POLICY STUDY

NUMBER 23 MARCH 10, 2010

TAXES AND GROWTH: A REVIEW OF THE EVIDENCE

By Mark Skidmore and Nicole Bradshaw

Mark Skidmore is a professor of public economics and economic development at Michigan State University's Department of Agricultural, Food, and Resource Economics.

Nicole Bradshaw is a visiting specialist for the State and Local Government Program at Michigan State University's Department of Agricultural, Food, and Resource Economics.

EXECUTIVE SUMMARY

This study provides a review of the academic literature that has examined the relationship between taxation and economic growth, with an emphasis on the taxation of income. The study provides reliable information that may inform policy options. Key considerations in evaluating the role of tax policy in economic growth include:

- **Taxes and economic activity are inversely related:** Recent research provides new evidence of an inverse relationship between taxes and various measures of economic activity. Studies have examined a wide range of economic variables, such as per-capita income, new business activity, and migration patterns.
- **Tax policies between jurisdictions are interrelated:** States are not independent; rather, they influence and are influenced by the policies of neighboring states. A change in the tax policies of one state may lead to change in the policies of neighboring states, and vice versa.
- **Taxes and spending go together:** There is tension among researchers regarding the impact of taxation on economic growth. One branch of the literature presents evidence that increases in state and local taxes accompanied by increases in expenditures to fund general fund services, such as education and public safety, may attract some types of business activity. However, other competently executed studies present evidence that taxes and economic activity are negatively related. This report attempts to reconcile the two lines of research.
- **The impact of taxes is relative:** The expected effects of taxes depend on a given jurisdiction's relative position among "competitors." The report therefore includes important comparisons of state tax burdens. Missouri's overall marginal tax rate is relatively low compared

to that of other states in the country as a whole (ranked 41) and those in its region (second-lowest of nine states). Missouri's average tax rate has been consistently lower than the U.S. average since 1970. However, since the 1980s, Missouri has become less dependent on sales taxation (35 percent of own source revenue in 1984, falling to 21 percent by 2006).

INTRODUCTION

For several reasons, the 50 states provide an excellent laboratory for examining the effects of public finance policies on economic activity.

During the last 20 years, the effect of tax policy changes on economic growth[1] has been a topic of considerable research. This literature examines the impacts of changes in various tax policies on migration patterns, business retention and attraction, consumer spending, and overall economic growth. The purpose of this report is to provide an overview of this body of work, with an emphasis on research that has examined the experience of the U.S. states. In particular, we consider the role of income taxation on state economic growth.

For several reasons, the 50 states provide an excellent laboratory for examining the effects of public finance policies on economic activity. First, all states fall under a common set of federal laws and guidelines. Second, while traditions and culture vary considerably across nations, the states are largely homogeneous. In contrast to international comparisons of tax policies, the common traits of states enable researchers to identify more easily the causal relationships between policy changes and economic activity. Finally, despite the federalist framework shared by all states, sub-national governments enjoy significant autonomy in forming state tax and spending policies. The substantial variation of policies across states and over time provides a fertile environment for empirical examination. Despite these advantages, good empirical analysis that identifies causal relationships between policy changes and economic outcomes poses a significant challenge.

We now turn to a brief discussion of the key theoretical issues regarding the effects of taxation on economic activity. This is followed by a summary of the most relevant research on the relationship between taxation and economic activity. The review includes an examination of the effects of tax policy on several measures of economic activity, including per-capita income, business activity, and migration patterns. We then provide an overview of tax policies across the states, with an emphasis on Missouri and nearby "competitor" states. The report also includes a discussion that attempts to reconcile the sometimes conflicting conclusions of researchers.

THEORETICAL DISCUSSION

Because of its importance, public finance economists have long been interested in the impact of tax policy on economic activity. Two general considerations must be addressed before assessing the empirical research on this relationship. The first is the general theory of the relationship between tax policy and economic activity, a theoretical discussion

of which provides a basis for evaluating the empirical research. The second is the range of methods of measuring and evaluating the policy environment in order to identify the behavioral responses induced by changes in tax policy. We first consider the more general theoretical issues.

Several considerations are pertinent to the evaluation of tax policy in a state. The tax policies of other states are a critical issue, because the effects of policies in any given state depend, to some extent, on the policies in other states. Wasylenko (1997) argued that an impact substantial enough to be measured will occur only when a state's policies are significantly different from those of other states. Also relevant is the notion first articulated by Tiebout (1956) that mobile individuals and businesses tend to choose locations that offer their optimal preferred balance of taxation and government services. Thus, taxation and public services are considered jointly when making decisions about location.

The impact of policies depends greatly on the mobility of consumers, labor, and capital. Generally, economists characterize capital as being very mobile, and workers and consumers as being less mobile, at least in the short run. But economists acknowledge that, in the long run, workers and consumers respond to their economic environments and many are willing to move when faced with new economic conditions, including those brought about by a changing tax environment.

Finally, any evaluation of the policy environment must also consider the consequences of the availability of public services, transportation costs, the availability and quality of labor, and the quality of transportation networks. Edwards (2007) argued that driving forces in decisions about firm location include: 1) proximity to the product market; 2) the quality of labor; and, 3) the quality of transportation networks.

Over time, the methods of analysis employed in examining this issue have become more sophisticated, so that the findings of more recent research contradict those of earlier work. In 1997, Bartik summarized several critical challenges in conducting econometric analyses in this field. A key issue involves the causal relationships between policy variables and economic activity. Because economic conditions influence tax and expenditure decisions, and these variables in turn affect the level and quality[2] of public services available, a reliable estimate of the impact of a given policy change on economic activity may be obscured by reverse causality.[3] That is, tax policy changes are sometimes implemented in response to changes in economic activity, and not vice versa.[4] Bartik identified other problems with the earlier studies, as well, including difficulties in the measurement of both the quality and quantity of public services, and neglect of the issues most important for public policy decisions. He also contended that the marginal tax rate (MTR) and not the average tax rate (ATR) is a more appropriate measure of tax burden when examining the impacts of a given tax policy. The marginal tax rate is defined as the change in the tax obligations of the taxpayer that is associated with a change in economic activity. The MTR therefore

Over time, the methods of analysis employed in examining this issue have become more sophisticated, so that the findings of more recent research contradict those of earlier work.

The marginal tax rate is defined as the change in the tax obligations of the taxpayer that is associated with a change in economic activity. The MTR therefore more accurately reflects the effects of the tax on taxpayers.

more accurately reflects the effects of the tax on taxpayers.

Although average tax rates have been used in numerous studies, average tax rates may not accurately reflect the true cost of a given tax. For governments that use graduated tax schedules, ATRs underestimate MTRs (Padovano and Galli, 2002). ATRs also have a strong correlation with public spending, with the result that tax variables may measure both the negative and positive effects of growth-related tax plans. Because of these problems with average tax rates, Padovano and Galli concluded that "average tax rates therefore cannot be considered as appropriate tests of the predictions of growth theories about taxation."

Despite these concerns, ATRs have been used in many studies because they are easy to calculate. Furthermore, ATRs can capture larger discrete changes in tax policy, such as a notable change in tax rates or a significant change in the tax base. And Reed, Roger, and Skidmore (2009) showed that, for many states, ATRs are similar to MTRs. But there are also significant differences. For example, Alaska and Wyoming rely heavily on severance taxes, which are paid by out-of-state businesses. Thus, for these two states, the ATRs significantly overestimate the true MTRs for state residents.

The reliability of these studies depends on several factors. First, as noted above, the research must properly identify causality. When a study detects a correlation between a policy action and economic activity, researchers must take care to identify the actual causal relationship. In addition, many studies examine tax increases as opposed to tax reductions; one must be cautious about assuming that the findings are reversible. For example, a tax increase might be attended by the provision of a higher quantity or a higher quality of public services or infrastructure. One might assume that the opposite would be true for a tax reduction. It is therefore prudent to consider which types of public services might be reduced. In addition, any boost in economic growth and corresponding increases in other remaining taxes might not be fully realized for several years. At least in the short run, spending and public services might be cut to maintain fiscal stability. On the other hand, if a tax cut is offset by an increase in fees or other revenues, the outcomes will likely be different. We use these criteria as a basis for including studies for review in this report; many others are excluded.

LITERATURE REVIEW

We begin our review with an examination of the literature dealing with the effects of taxation on economic activity. This research has not focused specifically on income taxation, but rather on tax burdens in general.

Effects of Taxation on Economic Activity

Prior to 1980, most of the research in this area found no significant relationship between taxation and economic growth. However, relatively recent research applying more sophisticated estimation techniques has obtained more definitive

results. In a review of research regarding the effects of state and local government taxation on economic growth, Bartik (1997) concluded that "it seems quite likely that taxes do have statistically significant negative effects on the growth of a state or metropolitan area."

Among those who share this assessment, there is still no consensus on the degree to which tax policies affect development. In his literature review, Bartik (1992) found that, on average, a 10-percent reduction in state and local business taxes would lead to a 2.5-percent long-run increase in business activity. However, when focusing on research that controlled for variation in the level of public services provided, this long-run increase in business activity from a 10-percent reduction in taxes amounted to 3.3 percent. Summarizing these studies, Bartik estimates that a 10-percent reduction in state and local business taxes is likely to spur an increase in economic activity of between 1.5 and 8.5 percent.

Bartik also examined the tax costs associated with increased economic activity — for example, the additional costs to state and local governments of increased employment and immigration associated with the new business activity resulting from the tax reduction. Ignoring any new government revenues and expenditures associated with new jobs and households, the annual cost per new job, in terms of revenues foregone from implementing a tax break, is between $1,906 and $10,800. To clarify, in order for the state to create one new job in this way, it would need to cut business taxes by $1,906 to $10,800 per year for the life of that one job. The lower cost projection ($1,906) corresponds to Bartik's estimate of an 8.5-percent increase in economic activity resulting from a 10-percent decrease in state and local business taxes, whereas the higher figure ($10,800) is based on a 1.5-percent increase in economic activity resulting from a 10-percent decrease in state and local business taxes.

In a recent study, Reed (2008) used data for the years 1970 through 1999 from the 48 continental states to determine the relationship between state tax policy and state income growth. He addressed many of the estimation issues that have plagued previous research. Specifically, this work differs from that of the earlier work in that he used five-year interval data (as opposed to annual data), allowing him to introduce lagged tax effects. Reed found that tax increases that are used to fund general expenditures have negative effects on state income growth. His results are robust across different regions, time periods, estimation procedures, and specifications. He found that higher taxes are associated with lower investment, lower employment growth, and lower population growth.

Studies of the relationship between marginal income tax rates and economic activity in a cross-country framework have yielded mixed findings, but, again, the more recent work has found a negative relationship between taxation and economic activity. For example, a study by Padovano and Galli (2001) used data from the 1950s through the 1980s for 23 countries in the Organization of Economic Cooperation and Development (OECD), including the United States, to

Prior to 1980, most of the research in this area found no significant relationship between taxation and economic growth. However, relatively recent research applying more sophisticated estimation techniques has obtained more definitive results.

Do jobs follow workers or do workers follow jobs? The question is important in the context of tax policy. Policies aimed at attracting businesses are also likely to attract workers, but policies designed to attract people may also generate new jobs.

examine the relationship between taxes and economic growth in a cross-country framework. They found a robust and significant negative correlation between marginal effective tax rates[5] and economic growth. Previous cross-country studies that used average effective tax rates as the measure of tax burden had reported inconclusive or insignificant results. The effects of tax policy on economic growth are dynamic and are determined by several factors, including the mobility of firms and workers, as discussed in the next section.

Effects of Taxation on Migration

The migration literature has a long history. As summarized in Knapp and Graves (1989), several economic factors influence migration decisions. Linneman and Graves (1983) argue convincingly that migration flows originate in a desire for location-specific amenities. Rising per-capita incomes nationwide have led to changes in demands for location-specific amenities, which in turn generate a predictable pattern of migration to more "livable" states. In earlier models of migration, researchers focused on demand-side characteristics (Blanco, 1963; Lowry, 1966; and Mazek, 1969). In this framework, migration is driven by the availability of high-wage jobs. On the other hand, the work of Borts and Stein (1964) emphasized the supply-side approach to regional growth and decline. In the supply-side approach, migration patterns are driven by excess supply of labor in rural areas; workers migrate to urban areas in search of employment. There is some tension in this literature: Do jobs follow workers or do workers follow jobs? The question is important in the context of tax policy. Policies aimed at attracting businesses are also likely to attract workers, but policies designed to attract people may also generate new jobs. We therefore examine policies aimed at attracting businesses/employment as well people in this review.

Rork (2003) provided an excellent summary of the theoretical complexities of taxation, interstate competition, and migration for both businesses and households:

> One way that a government can encourage capital inflow … is by lowering its tax on capital to a level below that of its neighbors. If the response of capital is elastic in nature, the jurisdiction will increase overall revenue despite the lower tax rate. The problem with this logic, however, is that there is nothing to prevent other jurisdictions from undercutting the first tax change. ... The assumption of perfect mobility is problematic, however, as some capital incurs a cost of relocating. Hence, lowering a tax rate by a tiny bit may not entice capital movement, as the tax savings will not offset the costs capital owners incur by relocating.

His research also pointed out that household members have more sentimental and nostalgic attachments to their home states than businesses do, and are therefore less mobile. However, although corporations often "shop" among states to determine where they can earn

the greatest after-tax profits, there are still some constraints on their mobility. Incentives need to be large enough to overcome the costs of moving, finding new employees, and perhaps building a new plant or office. These are significant costs, so corporations, though relatively mobile, may not be easily enticed to move on the basis of marginal tax differences.

According to Tiebout's theory (1956), mobile individuals and corporations tend to locate in communities that, from their perspective, offer an optimal balance of taxation and government services. Several studies have found relationships between migration and various public sector elements. In conducting a review of past research, Charney (1993) identified how taxes, government services, and local fiscal structures influence individual and industrial migration patterns. This research suggests that tax increases are not necessarily sufficient to deter industrial development. Rather, choices depend, in part, on whether the new revenues from the tax are used to increase transfer payments or to increase other government services, such as education or public safety. Increasing government services may stimulate economic growth, whereas increasing transfer payments may be detrimental to growth.[6] Charney's literature review, however, also referred to studies that dispute this view.

More recently, Fisher (1997) concluded that the ways in which new tax revenues are spent may play a larger role in regional growth than differences in tax rates across states. In the next section, we discuss the interdependencies between tax policies among competing jurisdictions.

Interdependence of Tax Policies Among States

A critical issue in tax policy evaluation is the potential reactions of neighboring and competitor states. It may be unwarranted to assume that if a given state makes a major shift in policy, competitor states will do nothing in response. The research documents the important interactions that take place among jurisdictions when setting policies.

A number of studies have shown that policymakers in a given state tend to respond to the actions of policymakers in neighboring states in many policy arenas, including tax and spending decisions. Research has shown that a $1 rise in state government spending could lead to a 33- to 88-cent increase in the spending of neighboring states (Rork, 2003; Baicker, 2001; and Case, 1993). Similar patterns have been found with tax policies. A study by Besley and Case (1995) found that voters typically look to neighboring states to determine whether an in-state tax hike is appropriate. If a nearby state has recently increased (or reduced) tax rates, voters and politicians are more likely to approve a tax increase (or reduction). Looking to neighboring states gives residents an indication of the overall economic conditions in the region and the overall necessity of the tax. The earlier work of Case (1993) showed that governors are more likely to increase (or reduce) taxes when their counterparts in neighboring states are doing the same.

Certain types of taxes seem to lead to more interstate competition in rates than others. Rork (2003) showed that excise taxes — namely, tobacco, alcohol, and gasoline taxes — are particularity

A number of studies have shown that policymakers in a given state tend to respond to the actions of policymakers in neighboring states in many policy arenas, including tax and spending decisions.

Researchers examining differences in how new taxes are used generally concede that taxes used for general fund expenditures have at least a small positive effect on growth, whereas fund transfers have either negligible or negative effects.

susceptible to interstate competition. However, taxes on more immobile bases, such as personal and corporate income taxes and general sales taxes,[7] are not as likely to experience as much inter-jurisdictional competition. One explanation is that it is much more difficult for residents and corporations to move in response to changing tax environments than it is for consumers residing near state borders to shop for certain goods out of state. This research suggests that states that rely more heavily on immobile tax bases are more likely to experience stable revenues from their tax systems, while those states that rely on relatively more mobile tax bases may suffer, through interstate competition, an eroding tax base.

Taxation and Government Spending Are Linked

Tax policy researchers typically approach the relationship between economic activity and taxation either by estimating a direct relationship between taxation and economic activity, or by considering how the expenditure of tax dollars affects growth. This section focuses on the latter body of research.

Researchers who focus on how tax dollars are spent typically divide expenditures into two categories: general fund expenditures or fund transfer payments.[8] General fund expenditures are considered to be more productive, in the sense that they typically fund services such as infrastructure, education, and public safety — elements regarded as important to economic growth. General fund expenditures may be used to enhance amenities in a given area. In contrast, transfer payments consist of any distribution of income for which no good or service is received in return, such as welfare payments, food stamps, medical insurance, or pensions. Transfer payments are not explicitly linked to any growth factors, and these dollars may even flow out of state. Researchers examining differences in how new taxes are used generally concede that taxes used for general fund expenditures have at least a small positive effect on growth, whereas fund transfers have either negligible or negative effects.

In a time series analysis of 48 states from 1965 through 1979, Helms (1985) focuses on the separate effects of different categories of taxes (as a percentage of personal income), state expenditures on education, public health, public safety, and transfer payments. His findings support the view that a state-level increase in taxes to fund transfer payments decreases economic growth. However, when the new tax revenue is used to finance general fund expenditures such as education, public health, and public safety, businesses may be attracted to the better service, despite higher taxation. For example, according to Helms, a state that increases property taxes and uses such funds to finance local education can expect that for every $1 of additional tax revenue per $1,000 of personal income, personal income will rise by 0.060 percent.

Mofidi and Stone (1990) supported Helm's conclusion. Using a similar methodology, but focusing on economic growth through manufacturing investment and employment, they found that state and local government taxes spent on transfer payments are significantly and

negatively correlated with investment and employment in manufacturing, but that the relationship is positive when taxes are devoted to funding health, education, and transportation services.

Fisher (1997) summarized the main studies regarding this issue and tried to identify services that were associated with increased economic growth. In his review of the literature, only six of the 19 reviewed papers on education showed a significant positive effect, and only four of the nine studies on public safety did so. The estimated effects of increased spending on highways and transportation facilities were mixed, making it difficult to draw any conclusions about this service area. Generally, the evidence is mixed regarding the positive effect of government spending for specific purposes such as education, public safety, and infrastructure.

Understanding the Differences in Research Findings

Thus far in this review we have not acknowledged the tension among policy researchers in their views on the relationship between taxation and economic growth. Research dealing with business activity generally focuses on one of two areas: the change in business activity resulting from an overall change in the tax environment, or a change in a specific tax. Focusing on general taxation, the most recent work of Reed (2008) yielded a significant and robust negative long-run relationship between taxation and investment, employment, and population growth. However, several well-executed studies provide evidence that taxation does not necessarily repel business activity when it is accompanied by spending in education, public health, public safety, or transportation. One body of research suggests that increasing taxes deters economic growth, but another body of research suggests that tax increases may promote growth, depending on how such revenues are used.

Reconciling these competing conclusions is difficult, but a cost-benefit analysis may shed light on the issue. There are significant differences across states and over time with respect to the needs of residents and businesses. The degree to which a reduction in tax rates affects growth in a given state and at a particular point in time depends on the relationship between the marginal benefits of the tax reduction (increased household income) and the marginal costs of public service reduction. If a particular state offers services that the public does not value, or offers them inefficiently, a tax reduction may lead to a cut in unwanted services or even to a more efficient provision of services. In this case, a cut in taxes may yield a high benefit at a relatively low cost, and the net benefit may be conducive to economic activity. If, however, a state has experienced prolonged fiscal stress, many unwanted services and/or inefficiencies may have already been purged from the system. In this case, a significant tax reduction may very well lead to a cut in highly valued public services (education, public safety, quality infrastructure, etc.). A tax cut could then lead to a net cost, and thus deter economic activity.

One body of research suggests that increasing taxes deters economic growth, but another body of research suggests that tax increases may promote growth, depending on how such revenues are used. Reconciling these competing conclusions is difficult, but a cost-benefit analysis may shed light on the issue.

The circumstances of a state in part determine how changes in the tax environment play out over time. Furthermore, the impacts of a tax change on economic activity may not be fully realized for a number of years because corresponding changes in government productivity or public infrastructure take time to be fully realized.

Taxpayers may be unwilling to fund programs that offer little benefit either to them directly or to their community. For example, transfers may be viewed as an expenditure that yields little benefit to the taxpayer. However, businesses and households may be willing to finance programs or infrastructure that will increase their overall productivity and welfare, such as by improvements in safety or education.

To summarize: The circumstances of a state in part determine how changes in the tax environment play out over time. Furthermore, the impacts of a tax change on economic activity may not be fully realized for a number of years because corresponding changes in government productivity or public infrastructure take time to be fully realized.

This discussion of the tension among the tax policy researchers concludes the main review of the literature. Below, we present data with a corresponding discussion of Missouri's current and historical tax environment in the context of the research discussed above.

OVERVIEW OF TAX POLICIES ACROSS THE UNITED STATES

Much of the existing research focuses on the effects of overall state taxation on economic activity, but there is much less evidence about the effects of tax structure on economic activity. For example, does reliance on one particular type of tax (e.g., income or business taxes) have a more negative effect on economic activity than do other taxes? Or is the overall tax burden within a state the factor that matters most? In our assessment, this question has not yet been fully addressed in the literature. However, we see considerable diversity across the states in both tax burden and tax structure, and cross-state comparisons can offer some insights.

Residents typically pay taxes to state governments, as well as to a host of local government entities. At the state level, governments typically rely on income and sales taxes to generate most revenues. It should be noted, however, that several states lack an income tax (Alaska, Florida, Nevada, South Dakota, Tennessee,[9] Texas, Washington, and Wyoming) and several states lack a sales tax (Alaska, Delaware, Montana, New Hampshire, and Oregon). Across the states, local governments rely on property taxes for revenues. We begin this cross-state comparison by focusing on measures of overall tax burden, and then offer some comparisons of Missouri's tax structure with those of neighboring states.

As noted in the introduction, two common methods of comparing tax environments across jurisdictions rely on the use of average tax rates (ATR) and marginal tax rates (MTR). The ATR is defined as the total tax collections divided by the economic value of the taxed activity. In the case of the state income tax, the ATR would derive from total state income tax collections divided by the total state income.

However, because average tax rates can misrepresent actual tax burdens, marginal tax rates are considered to be more effective and accurate measures of tax burden. MTR is defined as the change

Table 1. Estimated MTRs and Tax Progressivities by State (2000–2004)

STATE	MTR	RANK
Alabama	8.91	46
Alaska	8.01	50
Arizona	10.38	27
Arkansas	10.69	23
California	10.58	25
Colorado	9.25	44
Connecticut	11.92	6
Delaware	11.23	13
Florida	10.04	37
Georgia	10.31	30
Hawaii	12.50	3
Idaho	10.88	17
Illinois	10.03	38
Indiana	10.85	19
Iowa	10.32	29
Kansas	10.79	21
Kentucky	11.19	14
Louisiana	10.37	28
Maine	14.00	2
Maryland	10.18	33
Massachusetts	9.95	39
Michigan	10.88	16
Minnesota	11.74	8
Mississippi	10.78	22
Missouri	9.92	41

STATE	MTR	RANK
Montana	10.13	35
Nebraska	10.97	15
Nevada	10.14	34
New Hampshire	8.99	45
New Jersey	11.46	10
New Mexico	12.46	4
New York	14.11	1
North Carolina	10.30	31
North Dakota	10.64	24
Ohio	11.37	11
Oklahoma	9.93	40
Oregon	10.52	26
Pennsylvania	10.29	32
Rhode Island	11.80	7
South Carolina	10.09	36
South Dakota	8.79	47
Tennessee	8.55	48
Texas	9.69	43
Utah	10.86	18
Vermont	11.36	12
Virginia	9.83	42
Washington	10.82	20
West Virginia	11.61	9
Wisconsin	12.38	5
Wyoming	8.40	49

Source: Reed, Rogers, and Skidmore (2009)

Because average tax rates can misrepresent actual tax burdens, marginal tax rates are considered to be more effective and accurate measures of tax burden.

in tax collections divided by the change in economic activity. MTRs offer a better measure of the change in tax payments incurred by engaging in a particular activity, and are also more useful in measuring the change in spending power of an individual when faced with a $1 change in taxable income.

Table 1 is excerpted from a recent working paper by Reed, Rogers, and Skidmore (2009), and shows the estimated overall state and local government MTRs in each of the 50 states.[10] The MTRs in this table can be interpreted as the percent change in tax payments (corporate income, personal income, sales, property, and other taxes) associated with a $1 increase in personal income. Each state is ranked by MTR, with Missouri at 41, indicating that between 2000 and 2004, the MTR was low relative to the other states. The Reed, Rogers, and Skidmore estimates are, to our knowledge, the most accurate time-varying estimates of overall state MTRs available. This table suggests that from the perspective of tax burden, Missouri is very competitive; less than 10 cents of every additional dollar earned by Missouri residents is taxed by state and local governments. Alaska's MTR is lowest, at eight cents, whereas New York's is highest, at slightly more than 14 cents.

For comparison, we also report state and local government ATRs for Missouri during the 1970–2007 period, relative to

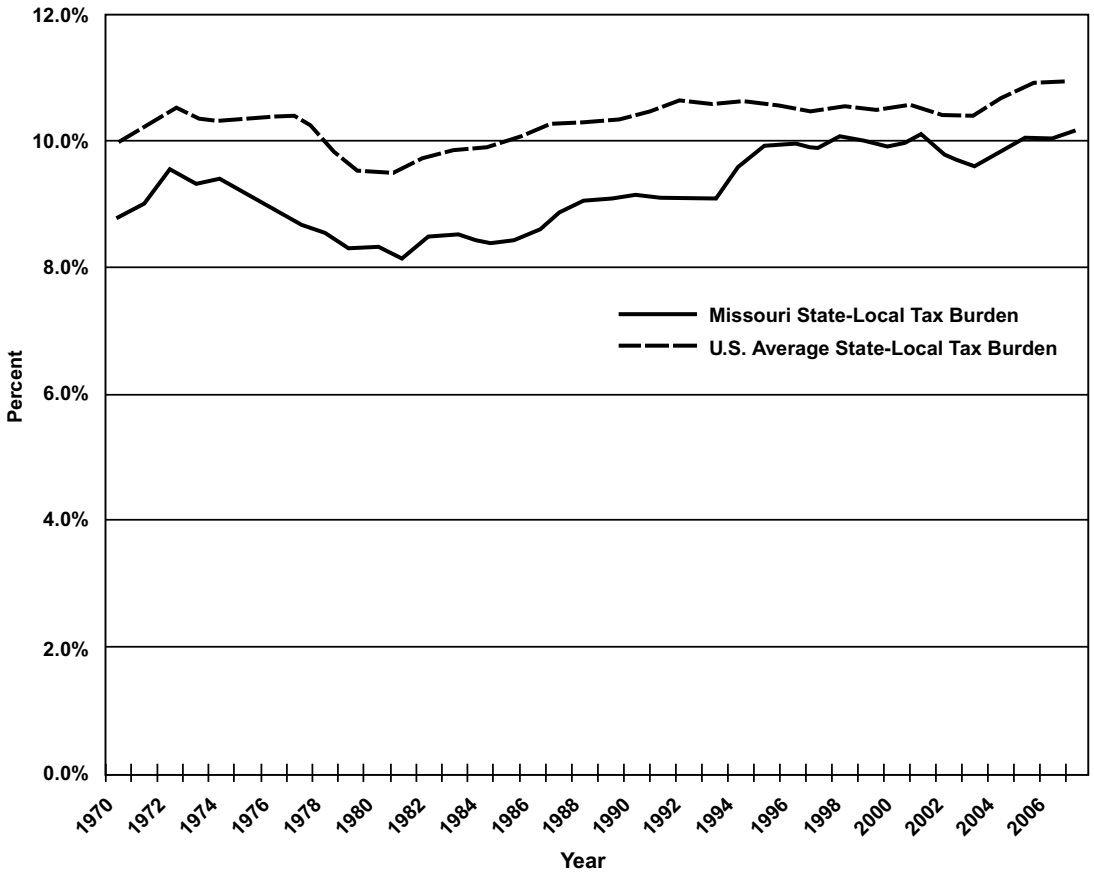
From the perspective of tax burden, Missouri is very competitive; less than 10 cents of every additional dollar earned by Missouri residents is taxed by state and local governments.

the average for all states. In Figure 1, the solid line depicts Missouri's ATRs and the dotted line represents the U.S. average ATR. These figures exclude federal taxes, comparing only state and local taxes. To obtain these tax burden figures, the Tax Foundation calculated the total amount of taxes paid by residents and divided those taxes by the total income in each of the 50 states. Therefore, these calculations provide an average measure of the percentage of income that residents pay to the state and local governments in taxes. By this measure, Missouri falls consistently lower than the U.S. average during this time period. In 2007, the ATR stood at 11.0 percent for all 50 states considered collectively, but at only 10.1 percent for the state of Missouri. Missouri ranked 34th among the 50 states. That is, Missouri is among the lower-tax states; between 1970 and 2007, Missouri's state and local tax burden was about 1.1 percent lower than the average of the all 50 states.

OVERVIEW OF TAX POLICIES FOR MISSOURI AND ITS NEIGHBORS

We now turn our attention to a more focused discussion of Missouri's

Figure 1. Missouri State/Local Average Tax Burden Compared to U.S. Average (1970–2007)



Source: Tax Foundation calculations based on data from the Bureau of Economic Analysis, Department of Commerce.

income tax. Because of the clear interdependence between a state and its region, it is important to compare Missouri's income tax burden to that of other states in its region. The states contiguous to Missouri are Arkansas, Illinois, Iowa, Kansas, Kentucky, Nebraska, Oklahoma, and Tennessee. As explained above, these states are most likely to form interdependencies in tax and expenditure policies with Missouri. The appendix on p. 39 of this study provides detailed information from all 50 states for comparison. Table 2 on page 14 focuses on states in Missouri's region.

Most states have some sort of progressive income tax structure built into their system; however, Missouri's single-filer income tax brackets are relatively low, as shown in Table 2. In 2006, Missouri's median household income was $42,841, and its per-capita income was $22,916. Taken together with the tax schedule, it seems likely that most Missouri residents incur the maximum 6-percent tax rate. With the exception of Oklahoma, other states in the region impose a graduated, more progressive tax structure. To illustrate, an individual with an annual taxable income of $40,000 would be taxed at Missouri's highest tax bracket (6 percent), Iowa's third-highest tax bracket (6.8 percent), Arkansas' highest bracket (7 percent), and Nebraska's highest bracket (6.84 percent). For single filers with annual taxable income of $20,000, the tax rates fall for Iowa (6.12 percent), Nebraska (5.12 percent), and Arkansas (6 percent), but in Missouri, the rate remains at 6 percent. Missouri appears to have a lower rate and a less progressive structure than most of its neighboring states.

Another important feature of state taxation highlighted in Table 2 is whether states allow federal income taxes to be deducted from state tax liabilities. In the region, only Missouri and Iowa allow federal income taxes to be deducted; and across the county, as shown in the appendix, only seven states (Alabama, Iowa, Louisiana, Missouri, Montana, Oregon, and Utah) allow federal deductibility. The federal deductibility prevents double taxation of income and is therefore favorable to taxpayers.

Missouri Tax Revenues

In 2005–06, the most recent year of available data from the U.S. Census Bureau, a combined individual and corporate income tax made up 33 percent of Missouri's total general own source revenues.[11] Of the revenue from own sources, 21 percent comes from the general sales and use tax, while almost 11 percent comes from selective sales taxes such as those on alcohol, tobacco, motor fuel, public utilities, and others. That same fiscal year, total revenues from all sources, including transfers from the federal government, came to $28.7 billion, of which 16.8 percent was collected from income taxes and 10.7 percent from general sales and use taxes.

Figure 2 on page 15 shows the percentage of various taxes that contribute to general own source revenues. These categories, as defined by the U.S. Census Bureau, overlap one another and therefore do not sum to 100 percent. For example, "general sales and use taxes" is a subcategory of "sales and gross revenues." The category "sales and

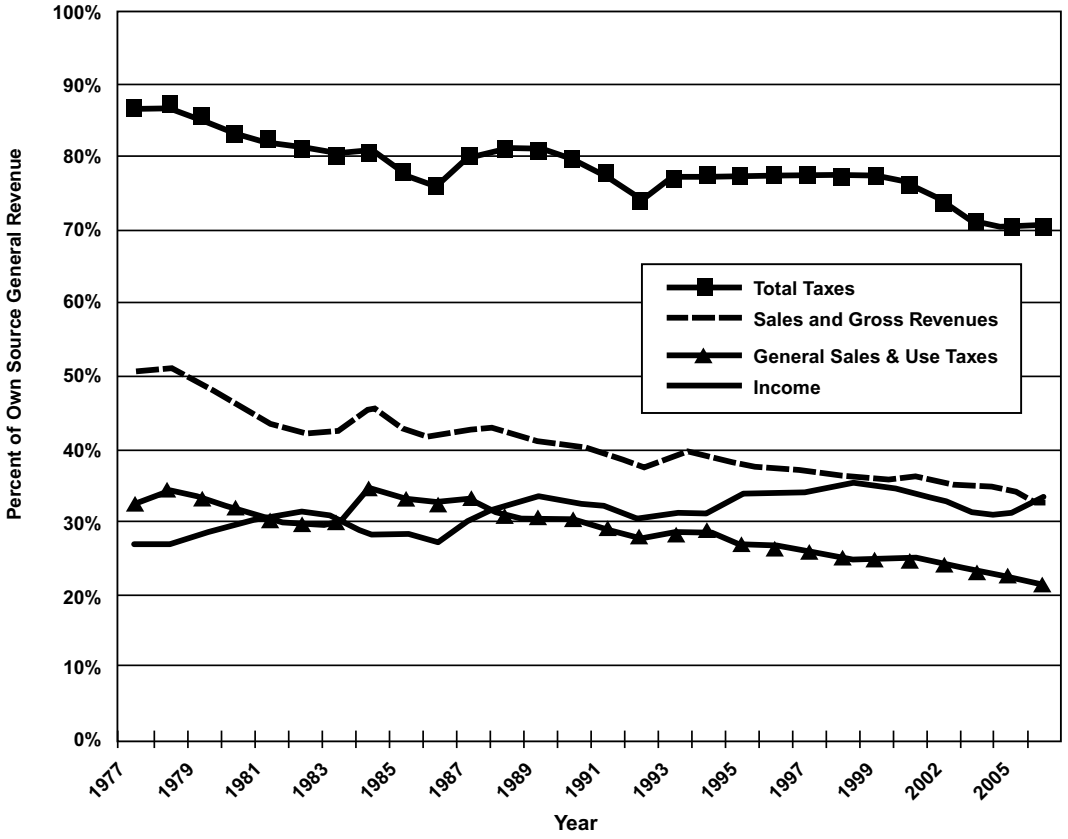
Because of the clear interdependence between a state and its region, it is important to compare Missouri's income tax burden to that of other states in its region.

Table 2. Missouri Neighboring States' Individual Income Tax Rates, 2008
Local Rates Excluded — As of Jan 1, 2008 (except where noted) — 2008's noteworthy changes in bold

STATE	FEDERAL DEDUCTIBILITY	MARGINAL RATES AND TAX BRACKETS FOR SINGLE FILERS FOR (A)	STANDARD DEDUCTION		PERSONAL EXEMPTIONS (B)	
			SINGLE	JOINT	SINGLE	DEPENDENTS
Arkansas	No	1% > $0 2.5% > $3,600 3.5% > $7,200 4.5% > $10,800 6% > $18,000 7% > $30,100 (k), (r), (y)	$2,000	$4,000	$22 (c)	$22 (c)
Illinois	No	3% of federal adjusted gross income with modification	n/a	n/a	$2,000	$2,000
Iowa	Yes	0.36% > $0 **0.72% > $1,343** **2.43% > $2,686** **4.5% > $5,372** **6.12% > $12,087** **6.48% > $20,145** **6.8% > $26,860** **7.92% > $40,290** **8.98% > $60,435** (r), (y)	$1,750 (r)	$4,310 (r)	$40 (c)	$40 (c)
Kansas	No	3.5% > $0 6.25% > $15,000 6.45% > $30,000	$3,000	$6,000	$2,250	$2,250
Kentucky	No	2% > $0 3% > $3,000 4% > $4,000 5% > $5,000 5.8% > $8,000 6% > $75,000 (y)	$2,050 (r)	$2,050 (r)	$ 20 (c)	$ 20 (c)
Missouri	Yes (u) (t)	1.5% > $0 2% > $1,000 2.5% > $2,000 3% > $3,000 3.5% > $4,000 4% > $5,000 4.5% > $6,000 5% > $7,000 5.5% > $8,000 6% > $9,000 (y)	$5,150 (s)	$10,300 (s)	$2,100	$1,200
Nebraska	No	2.56% > $0 3.57% > $2,400 5.12% > $17,500 6.84% > $27,000 (x), (y)	$5,350 (r)	$10,700 (r)	$ 106 (c)(n)	$ 106 (c)(n)
Oklahoma	No (d)	0.5% > $0 1% > $1,000 2% > $2,500 3% > $3,750 4% > $4,900 5% > $7,200 **5.65% > $8,700** **(y)**	$2,000	$3,000	$1,000	$1,000
Tenn.	No	6% > $0 (h)	n/a	n/a	$1,250	n/a

Source: Tax Foundation; state tax forms and instructions.
Note: Bold indicates notable tax changes. Local rates are excluded; 14 states have county-level income taxes. Weighted by income, the average rates are 2.73% in Maryland, 1.81 percent in Ohio, 1.28 percent in Pennsylvania, 0.98 percent in Indiana, 0.91 percent in Kentucky, 0.88 percent in Michigan, 0.87 percent in Delaware, 0.67 percent in New York, 0.36 percent in Oregon, 0.25 percent in Iowa, 0.19 percent in Alabama, 0.12 percent in Missouri, 0.09 percent in New Jersey, and 0.06 percent in Arkansas.
Notes for remarks (a) through (ff), in addition to data for all 50 states, can be found in the appendix.

Figure 2. Various Revenue Sources as a Percentage of Missouri's Own Source General Revenues (1977–2006)



Source: U.S. Census Bureau State Government Finances.
Note: Data was unavailable for fiscal years ending in 2001 and 2003. Chart percentages should not equal 100 percent. See in-text explanation below.

gross revenues" also includes selective sales taxes, such as those on alcohol, tobacco, motor fuel, and others. Likewise, "total taxes" is a summation of property and income taxes, sales and gross receipts, motor vehicle license revenues, and other taxes.

Figure 2 highlights several features of Missouri's state revenue structure. First, total taxes collected by the state have become a less substantial component of own source revenue over time. In 1977, total taxes made up 87 percent of own source general revenue; but by 2006, reliance on tax revenues had dropped to 71 percent. The implication is that a larger portion of revenues has been generated from charges and miscellaneous sources of revenue, which include charges for higher education, school lunch sales, hospitals, airports, parks and recreation, solid waste management, and other areas. Interest earnings, special assessments, and sale of property are also included. In 2006, charges and miscellaneous general revenue contributed $3.7 billion, or 30.3 percent, to own source revenue, but amounted to only 13.1 percent of own source revenue in 1977.

A second trend highlighted in Figure 2 is the reduced reliance on sales and use taxes, as well as selective taxes. During

Total taxes collected by the state have become a less substantial component of own source revenue over time. In 1977, total taxes made up 87 percent of own source general revenue; but by 2006, reliance on tax revenues had dropped to 71 percent. The implication is that a larger portion of revenues has been generated from charges and miscellaneous sources of revenue.

Generally, the more recent research findings support the hypothesis that there is an inverse relationship between taxation and various measures of economic activity (income, business activity, employment and migration).

the 1977 to 2006 time period, general sales and use taxes provided up to 35 percent of own source revenues in 1984, but by 2006 had declined to about 21 percent. A key reason for reduced reliance on sales taxes has been the erosion of the sales tax base. To combat this trend, sales tax rates have been adjusted upward several times during the past 30 years; however, revenue from this tax continues to erode. In 1977, Missouri's sales and use[12] tax on goods increased from 3 percent to 3.125 percent, rose again to 4.125 percent in 1983, and to 4.225 percent in 1985. In 1989, the sales tax was raised again to 4.425 percent, but it was reduced to 4.225 percent in 1990 and has remained at this rate ever since. Despite the rate increases, revenues from these sources have been anemic because Missouri primarily taxes goods but not services. As incomes increased over the period, consumers purchased relatively more services than goods, eroding the tax base.[13] If Missouri wants to prevent further erosion, and do so in a revenue-neutral way, it might consider expanding the sales and use tax to cover services while also reducing overall sales tax rates. This would minimize the efficiency costs of the tax (lower rates reduce distortions) and bring sales tax revenue growth into line with the growth in income

A final trend indicated in Figure 2 is the growing reliance on income taxation. In 1977, income taxes from corporations and individuals made up 27 percent of own source revenue. By 1998, revenue reliance from income taxes had increased to 35 percent, and has remained near that level, dropping only slightly to 33 percent by 2006. Generally, Figure 2 demonstrates that sales tax revenue reliance has declined, and that the state has increasingly relied on revenues from the income tax and other revenue sources.

SUMMARY AND CONCLUSIONS

This study has provided a comprehensive review of existing research on the relationship between taxation and economic activity, with an emphasis on the experience of the individual United States. The review included a focused discussion of income taxation. Below, we summarize several key points identified in this report.

1. Effects of Taxes on Economic Activity

Generally, the more recent research findings support the hypothesis that there is an inverse relationship between taxation and various measures of economic activity (income, business activity, employment and migration). Many reputable researchers caution that one must also carefully consider the expenditure side of the ledger in assessing the effects of taxation. Reductions in taxes are likely to correspond with reductions in spending, and those service reductions may also influence economic activity.

2. Migration

According to the research, a decrease in taxes may provide an incentive for new firms to move into an area, but changes in tax policy alone may not be enough to entice established firms to relocate, given the costs associated with moving. The research also shows that businesses and

individuals do not necessarily hunt for locations that provide the lowest tax rates, but instead are likely to seek locations that provide a desirable tax-service mix. These conclusions are consistent with Tiebout's theory that competition encourages governments to offer an optimal tax-service mix, one that best meets the needs of businesses and residents, as well as potential residents.

3. Tax Policies Are Interdependent Across Regions

Tax policy changes are not autonomous; rather, policy changes and outcomes depend on the reactions and policies of neighboring and other "competitor" states. Residents of a given home state will often look to their neighbors to help assess the necessity of proposed tax policies in the home state, and to determine the overall economic health of the region. In addition, neighboring states often compete with each other to attract business and households, and this may limit the impact of a policy implemented in the home state

4. Overview of Taxation in the United States — Missouri's Position

In a comparison of states, Missouri residents have a relatively low tax burden. According to the estimate from Reed, Rogers, and Skidmore (2008), Missouri's overall marginal tax rate is 9.92 percent, among the lowest in the nation. This means that for every –$1 of income earned in the state of Missouri, a resident can expect to pay less than 10 cents to state and local governments. This burden was found to be as high as 14.11 percent in New York, and as low as 8.01 percent in Alaska. Other than Tennessee, with an MTR of 8.55 percent, Missouri has the lowest marginal tax rate in its region. If one uses average tax rates for such a comparison, Missouri is again among the lowest states.

Generally, empirical research has demonstrated that marginal tax rates are inversely related to economic activity, but the research also points to the importance of public services and infrastructure. This study provides Missouri residents and policymakers with a summary of the most recent and reputable research in the area of taxation and economic growth. The information summarized here does not point to a clear policy choice, and is not meant to do so; rather, its purpose is to inspire thoughtful consideration of the implications of alternative policy options.

According to the research, a decrease in taxes may provide an incentive for new firms to move into an area, but changes in tax policy alone may not be enough to entice established firms to relocate, given the costs associated with moving.

APPENDIX

State Individual Income Tax Rates, 2008 Local Rates Excluded
As of Jan. 1, 2008 (except where noted) (2008's noteworthy changes in bold)

STATE	FEDERAL DEDUCTIBILITY	MARGINAL RATES AND TAX BRACKETS FOR SINGLE FILERS FOR (A)	STANDARD DEDUCTION		PERSONAL EXEMPTIONS (B)	
			SINGLE	JOINT	SINGLE	DEPENDENTS
Alabama	Yes (t)	2% > $0 4% > $500 5% > $3K	$2,000	$4,000	$1,500	$300
Alaska	No	None	n/a	n/a	n/a	n/a
Arizona	No	2.59% >$0 **2.88% > $10K** **3.36% > $25K** **4.24% > $50K** **4.54% > $150K**	$5,450 (r)	$10,890 (r)	$2,100	$2,300
Arkansas	No	1% > $0 2.5% > $3,600 3.5% > $7,200 4.5% > $10,800 6% > $18,000 7% > $30,100 (k), (r), (y)	$2,000	$4,000	$22 (c)	$22 (c)
California	No	1.0 > $0 **2% > $6,828** **4% > $16,186** **6% > $25,545** **8% > $35,461** **9.3% > $44,815** **10.3% > $1,000,000** (r), (y)	$3,516 (r)	$7,032 (r)	$94 (c)(r)	$294 (c)(r)
Colorado	No	4.63% of federal taxable income	n/a	n/a	n/a	n/a
Connecticut	No	3.0% > $0 5.0% > $10,000	n/a	n/a	$12,625 (e)	$0
Delaware	No	2.2% > $2,000 3.9% > $5,000 4.8% > $10,000 5.2% > $20,000 5.55% > $25,000 5.95% > $60,000 (y)	$3,250	$6,500	$110 (c)	$110 (c)
Florida	No	none	n/a	n/a	n/a	n/a
Georgia	No	1% > $0 2% > $750 3% > $2,250 4% > $3,750 5% > $5,250 6% > $7,000 (y)	$2,300	$3,000	$2,700	$3,000
Hawaii	No	1.4% > $0 **3.2% > $2,400** **5.5% > $4,800** **6.4% > $9,600** **6.8% > $14,400** **7.2% > $19,200** **7.6% > $24,000** **7.9% > $36,000** **8.25% > $48,000**	$1,500	$1,900	$1,040	$1,040

STATE	FEDERAL DEDUCTIBILITY	MARGINAL RATES AND TAX BRACKETS FOR SINGLE FILERS FOR (A)	STANDARD DEDUCTION		PERSONAL EXEMPTIONS (B)	
			SINGLE	JOINT	SINGLE	DEPENDENTS
Idaho	No	1.6% > $0 3.6% > $1,198 4.1% > $2,396 5.1% > $3,594 6.1% > $4,793 7.1% > $5,991 7.4% > $8,986 7.8% > $23,963 (r)	$5,350 (s)	$10,700 (s)	$3,400 (s) (g)	$3,400 (s) (g)
Illinois	No	3% of federal adjusted gross income with modification	n/a	n/a	$2,000	$2,000
Indiana	No	3.4% of federal adjusted gross income with modification	n/a	n/a	$1,000	1000 (i)
Iowa	Yes	0.36% > $0 **0.72% > $1,343** **2.43% > $2,686** **4.5% > $5,372** **6.12% > $12,087** **6.48% > $20,145** **6.8% > $26,860** **7.92% > $40,290** **8.98% > $60,435** (r), (y)	$1,750 (r)	$4,310 (r)	$40 (c)	$40 (c)
Kansas	No	3.5% > $0 6.25% > $15,000 6.45% > $30,000	$3,000	$6,000	$2,250	$2,250
Kentucky	No	2% > $0 3% > $3,000 4% > $4,000 5% > $5,000 5.8% > $8,000 6% > $75,000 (y)	$2,050 (r)	$2,050 (r)	$ 20 (c)	$ 20 (c)
Louisiana	Yes	2% > $0 **4% > $25,000** **6% > $50,000**	n/a	n/a	$ 4,500 (l)	$1,000
Maine	No	2% > $0 **4.5% > $4,750** **7% > $9,450** **8.5% > $18,950 (r)**	$5,450 (r)	$9,100 (r)	$2,850	$2,850
Maryland	No	2% > $0 3% > $1,000 4% > $2,000 4.75% > $3,000 (y) **5.25% > $125,000** **5.5% > $150,000** **5.75% > $200,000**	$2,000 (m)	$4,000 (m)	$2,400	$2,400
Massachusetts	No	5.3% and 12% (ff)	n/a	n/a	**$4,125**	$1,000
Michigan	No	4.35% of federal adjusted gross income with modification (ee)	n/a	n/a	$3,300 (s)	$3,300 (s) (v)

STATE	FEDERAL DEDUCTIBILITY	MARGINAL RATES AND TAX BRACKETS FOR SINGLE FILERS FOR (A)	STANDARD DEDUCTION		PERSONAL EXEMPTIONS (B)	
			SINGLE	JOINT	SINGLE	DEPENDENTS
Minnesota	No	5.35% > $0 **7.05% > $21,310** **7.85% >$69,990** (r), (y)	$5,350 (s)	$10,700 (s)	$ 3,400 (s)	$ 3,400 (s)
Mississippi	No	3% > $0 4% > $5,000 5% > $10,000 (y)	$2,300	$4,600	$6,000	$1,500
Missouri	Yes (u) (t)	1.5% > $0 2% > $1,000 2.5% > $2,000 3% > $3,000 3.5% > $4,000 4% > $5,000 4.5% > $6,000 5% > $7,000 5.5% > $8,000 6% > $9,000 (y)	$5,150 (s)	$10,300 (s)	$2,100	$1,200
Montana	Yes (w)	1% > $0 **2% > $2,499** **3% > $4,399** **4% > $6,599** **5% > $8,999** **6% > $11,599** **6.9% > $14,899** (r), (y)	$3,810 (r)	$7,620 (r)	$2,040 (r)	$2,040 (r)
Nebraska	No	2.56% > $0 3.57% > $2,400 5.12% > $17,500 6.84% > $27,000 (x), (y)	$5,350 (r)	$10,700 (r)	$106 (c)(n)	$106 (c)(n)
Nevada	No	none	n/a	n/a	n/a	n/a
New Hampshire	No	5% > $0 (h)	2400	4800	n/a	n/a
New Jersey	No	1.4% > $0 1.75% > $20,000 3.5% > $35,000 5.525% > $40,000 6.37% > $75,000 8.97% > $500,000 (y)	n/a	n/a	$1,000	$1,500
New Mexico	No	1.7% > $0 3.2% > $5,500 4.7% > $11,000 5.3% > $16,000 (s)	$5,150 (s)	$10,300 (s)	$3,300 (s)	$3,300 (s)
New York	No	4% > $0 4.5% > $8,000 5.25% > $11,000 5.9% > $13,000 6.85% > $20,000	$7,500	$15,000	n/a	$1,000

STATE	FEDERAL DEDUCTIBILITY	MARGINAL RATES AND TAX BRACKETS FOR SINGLE FILERS FOR (A)	STANDARD DEDUCTION		PERSONAL EXEMPTIONS (B)	
			SINGLE	JOINT	SINGLE	DEPENDENTS
North Carolina	No	6% > $0 7% > $12,750 7.75% > $60,000 **8% > $120,000** (y) (dd)	$3,000	$6,000	$1,300 (o) (r)	$1,300 (o) (r)
North Dakota	No	2.1% > $0 **3.92% > $31,850** **4.34% > $77,100** **5.04% > $160,850** **5.54% > $349,700** (r), (y)	$5,350 (s)	$10,700 (s)	$3,400 (s)	$3,400 (s)
Ohio	No	**0.649% > $0** **1.299% > $5,000** **2.598% > $10,000** **3.247% > $15,000** **3.895% > $20,000** **4.546% > $40,000** **5.194% > $80,000** **6.031% > $100,000** **6.555% > $200,000** (y)	n/a	n/a	$1,450 (g) (r)	$1,450 (g) (r)
Oklahoma	No (d)	0.5% > $0 1% > $1,000 2% > $2,500 3% > $3,750 4% > $4,900 5% > $7,200 **5.65% > $8,700 (y)**	$2,000	$3,000	$1,000	$1,000
Oregon	Yes (z)	5% > $0 7% > $2,850 **9% > $7,150 (r)**	$1,850 (r)	$3,650 (r)	$165 (c)(r)	$165 (c)(r)
Pennsylvania	No	3.07% > $0	n/a	n/a	n/a	n/a
Rhode Island	No	3.75% > $0 **7% > $31,850** **7.75%> $77,100** **9% > $160,850** **9.9% >$349,700** (y) (aa)	$5,350 (s)	$10,700 (s)	$3,400 (s)	$3,400 (s)
South Carolina	No	2.5% > $0 **3% > $2,630** **4% > $5,260** **5% > $7,890** **6% > $10,520** **7% > $13,150** (r), (y)	$5,350 (s)	$10,700 (s)	$ 3,400 (s)	$ 3,400 (s)
South Dakota	No	none	n/a	n/a	n/a	n/a
Tennessee	No	6% > $0 (h)	n/a	n/a	$1,250	n/a
Texas	No	none	n/a	n/a	n/a	n/a

STATE	FEDERAL DEDUCTIBILITY	MARGINAL RATES AND TAX BRACKETS FOR SINGLE FILERS FOR (A)	STANDARD DEDUCTION		PERSONAL EXEMPTIONS (B)	
			SINGLE	JOINT	SINGLE	DEPENDENTS
Utah	Yes (bb)	5% > $0 (cc)	$5,450 (s)	$10,900 (s)	$2,625 (q)	$2,475 (q)
Vermont	No	3.6% > $0 **7.2% > $31,850** **8.5% > $77,100** **9% > $160,850** **9.5% > $349,700** (r), (y)	$5,350 (s)	$10,700 (s)	$ 3,400 (s)	$ 3,400 (s)
Virginia	No	2% > $0 3% > $3,000 5% > $5,000 5.75% > $17,000 (y)	$3,000	$6,000	$900	$900
Washington	No	none	n/a	n/a	n/a	n/a
West Virginia	No	3% > $0 4% > $10,000 4.5% > $25,000 6% > $40,000 6.5% > $60,000 (y)	n/a	n/a	$2,000	$2,000
Wisconsin	No	4.60% > $0 **6.15% > $9,510** **6.50% > $19,020** **6.75% > $142,650** (r), (y)	**$8,790 (j)**	**$15,830 (j)**	$700	$700
Wyoming	No	none	n/a	n/a	n/a	n/a
District of Columbia	No	**4% > $0** **6% > $10,000** **8.5% > $40,000** (y)	$2,500	$2,500	**$1,675**	**$1,675**

Source: Tax Foundation; state tax forms and instructions.
Note: Bold indicates notable tax changes. Local rates are excluded; 14 states have county-level income taxes. Weighted by income, the average rates are 2.73 percent in Maryland, 1.81 percent in Ohio, 1.28 percent in Pennsylvania, 0.98 percent in Indiana, 0.91 percent in Kentucky, 0.88 percent in Michigan, 0.87 percent in Delaware, 0.67 percent in New York, 0.36 percent in Oregon, 0.25 percent in Iowa, 0.19 percent in Alabama, 0.12 percent in Missouri, 0.09 percent in New Jersey, and 0.06 percent in Arkansas.

(a) Applies to single taxpayers and married people filing separately. Most states double brackets for married people filing jointly.
(b) Married joint filers generally receive double the single exemption.
(c) Tax credit.
(d) Federal deductibility repealed.
(e) Maximum equals $12,625. Value decreases as income increases and phases out completely at $37,250 for a single taxpayer. A credit is also offered that is equal to a percentage of tax owed, and decreases as income increases. Phases out completely at $55,000.
(f) Top three rates went into effect on Jan. 1, 2008 for tax year 2008.
(g) Taxpayers receive a $20 tax credit per exemption in addition to the normal exemption amount. Called the “Grocery Credit” in Idaho.
(h) Applies to interest and dividend income only.
(i) Additional $1,500 dependent child exemption.
(j) Deduction phases out to zero for single filers at $82,500 and joint filers at $94,175.
(k) Rates apply to regular tax table. A special tax table is available for low-income taxpayers that reduces their tax payments.
(l) Standard deduction and personal exemptions are combined: $4,500 for single and married filing separately, $9,000 for married filing jointly and head of household.
(m) The standard deduction is 15 percent of income with a minimum of $1,500 and a cap of $2,000 for single filers, married filing separately filers and dependent filers earning more than $13,333. The standard deduction is capped at

$4,000 for married filing jointly filers, head of households filers and qualifying widowers earning more than $26,667.
(n) The $106 personal exemption credit no longer phases out for filers with higher adjusted gross incomes.
(o) Exemptions are based on federal Adjusted Gross Income (AGI), and are adjusted according to income and filing status. Taxpayers filing single with AGI less than $60,000 receive $800 per exemption; if they earn more than $60,000, they get $1,300 per exemption. Taxpayers married filing jointly with AGI less than $100,000 get $1,600 per exemption and $2,600 for AGI more than $100,000.
(q) Three fourths federal exemption.
(r) These 11 states adjust their bracket levels for inflation at the end of each year, before printing their tax forms. Bracket levels shown are for tax year 2007.
(s) Deductions and exemptions are tied to the federal tax system. Federal deductions and exemptions are indexed for inflation.
(t) Residents should deduct the federal income tax liability as shown on their 2007 federal income tax return.
(u) If you checked Box A, B, D, E, F, or G on Line 9, your federal tax deduction is limited to $5,000. If you checked Box C on Line 9, your federal tax deduction is limited to $10,000.
(v) Additional $600 exemption per dependent younger than 18 years.
(w) Available only if itemizing deductions.
(x) If adjusted gross income is $150,500 or more ($75,250 if married filing separate), Nebraska itemized deductions are reduced, and marginal tax rates are phased out.
(y) Brackets are not double for married taxpayers. California's $1,000,000 bracket is not doubled. New Jersey adds an additional bracket for married taxpayers, in addition to not doubling any bracket.
(z) Deduction limited to no more than $5,000.
(aa) Taxpayers calculate tax under a flat tax system and pay the lesser liability. The flat tax applies to all types of income, with no exemptions or deductions, and treats capital income as wages. The flat tax rates are 8.0 percent for 2006, 7.5 percent for 2007, 7 percent for 2008, 6.5 percent for 2009, 6 percent for 2010, and 5.5 percent for 2011 and beyond.
(bb) Half of federal income tax deductible.
(cc) Deductions are taken in the form of a nonrefundable credit of 6 percent of the federal deduction and exemption amount, except for the deduction for state or local income tax, which is excluded. This credit phases out at 1.3 cents per dollar above $12,000 of AGI ($24,000 for married couples).
(dd) North Carolina will finally allow the expiration of the temporary increase of its top income tax rate as of Jan. 1, 2008, when the top rate will return to 7.75 percent.
(ee) The new rate went into effect on Oct. 1, 2007. A blended rate of 4.01 percent applies for the 2007 tax year.
(ff) The 12 percent rate applies to short-term capital gains, long- and short-term capital gains on collectibles, and pre-1996 installment sales classified as capital gain income for Massachusetts purposes. Taxpayers have the choice of paying an optional higher rate of 5.85 percent.

REFERENCES

Bartik, Timothy J., "Discussion: The Effects of State and Local Public Services on Economic Development," *New England Economic Review*, March/April 1997, pp. 67–71.

Bartik, Timothy J., "The Effects of State and Local Taxes on Economic Development: A Review of Recent Research," *Economic Development Quarterly*, vol. 6, no. 1, 1992, pp. 102–110.

Baicker, Katherine, "The Spillover Effects of State Spending," NBER Working Paper No. 8383, 2001.

Besley, Timothy, and Anne Case, "Incumbent Behavior: Vote-Seeking, Tax-Setting, and Yardstick Competition," *The American Economic Review*, vol. 85, no. 1, 1995, pp. 25–45.

Blanco, C., "The Determinants of Interstate Population Movements," *Journal of Regional Science*, 5, 1963, pp. 77–84.

Borts, G., and J. Stein, *Economic Growth in a Free Market*, Columbia University Press, 1964.

Case, Anne, "Interstate Tax Competition after TRA86," *Journal of Policy Analysis and Management*, vol. 12, no. 1, 1993, pp. 136–148.

Charney, Alberta H., "Migration and the Public Sector: A Survey," *Regional Studies*, vol. 27, no. 4, 1993, pp. 313–326.

Edwards, Mary E., *Regional and Urban Economics and Economic Development*, Auerbach Publications, 2007.

Fisher, Ronald C., "The Effects of State and Local Public Services on Economic Development," *New England Economic Review*, March/April 1997, pp. 53–67.

Helms, L. Jay, "The Effect of State and Local Taxes on Economic Growth: A Time Series-Cross Section Approach," *The Review of Economics and Statistics*, 67, no. 4, 1985, pp. 574–582.

Knapp, T., and P. Graves, "On the Role of Amenities in Models of Migration and Regional Development," *Journal of Regional Science*, 29, 1989, pp. 71–87.

Evidence from the small number of lottery-based studies is consistently positive and quantitatively rather substantial.

Linneman, P., and P. Graves, "Migration and Job Change: A Multinomial Logit Approach," *Journal of Urban Economics*, 14, 1983, pp. 263–79.

Lowry, I., *Migration and Metropolitan Growth: Two Analytical Models*, Chandler Publishing Co., 1966.

Mazek, W., "Unemployment and the Efficiency of Migration: The Case of Laborers," *Journal of Regional Science*, 9, 1969, pp. 101–107.

Menchik, Paul L., *"Michigan's Personal Income Tax," in: Michigan at the Millennium: A Benchmark and Analysis of Its Fiscal and Economic Structure*, Michigan State University Press, 2003.

Merriman, David, and Mark Skidmore, "Did Distortionary Sales Taxation Contribute to the Growth of the Service Sector?," *National Tax Journal*, vol. 53, no. 1, 2000, pp. 125–142.

Missouri Department of Revenue, "Financial and Statistical Report." Online here: http://tinyurl.com/l29zde (accessed April 24, 2009)

Mofidi, Alaeddin, and Joe A. Stone, "Do State and Local Taxes Affect Economic Growth?," *The Review of Economic and Statistics*, vol. 72, no. 4, 1990, pp. 686–691.

Padovano, Fabio, and Emma Galli, "Comparing the Growth Effects of Marginal vs. Average Tax Rates and Progressivity," *European Journal of Political Economy*, 18, 2002, pp. 529–544.

Padovano, Fabio, and Emma Galli, "Tax Rates and Economic Growth in the OECD Countries (1950–1990)," *Economic Inquiry*, vol. 39, no. 1, 2001, pp. 44–57.

Reed, W. Robert, "The Robust Relationship between Taxes and U.S. State Income Growth," *National Tax Journal*, vol. 61, no. 1, 2008, pp. 57–79.

Reed, W. Robert, Cynthia Rogers, and Mark Skidmore, "On Estimating Marginal Tax Rates and Tax Progressivities for U.S. States," Working Paper, 2009.

Rork, Jonathan C., "Coveting Thy Neighbors' Taxation," *National Tax Journal*, vol. 56, no. 4, 2003, pp. 775–787.

Rosen, Harvey S., "Tax Deductibility and Municipal Budget Structure," NBER Working Paper No. W2224, 1987.

"Missouri Historical Tax Summary 1970—2008," Economic & Policy Analysis Research Center, University of Missouri–Columbia, the State & Regional Fiscal Studies Unit. Online here: http://tinyurl.com/ltcr5f (accessed April 17, 2009)

"State and Local Tax Burdens: All Years, One State, 1977-2008," Tax Foundation. Online here: http://tinyurl.com/zuvq2 (accessed Sept. 1, 2008).

Tiebout, Charles M., "A Pure Theory of Local Expenditures," *The Journal of Political Economy*, vol. 64, no. 5, 1956, pp. 416–424.

"Federal, State, and Local Governments: State and Local Government Finances," United States Census Bureau. Online here: http://tinyurl.com/necoub (accessed April 24, 2009).

Wasylenko, Michael, "Taxation and Economic Development: The State of the Economic Literature," *New England Economic Review, Proceedings of a Symposium on the Effects of State and Local Policies on Economic Development*, 1997.

NOTES

1. Throughout this study, the terms "economic activity" and "economic growth" are used interchangeably to discuss changes in the overall status of a given economy. These terms are sometimes used to describe more specific measures of economic activity such as "business activity," "employment," or "income." Where appropriate, we also use these more specific terms when discussing research on narrower measures of economic activity.
2. Note that measuring the "quality" of public service is inherently difficult. In some cases, quality can be objectively measured, as with roads. In other cases, obtaining an objective measure is difficult. Researchers have attempted to measure the efficiency of public service provision as defined by using the combination of resources to provide a level of public service at the lowest cost.
3. More sophisticated methods of statistical analysis have enabled researchers to tease out the causal relationship between taxation and economic activity. However, the results of analyses using these methods depend greatly on proper "identification." Thus, caution is in order when evaluating this research.
4. For example, declining retail sales might spur policymakers to increase sales tax rates in order to maintain revenues. In such a case, it may appear that that increase in the sales tax rate caused the reduction in retail sales, but in fact the opposite was the case.
5. Effective tax rates refer to the amount of taxes actually paid by a taxpayer. For example, when looking at marginal effective tax rates, taxpayers in various tax brackets may be subject to additional deductions that would cause their actual tax payment to differ from the stated marginal tax rate.

[6] This issue is discussed in more detail in the section "Taxation and Government Spending Are Linked."

[7] Rork (2003) differentiated between the willingness of consumers to cross state borders to purchase specific goods and consistently doing all their shopping in another state to save money on taxes. The assumption in this study is that general sales taxes are relatively more immobile than excise taxes, but not as immobile as, say, income taxes. The crux of this argument is that the demand for a specific good, such as alcohol or gasoline, is more elastic than the demand for consumption in general, and that the degree of mobility of the tax base determines the degree of competitiveness.

[8] A transfer payment is typically thought of as a redistribution of resources, as opposed to using resources to provide public goods and services directly. Unemployment compensation, welfare payments, direct subsidies of economic development, and Social Security payments are considered to be transfer payments.

[9] Tennessee taxes income from investments, but does not tax salary income.

[10] The marginal tax rate is the sum of the marginal corporate income tax rate, the marginal income tax rate, the marginal general sales tax rate, the marginal property tax rate, and other revenue sources. The econometric methodology for estimating marginal tax rates is fully described in Reed, Rogers, and Skidmore (2009). Note that income tax rate changes used to generate MTRs in their study are generated from the National Bureau of Economic Research TAXSIM model, which assumes the same distribution of income over all states and time periods.

[11] Own source revenues is a term most easily defined as total revenues minus intergovernmental transfers from other units of government. All state tax revenues are captured in this figure. In 2005–06, 60.8 percent of Missouri's total revenues came from own sources.

[12] The use tax, which is the same rate as the sales tax, taxes the use, storage, or consumption of real personal property that is shipped into Missouri from out of state.

[13] See Merriman and Skidmore (2000) for an excellent overview of issues related to taxation and service sector growth.

OTHER PUBLICATIONS IN OUR POLICY STUDY SERIES

22. **Charter Schools: Rationale and Research**, by Timothy J. Gronberg and Dennis W. Jansen (November 18, 2009)

21. **Why Missouri Taxpayers Should Not Build High-Speed Rail**, by Randal O'Toole (September 29, 2009)

20. **Gradual and Silent Encroachments: How the Missouri Supreme Court Expanded the Power of Eminent Domain**, by Timothy Sandefur (September 15, 2009)

19. **The Prognosis for National Health Insurance: A Missouri Perspective**, by Arduin, Laffer & Moore Econometrics (August 19, 2009)

18. **Government in Missouri**, by David Stokes (February 5, 2009)

17. **Private Provision of Highways: Economic Issues**, by Kenneth A. Small (November 25, 2008)

16. **Missouri's Challenge: Managing Long-Term Employee Benefit Costs**, by Richard C. Dreyfuss (November 21, 2008)

15. **Is the 'Missouri Plan' Good for Missouri? The Economics of Judicial Selection**, by Joshua C. Hall and Russell S. Sobel (May 21, 2008)

14. **Missouri's Changing Transportation Paradigm**, by David C. Stokes, Leonard Gilroy, and Samuel Staley, Ph.D. (February 27, 2008)

13. **Review of Kansas City Transit Plans**, by Randal O'Toole (January 23, 2008)

12. **The Fiscal Effects of a Tuition Tax Credit Program in Missouri**, by Michael Podgursky, Sarah Brodsky, and Justin P. Hauke (January 14, 2008)

OTHER PUBLICATIONS IN OUR POLICY STUDY SERIES **(continued)**

11. **Should Missouri Eliminate the Individual Income Tax?**, by R.W. Hafer (December 5, 2007)

10. **The Specter of Condemnation: The Case Against Eminent Domain for Private Profit in Missouri**, by Timothy B. Lee and Shaida Dezfuli (October 17, 2007)

9. **Ready for Change: What Missourians Think of Parental Choice and Public Schools**, by Verne Kennedy and Sarah Brodsky (May 7, 2007)

8. **Unleashing Video Competition: The Benefits of Cable Franchise Reform for Missouri Consumers**, by Joseph Haslag (February 28, 2007)

7. **Looking for Leadership: Assessing the Case for Mayoral Control of Urban School Systems**, by Frederick M. Hess (February 6, 2007)

6. **How to Replace the Earnings Tax in Kansas City**, by Joseph Haslag (January 25, 2007)

5. **How to Replace the Earnings Tax in Saint Louis**, by Joseph Haslag (January 24, 2007)

4. **Repealing the State Income Tax by 2020**, by Stephen Moore and Richard Vedder (December 11, 2006)

3. **The Impact of Missouri's Proposed $6.50 Minimum Wage on the Labor Market**, by Kenneth R. Troske and Aaron Yelowitz (October 10, 2006)

2. **The Economic Effects of Minimum Wages: What Might Missouri Expect from Passage of Proposition B?**, by David Neumark (October 2, 2006)

1. **How an Earnings Tax Harms Cities Like Saint Louis and Kansas City**, by Joseph Haslag (March 8, 2006)

ABOUT THE SHOW-ME INSTITUTE

The Show-Me Institute is a research and educational institute dedicated to improving the quality of life for all citizens of Missouri.

The institute's scholars study public policy problems and develop proposals to increase opportunity for ordinary Missourians. The Institute then promotes those solutions by publishing studies, briefing papers, and other educational materials. It also forms constructive relationships with policymakers and the media to ensure that its research reaches a wide audience and has a major impact on public policy.

The work of the institute is rooted in the American tradition of free markets and individual liberty. The institute's scholars seek to move beyond the 20th-century mindset that every problem has a government solution. Instead, they develop policies that respect the rights of the individual, encourage creativity and hard work, and nurture independence and social cooperation.

By applying those principles to the problems facing the state, the Show-Me Institute is building a Missouri with a thriving economy and a vibrant civil society — a Missouri that leads the nation in wealth, freedom, and opportunity for all.

BOARD OF DIRECTORS

STAFF

SHOW-ME INSTITUTE

MARKET SOLUTIONS FOR MISSOURI

7777 Bonhomme Avenue, Suite 2150 • Saint Louis, MO 63105 • 314-726-5655 • www.showmeinstitute.org