	4.4		F,D	6	4.4		F,D	6	4.4		F,D	6	4.4	
Minnesota	F,D	6	8.5	9.8	F,D	6	8.5	9.8	F,D	6	8.5	9.8	F,D	6.5	8	9.8
Mississippi	D	7	5	5	D	7	5	5	D	7	5	5	D	7	5	5
Missouri	D	4.225	6	6.25	.30625%F,D	4.225	6	6.25	1.225%F,D	4.225	6	6.25	1.225%F,D	4.225	6	6.25
Montana	-	0	11	6.75	-	0	11	6.75	-	0	11	6.75	-	0	11	6.75
Nebraska	F,D	5	6.99	7.81	F,D	5	6.99	7.81	F,D	5	6.68	7.81	F,D	5	6.68	7.81
Nevada	F,D	2.75	0	0	F,D	6.5	0	0	F,D	6.5	0	0	F,D	6.5	0	0
New Hamshire	-	0	0	7	-	0	0	7	-	0	0	7	-	0	0	7
New Jersey	F,D	6	6.35	7.5	F,D	6	6.37	9	F,D	6	6.37	9	F,D	6	6.37	9
New Mexico	-	5	8.5	7.6	-	5	8.5	7.6	-	5	8.5	7.6	D	5	8.2	7.6
New York	F,D	4	7.125	9	F,D	4	7.125	9	F,D	4	7.125	9	F,D	4	6.85	9
North Carolina	D	4	7.75	7.75	3%F,D	4	7.75	7.5	2.5%F,D	4	7.75	7.25	.667%F,D	4	7.75	7
North Dakota	F,D	5	12	10.5	F,D	5	12	10.5	F,D	5	12	10.5	F,D	5	12	10.5
Ohio	F,D	5	7.5	8.9	F,D	5	7.004	8.9	F,D	5	7.201	8.9	F,D	5	7.228	8.5
Oklahoma	D	4.5	7	6	D	4.5	7	6	D	4.5	7	6	D	4.5	6.75	6
Oregon	-	0	9	6.6	-	0	9	6.6	-	0	9	6.6	-	0	9	6.6
Pennsylvania	F,D	6	2.8	9.99	F,D	6	2.8	9.99	F,D	6	2.8	9.99	F,D	6	2.8	9.99
Rhode Island	F,D	7	10.89	9	F,D	7	10.89	9	F,D	7	10.692	9	F,D	7	10.494	9
South Carolina	D	5	7	5	D	5	7	5	D	5	7	5	D	5	7	5
South Dakota	D	4	0	0	D	4	0	0	D	4	0	0	D	4	0	0
Tennessee	D	6	0	6	D	6	0	6	D	6	0	6	D	6	0	6
Texas	F,D	6.25	0		F,D	6.25	0		F,D	6.25	0		F,D	6.25	0	
Utah	D	4.875	7.2	5	D	4.75	7	5	D	4.75	7	5	D	4.75	7	5
Vermont	F,D	5	9.9	8.25	F,D	5	9.9	8.25	F,D	5	9.9	9.75	F,D	5	9.9	9.75
Virginia	D	3.5	5.75	6	D	3.5	5.75	6	D	3.5	5.75	6	D	3.5	5.75	6
Washington	F,D	6.5	0	0	F,D	6.5	0	0	F,D	6.5	0	0	F,D	6.5	0	0
West Virginia	D	6	6.5	9	D	6	6.5	9	D	6	6.5	9	D	6	6.5	9
Wisconsin	F,D	5	6.93	7.9	F,D	5	6.93	7.9	F,D	5	6.93	7.9	F,D	5	6.77	7.9
Wyomina	D	4	0	0	D	4	0	0	D	4	0	0	D	4	0	0
Average		4.5400	5.7813	7.0496		4.6138	5.7012	7.0704		4.6150	5.6946	7.0660		4.6150	5.5892	7.0056
Avg less 0s		5.0444	7.0504	7.6905		5.1264	6.9527	7.7132		5.1278	6.9446	7.7084		5.1278	6.8161	7.6425

Appendix 1

Underlined values were calculated (weighted average for mid-year changes or variable tax structure)
Blank values represent unconventional tax structures and were not used in the analysis

Tax Rate Data / Year→	2000				2001				2002				2003			
State↓	S-Ex	Sales	P. Inc.	C. Inc.	S-Ex	Sales	P. Inc.	C. Inc.	S-Ex	Sales	P. Inc.	C. Inc.	S-Ex	Sales	P. Inc.	C. Inc.
Alabama	D	4	5	5	D	4	5	6.5	D	4	5	6.5	D	4	5	6.5
Alaska	-	0	0	9.4	-	0	0	9.4	-	0	0	9.4	-	0	0	9.4
Arizona	F,D	5	5.04	8	F,D	5.6	5.04	6.968	F,D	5.6	5.04	6.968	F,D	5.6	5.04	6.968
Arkansas	D	4.625	7	6.5	D	5.125	7	6.5	D	5.125	7	6.5	D	5.125	6.5	6.5
California	F,D	6	9.3	8.84	F,D	6	9.3	8.84	F,D	6	9.3	8.84	F,D	6	9.3	8.84
Colorado	F,D	3	4.8	4.75	F,D	2.9	4.63	4.63	F,D	2.9	4.6	4.63	F,D	2.9	4.63	4.63
Connecticut	F,D	6	4.5	7.5	F,D	6	4.5	7.5	F,D	6	4.5	7.5	F,D	6	4.5	7.5
Delaware	-	0	5.95	8.7	-	0	5.95	8.7	-	0	5.95	8.7	-	0	5.95	8.7
Flordia	F,D	6	0	5.5	F,D	6	0	5.5	F,D	6	0	5.5	F,D	6	0	5.5
Georgia	F,D	4	6	6	F,D	4	6	6	F,D	4	6	6	F,D	4	6	6
Hawaii	D	4	8.75	6.4	D	4	8.5	6.4	D	4	8.3	6.4	D	4	8.25	6.4
Idaho	D	5	8.2	8	D	5	7.8	7.6	D	5	7.8	7.6	D	5	7.8	7.6
Illinois	1% F,1% D	5	3	7.3	1% F,1% D	5	3	7.3	1% F,1% D	5	3	7.3	1% F,1% D	6.25	3	7.3
Indiana	F,D	5	3.4	7.9	F,D	5	3.4	7.9	F,D	5	3.4	7.9	F,D	5	3.4	8.5
Iowa	F,D	5	8.98	12	F,D	5	8.98	12	F,D	5	8.98	12	F,D	5	8.98	12
Kansas	D	4.9	6.45	7.35	D	4.9	6.45	7.35	D	4.9	6.45	7.35	D	5.3	6.45	7.35
Kentucky	F,D	6	6	8.25	F,D	6	6	8.25	F,D	6	6	8.25	F,D	6	6	8.25
Louisiana	3.5%F,D	4	6	8	D	4	6	8	3%F,D	4	6	8	2%F,D	4	6	8
Maine	F,D	5.25	8.5	8.93	F,D	5	8.5	8.93	F,D	5	8.5	8.93	F,D	5	8.5	8.93
Maryland	F,D	5	4.8	7	F,D	5	4.8	7	F,D	5	4.75	7	F,D	5	4.75	7
Massachusetts	F,D	5	5.95	9.5	F,D	5	5.85	9.5	F,D	5	5	9.5	F,D	5	5	9.5
Michigan	F,D	6	4.3		F,D	6	4.2		F,D	6	4.2		F,D	6	4	
Minnesota	F,D	6.5	8	9.8	F,D	6.5	7.85	9.8	F,D	6.5	7.85	9.8	F,D	6.5	7.85	9.8
Mississippi	D	7	5	5	D	7	5	5	D	7	5	5	D	7	5	5
Missouri	1.225%F,D	4.225	6	6.25	1.225%F,D	4.225	6	6.25	1.225%F,D	4.225	6	6.25	1.225%F,D	4.225	6	6.25
Montana	-	0	11	6.75	-	0	11	6.75	-	0	11	6.75	-	0	11	6.75
Nebraska	F,D	5	6.68	7.81	F,D	5	6.68	7.81	F,D	5	6.68	7.81	F,D	5	6.84	7.81
Nevada	F,D	6.5	0	0	F,D	6.5	0	0	F,D	6.5	0	0	F,D	6.5	0	0
New Hamshire	-	0	0	8	-	0	0	8.5	-	0	0	8.5	-	0	0	8.5
New Jersey	F,D	6	6.37	9	F,D	6	6.37	9	F,D	6	6.37	9	F,D	6	6.37	9
New Mexico	D	5	8.2	7.6	D	5	8.2	7.6	D	5	8.2	7.6	D	5	8.2	7.6
New York	F,D	4	6.85	8.5	F,D	4	6.85	8	F,D	4	6.85	8	F,D	4	6.85	7.5
North Carolina	F,D	4	7.75	6.9	F,D	4	8.75	6.9	F,D	4.5	8.25	6.9	F,D	4.5	8.25	6.9
North Dakota	F,D	5	12	10.5	F,D	5	5.54	10.5	F,D	5	5.54	10.5	F,D	5	5.54	10.5
Ohio	F,D	5	7.228	8.5	F,D	5	7.5	8.5	F,D	5	7.5	8.5	F,D	5	7.5	8.5
Oklahoma	D	4.5	6.75	6	D	4.5	6.75	6	D	4.5	6.75	6	D	4.5	7	6
Oregon	-	0	9	6.6	-	0	9	6.6	-	0	9	6.6	-	0	9	6.6
Pennsylvania	F,D	6	2.8	9.99	F,D	6	2.8	9.99	F,D	6	2.8	9.99	F,D	6	2.8	9.99
Rhode Island	F,D	7	10.296	9	F,D	7	10.098	9	F,D	7	9.9	9	F,D	7	9.9	9
South Carolina	D	5	7	5	D	5	7	5	D	5	7	5	D	5	7	5
South Dakota	D	4	0	0	D	4	0	0	D	4	0	0	D	4	0	0
Tennessee	D	6	0	6	D	6	0	6	D	6	0	6	6%F,D	7	0	6.5
Texas	F,D	6.25	0		F,D	6.25	0		F,D	6.25	0		F,D	6.25	0	
Utah	D	4.75	7	5	D	4.75	7	5	D	4.75	7	5	D	4.75	7	5
Vermont	F,D	5	9.504	9.75	F,D	5	9.5	9.75	F,D	5	9.5	9.75	F,D	5	9.5	9.75
Virginia	3%F,D	3.5	5.75	6	3%F,D	3.5	5.75	6	2.25%F,D	2.5	5.75	6	3%F,D	3.5	5.75	6
Washington	F,D	6.5	0	0	F,D	6.5	0	0	F,D	6.5	0	0	F,D	6.5	0	0
West Virginia	D	6	6.5	9	D	6	6.5	9	D	6	6.5	9	D	6	6.5	9
Wisconsin	F,D	5	6.75	7.9	F,D	5	6.75	7.9	F,D	5	6.75	7.9	F,D	5	6.75	7.9
Wyomina	D	4	0	0	D	4	0	0	D	4	0	0	D	4	0	0
Average		4.6100	5.5670	6.9931		4.6250	5.4358	6.9920		4.6150	5.3992	6.9920		4.6880	5.3930	7.0045
Avg less 0s		5.1222	6.7890	7.6289		5.1389	6.6290	7.6277		5.1278	6.5844	7.6277		5.2089	6.5768	7.6413

Appendix 1

Underlined values were calculated (weighted average for mid-year changes or variable tax structure)
Blank values represent unconventional tax structures and were not used in the analysis

Tax Rate Data Year→	2004				2005				2006				2007			
State↓	S-Ex	Sales	P. Inc.	C. Inc.	S-Ex	Sales	P. Inc.	C. Inc.	S-Ex	Sales	P. Inc.	C. Inc.	S-Ex	Sales	P. Inc.	C. Inc.
Alabama	D	4	5	6.5	D	4	5	6.5	D	4	5	6.5	D	4	5	6.5
Alaska	-	0	0	9.4	-	0	0	9.4	-	0	0	9.4	-	0	0	9.4
Arizona	F,D	5.6	5.04	6.968	F,D	5.6	5.04	6.968	F,D	5.6	5.04	6.968	F,D	5.6	4.57	6.968
Arkansas	D	5.125	10	6.5	D	6	10	6.5	D	6	7	6.5	D	6	7	6.5
California	F,D	6	9.3	8.84	F,D	6	9.3	8.84	F,D	6.25	10.3	8.84	F,D	6.25	10.3	8.84
Colorado	F,D	2.9	4.63	4.63	F,D	2.9	4.63	4.63	F,D	2.9	4.63	4.63	F,D	2.9	2.9	4.63
Connecticut	F,D	6	5	7.5	F,D	6	5	7.5	F,D	6	5	7.5	F,D	6	5	7.5
Delaware	-	0	5.95	8.7	-	0	5.95	8.7	-	0	5.95	8.7	-	0	5.95	8.7
Flordia	F,D	6	0	5.5	F,D	6	0	5.5	F,D	6	0	5.5	F,D	6	0	5.5
Georgia	F,D	4	6	6	F,D	4	6	6	F,D	4	6	6	F,D	4	6	6
Hawaii	D	4	8.25	6.4	D	4	8.25	6.4	D	4	8.25	6.4	D	4	8.25	6.4
Idaho	D	6	7.8	7.6	D	6	7.8	7.6	D	5	7.8	7.6	D	6	7.8	7.6
Illinois	1% F,1% D	6.25	3	7.3	1% F,1% D	6.25	3	7.3	1% F,1% D	5.25	3	7.3	1% F,1% D	6.25	3	7.3
Indiana	F,D	6	3.4	8.5	F,D	6	3.4	8.5	F,D	6	3.4	8.5	F,D	6	3.4	8.5
Iowa	F,D	5	8.98	12	F,D	5	8.98	12	F,D	5	8.98	12	F,D	5	8.98	12
Kansas	D	5.3	6.45	7.35	D	5.3	6.45	7.35	D	5.3	6.45	7.35	D	5.3	6.45	7.35
Kentucky	F,D	6	6	8.25	F,D	6	6	8.25	F,D	6	6	7	F,D	6	6	7
Louisiana	F,D	4	6	8	F,D	4	6	8	F,D	4	6	8	F,D	4	6	8
Maine	F,D	5	8.5	8.93	F,D	5	8.5	8.93	F,D	5	8.5	8.93	F,D	5	8.5	8.93
Maryland	F,D	5	4.75	7	F,D	5	4.75	7	F,D	5	4.75	7	F,D	5	4.75	7
Massachusetts	F,D	5	5	9.5	F,D	5	5.3	9.5	F,D	5	5.3	9.5	F,D	5	5.3	9.5
Michigan	F,D	6	4		F,D	6	3.9		F,D	6	3.9		F,D	6	3.9	
Minnesota	F,D	6.5	7.85	9.8	F,D	6.5	7.85	9.8	F,D	6.5	7.85	9.8	F,D	6.5	7.85	9.8
Mississippi	D	7	5	5	D	7	5	5	D	7	5	5	D	7	5	5
Missouri	1.225%F,D	4.225	6	6.25	1.225%F,D	4.225	6	6.25	1.225%F,D	4.225	6	6.25	1.225%F,D	4.225	6	6.25
Montana	-	0	11	6.75	-	0	6.9	6.75	-	0	6.9	6.75	-	0	6.9	6.75
Nebraska	F,D	5.5	6.84	7.81	F,D	5.5	6.84	7.81	F,D	5.5	6.84	7.81	F,D	5.5	6.84	7.81
Nevada	F,D	6.5	0	0	F,D	6.5	0	0	F,D	6.5	0	0	F,D	6.5	0	0
New Hamshire	-	0	0	8.5	-	0	0	8.5	-	0	0	8.5	-	0	0	8.5
New Jersey	F,D	6	6.37	9	F,D	6	6.37	9	F,D	6	8.97	9	F,D	7	8.97	9
New Mexico	D	5	6.8	7.6	F,D	5	6	7.6	F,D	5	5.3	7.6	F,D	5	5.3	7.6
New York	F,D	4.25	7.7	7.5	F,D	4.25	7.7	7.5	F,D	4	7.7	7.5	F,D	4	6.85	7.5
North Carolina	F,D	4.5	8.25	6.9	F,D	4.25	8.25	6.9	F,D	4.5	8.25	6.9	F,D	4.25	8	6.9
North Dakota	F,D	5	5.54	10.5	F,D	5	5.54	7	F,D	5	5.54	7	F,D	5	5.54	7
Ohio	F,D	6	7.5	8.5	F,D	6	7.5	8.5	F,D	5.5	7.185	8.5	F,D	5.5	7.185	8.5
Oklahoma	D	4.5	6.65	6	F,D	4.5	6.65	6	D	4.5	6.25	6	D	4.5	5.65	6
Oregon	-	0	9	6.6	-	0	9	6.6	-	0	9	6.6	-	0	9	6.6
Pennsylvania	F,D	6	2.8	9.99	F,D	6	3.07	9.99	F,D	6	3.07	9.99	F,D	6	3.07	9.99
Rhode Island	F,D	7	9.9	9	F,D	7	9.9	9	F,D	7	9.9	9	F,D	7	9.9	9
South Carolina	D	5	7	5	D	5	7	5	D	5	7	5	3%F,D	5.5	7	5
South Dakota	D	4	0	0	D	4	0	0	D	4	0	0	D	4	0	0
Tennessee	6%F,D	7	0	6.5	6%F,D	7	0	6.5	6%F,D	7	0	6.5	6%F,D	7	0	6.5
Texas	F,D	6.25	0		F,D	6.25	0		F,D	6.25	0		F,D	6.25	0	
Utah	D	4.75	7	5	D	4.75	7	5	D	4.75	7	5	2.25%F,D	4.75	6.98	5
Vermont	F,D	6	9.5	9.75	F,D	6	9.5	9.75	F,D	6	9.5	9.75	F,D	6	9.5	8.5
Virginia	3%F,D	3.5	5.75	6	2.5%F,D	4	5.75	6	1.5%F,D	4	5.75	6	1.5%F,D	4	5.75	6
Washington	F,D	6.5	0	0	F,D	6.5	0	0	F,D	6.5	0	0	F,D	6.5	0	0
West Virginia	D	6	6.5	9	D	6	6.5	9	5%F,D	6	6.5	9	5%F,D	6	6.5	9
Wisconsin	F,D	5	6.75	7.9	F,D	5	6.75	7.9	F,D	5	6.75	7.9	F,D	5	6.75	7.9
Wyomina	D	4	0	0	D	4	0	0	D	4	0	0	F,D	4	0	0
Average		4.7830	5.4550	7.0045		4.8055	5.3664	6.9316		4.7605	5.3501	6.9056		4.8255	5.2717	6.8795
Avg less 0s		5.3144	6.6524	7.6413		5.3394	6.5444	7.5618		5.2894	6.5245	7.5334		5.3617	6.4289	7.5050

Appendix 1

Underlined values were calculated (weighted average for mid-year changes or variable tax structure)
Blank values represent unconventional tax structures and were not used in the analysis

Tax Rate Data Year→	2008 S-Ex	2008 Sales	2008 P. Inc.	2008 C. Inc.	2009 S-Ex	2009 Sales	2009 P. Inc.	2009 C. Inc.	2010 S-Ex	2010 Sales	2010 P. Inc.	2010 C. Inc.
State↓												
Alabama	D	4	5	6.5	D	4	5	6.5	D	4	5	6.5
Alaska	-	0	0	9.4	-	0	0	9.4	-	0	0	9.4
Arizona	F,D	5.6	4.54	6.968	F,D	5.6	4.54	6.968	F,D	5.6	4.54	6.968
Arkansas	3%F,D	6	7	6.5	3%F,D	6	7	6.5	2%F,D	6	7	6.5
California	F,D	6.25	10.3	8.84	F,D	7.25	10.3	8.84	F,D	8.25	10.55	8.84
Colorado	F,D	2.9	4.63	4.63	F,D	2.9	4.63	4.63	F,D	2.9	4.63	4.63
Connecticut	F,D	6	5	7.5	F,D	6	5	7.5	F,D	6	6.5	7.5
Delaware	-	0	5.95	8.7	-	0	5.95	8.7	-	0	6.95	8.7
Flordia	F,D	6	0	5.5	F,D	6	0	5.5	F,D	6	0	5.5
Georgia	F,D	4	6	6	F,D	4	6	6	F,D	4	6	6
Hawaii	D	4	8.25	6.4	D	4	8.25	6.4	D	4	11	6.4
Idaho	D	6	7.8	7.6	D	6	7.8	7.6	D	6	7.8	7.6
Illinois	1% F,1% D	6.25	3	7.3	1% F,1% D	6.25	3	7.3	1% F,1% D	6.25	3	7.3
Indiana	F,D	6	3.4	8.5	F,D	7	3.4	8.5	F,D	7	3.4	8.5
Iowa	F,D	5	8.98	12	F,D	6	8.98	12	F,D	6	8.98	12
Kansas	D	5.3	6.45	7.35	D	5.3	6.45	7.1	D	5.3	6.45	7.05
Kentucky	F,D	6	6	7	F,D	6	6	6	F,D	6	6	6
Louisiana	F,D	4	6	8	F,D	4	6	8	F,D	4	6	8
Maine	F,D	5	8.5	8.93	F,D	5	8.5	8.93	F,D	5	8.5	8.93
Maryland	F,D	6	5.5	8.3	F,D	6	6.25	8.25	F,D	6	6.25	8.25
Massachusetts	F,D	5	5.3	9.5	F,D	5	5.3	9.5	F,D	6.25	5.3	8.75
Michigan	F,D	6	4.35	4.95	F,D	6	4.35	4.95	F,D	6	4.35	4.95
Minnesota	F,D	6.5	7.85	9.8	F,D	6.6875	7.85	9.8	F,D	6.875	7.85	9.8
Mississippi	D	7	5	5	D	7	5	5	D	7	5	5
Missouri	1.225%F,D	4.225	6	6.25	1.225%F,D	4.225	6	6.25	1.225%F,D	4.225	6	6.25
Montana	-	0	6.9	6.75	-	0	6.9	6.75	-	0	6.9	6.75
Nebraska	F,D	5.5	6.84	7.81	F,D	5.5	6.84	7.81	F,D	5.5	6.84	7.81
Nevada	F,D	6.5	0	0	F,D	6.5	0	0	F,D	6.85	0	0
New Hamshire	-	0	0	8.5	-	0	0	8.5	-	0	0	8.5
New Jersey	F,D	7	8.97	9	F,D	7	8.97	9	F,D	7	10.75	9
New Mexico	F,D	5	5.3	7.6	F,D	5	4.9	7.6	F,D	5	4.9	7.6
New York	F,D	4	6.85	7.5	F,D	4	6.85	7.1	F,D	4	8.97	7.1
North Carolina	F,D	4.3125	7.75	6.9	F,D	4.5	7.75	6.9	F,D	5.75	7.75	6.9
North Dakota	F,D	5	5.54	6.5	F,D	5	5.54	6.5	F,D	5	4.86	6.4
Ohio	F,D	5.5	6.24	8.5	F,D	5.5	5.925	8.5	F,D	5.5	6.24	
Oklahoma	D	4.5	5.5	6	D	4.5	5.5	6	D	4.5	5.5	6
Oregon	-	0	9	6.6	-	0	9	6.6	-	0	11	7.9
Pennsylvania	F,D	6	3.07	9.99	F,D	6	3.07	9.99	F,D	6	3.07	9.99
Rhode Island	F,D	7	9.9	9	F,D	7	9.9	9	F,D	7	9.9	9
South Carolina	3%F,D	6	7	5	F,D	6	7	5	F,D	6	7	5
South Dakota	D	4	0	0	-	4	0	0	D	4	0	0
Tennessee	5.5%F,D	7	0	6.5	5.5%F,D	7	0	6.5	5.5%F,D	7	0	6.5
Texas	F,D	6.25	0		F,D	6.25	0		F,D	6.25	0	
Utah	1.75%F,D	4.65	5	5	1.75%F,D	4.7	5	5	1.75%F,D	4.7	5	5
Vermont	F,D	6	9.5	8.5	F,D	6	9.5	8.5	F,D	6	8.95	8.5
Virginia	1.5%F,D	4	5.75	6	1.5%F,D	4	5.75	6	1.5%F,D	4	5.75	6
Washington	F,D	6.5	0	0	F,D	6.5	0	0	F,D	6.5	0	0
West Virginia	3.5%F,D	6	6.5	8.5	3%F,D	6	6.5	8.5	3%F,D	6	6.5	8.5
Wisconsin	F,D	5	6.75	7.9	F,D	5	6.75	7.9	F,D	5	7.75	7.9
Wyomina	F,D	4	0	0	F,D	4	0	0	F,D	4	0	0
Average		4.8548	5.2632	6.8463		4.9233	5.2639	6.8116		5.0040	5.4936	6.7848
Avg less 0s		5.3942	6.4185	7.4548		5.4703	6.4194	7.4171		5.5600	6.6995	7.4015

Appendix 2

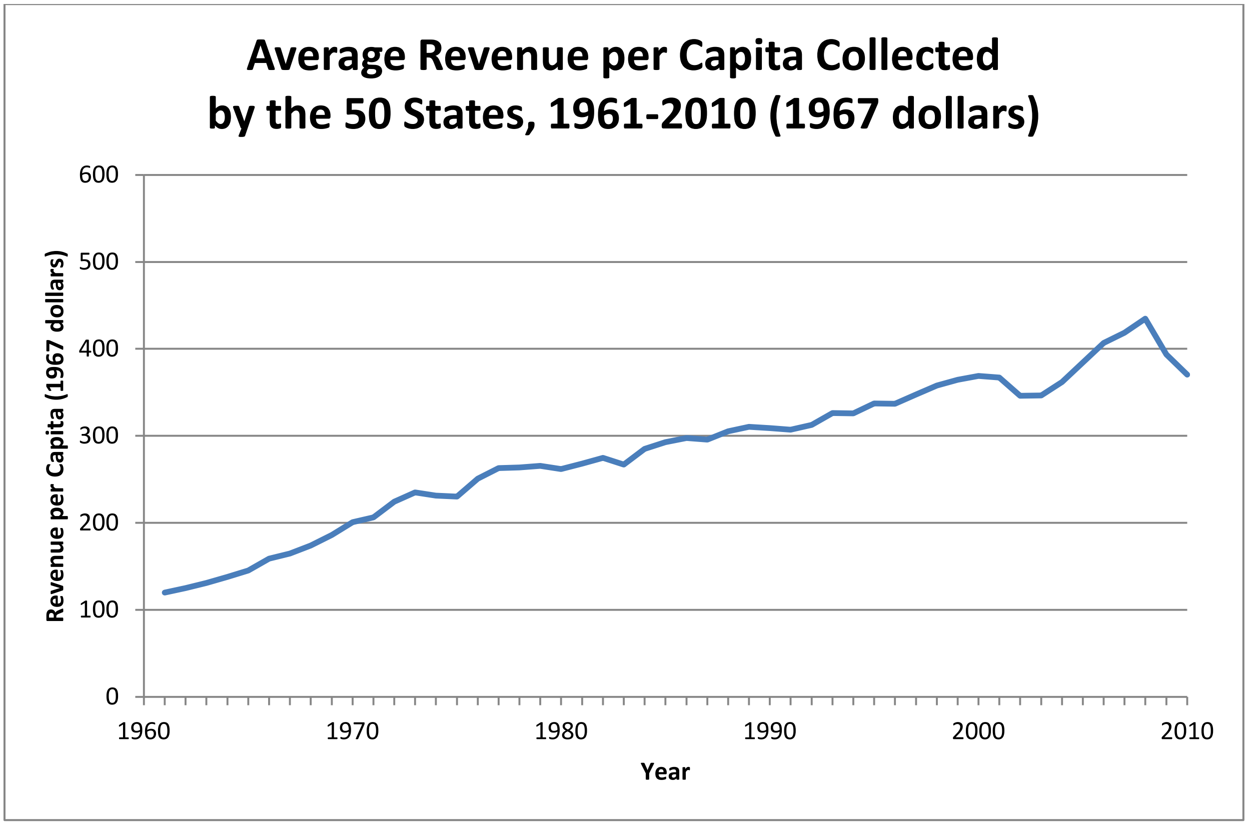
Total revenue per capita figures (1967 dollars), 1961-2010

State	Average	Median	Years STP*	State	Average	Median	Years STP*
Alaska	654.92	543.76	0	Illinois	261.85	260.51	28
Hawaii	446.48	427.12	50	Iowa	261.39	260.65	9
Delaware	399.05	411.74	0	Idaho	255.74	233.26	12
Minnesota	366.69	386.26	0	Oklahoma	254.80	278.33	0
Connecticut	358.26	352.29	22	Kansas	254.26	242.08	32
Wyoming	356.61	341.64	29	Louisiana	250.88	242.34	32
New York	350.27	372.93	0	Utah	248.86	250.00	36
Massachusetts	337.48	371.27	0	Arkansas	247.00	234.83	38
California	334.11	343.39	23	Virginia	244.94	248.33	0
Washington	332.39	346.53	50	Indiana	244.19	247.71	41
Wisconsin	324.68	344.51	0	Montana	241.97	232.47	0
Vermont	322.31	282.98	0	Oregon	239.17	232.89	0
New Mexico	310.10	316.43	49	Mississippi	235.15	222.82	50
Michigan	302.58	303.33	33	South Carolina	234.25	237.86	38
Nevada	299.13	313.95	29	Florida	232.90	237.11	42
Maryland	298.31	309.76	0	Ohio	232.66	252.05	14
New Jersey	296.11	325.32	19	Nebraska	232.48	220.26	23
Rhode Island	284.10	275.98	12	Georgia	231.22	234.27	20
West Virginia	279.27	285.47	37	Colorado	228.10	226.79	15
Maine	278.90	286.26	25	Alabama	217.66	229.22	8
North Dakota	278.82	273.42	38	Missouri	212.71	213.41	34
Pennsylvania	272.65	272.94	40	Tennessee	203.68	203.81	47
Kentucky	269.25	263.88	19	Texas	202.85	204.93	37
North Carolina	268.46	263.37	0	South Dakota	180.68	170.86	41
Arizona	261.87	269.56	50	New Hampshire	161.49	140.77	0

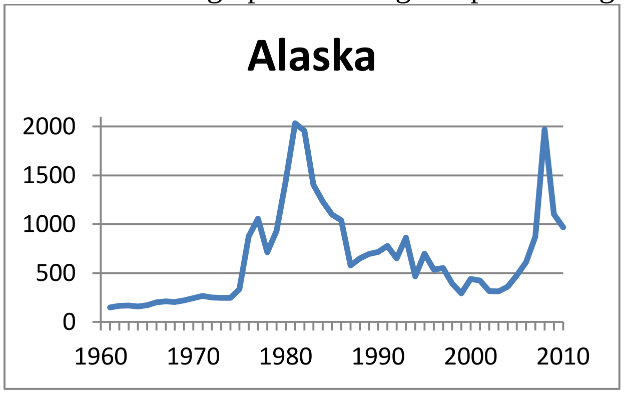
* Number of years from 1961-2010 that a state gained a plurality of its revenue from a state sales tax

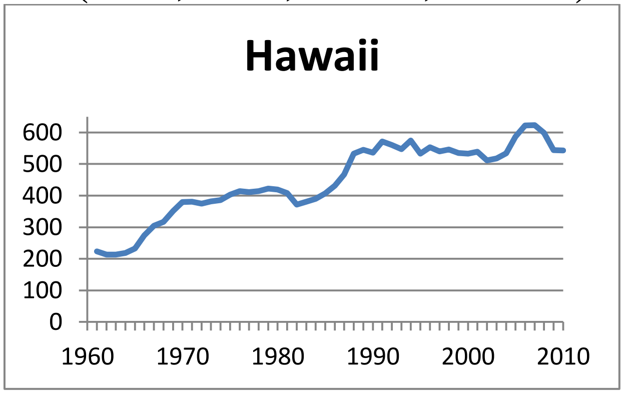
Appendix 3

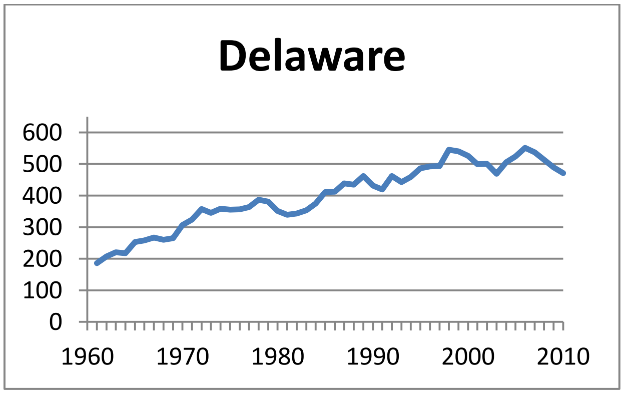
Selected Graphs

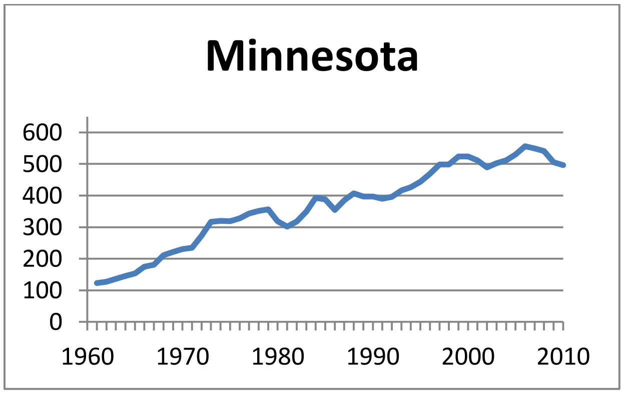


Individual state graphs: four highest performing states (Alaska, Hawaii, Delaware, Minnesota)

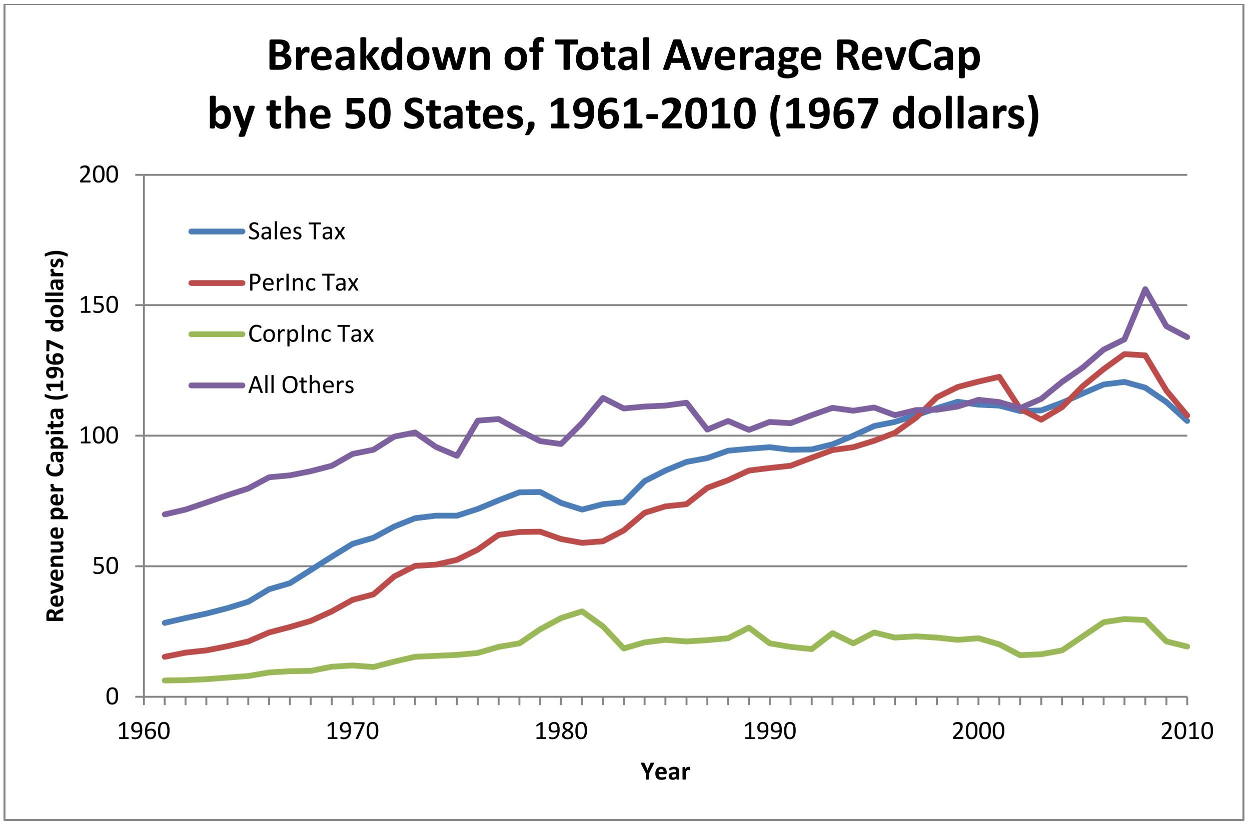


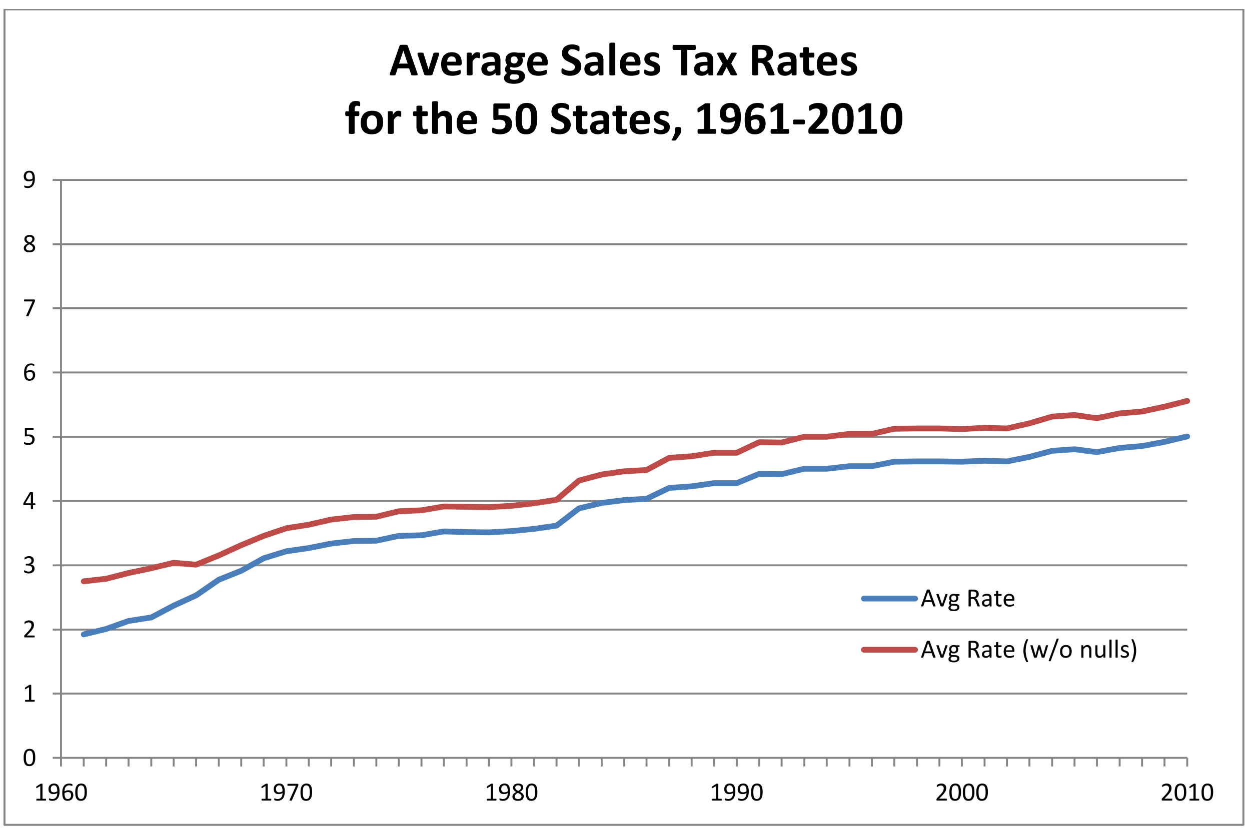




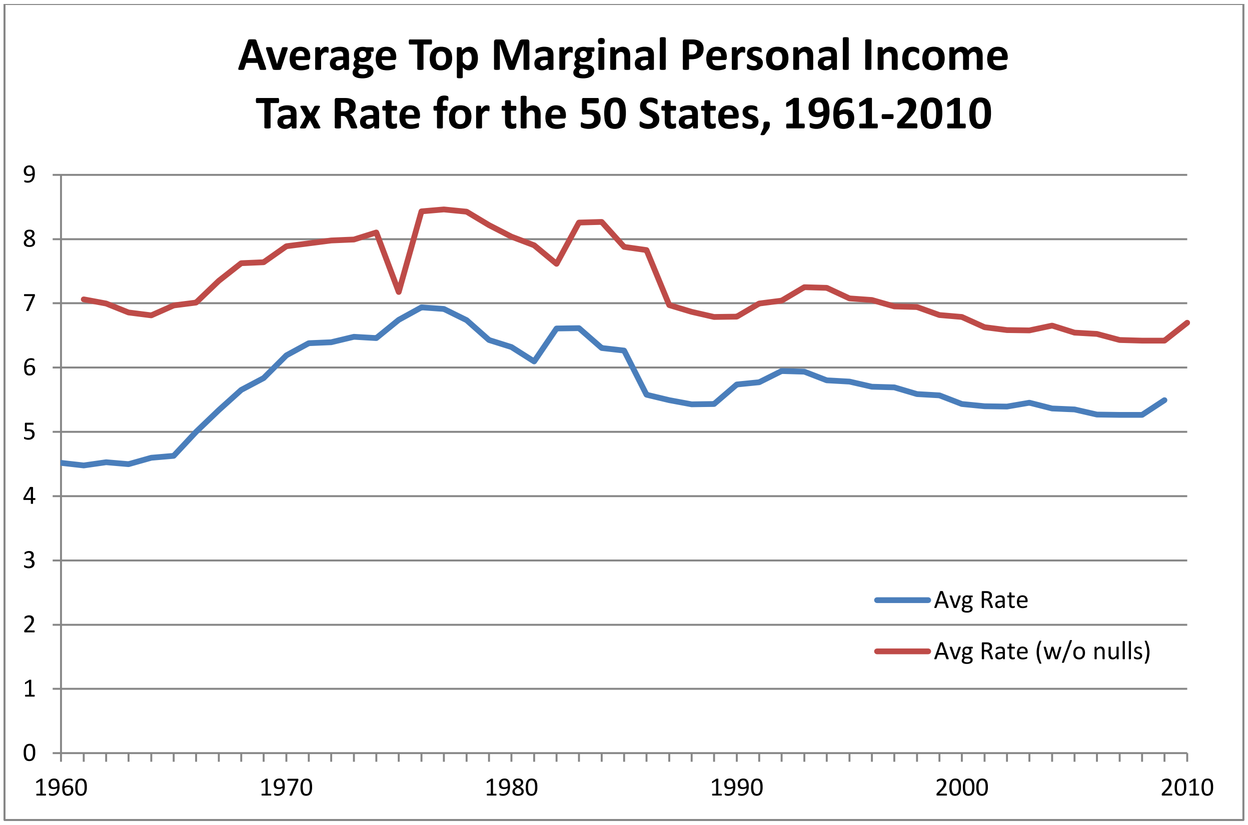


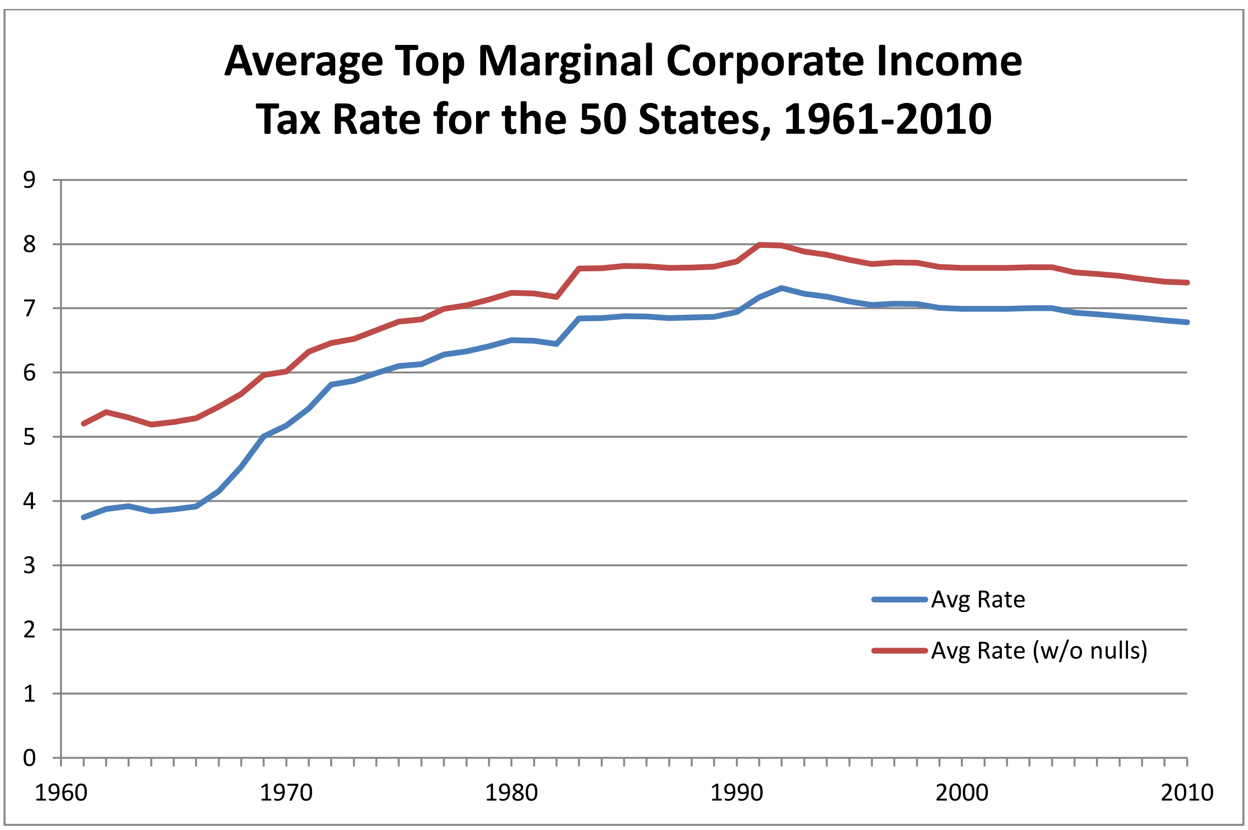
Appendix 3


Breakdown of Total Average RevCap
by the 50 States, 1961-2010 (1967 dollars)
Sales Tax
PerInc Tax
CorpInc Tax
All Others
Revenue per Capita (1967 dollars)
200
150
100
50
0
1960
1970
1980
1990
2000
2010
Year


Average Sales Tax Rates
for the 50 States, 1961-2010
9
8
7
6
5
4
3
2
1
0
1960
1970
1980
1990
2000
2010
Avg Rate
Avg Rate (w/o nulls)

Appendix 3


Average Top Marginal Personal Income Tax Rate for the 50 States, 1961-2010
9
8
7
6
5
4
3
2
1
0
1960
1970
1980
1990
2000
2010
Avg Rate
Avg Rate (w/o nulls)


Average Top Marginal Corporate Income Tax Rate for the 50 States, 1961-2010
9
8
7
6
5
4
3
2
1
0
1960
1970
1980
1990
2000
2010
Avg Rate
Avg Rate (w/o nulls)