RETHINKING GROWTH STRATEGIES

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How State and Local Taxes and Services Affect Economic Development

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Executive summary

Creating jobs and growing the economy are top priorities for state and local officials. Their tools of choice to achieve these goals may, however, be the least effective among those available to them. Too often public officeholders first embrace lowering taxes and creating tax incentives as their chief economic development tools, with public investment usually ranking as a distant third option. **An analysis of the relevant research literature, however, finds little grounds to support tax cuts and incentives—especially when they occur at the expense of public investment—as the best means to expand employment and spur growth.**

It is commonly thought that firms will migrate to a particular state for the purpose of reducing costs, since lower costs may result in higher profits for business owners. But state and local taxes are not typically a significant cost of doing business. All state and local taxes combined make up but a small share of business costs and reduce profits only to a limited extent. Indeed, the costs of taxes pale in comparison to many other location-specific costs, and numerous location factors—including qualified workers, proximity to customers, and quality public services—can be more critical than taxes. The availability of these vital location factors depends in large part on each state and locality's commitment to public investment—and their ability to pay for it. Research, in fact, substantiates that public investment plays a positive role in helping lower costs for firms.

Ultimately, the proof of the power of tax cuts and incentives to attract or retain business and create jobs lies in how firms respond to them. On this score, the evidence fails to support the claim that growing the economy requires shrinking the public sector and reducing taxes. In particular, there is little evidence that state and local tax cuts—when paid for by reducing public services—stimulate economic activity or create jobs. There is evidence, however, that increases in taxes, when used to expand the quantity and quality of public services, can promote economic development and employment growth.

There are five main types of arguments given for cutting taxes and offering tax incentives at the state and local level; these arguments raise issues such as the tax burden, the supply-side effects, the demand-side effects, the business-climate impacts, and the competitiveness implications of taxation. These kinds of arguments have been repeated so frequently that they are often accepted uncritically. Almost any time a tax increase on individuals or businesses is

proposed, politicians or special interest groups invoke one or more of these arguments to assert that the proposed tax increase will seriously damage the economy and cause a significant loss of jobs. While not totally without merit, these five arguments overstate the case for reducing taxes, as well as ignore counter evidence and disregard the economic impacts of the spending alterations that governments take in response to tax changes. The significant weaknesses in these arguments show them to be less than persuasive as justifications for state and local tax cuts.

A review of the hundreds of survey, econometric, and representative firm studies that have evaluated the effects of state and local tax cuts and incentives also makes clear that these strategies are unlikely to stimulate economic activity and create jobs in a *cost-effective* manner. A close examination of the recent econometric literature on the effects of tax cuts (analyzed in detail in Chapter 4) demonstrates how these kinds of studies have been misused to justify tax cuts on economic grounds. In particular, this literature review points out that some recent econometric studies find that state and local taxes have either a positive or no effect on economic activity, and most of the studies that suggest taxes have a small negative effect on economic activity do so only when public spending is held constant as taxes increase—a circumstance that is highly uncommon in the real world. Moreover, even the small negative effects of state and local taxes that some econometric studies find are likely somewhat exaggerated and do not support the notion that state and local tax cuts and incentives can be counted on to create numerous jobs or to do so in a cost-effective way. **The bottom line is that state and local taxes, at their current low levels, may be largely irrelevant to business investment decisions.**

The literature on the effects of state and local public services indicates that state and local spending may stimulate economic growth and create jobs. In addition, the studies that have examined the net effects of simultaneously changing taxes and public spending—arguably those studies that provide the best "real world" measure of the effect of state and local tax cuts—generally find that raising taxes and using the additional revenues to pay for more public services enhances economic growth and expands employment.

It follows that, if taxes are not a decisive factor and public spending can be a positive force, then the use of tax cuts to create jobs can carry uneconomical "costs per job." Even with optimistic assumptions, for each private-sector job created by state and local tax cuts, governments may lose between $39,000 and $78,000 or more in tax revenue annually. This substantial revenue loss forces governments to lay off public employees in numbers that probably exceed the number of jobs created in the private sector. The net effect of tax cuts is thus likely to be a loss of employment. In addition, the public would lose the

value of the public services that would no longer be provided. So, while access to jobs is clearly a vital concern in today's economy, public officials and voters should focus not solely on faith in tax cuts but on the best ways to get employment results. **In the end, any jobs that might be gained by cutting taxes can be more than offset by the jobs lost as a result of cuts in public services.**

State and local tax cuts and incentives are probably not the best use of public revenues, even when the object is to encourage business firms to put more people to work. This finding confirms that state and local officials should take into account public-service as well as tax effects on the economy when considering fiscal policy designed to promote optimal job growth. Tax increases used to enhance public services can be the best way to spur the economy. By stimulating growth, generating jobs, and providing direct benefits to residents, improvements in state and local public services can be one of the most effective strategies to advance the quality of life of citizens.

Introduction

Over the past 35 years, nearly every state and local government has expanded its efforts to promote economic development. While the primary goals of these efforts are laudable—more jobs and faster economic growth—the techniques employed are too often of dubious value. Not only may these techniques be ineffective, but they may also undermine the ability of state and local governments to invest adequately in the public services and infrastructure that are necessary for long-term economic growth and development

Although state and local economic development strategies are numerous and varied, by far the most expensive techniques involve broad-based tax cuts and targeted business tax breaks. For seven consecutive years from 1995 to 2001 state governments cut taxes, with the total tax cuts amounting to over $35 billion.[1] Much of this tax cutting was in the name of economic development. Perhaps more significantly, special state and local tax loopholes, tax credits, and tax abatements to business (generally referred to collectively as "tax expenditures") have grown dramatically over the past 35 years and now total billions of dollars annually. Data from eight states suggest that state and local business tax breaks and subsidies summed nationally to $48.8 billion in 1996.[2] Tax expenditures now easily dwarf all the other money spent on state and local economic development programs.

The record economic expansion that started in March 1991 and ended in March 2001 caused incomes to soar and allowed state and local revenues and spending to rise despite tax cuts. During the booming 1990s, state and local government spending (excluding federal grants-in-aid) more than kept pace with growth in the economy, increasing slightly from 9.8% of the gross domestic product (GDP) in 1991 to 10% of GDP in 2001.[3] However, the effects of these tax cuts, in combination with the slow economic growth of the recent past, are starting to catch up with state budgets, and in 2002 and 2003, most states cut spending on programs.[4] The pres-

sure to cut state and local spending is likely to persist as long as these jurisdictions continue to face budget deficits, demands for additional tax cuts, and calls for a smaller role for government.

The almost universal justification for tax cuts and business tax incentives is that they are the best ways to create jobs and spur growth. This assertion is made even when state and local governments must cut public services as a consequence of tax incentives and tax reductions. Taxes, and many of the government programs they pay for, are seen as burdens on the private sector and impediments to economic growth.

But do tax cuts and incentives create jobs in a cost-effective manner? Conversely, do state and local public services undermine growth? A review of the available data strongly suggests that the answer to both of these questions is no. And while state and local tax cuts may in theory stimulate economic activity, in practice they are unlikely to do so. This means that state and local governments may be wasting billions of dollars annually on tax cut policies that are failing, while underfunding programs that can promote long-term growth and job creation.

The following section discusses the five main arguments generally cited in support of cutting taxes and offering tax incentives at the state and local level. It also critically examines each of these tax cut arguments. This examination of the basic economic arguments for tax cuts is followed by a thorough review of the studies that have evaluated the effects of state and local tax cuts and incentives. The literature review includes survey research, the statistical and econometric studies, and the "representative firm approach" research. An analysis of this literature explains why state and local tax cuts and incentives are unlikely to stimulate economic activity and create jobs in a cost-effective manner. The literature on the effects of state and local public services, which indicates that state and local spending may stimulate economic growth and create jobs, is also discussed. Finally, the studies that have examined the net effects of simultaneously changing taxes and public spending are reviewed. These studies generally find that raising taxes and using the additional revenues to pay for more public services enhances economic growth.

CHAPTER 1

Common arguments for state and local tax cuts and incentives

Myths and exaggerations, when they are repeated often enough, may become etched in people's consciousness as facts. So, it is important to confront them. Some common misperceptions about the effects of state and local tax cuts are challenged in this and the following chapters.

Proponents of using state and local tax cuts and business tax incentives as a means to spur economic growth and generate jobs usually adopt arguments that approach the subject from one of five angles: tax burdens, supply-side or demand-side concerns, the business-climate, and competitiveness issues. These arguments in favor of tax cuts and business tax incentives have been repeated so frequently that they are often accepted uncritically as the only solutions to these problems. Almost any time a tax increase on individuals or businesses is proposed, a politician or special interest invokes one or more of these arguments in order to assert that the proposed tax increase will seriously damage the economy and cause a significant loss of jobs. While these five arguments are not totally without merit, they overstate their cases, ignore counter evidence, and disregard the economic effects of the spending alterations that governments take in response to tax changes. As the following section explains, there are significant weaknesses in each of these arguments, and excessive faith placed in any of them may undermine long-term economic prospects.

Although there is often considerable overlap in these arguments, they are distinct enough that it is useful to treat them separately. However, it should be kept in mind that the first argument discussed, that taxes are a burden on business, is a basic premise shared by the supply-side, business climate, and competitiveness arguments. Each argument is described in turn and then evaluated critically.

The Tax Burden Argument

This argument holds that state and local business taxes are significant burdens on the firms that pay them. Taxes reduce business revenues substantially or increase significantly the costs of doing business. Either way, taxes lower profits greatly. The lower profits are, the less firms can invest and hire workers. In addition, according to this argument, differences in tax burdens across states cause firms to flee from the high to the low tax burden states.

Conversely, this argument claims that state and local business tax cuts and incentives allow firms to keep more of their revenues or reduce the cost of doing business, thereby raising profits. By making higher profits possible, business tax cuts and incentives encourage existing firms to invest, expand, or remain in a state; stimulate new firm start-up; and convince out-of-state firms to relocate to the incentive-offering state. By promoting greater business activity, tax cuts and tax incentives create jobs.

Weaknesses in the tax burden argument

There are three basic flaws in the tax burden argument:

- State and local taxes are a relatively small burden on businesses and reduce profit rates by comparatively small amounts.
- After-tax rates of profit within industries do not vary significantly by state.
- Taxes are not just burdens, but also provide the financial support for public services that can reduce costs for businesses.

The first problem with the tax burden argument is that state and local taxes are a relatively small burden on businesses. For example, in 2000 state and local taxes paid by businesses reduced their total receipts by 1.1% and amounted to only 1.2% of their costs of doing business. This small burden was further reduced by the federal deductibility of state and local taxes.[5] After federal deductibility, all state and local taxes paid by businesses reduced their revenues by 0.7% and accounted for only 0.8% of their costs.[6] In other words, if all state and local taxes paid by business were not just reduced but, instead, totally eliminated, then the costs of doing business would be lowered by less than 1%.

Also, state and local business taxes reduce profit rates by relatively small amounts. In a study of 14 industries in the six Great Lake states, Papke (1995) calculated that state and local business taxes before federal deductibility only

reduced the rates of return on investments earning 20% by 7% to 11%. After federal deductibility, state and local taxes reduced profits by only 4% to 7%. Likewise, Peters and Fisher (2002) found that state and local taxes and incentives reduced profits on new manufacturing plants in 20 states by an average of 6.7% and by only 5.2% for new plants in enterprise zones.

Even these estimates of how much state and local taxes reduce profits are exaggerated because they fail to take into account who truly pays the taxes or, in economic terms, the "tax incidence."[7] The estimates above assume that the burdens of the taxes collected from businesses are borne by businesses in the form of reduced profits. But, in fact, the entity from which a tax is actually collected tells us nothing about who bears the tax burden. When businesses pay their state and local taxes they do so only partly out of profits. To some extent, businesses shift taxes to consumers in the form of higher prices or to their employees by reducing wages. Each dollar of taxes collected from businesses lowers profits by less than one dollar because firms, to the extent permitted by competition and the market forces of supply and demand, raise prices or reduce employee wages in response to taxes. The result is that part of the tax collected from businesses is paid by consumers and by employees. Thus, the impact of state and local taxes on business profits is even smaller than indicated above.

Second, after-tax rates of profit within industries do not vary significantly by state. Papke (1995) found that after-tax rates of profit were almost identical within industries across the six Great Lake states for firms with the same pre-tax rates of return. In a study of five industries in 22 states, Tannenwald (1996) likewise found that after-tax rates of return do not vary greatly by state. Tannenwald found that after-tax rates of profit typically varied by 0.3 percentage points or less within industries across states for firms with identical pre-tax profit rates. Tiny differences in the other costs of doing business are likely to swamp these profit rate differences. Fisher and Peters (1998, p. 207-8) found greater variation in manufacturing firms' tax burdens across 112 cities in 24 states when comparing the "best and worst locations." But for most cities and states they found that "not much separates most locations' tax and incentive regimes." One major reason why these studies found relatively little variation in after-tax rates of return is that the deductibility of state and local taxes from federal taxable income has a great leveling effect, reducing tax differentials among states.

Finally, the tax burden argument ignores the fact that taxes are not necessarily burdens. Taxes are the means by which businesses pay for the numerous benefits they receive from government—the public services and efficient public infrastructure that businesses rely on to thrive. When tax cuts cause reductions in public services, firms may be forced to spend more on, for

example, the education and training of their workers, health services for employees and their families, security for the workplace, and infrastructure. As a consequence, in the absence of adequate taxation, the provision of "public" services becomes an internal cost to firms. Moreover, the costs of providing these "public" services privately, in the relatively small amounts needed by individual firms, may be much higher than the costs of providing them collectively to all firms by government. For example, it may be cheaper for a city to provide police protection to all firms located within its borders than it would be for each firm to pay for its own security force. Thus, tax cuts and incentives may not reduce the costs of doing business but may, instead, contribute to rising costs by reducing publicly provided services.

If tax cuts undermine the quantity or quality of public services, then firms that are unwilling or unable to provide privately for these "public" services may leave the state. Alternatively, a state with inadequate taxation and poor public services may only attract or create the type of firms that do not require good public services; for example, firms that do not need high-skilled labor. Such businesses are likely to provide mostly low-wage jobs.

The bottom line is that state and local business tax burdens are small; differences in tax burdens across states are so modest that they are unlikely to outweigh the differences across states in the other costs of conducting business. These other "costs of conducting business" are the most important factors affecting business investment decisions and include the cost and quality of labor, the proximity to markets for output (particularly for service industries), the access to raw materials and supplies that firms need, the access to quality transportation networks and infrastructure (e.g., roads, highways, airports, railroad systems, and sewer systems), quality-of-life factors (e.g., good schools, quality institutes of higher education, health services, recreational facilities, low crime, affordable housing, and good weather), and utility costs. These factors tend to be more important location factors than taxes because they typically have a greater impact on a firm's bottom line than taxes do. For example, labor costs typically represent 20% or more of the cost of doing business, while state and local taxes represent less than 1%. State and local tax cuts and incentives, therefore, can only sway an investment location decision if the differences in the primary location factors at alternative sites are relatively small. This means that firms are not likely to move from one state to another to take advantage of state and local business tax differentials. Or, as Papke (1995, p.196) put it: "A s long as the after-tax rate of return is approximately equal across the states, taxation is effectively irrelevant in the investment location decision equation."

The Supply-Side Argument

The supply-side argument holds that tax cuts for individuals and businesses provide incentives for work and increase savings and investment, thereby stimulating economic activity. Tax cuts for individuals may provide an incentive to work longer and harder because they enable people to keep more of what they earn. Lower taxes may also encourage individuals to save more and thus make more funds available for the business investment necessary for economic growth. For businesses, tax cuts provide investment incentives by raising the profitability of investment, and they directly provide funds to firms for investment purposes by letting firms keep more of their earnings.

Weaknesses in the supply-side argument

The supply-side argument is especially problematic when applied at the state and local level, but it has been subject to criticism at the national level as well. The key weaknesses of this argument include the following:

- The positive effects of tax cuts on work effort and savings are greatly exaggerated by supporters of supply-side economics.
- Tax cuts may actually provide a disincentive to work.
- Although tax cuts may result in small gains in individual savings, these gains are not likely to result in a lowering of interest rates and an increase in productive investment in a particular state.
- The demand-side effects of tax cuts, which are often ignored by supply-side proponents, are likely to reduce economic growth and slow job creation.

One problem is that the proponents of supply-side economics have tended to greatly exaggerate the positive effects of tax cuts on work effort and savings. Statistical evidence suggests that tax cuts have a negligible effect on work effort and lead to only very small increases in savings. A review of the literature by Heckman (1993) suggested that after-tax wages have little effect on the labor supply. A survey by Wasow (2002, p. 95) concluded, "there is little evidence of strong effects of taxation or tax breaks on hours worked or labor force participation." As noted economist Charles Schultze wryly commented: "There's nothing wrong with supply-side economics that division by ten couldn't cure."

Second, supply-side tax cuts may actually provide disincentives to work. Individuals with higher after-tax income will find they can afford as much as

they did before the tax cut with fewer hours of labor and may respond to a tax cut by working less. Thus, tax cuts may lead some people to work more but may encourage others to work less. But on balance, as after-tax income has increased over the past century, workers have chosen to retire earlier and work a shorter workweek.

In addition, supply-side tax cuts tend to increase income inequality, which may, in turn, undermine the ability to work and incentives for work. A basic objective of supply-side policies is to provide incentives for work by widening the gap between the incomes of those who work hard and those who fail to do so. In practice, however, tax incentives tend to be positively correlated to income, not work effort. This exacerbates income inequality without motivating work. There is evidence that growing income inequality may serve as a practical impediment and psychological disincentive to work. Growing inequality may make it increasingly difficult for those at the bottom of the earnings scale to borrow money to pay for education or to obtain credit for investment purposes.[8] As a result, those who fall behind may become less productive, disheartened, and discouraged, leading them to work less.

Third, even if tax cuts for individuals result in some increases in savings among the residents of a particular state, it is likely that the higher levels of savings will lead to very small reductions in interest rates and have a negligible impact on the level of productive investment in that state. Most individual savings will be directed to mutual funds or other financial investments that are national in scope. Thus, it is implausible that there will be any discernible effect of an increase in the personal savings of individuals in some state on the interest rates that businesses in that state will pay for loans. Even local individual savings, such as increases in passbook accounts and checking balances, are unlikely to affect local home mortgage rates as they may have in the past, because most mortgages are now resold on the secondary market. Furthermore, individuals who invest in business activity out of their savings may do so out of state. Finally, even if increased savings lower interest rates and increase business borrowing in a state, the borrowed funds may be invested out of state. Likewise, while tax cuts for businesses may result in marginally higher profits, they may not lead to greater in-state investment. Businesses may use any additional profits to invest out of state. Alternatively, businesses may simply redistribute any increase in profits to owners who in turn spend or invest the profits out of state.

Fourth, supply-side proponents at the state and local level misunderstand the net demand-side effects of the tax cuts they advocate. These net demand-side effects are likely to reduce economic growth and slow job creation. Thus, even if tax cuts lead to positive supply-side effects, these positive

effects are likely to be reduced or overwhelmed by the negative demand-side effects. These negative demand-side effects of tax cuts are explained in the following section related to the demand-side argument.

The Demand-Side Argument

This argument posits that tax cuts for businesses and individuals stimulate the economy as a result of their impact on spending, or "demand." When taxes are reduced, the after-tax incomes of individuals and businesses increase. Part of this increase may be saved, but the remainder will be spent on goods and services. Greater spending will lead to a higher volume of business sales and will encourage firms to produce more. As firms produce more, they will hire more workers. Job growth is thus induced by tax cuts.

Weaknesses in the demand-side argument

It is interesting to note that, among economists, the demand-side argument is one of the most commonly accepted arguments in favor of tax cuts at the *federal* level for the purpose of economic stimulus during a downturn—but it is widely rejected as an argument for tax cuts at the *state and local* level.

Demand-side theory holds that tax cuts can stimulate the economy and create jobs if the cuts lead to higher levels of spending. On the other hand, tax cuts will slow the economy and cause a loss of jobs if the cuts lead to lower levels of spending. Demand-side theory suggests that *federal* tax cuts may lead to higher levels of spending but that *state and local* tax cuts are likely to bring about lower levels of spending. Some of the ways in which this argument is flawed as a justification for lowering state and local taxes are outlined below.

- While state and local tax cuts do cause individuals and business to spend more, they also reduce government revenues, causing state and local governments to spend less. This is likely to result in a reduction of in-state spending.
- Demand-side theory can actually be used to justify increases in state and local taxes.

State and local tax cuts influence the demand side, or spending side, of the economy in two contradictory ways. On the one hand, tax cuts, as noted above, may indeed cause individuals and businesses to *spend more*. On the other hand, tax cuts reduce the revenues available to governments and cause state and local government to *spend less*. The federal government may be able to maintain its level of spending by borrowing money to offset the revenue loss from federal tax cuts. Unlike the federal government,

however, most state and local governments cannot finance tax cuts by borrowing money because most are constitutionally required to balance their budgets and have significant restrictions on their borrowing ability. Hence, unless surplus funds are available, state and local tax cuts usually must be paid for by reductions in spending.

The net effect of these two contradictory demand-side influences is likely to be a reduction in spending, particularly in-state spending. The reasons for this are simple: for every dollar in state and local tax cuts that individuals and businesses receive they are likely to save part of that dollar and thus *increase their spending by less than one dollar*. For every dollar in tax cuts, state and local governments will *reduce their spending by one dollar*.[9]

In addition, a portion of the money spent by state and local governments, individuals, and businesses will be "exported" (i.e., spent out of state). Money spent out of state will not directly stimulate economic activity in state. Given the nature of state and local expenditures (such as education, infrastructure, health care), it is likely that the "export" quotient of public spending is lower than that of private spending.[10] Moreover, given the deductibility of state and local taxes, part of every dollar in state and local tax cuts is exported in the form of higher federal taxes that must be paid. Hence, the net effect of tax cuts is likely to be a reduction in spending in general, and spending on goods and services produced in state, in particular. Less spending will lead to a lower volume of sales and will cause firms to produce less. As firms produce less they will lay off workers. Thus, the demand-side effects of state and local tax cuts are likely to cause economic activity and job creation to slow down.

Finally, demand-side theory should not be popular among proponents of state and local tax cuts because it can be used to justify increases in state and local taxes. Increases in state and local taxes will cause state and local governments to spend more and individuals and businesses to spend less. On balance, spending is likely to increase: for every dollar in tax increases, state and local governments will spend one dollar more (unless they add to surplus accounts) while individuals and businesses are likely to save less and, thus, reduce their spending by less than one dollar. Assuming that the export quotient of public spending is not greater than that of private spending, the net effect of tax increases is to raise spending and increase economic activity and the rate of job creation.

The Business-Climate Argument

This argument holds that a state can promote economic development by improving its business climate. What is meant by a state's "business climate," and how can it be improved? A state's business climate is usually defined in

terms of a combination of factors that make an area a good place to invest. These factors include: 1) the quality and availability of the social and physical infrastructure that are the building blocks of successful economies; 2) measures of how strong the economy is and how well it provides opportunities for employment, profits, and an improving quality of life; 3) tax and fiscal measures, which indicate the extent to which individuals and companies are taxed and how those funds are used to grow the economy; and 4) indicators of an area's reputation in the business community for being accommodating and responsive to the needs of business.

Proponents of the business-climate argument claim that lower taxes and more incentives improve the business climate, while higher taxes and fewer incentives damage it. Many of the specific arguments advanced for the benefits of lower taxes to a state's business climate are the same as those described in the sections that review the tax burden, supply-side, demand-side, and competitiveness arguments. However, proponents of the business-climate argument also often claim that lower taxes and more business incentives are good for economic growth and development because they create the image that a state is supportive of business.

This latter business-climate argument implies that business decision makers are not coldly rational in their judgments, but rather base their investment decisions on perceptions of how receptive an environment is to business and not just on the hard facts of costs and benefits. This claim is addressed in the following section.

Weaknesses in the business-climate argument

The business-climate argument in favor of tax cuts and tax incentives is undermined by two key weaknesses:

- First, it is unlikely that business decision makers are apt to be persuaded by "perceptions" rather than by the facts of business costs and benefits. In any case, firms that are driven appreciably by perception and are less attuned to the facts about costs and benefits are likely to be unsuccessful and few in number, as they tend to get driven out of business by their more savvy competitors. Attempting to attract such businesses by giving them tax breaks is probably not a wise investment on the part of state and local governments.

- Second, while the existence and extent of business tax incentives may positively influence the image of a state's business climate, business tax incentives can also undermine other factors that contribute to a good business climate. For example, a state's business climate also

involves the comprehensiveness and efficiency of its public services, both of which may be damaged by tax incentives.

Businesses need to know that they can rely on high-quality, well-administered public services to facilitate the conduct of their enterprises. Roads, bridges, and highways must be maintained in good repair; ports and airports must be large enough to handle transportation needs; sewage systems must be adequate to meet the needs of existing firms and expandable to service prospective businesses; snow removal and flood control must be reliable and timely; fire protection and police services must be ready when needed; the justice system must be professional, impartial, and quick to resolve contract disputes; and the schools and colleges must help to generate a skilled and well-trained workforce. A relatively crime-free state with high-quality public services—including good infrastructure and a highly educated workforce—will have an excellent business climate.

Minnesota, despite its relatively high business tax burden, is a good example of this. Compare Minnesota to its neighbor South Dakota, which has a relatively low business tax burden. As the Property Tax Study Project (2000) has noted, Minnesota has had higher per capita income after taxes, higher average hourly earnings, higher average annual pay growth, higher employment growth, more high school and college graduates per capita, better maintained roads and bridges, less income disparity, and a lower business failure rate than South Dakota. Indeed, Minnesota can be said to have a good business climate in part because of its relatively high tax burden, while South Dakota has a weaker business climate in part because of its relatively low taxes. Taxes are necessary to pay for the high-quality public services that make a state a good place to do business.

The Competitiveness Argument

Nearly all state and local governments have offered tax cuts and businesses tax incentives to attract businesses. Advocates of the competitiveness argument are divided into two groups: those who see this competition among jurisdictions to attract businesses as healthy, and those who do not. All supporters of the competitiveness argument, however, believe that it is necessary for states to engage in the competition.

Some proponents of the competitiveness argument acknowledge that tax cuts and incentives may cause governments to lose revenue and may force cutbacks in the provision of services desired by the public. In addition, tax incentives may be bad for the nation because business investment decisions will be influenced by tax breaks and not just market considerations. But pro-

ponents of competition also argue that tax incentives cause firms to relocate to or stay within the tax incentive-offering jurisdiction. Thus, those jurisdictions that do not offer tax cuts and incentives have lost, and will continue to lose, a significant number of businesses to those that do. So, even if business tax cuts and incentives cause a significant loss of government revenue, a decline in public services, and are bad for the country, jurisdictions are forced to offer them to keep from losing a large number of businesses to other jurisdictions. States may prefer not to offer generous incentives, but they must do so in order to match the incentives offered by other states, and no state can afford to unilaterally disarm in the competitive battle.

Other proponents of the competitiveness argument claim that even though economic competition between states forces everyone to play the "give-away" game—and in terms of the quantity and quality of public services, may sometimes result in a "race to the bottom"—this competition may be good for the nation for at least two reasons. First, incentives will be concentrated in areas of high unemployment and low income, causing investment to relocate from areas of low unemployment and high income to areas of high unemployment and low income and thereby aiding our most distressed communities.[11] Second, competition among governments forces them to be more efficient in the provision of public services and reduces business taxes in every jurisdiction to a level that more accurately approximates the benefits that firms receive from public services. This will improve the efficiency of business location because, when firms pay only for the benefits they receive from public services, firms will locate where the array of public services best meets their needs.

Finally, some proponents of the competitiveness argument claim that tax competition among jurisdictions is effective at least in metropolitan areas. Metropolitan areas may include several different political jurisdictions, but each location within the metropolitan area will have identical or very similar access to markets and supplies (including the supply of labor), making the individual locations close substitutes from a firm's point of view. Hence, even small tax cost differences among jurisdictions may make a difference in a business's location decision within a metropolitan area.[12]

Before examining the flaws in the competitiveness argument it is necessary to briefly distinguish between "tax cuts" and the various forms of business "tax incentives." Tax cuts generally refer to reductions in income, property, and sales tax rates or broad changes in the way the tax base is computed such as manipulations of income thresholds, tax brackets, exemption levels, and definitions of taxable income or value. Tax incentives are more narrowly targeted and come in three varieties, although the distinctions between them are not always clear-cut and firms can receive packages of incentives that include more than one type of incentive:

- *General tax incentives* are entitlements automatically provided to all firms meeting the qualifications specified in the tax law. For example, these incentives may be available to any firm that expands or constructs a new facility or hires additional workers. These business incentives are usually in the form of property tax abatements, sales tax exemptions, and investment or job creation credits against income taxes.
- *Area-specific tax incentives* are similar to the general incentives except that they are provided only to firms that engage in business activity in a specified location such as an enterprise zone.
- *Firm-specific tax incentives* are available only to the individual firms that negotiate the incentives with state and local governments.

This distinction is important because the following assessment of the competitiveness argument does not specifically include the advantages or disadvantages of firm-specific tax incentives, as there is not comprehensive data available on how many have been granted, their costs, or their benefits.[13] It is clear that a firm-specific tax incentive may "work" in the sense that a sufficiently lavish company-specific incentive package may cause a firm to relocate to or stay in a specific jurisdiction. However, as the following discussion explains, it is also clear that firm-specific incentives almost certainly have a negative effect on the country as a whole, are often bad for the jurisdictions offering the incentives, and result in a poor investment of scarce public funds.

Weaknesses in the competitiveness argument

There are several primary criticisms of the competitiveness argument.

- The competitiveness argument hinges on the assumption that states must offer tax cuts and tax incentives to keep from losing a large number of businesses to other states. But, in fact, the tax cuts and tax incentives that state and local governments are offering may be undermining their ability to retain businesses and create jobs.
- As mentioned earlier, state and local taxes are only a small burden on businesses, and incentives that reduce tax burdens can only provide minimal assistance to firms.
- Tax cuts and incentives are an inefficient use of state and local money because the money lost by governments in tax revenue surpasses what the firms gain in additional income.

- State and local tax cuts are probably provided to firms who would invest even in the absence of such incentives.

- There is scant evidence that tax cuts and incentives motivate firms to relocate to areas of high unemployment and low income, nor do they improve the efficiency of business location.

- The competitiveness argument does not sufficiently consider the negative effect of state and local tax cuts on metropolitan areas.

- The competitiveness argument assumes that competition among states is better than cooperation. However, cooperation among states may result in faster growth and more jobs.

First, it is far from clear that it is necessary for state and local governments to engage in tax break competition. The data demonstrate that states are not losing a significant number of jobs and businesses to states offering lower taxes and larger tax incentives. (These data are discussed in detail in the sections that review and analyze the literature on the effectiveness of tax cuts and incentives). Hence, the evidence does not support the contention that states must offer tax cuts and tax incentives to keep from losing a large number of businesses to other states. In fact, the tax cuts and tax incentives that state and local governments are offering undermine their ability to create jobs. While tax cuts and incentives may cause the private sector to create a small number of jobs, these tax cuts and tax incentives are likely to cost state and local governments tens of thousands of dollars in lost tax revenues for every job they create (see Chapter 4 on the analysis of the recent econometric research). This money may instead have been used to create jobs more effectively by appropriately increasing the quantity and quality of public services. Anderson and Wassmer (1999, p. 479), for example, found "little evidence to support the belief that the benefits of local incentive use in a metropolitan area are generally greater than the costs."

Second, as discussed earlier, state and local taxes are only a small burden on businesses. Therefore, tax incentives that reduce tax burdens can only provide minor assistance or relief to firms. In a study of 16 industries in 112 cities across 24 states, Fisher and Peters (1998, Table 4.7) found that general tax incentives on average amounted to only 0.7% of pre-tax profits and area-specific (enterprise zone) tax incentives on average amounted to 1.5% of pre-tax profits. This means that a firm earning a 10% profit after taxes but before tax incentives could expect to earn a 10.08% profit with general tax incentives and a 10.24% profit with both general and area-specific tax incentives. Small differences in the other costs of doing business would overwhelm these profit

rate differences. In the most recent study of this issue Peters and Fisher (2002, p. 225) found that "in many locations a relatively small wage premium would be sufficient to wipe out the advantages created by the incentive packages there." For example, they found that average wage premiums ranging from 19 to 83 cents per hour would offset the total value of all state and local tax incentives (i.e., both general and area specific) in 16 industries located in 75 cities across 13 states. Note that the most generous tax incentive packages available in enterprise zones eliminate almost all state and local taxes. Thus, the most generous incentive packages, which eliminate almost all state and local taxes, could be offset by competing jurisdictions with no tax incentives by having labor that is 83 cents per hour more productive or 83 cents per hour cheaper. Given the relatively small value of tax incentives, firms are not likely to relocate from one jurisdiction to another just to take advantage of such tax incentives.

A third problem with tax cuts and tax incentives is that they are an inefficient use of state and local money because they cause the incentive-providing state or local government to lose more in tax revenue than the incentive-receiving firms gain in additional income. Typically, for every dollar of tax revenue lost by a state or local government due to tax cuts and incentives, firms increase their revenues by only about 60 cents.[14] Due to the deductibility provisions of the tax law, the other 40 cents go to the federal government and other state and local governments in the form of higher tax payments. Ironically, therefore, state or local tax cuts and incentives subsidize competing jurisdictions by providing them with additional tax revenue. So, tax incentives are an inefficient way to promote competitiveness both because firms retain only part of each incentive and because part of each incentive is passed along to other jurisdictions in the form of higher tax payments, making these other jurisdictions more competitive.[15]

Fourth, state and local tax cuts and incentives are unnecessarily provided to firms who were already planning to invest. Unfortunately, state and local governments do not have the ability to ensure that they are providing tax cuts and incentives only to firms that would not invest in the absence of these incentives. Indeed, the data indicate that most incentive-receiving firms would have undertaken their projects even without the incentives.[16] Hence, it is probable that most state and local tax cuts and incentives are monies unnecessarily spent on projects that would have taken place in the absence of the incentives.[17] In many cases, the funds could have been better used to enhance the attractiveness of jurisdictions through investment in public service improvements.

Fifth, there is little evidence that tax cuts and incentives cause firms to relocate from low-unemployment/high-income areas to high-unemployment/low-income areas. Fisher and Peters (1998), in the most thorough research on

the effects of tax and incentive competition between U.S. states and cities, found that "to the degree that tax and incentive competition results in a redistribution of jobs, our research lends little or no support to the argument that this redistribution has beneficial effects for the nation as a whole, shifting jobs from places with low unemployment to places with high unemployment" (1998, p. 219). Similarly, Anderson and Wassmer (2000, p. 174) found that "local economic development incentives are increasingly offered by places that do not fit the 'high unemployment and fiscally blighted' characterization." In fact, tax incentives may be disproportionately benefiting wealthier areas. Cassell (2003) found that enterprise zones in Ohio in high-income school districts, with median household incomes of $65,340, are likely to have twice as many enterprise-zone-related jobs and five times as much enterprise-zone-related real property investment as zones in low-income school districts with a median household income of $21,910.[18]

Nor does the evidence support the argument that tax cuts and incentives improve locational efficiency. Fisher and Peters (1998, p. 219-20) argued that tax and incentive competition does not improve business locational efficiency because "neither the basic tax system, nor the tax system with the standard package of incentives included, is likely to bear any systematic relationship to actual public resource costs associated with different industries at different sites." Hence "it is very unlikely that competition produces a set of after-tax returns *more* in line with public cost differences." This means that tax cuts and incentives do not cause state and local business taxes to more accurately reflect the true benefits of public services. And, tax cuts and incentives will not cause firms to locate or relocate to jurisdictions where the public services best satisfy their needs.[19]

In addition, there are several problems with the competitiveness argument that are peculiar to metropolitan areas. Just as moving businesses and jobs from state to state does not help the nation, moving firms and jobs within a metro area does not help the area. In the metropolitan context, however, there is not even the benefit of taking a job from somewhere else in the country and giving it to a local labor market. The jobs stay within the same labor market so that money has been spent mainly to change commuting patterns.

If tax incentives are effective in causing firms to move within a metropolitan area, the area experiences no increase in economic activity or jobs. Some jobs are transferred from one part of the area to another part, and most of these jobs are retained by the original (pre-tax incentive) jobholders: the original jobholders simply change their commuting patterns. Residents of the region as a whole, however, are worse off because, as Burstein and Rolnick (1994, p. 7) noted about the effects of tax incentive-induced firm relocations, the "states will have less revenue. This follows because the revenue decline in

the losing states must be greater than the revenue increase in the winning states. If this was not true, businesses would not have relocated." So, the tax cuts and incentives in the metropolitan area will cause reductions in government services or higher taxes on those not receiving the incentives with no offsetting benefit to the area. Where incentives are most likely to have some effect in moving jobs around within a metropolitan area, they are least likely to produce any benefits in terms of employment. Thus, from the point of view of taxpayers in the metropolitan area, governments would be better off cooperating rather than competing with each other.

Research has shown that tax incentives provided by state or local governments for metro areas are most likely to cause intra-state business relocations rather than interstate business moves because metropolitan areas usually exist within one state rather than overlap states. Lynch, Fishgold, and Blackwood (1996) found that local government tax incentives failed to cause many businesses to relocate to New York state but may have induced a substantial number of firms to relocate within the state. They pointed out (p. 64) that these intra-state relocations moved "economic activity and jobs from one part of the state to another, at taxpayers' expense, without benefit to the state." Since tax-incentive-induced intra-state relocations cause public revenue loss, they result in fewer public services or higher taxes on the citizens and businesses not receiving the tax breaks with no offsetting benefits.

A final flaw in the competitiveness argument is the unexamined premise that competition among states is better than cooperation, especially where metropolitan areas exist. Note that if states attract firms and jobs from other states by the use of tax cuts and incentives, the net economic effects on the nation are less than zero: Economic activity and jobs are simply transferred from one part of the country to another part at taxpayers' expense. In addition, any gains states experience by stealing jobs and businesses from neighbors are likely to be short-lived, since neighboring states would probably retaliate with tax incentives of their own. Anderson and Wassmer (2000) found that one of the main reasons why local governments are offering more incentives over time is because other communities are offering them. The competitiveness argument presumes that there is no alternative to competition. But cooperation can be legislated or agreed to by all states, an outcome that would likely be preferable to competition.

Left unchallenged, the tax burden, supply-side, demand-side, business climate, and competitiveness arguments are convincing. But, when evaluated critically, they are unimpressive and unpersuasive. At minimum, they greatly exaggerate the effects of taxes and tax incentives on economic activity. A review of the literature in the section that follows will provide a more realistic understanding of the effects of state and local taxes and tax incentives on the economy.

CHAPTER 2

An overview of the literature on state and local tax cuts and incentives

Several methods have been used to examine whether state and local tax incentives succeed in promoting economic activity, including survey research, statistical or econometric analysis, and the representative firm approach.

- *Survey research* involves asking business decision makers to identify the important factors in their location decisions.
- *Statistical or econometric analysis* employs a variety of mathematical techniques to determine if, and how, tax cuts and incentives have actually affected economic activity.
- *The representative firm approach* involves constructing the financial statements of hypothetical firms to reflect, as accurately as possible, the financial statements of real firms. Then taxes and tax incentives are applied to the profits of these hypothetical firms to determine the effective tax rates or the burden of taxation.

Hundreds of studies have used one of these methods to examine the effectiveness of state and local tax cuts and incentives. The findings of these assorted studies are fairly consistent in many areas but widely divergent in some others. However, in examining these studies as a group, some conclusions can be drawn that are consistent with the findings of most of the studies, regardless of the specific methodology used. The generally consistent findings are summarized briefly below. In the following three chapters, which focus on the survey results, the econometric studies, and the representative firm analyses, respectively, many of these studies and their conclusions are reviewed in greater detail.[20]

- There is little evidence that the level of state and local taxation figures prominently in business location decisions. Many studies found no

effect of taxation on business location; most studies that did discern an effect found it to be small.

All studies that addressed the issue found that state and local taxes and incentives are not the only, or the primary, influence on business investment decisions. Other factors, such as the cost and quality of labor, the quantity and quality of public services (such as schools, roads and highways, sewer systems, recreational facilities, higher education, and health services), the proximity to business markets, and the access to raw materials and supplies tend to be more important than taxes in business location decisions.

- In addition, there is little evidence that state and local tax cuts, when paid for by reducing public services, stimulate economic activity or create jobs.
- And, except for when they are offered in metropolitan areas that overlap states, there is little evidence that significant job transfers from one state to another are a consequence of business tax incentives.
- On the other hand, there is evidence that reductions in public services due to state and local tax cuts and incentives cause job loss and economic slowdown because public services can have positive effects on economic development.

CHAPTER 3

Survey research results related to state and local tax cuts

In survey research, analysts ask business decision makers about the factors affecting their location decisions. Often, analysts ask specifically about the influence of taxes and tax incentives on investment decisions. In general, this research is conducted to discover why firms choose to locate where they do. While the specific questions asked have varied from survey to survey, the findings have been similar: hundreds of surveys have found that tax incentives play little role in investment decisions. These findings are particularly remarkable given that survey respondents may have a strong interest in exaggerating the importance of tax incentives they could receive. Below is a review of the survey literature in chronological order.

In his exhaustive review of the pre-1960s business location literature, John Due (1961) found that state and local taxes were not a significant factor in location decisions. Due reported that taxes were rated as a significant location factor only when business people were specifically asked about the importance of business tax incentives. This led him to conclude that the responses were "purely strategical moves designed to influence the outcome of the legislative action."

Surveys of manufacturing firms in Michigan (Mueller, Wilken, and Woods 1961) and Florida (Greenhut and Goldburg 1962) found that, while market factors and quality-of-life factors were important determinants of investment decisions, taxes and financial incentives had little effect on location decisions.

William Morgan's (1964) review of 17 surveys and seven personal interview studies came to a similar conclusion. All but one study described markets, labor, raw materials, and transportation as being of "primary significance" or "some significance" in location factors. On the other hand, only one survey described taxes as being of "primary significance" in location decisions, and only three rated taxes as being of "some significance." The remaining 20 studies described taxes as being of "little significance." All 20 of the 24 studies that rated financial incentives ranked them as being of "little significance."

Howard Stafford (1974) interviewed decision makers in six firms about eight plant location decisions. He found that taxes were the least mentioned of 14 location factors. In addition, Stafford's study concluded that taxes were the least important location factor, ranking behind executive convenience, labor availability, labor rates, labor productivity, corporate communications, personal contacts, market accessibility, supplies accessibility, facilities, and utilities.

In several studies of multiplant firms, Roger Schmenner (1978, 1980, 1982) found that taxes and business incentives were not significant factors in location decisions. In fact, in his 1978 survey, Schmenner found that firms were almost as likely to relocate to areas with higher taxes as they were to relocate to areas with lower taxes. In Schmenner's 1980 survey, all of the decision makers he interviewed said that taxes were not significant in their location decisions. Finally, in his 1982 survey of Fortune 500 companies, Schmenner reported that only 1% said that taxes were a "must" factor when selecting a state or region for a new branch plant, although 35% said low taxes were "desirable if available."

In a survey of firms that invested in states offering business tax incentives, Michael Kieschnick (1981) found that only 28% of new or expanding firms and 44% of new branch plants even considered locating in a state other than the one in which they invested. Moreover, fewer than 1% of the new firms, none of the expanding firms, and only 3% of the branch plants said they would have invested in a different state were it not for the tax incentives. Similarly, fewer than 2% of the new firms, 4% of the expanding firms, and 12% of the new branch plants said that their investment would have been smaller in the absence of state tax incentives. Kieschnick found that business location decisions were most influenced by factors such as labor costs, labor productivity, market size and accessibility, access to raw materials, and the quality of transportation networks.

In a survey of 204 branches of multiplant firms in North Carolina, South Carolina, and Virginia, John Hekman (1982) found that business incentives and taxes were not major factors in business location decisions. Location factors that were revealed to be important included production costs, transportation costs, land availability, education, local cost of living, housing, and environmental quality.

More recent surveys—those conducted since the dramatic rise of anti-tax sentiment in the early 1980s—have tended to suggest that taxes and tax incentives do play some role in investment decisions. However, there are good reasons to view these recent surveys somewhat skeptically. Business people have an incentive to exaggerate the positive effects of tax incentives upon their investment decisions. They know that their answers may influence future pub-

lic policy toward their businesses. As researcher Timothy Bartik has noted: "A business executive who admits that the incentive received by his/her firm had no effect might cause political problems for the firm if specific survey responses became known. Furthermore, even if there is little risk of specific survey responses being released, executives responding to the survey might feel enough solidarity with business political interests to want the general findings of the study to indicate that tax and other incentives for business are needed" (Bartik 1991, p. 27). Hence, survey responses, especially those provided by firms that have received tax incentives, must be interpreted with caution.

Surveys by *Inc. Magazine* (1980), *Fortune* (1982), and *Industry Week* (1985) found that taxes and, to a lesser extent, business incentives were important factors in business location decisions. However, in all of these surveys, tax incentives were deemed less important than other factors such as worker productivity or efficient transportation facilities for materials and products.

In Walker and Greenstreet's survey (1989), 37% of new Appalachian manufacturing plants that had accepted tax and other financial incentives said that these incentives were decisive factors in their location decision, compared to 63% that said tax and financial incentives were not decisive factors in their location decision. Likewise, in Rubin's survey (1991), 32% of firms granted New Jersey enterprise zone tax incentives claimed that these incentives were the sole or major factor in their decision to invest in the zone, while 68% said these tax incentives were not the sole or major factor in the location decision.

Aside from the problem that survey "respondents have an incentive to lie about the importance of taxes (and incentives) in their decision-making process since business executives have a material interest in lower taxes" (Peters and Fisher 2002), surveys have other well-known problems. For example, the exact wording of questions can influence the results, response rates tend to be low, respondents to the survey questions may not have been involved in the location decision, and the ranking of factors is difficult to interpret. Most importantly, these surveys tell us nothing about whether tax incentives are good for state and local economies. Tax incentives might "work" in influencing a business to relocate. But if the state or local community shortchanges public services, or raises taxes on others, the incentives may have actually "failed" the community.

To get around some of these problems researchers have turned to statistical or econometric studies to analyze the importance of taxes as a location factor. These studies have the potential benefit of illuminating what businesses actually do in response to tax incentives, as opposed to what businesses say they do.

CHAPTER 4

Statistical and econometric study results

Statistical and econometric studies are nearly unanimous in concluding that state and local tax incentives fail to attract a significant number of new businesses, create numerous jobs, or substantially enhance state economic performance. Some studies find that taxes have a positive economic effect, some conclude that taxes have no discernible effect, and some—particularly many of the recent studies—suggest that taxes have a negative impact on the economy. Most of the studies in the last group, however, find that the negative effect is small and dependent upon the unrealistic assumption that public spending remains constant as taxes change. The key findings of some of the pioneering and most well-known studies are reviewed in this chapter, in chronological order. Following this review of the key studies, the findings of the recent econometric studies are explained and analyzed in greater detail.

Clark Bloom (1955) found no negative impact of growth in state and local taxes on manufacturing employment and capital expenditures. On the contrary, he reported a small positive correlation between taxes and manufacturing employment growth: higher taxes were consistent with a more rapid expansion in manufacturing jobs.

Thompson and Matilla (1959) found that differences in state taxes had no significant influence on annual employment growth in 28 out of the 29 manufacturing industries they examined. The apparel industry was the only exception.

Benjamin Bridges (1965) reviewed data on the effect of state and local inducements for industry. He concluded that state and local financial incentives were not a primary consideration in a firm's location decision.

In an exhaustive survey of the literature on the effectiveness of state business incentives, Roger Wilson (1989) concluded that business incentives are not the primary or sole influence on location decisions. In addition, he concluded that, "there is no statistical evidence that business incentives actually create jobs, and there is no evidence that a loss of jobs or a transfer of jobs

from one state to another is a direct result of business incentives" (Wilson 1989, p. 22).

Several recent econometric studies suggest that state and local tax cuts and incentives may have a positive effect on economic growth, provided that government services are not reduced to pay for the tax cuts. Unfortunately, some policy makers have misinterpreted the results of these studies to suggest that tax cuts, regardless of how they are paid for, stimulate growth. In addition, the effects of taxes on growth that these studies reported have been greatly exaggerated by some policy makers. Below, the findings of these recent studies are briefly reviewed; the next two subsections explain and analyze the findings in more detail.

In a comprehensive review of econometric research on the effects of state and local taxes on economic development, Bartik (1991, 1992, 1994a, and 1994b) summarized the results of 75 studies done between 1979 and 1994. He concluded, "Most recent business location studies have found some evidence of statistically significant negative effects of state and local taxes on regional business growth. The findings of recent studies differ from those of studies in the 1950s, 1960s, and early and mid-1970s, which generally did not find statistically significant and negative effects of taxes on state and local growth" (Bartik 1991, p. 38-9).

Phillips and Goss (1995) conducted a meta-analysis of the studies reviewed by Bartik in 1991.[21] They reported tax effects that were negative and perhaps larger than those reported by Bartik, but that varied depending on which studies they included in their analysis and whether the studies controlled for the effects of public services and other variables. However, their "results generally support the conclusions reached earlier by Bartik…that the effect of taxes is modest" (1995, p. 329).

Wasylenko (1997), in the most thorough survey of recent econometric studies that included those reviewed by Bartik in 1991 and several studies done since 1991, found that the effect of state and local taxes on growth, employment, and business location was negative but somewhat smaller than that suggested by Bartik. Wasylenko concluded that state and local taxes "have a small, statistically significant effect on interregional location behavior."

An econometric study by Peters and Fisher (2002) found that taxes have no statistically significant effect on economic growth in enterprise zones. They concluded, "there is no indication that the size of enterprise zone incentives alone, basic taxes alone, or incentives and basic taxes in combination are statistically or substantively important to the rate of (firm) births and moves in" (p. 183). The results reported by Peters and Fisher are consistent with much of the econometric literature on enterprise zones and the effects of area-specific tax incentives. However, their research is not consistent with much of

the recent econometric research that finds that taxes have a small but significant negative impact on growth.

Some policy makers have concluded that the recent econometric studies prove that state and local tax incentives stimulate economic activity and encourage job growth in a cost-effective manner. This has encouraged policy makers to push tax cuts and tax incentives as a strategy to create jobs and promote economic growth. As explained and discussed in the next two subsections, such a conclusion is clearly a misuse, misinterpretation, or misunderstanding of the econometric literature that may lead to unsuccessful public policy.

Explanation of the findings of recent econometric studies

Bartik (1994a) reported that 53 of 75 studies found at least one statistically significant negative tax effect: under special circumstances, such as when government spending is held constant as taxes increase, an increase in taxes has a high probability of causing some decrease in economic activity. He concluded that the "long-run elasticity of business activity with respect to state and local taxes appears to lie in the range of -0.1 to -0.6 for intermetropolitan or interstate business location decisions" (Bartik 1991, p. 43). In other words, "if an entire metropolitan area or state raises its taxes by 10%, the estimated long-run effect would be a reduction of business activity between 1% and 6%" (Bartik 1991, p. 43). Note that this finding does not take into account the countervailing positive economic impact of increased government activity resulting from higher government revenue due to the tax increase (more will be said about this point later). While the range was -0.1 to -0.6, according to Bartik, the *average* long-run elasticity of local economic activity with respect to state and local taxes was around -0.3 (Bartik 1991, 1994a, and 1994b) or perhaps only about -0.25 (Bartik 1992, p. 103).

In lay terms, what does an average long-run elasticity of -0.25 imply about the impact of a state or local tax cut? It means that if all state and local taxes were reduced by 10% one could expect an increase in local employment over 20 years "of around 2.5%, above and beyond the growth that would have occurred without the business tax reduction. If the area would have grown 30% in employment over 20 years without the tax reduction, its employment growth with the tax reduction would be 32.5%" (Bartik 1992, p. 103). Note again, this is private-sector employment; there would also be an offsetting decline in public-sector employment that is not accounted for here.

Wasylenko (1997), in his update of Bartik's work, noted that from studies reporting statistically significant results "a large share of the elasticity esti-

mates indicate less responsiveness than the -0.3 average reported (by Bartik)." Thus, he suggested that the appropriate "estimate of the interregional elasticity is -0.2."

Analysis of the recent econometric research

For a number of reasons, it would be erroneous to conclude that the recent econometric research proves that tax cuts improve state economic growth and create jobs in a cost-effective fashion. These reasons are listed here and then discussed in detail in the pages that follow.

- The econometric studies fail to adequately take into account the interrelationship between taxes and public services.
- The studies suggest only small effects of taxes on economic activity and the results of these studies are often inconsistent with each other, not reproducible, and unreliable.
- The negative effects of state and local taxes that the econometric studies report are probably somewhat exaggerated.
- But, even if the findings of the recent econometric studies are not exaggerated, their results do not support the notion that state and local tax cuts and incentives can be counted on to create numerous jobs or to create jobs in a cost effective manner.
- Contrary to the assumption of all the econometric studies, state and local taxes may be largely irrelevant to business investment decisions.
- And finally, the study results may be meaningless because most of the studies are measuring their explanatory variable—tax burdens—inaccurately. Whenever an explanatory variable is mismeasured it is impossible to know if the econometric results accurately reflect the impact of the variable.

Econometric studies largely fail to adequately account for the interrelationship between taxes and public services.

Perhaps the most important weakness of the econometric work from a policy maker's point of view is the fact that *the positive effects of tax cuts that the econometric studies report are often based on the assumption that taxes can be cut without reducing public services*. In the real world, tax cuts must be paid for, and paying for them leads to reductions in public services.

Cutbacks in public services, in turn, are likely to have negative effects on state and local economies, thereby offsetting some or all of the positive effects of tax cuts.

Some of the econometric studies ignore altogether the effects of changes in taxes on the levels of public spending. Other studies, typically the more recent and the better studies, attempt to control for differences in the level of public services as a result of tax changes in order to isolate the effects of taxes. The results of these latter studies typically suggest that tax cuts may have some positive economic effects, but *only when services are not cut simultaneously*.

Both Bartik and Wasylenko realized that tax changes in the real world do not occur in a vacuum: when taxes are raised the additional revenues are almost always spent and when taxes are cut the loss of revenue almost always leads to reductions in the quantity or quality of public services. These revenue-induced changes in public services, in turn, have significant effects on the economy. For example, Bartik stated that the estimated tax effects "assume public services are held constant as taxes change. Tax increases would have a less negative effect on an area's business activity—or even a positive effect —if public services were simultaneously changed in the same direction" (Bartik 1991, p. 43-4). In other words, reductions in public services will slow economic activity while increases in public services will accelerate economic growth. Similarly, Wasylenko noted that instead of tax cuts "firms may favor a stable business tax system that efficiently funds the services demanded by businesses and citizens of the state" (Wasylenko 1997, p. 49).

In his 1994 follow-up survey of econometric studies that examined the economic impact of taxes, Bartik was more specific about the relationship between tax cuts and public service reductions. "The effect of taxes on local economies, when public services are held constant, will be greater than when public services are allowed to vary. A tax reduction may lead to some reductions in public services, which will discourage business activity and offset some of the tax cut's stimulus to business activity" (Bartik 1994a, p. 102). Indeed, Bartik made clear that public expenditure reductions will occur in response to a tax cut. As he noted, the relatively small increase in business activity that he found would follow a tax cut "rules out Laffer curve effects," meaning that a state that "reduces business tax rates will not increase the tax base enough to increase revenues" (Bartik 1994a, p.102). Therefore, tax cuts will lead to revenue losses. Hence, states that cut taxes will be forced to reduce public expenditures and public-sector jobs unless they have surplus funds such as those that may exist in "rainy day" funds.

In short, recent econometric studies essentially prove something both obvious and largely unattainable: state and local economies would be stron-

ger if they could maintain public services while paying less for them. In the best of all possible worlds, state and local governments would provide an infinite supply of public services and charge nothing in taxes to pay for these services.

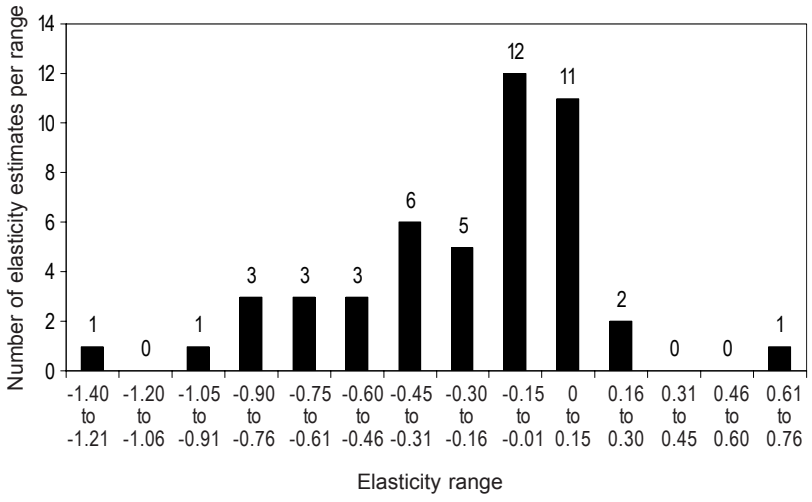
Since it is clear that taxes and public spending are linked, why would econometricians measure the effects of tax changes while artificially holding public spending constant? Holding public spending constant is an attempt to isolate the "pure" tax effect. In other words, if taxes and spending are allowed to change simultaneously, econometric studies would measure the effects of tax *and* spending changes rather than just the effects of tax changes. If public services are not held constant, then the estimate of the negative effect of a tax increase will also be influenced by the positive "effects of public services on growth to the degree that public-service levels and taxes are positively correlated (as they typically are since higher taxes finance more services)" (Wasylenko 1997, p.46).

Economic theory suggests that taxes affect economic behavior. And yet the early econometric studies, which often failed to hold public spending constant, generally found no effect of state and local taxes on economic activity. This was counterintuitive and, undoubtedly, frustrating to econometricians. More recent econometric studies have typically held public spending constant and did find negative tax effects. Thus, controlling for public services may be an econometric technique that is quite useful in isolating the "pure" effect of a tax change. But, the "pure" effects of tax changes are irrelevant to public policy makers, except in the rare cases where tax changes may be made without causing changes in public spending, because state and local tax levels and public service levels are positively related.

The econometric studies suggest small effects of taxes on economic activity, and their results are often inconsistent, not reproducible, and unreliable.

First it should be pointed out that policy makers may be misunderstanding the econometric results, in part due to confusion over the use of language. For example, when econometricians describe an effect (such as that of a tax cut on economic growth) as statistically "significant," they do not mean that the effect is large, important, or powerful. Instead they mean that the effect that they are measuring, whether small or large, has a high probability of actually occurring. Statistical significance does not equal economic significance. Although the econometric studies reviewed by Bartik and Wasylenko may find statistically significant negative effects of tax increases, most of these effects on the economy are small. The modest effects of taxes on jobs are illustrated in the section addressing whether state and local tax cuts can be counted on to create jobs.

FIGURE 1 Range of tax elasticity estimates



Another problem with the econometric studies is that the estimated tax elasticities are not consistent with each other. Instead, the elasticities varied widely from study to study and often they could not be replicated in subsequent studies when data from different years were used. For example, McGuire and Wasylenko (1987) and Carroll and Wasylenko (1991) tried but failed to replicate the results of Wasylenko and McGuire's (1985) study that found significant negative tax effects. "In particular, using data from the 1980s rather than the 1970s, the newer studies did not find taxes to be a significant determinant of state employment growth" (McGuire 2003). As Wasylenko noted the tax "elasticity estimates range between implausibly high values of -15.7 in one or two studies to positive 0.54 in others" (Wasylenko 1997, p. 45). This means that "the results are not very reliable" (Wasylenko 1997, p. 38).

Figure 1 is a bar diagram of the 48 tax elasticities reported by Bartik (1991). It illustrates that the tax elasticities are quite varied around their average of -0.25 and their median value of -0.15. The bar diagram shows that 14 studies found either no effect or a positive effect of state and local taxes on economic activity. For the 34 studies that discerned negative tax effects, half found very small tax effects: 17 studies calculated tax elasticities of -0.3 or smaller (in absolute terms). Overall, most of the studies showed little or no effect of taxes on economic activity: 30 studies reported elasticities that varied between negative 0.3 and positive 0.2.

One approach to dealing with inconsistent study results is to take an average or median of the different studies. This, with varying degrees of qualification and trepidation, is what Bartik and Wasylenko did. But, if the estimate of tax elasticity is so dependent on time periods, variations in data, and the variables used in the estimating equation, then it is hard to know what the average estimate is an average of. Clearly, if there is an effect of tax cuts, positive or negative, it is likely to be very small because a large effect would consistently turn up in the studies. The only thing that can definitely be concluded from the body of research on tax cuts is that the effects of tax cuts are small at best, and zero or negative if one takes into account the need to cut public services when taxes are cut. At minimum, policy makers should be wary about making economic policy based on the inconsistent results of econometric studies.

The negative effects of state and local taxes that the econometric studies report are probably somewhat exaggerated.

There are good theoretical and empirical reasons why it is probable that the estimates of the negative effects of state and local taxes reported by Bartik (1991, 1992, 1994a, and 1994b) and Wasylenko (1997) are somewhat exaggerated. In general, in econometric analysis it is much easier to accurately measure the effects of major cost factors on business activity than it is to measure the impact of minor cost factors on business activity. In addition, the effects of cost factors, such as taxes, on business growth should be roughly proportional to each factor's share of total costs. Thus, if state and local taxes are 1% of the cost of doing business, and wages are 20% of the total cost of doing business, then a percentage change in wages should have 20 times the effect of an equal percentage change in taxes.

The effects of wages on business activity can be measured more accurately than the effects of taxes on business activity because wages are a much larger share of total business costs than are taxes. Bartik (1991) in a summary of results from studies of wage effects on business activity reported that the average long-run elasticity of business activity with respect to wages was -0.67. Wages are 21.4 times greater than state and local taxes paid by business and 6.4 times greater than all state and local taxes. Hence, if the elasticity of business activity with respect to wages is -0.67, then the elasticity of business activity with respect to state and local taxes paid by business should be only -0.03 (-0.67 divided by 21.4). If we assume that all state and local taxes (and not just those state and local taxes paid by business) affect business costs, then the elasticity of business activity with respect to state and local taxes should be only -0.1 (-0.67 divided by 6.4).[22] Note that tax elasticities of -0.03 or -0.1 are consistent with most of the econometric studies that show little or no effect of taxes on economic activity

but smaller than the elasticities suggested by Bartik and Wasylenko. And this analysis is, again, only on the cost side—i.e., it does not account for the positive effects of increased public expenditures resulting from tax increases.

Even if the results of the recent econometric research are accurate, they do not support the notion that state and local tax cuts and incentives can be counted on to create numerous jobs.

Even if the tax effects that Bartik and Wasylenko derive from the widely divergent econometric results are accurate, they are not large enough to allow policy makers to realistically expect tax cuts to generate many new jobs. As Bartik noted in his 1994 review, the tax elasticity estimates "offer but modest support for an economic development strategy of lowering business taxes to create jobs" (Bartik 1994, p. 102). Wasylenko also concluded "taxes do not appear to have a substantial effect on economic activity among states" (Wasylenko 1997, p.47).

To illustrate the modest job effects of tax cuts, consider the employment effects of a 1% reduction in all state and local taxes using Wasylenko's estimate of a negative 0.2 long-run tax elasticity. New York, a large state with employment of 8.4 million, could expect an additional 16,800 jobs over 20 years, or an average of 840 extra jobs per year for 20 years. Maryland, an average-sized state with employment of 2.7 million, could anticipate an additional 5,400 jobs over 20 years, or an average of 270 jobs annually for 20 years. Wyoming, a small state with 260,000 employees, could expect an additional 520 jobs over 20 years, or an average of 26 extra jobs per year for 20 years. By almost any standard, these are not impressive job gains. Even these paltry job gains occur only if we make the unrealistic assumption that state and local governments do not shed any public-sector jobs in response to a 1% cut in taxes.

There is a remarkable discrepancy between the job creation estimates discussed above and the number of jobs that some have claimed will be created by tax cuts they have championed. For example, The Beacon Hill Institute claimed in September 2000 that New York state could anticipate an additional 57,000 jobs in just one year by lowering the state sales tax by one percentage point. Note that a sales tax cut of this magnitude would reduce tax revenues by roughly $1.9 billion and would amount to about a 2% cut in New York's state and local taxes. Using Wasylenko's tax elasticity of -0.2, this tax cut might be expected to generate about 33,600 jobs over 20 years or about 1,680 jobs annually assuming that state and local governments do not lay off workers in response to the tax cut. Thus, The Beacon Hill Institute's estimate of the number of jobs (57,000) that may be created in one year's time by tax cuts represents an incredible 34-fold increase over the annual average job creation estimate (1,680) that follows from the tax elasticity suggested by Wasylenko.

The results of the recent econometric research suggest that state and local tax cuts and incentives cannot create jobs in a cost-effective manner.

Even if state and local tax incentives play a statistically significant role in encouraging firms to relocate to or expand within a state, this does not prove that tax incentives are efficient in promoting economic activity or creating jobs. To establish the efficiency of tax incentives, their benefits must be compared to their costs in terms of lost tax revenue. For example, creating one private-sector job in exchange for $1,000 in foregone tax revenues may indicate an efficient use of tax incentives, whereas creating one private-sector job in exchange for the loss of $50,000 in tax revenues may be grossly inefficient. In this example, the public sector could have used the $50,000 to expand public services for all citizens and created more than one job in the process.

The cost per job created by state and local tax cuts and incentives is high. Using Wasylenko's estimate that the long-run elasticity of economic activity with respect to state and local taxes is -0.2, the cost per job created by tax reductions can be roughly calculated. In 2001, the annual cost of creating one job by reducing state and local taxes would have been approximately $39,400 per year once the job effects were fully phased in.[23] In other words, for a state or local government to permanently increase employment by one job relative to what employment would have been without a tax cut, it would have to cut taxes such that tax revenues would be reduced by $39,400 per year, year after year, compared to what revenues would have been without the tax cut. If, as suggested earlier, the true tax elasticity were only -0.1 (or if the true elasticity with respect to just business taxes was only -0.03), then the cost per job would have been about $78,800 per year.[24]

These estimates of between $39,400 and $78,800 for the cost per job created by tax cuts do not take into account the additional taxes that would be paid by the new jobholders. Nor do they consider the additional government expenditures that would result from the provision of public services to these new jobholders and their families. Bartik concluded that "whether there are any net positive fiscal benefits from new jobs is questionable from the perspective of a state or a metropolitan area, as the households attracted by the new jobs are likely to cost more in services than the tax revenue they generate" (Bartik 1992, p. 106). Hence, it is likely that the cost per job created is slightly higher than the estimates presented above suggest.

Estimates of $39,400 to $78,800 for the cost per job created by tax cuts are consistent with other recent estimates of the cost per job of tax incentives. Fisher and Peters (2000) estimated that the cost to state and local governments in lost tax revenue of tax incentives in enterprise zones amounted to $59,100

per new job. Peters and Fisher (2002) calculated that each new job created by state and local tax incentives available in enterprise zones costs state and local governments about $60,700 (and may cost them over $100,000 in lost tax revenue, depending on certain assumptions).

These costs of tax incentive-induced jobs far outstrip the costs of creating most public-sector jobs. It is probable, therefore, that in many cases the revenues lost as a result of tax cuts and incentives could have been used to create jobs more effectively by appropriately increasing the quantity or quality of public services. In other words, state and local tax incentives are unlikely to be an efficient way to create jobs given that spending equivalent sums of money to hire schoolteachers and other public servants may generate more jobs. Chapter 6 of this paper discusses several studies that come to similar conclusions.

State and local taxes may be largely irrelevant to business investment decisions.

A further problem with the findings of the econometric studies reviewed earlier is that state and local tax burdens may be only a very small part of a larger factor that influences the investment decisions of firms. Hence, differences in state and local tax burdens—even if they are substantial—may have little or no effect on business activity.

A large body of economic theory suggests that the appropriate determinant of business-capital investments is the "user cost of capital." [25] Simply put, the user cost of capital indicates the rate of return on an investment that a firm would need to obtain to make the investment worthwhile. For example, if the user cost of capital for a particular project was 22%, then a $100 million dollar investment in the project would have to generate $22 million or more in profits annually to make it worthwhile to proceed with the investment. In effect, the user cost of capital represents the annualized cost of purchases of additional units of capital. All else being equal, firms will choose to invest where the user cost of capital is lowest.

The user cost of capital incorporates the effects of taxes, including state and local taxes. But state and local taxes are only a very small part of the user cost of capital; the largest components of the user cost of capital are the depreciation rates of capital assets and the borrowing costs associated with investments. In addition, federal taxes are a much larger share of the user cost of capital than are state and local taxes. In general, state and local taxes raise the user cost of capital. Sometimes, however, raising state and local taxes will reduce or leave unchanged the user cost of capital, depending on the interaction of the tax rates with other provisions in the tax law such as taxable income definitions, profit apportionment rules, investment tax credits, and depreciation allowances. But even when state and local taxes raise the user cost of capital,

differences in state and local tax burdens may not have much of an effect on where investment occurs because these tax burden differences may have only a tiny impact on the differences in the user cost of capital across states.

Mead (1999 and 2001) calculated the user cost of capital for four industries in the 48 contiguous U.S. states over the 1963-97 period. He found that "despite differences in effective marginal tax rates, the user costs of capital across states are virtually identical for any given year examined" (Mead 2001, p. 3-4). Mead also determined that state and local taxes caused very little variation in the user cost of capital across states. Given that very little variation in the user cost of capital "is due to state and local tax policy, it is unlikely that state and local tax policies influence investment or new plant location across states. Considering that there was quite a bit of variation across states and over time in the tax provisions of states during the time period studied in this paper, a further implication is that changes in state and local tax policy that are politically feasible are unlikely to influence the investment or location decisions of firms across states" (Mead 2001, p. 34).

As an illustration of the tiny effect of state and local tax policy on the user cost of capital, Mead noted that if North Carolina, a state with an average corporate income tax rate, had totally eliminated its corporate income tax in 1997, then it would have lowered the user cost of capital on equipment from 0.224 (22.4%) to 0.222 (22.2%)—a reduction in the user cost of capital of only 0.9% (0.002 divided by 0.224). Had North Carolina taken the radical step of eliminating its corporate income tax in 1997—thereby lowering its user cost of capital by 0.9%—the state might have increased its capital stock by 0.23%, output by 0.07%, and employment by 0.04%.[26]

To translate these numbers into something tangible, consider that an increase of 0.04% in long-run employment in North Carolina implies that about 1,500 jobs would have been added over 10 or more years to the 3.7 million jobs already in existence in 1997. Note too that the corporate income tax generated $981 million in tax revenue for North Carolina in 1997. Hence, after the tax cut effects are fully phased in, each job created by the elimination of the corporate income tax may have cost North Carolina about $654,000 ($981 million divided by 1,500) annually in lost government revenues.

This cost-per-job measure assumes that North Carolina's state and local governments would not have eliminated any public-sector jobs in response to lower corporate income tax revenues. Obviously, it is likely that governments in North Carolina would have been forced to lay off thousands of public employees if these governments collectively lost over $980 million in tax revenues annually. Thus, it is probable that North Carolina would have in fact suffered job losses had it eliminated its corporate income tax in 1997.

The econometric study results may be meaningless because most of the studies are measuring tax burdens inaccurately.

A final problem with the econometric research is that it is very complicated, time consuming, and difficult to measure tax burdens precisely. Probably for this reason, most of the econometric studies use measures of tax burdens that are incorrectly gauging the true burden of state and local taxes. If these studies are incorrectly measuring tax burdens, their results may be meaningless. For example, some studies use per capita tax burdens and claim that high per capita state and local taxes imply a heavy tax burden. But, relatively rich states with low tax rates generate much higher per capita taxes than relatively poor states with high tax rates. So, if a researcher using per capita taxes as a measure of tax burdens reported a negative effect of taxes on growth, would the effect actually be a consequence of per capita tax burdens that are high, tax rates that are low, or some other phenomena associated with states being rich?

Other studies use tax rates. But, tax rates may also tell us very little about the true burden of state and local business taxation because definitions of taxable business income and the apportionment of profits vary widely across states. For example, a "high-tax" state may impose a higher corporate income tax rate than a "low-tax" state. But, the "high-tax" state may define taxable corporate profits more narrowly than the "low-tax" state and may effectively choose to tax only a small percentage of business profits, while the "low-tax" state may tax a large percentage of business profits. For example, Iowa has a high top-corporate income tax rate of 12% but defines corporate taxable income based entirely on the proportion of sales a business makes in Iowa. Thus, a very profitable firm with substantial property and payroll in Iowa could pay no Iowa corporate income taxes if all of its sales are out of state.

In addition, the so-called "high-tax" state may provide investment tax credits and generous depreciation allowances compared to the "low-tax" state. As a consequence, the true tax burden on business may be much lower in the so-called "high-tax" state than in the "low-tax" state. Hence, an econometric study that concludes that high state and local tax rates are a detriment to growth may actually be finding that low state and local tax burdens are an impediment to growth.

Still other studies use total state and local taxes relative to personal income or business taxes relative to business income as a measure of tax burden. These tax burden measures suffer from an excessive level of aggregation. Most econometric studies measure the effect of taxes on a specific sector of the economy, such as the manufacturing sector. Aggregate measures may tell us very little about the actual tax burden on a specific industry as effective tax rates vary a great deal across industries. Furthermore, aggregate measures

reflect "average, not marginal, tax burdens. The industrial location decision, if it is affected by taxes at all, is affected by the changes in a firm's tax burden as a result of a change in investment—i.e., the effective marginal tax rate on new investment" (Fisher and Peters 1998, p. 57).

Many studies also fail to take into consideration the deductibility of state and local taxes from federal taxable income or the deductibility of business taxes paid to one state or to the federal government from taxable income in another state. Obviously, the burden of state and local taxes depends on the amount of taxes paid and not to whom the taxes are paid.

The bottom line is that most of the econometric studies are incorrectly measuring tax burdens. Thus, their results must be taken with a large grain of salt.

CHAPTER 5

The representative firm approach

To develop more accurate measures of the actual tax burdens across states, several studies have used the "representative firm" approach. In the representative firm approach, the financial statements of hypothetical firms are constructed to reflect, as accurately as possible, the financial statements of real firms. Taxes and tax incentives are then applied to the profits of these hypothetical firms to determine the effective state and local tax rates or the burden of state and local taxation. In this way, the effective state and local tax burden on a firm's investment decision can be measured and compared across states. In one commonly used form of this approach, the after-tax rate of return is calculated for a hypothetical investment project that yields the same pre-tax profit rate in multiple states. Starting with a common pre-tax profit rate makes it easy to compare the burden of taxation across states as differences across states in the after-tax rates of return are entirely due to taxation.

The representative firm approach has been used for over 35 years to study differences in state and local taxes. All of these studies have found, not surprisingly, that state and local taxes do reduce profits and that there is some variation in tax burdens across states. Unfortunately, very few of the representative firm studies have attempted to answer the more important question: are the variations in profits caused by differences in state and local taxes substantial enough to influence where firms locate or invest and are tax incentives an efficient use of public resources?

One study by Bartik et al. (1987) that analyzed the incentive packages offered by various states to General Motors to influence the location of a Saturn plant, suggested that the impact of state and local taxes and incentives (including firm-specific incentives) may be large enough to affect where a firm will locate or invest. This result is not surprising. Clearly, directing enough money at a firm through a firm-specific incentive package will likely influence where the firm will locate. But this does not mean that the incentives represent a good use of public money. Bartik et al., for example, did not analyze what

the economic and job impact would have been had the incentive monies been used to finance alternative economic development programs.

Several recent representative firm studies have come to the conclusion that differences in state and local tax burdens, excluding firm-specific tax incentives, are not sufficient to influence business location decisions. Using the representative firm approach and taking into account federal, state, and local business taxes and incentives, Papke (1995) found that after-tax rates of return were almost identical across the six Great Lake states for prospective investment projects with identical 20% pre-tax profit rates. The largest after-tax profit rate differential was only one percentage point (11.7% for general merchandise stores in Indiana versus 12.7% for those stores in Michigan). The differences in state and local business tax burdens were small relative to the other costs of conducting business. This means that firms are not likely to move from one state to another to take advantage of state and local business tax differentials. Or, as Papke put it, "as long as the after-tax rate of return is approximately equal across the states, taxation is effectively irrelevant in the investment location decision equation" (Papke 1995, p.196). In addition, he found that "interstate tax-cost differentials appear to have no significant impact on economic growth among the Great Lake states. The highest tax-cost state has had the highest average annual growth rate over the last decade" (1995, p. 196).

In a study of five industries in 22 states, Tannenwald (1996) also found that after-tax rates of return do not vary greatly by state. In the majority of cases, Tannenwald found that after-tax rates of profit varied by 0.3 percentage points or less within industries across states. Tannenwald, using the tax burden results from his representative firm model in an econometric analysis, also found that state and local taxes exert no statistically significant effect on business capital expenditures, whereas public services have a positive and statistically significant impact on business capital spending. Tannenwald concluded that taxes exert "only a small, highly uncertain effect on capital spending." Thus, "[s]tates may be more likely to stimulate their economy by enhancing public services valued by businesses" than by cutting taxes (1996, p. 23).

Fisher and Peters (1998) examined the effective tax rates for 16 industries across 116 cities in 24 states. On average, they found that state and local taxes and incentives reduced profits by 7.3%. Although they found substantial variation in the after-tax rates of return between the highest-tax and lowest-tax locations, they reported little variation in tax burdens for most cities. They concluded, therefore, "that in some cases tax and incentive differentials between top- and bottom-ranked locations could sway plant location decisions" (1998, p.173). But for most cities, given the small size of tax and incentive differentials, whether state and local taxes and incentives would have an im-

pact on plant location decisions depended "on the other factor costs at the various sites competing for the investment" (1998, p. 208).

Peters and Fisher (2002) looked at taxes and incentives for 16 industries in 20 states. They found that state and local taxes and incentives reduced profits on new manufacturing plants in the 20 states by an average of 6.7%—and by only 5.2% for new plants in enterprise zones. They also looked specifically at the incentives available in enterprise zones in 75 cities in 13 states. While they found variation in the effective tax burdens between cities, the effects of the enterprise zone incentives were small, typically increasing after-tax profit rates by about 1.7% (e.g., from 10.0% to 10.17%). Peters and Fisher also used an econometric model to test if the tax burdens suggested by their representative firm model affected economic growth in enterprise zones. They found small positive effects of taxes on economic growth, but these effects were not statistically significant. Peters and Fisher concluded that enterprise zone incentives were unlikely to affect location decisions or have much of an impact on employment growth. "At best the evidence shows that enterprise zones have little or no impact on the growth of establishments. It is almost certain then that they have as little impact on employment growth" (2002, p. 225).

A limitation of the representative firm approach is that it ignores the value of state and local government services to businesses specifically, and to local economies generally. That is, it ignores the fact that higher tax burdens in some jurisdictions may reflect a superior provision of public services that are good for businesses and for local economies. A few of the researchers using the representative firm approach deal with this problem by taking the tax results of their model and using it as an explanatory variable in an econometric study that explicitly incorporates public services as a variable. Both Tannenwald (1996) and Peters and Fisher (2002), as indicated above, adopted this strategy.

Businesses may desire better and more expensive public services if public services lower the costs of doing business and more than compensate for higher effective tax rates. For example, a firm may prefer to pay 10% of its profits in taxes to a jurisdiction whose public services enable the firm to earn $100 million in profits than pay 5% of its profits to a government whose public services allow the firm to earn only $80 million in profits. Tax cuts and incentives in the high-tax jurisdiction may slow economic and job growth if they lead to reductions in the quantity or quality of public services—either those coveted by businesses or such things as education and amenities that contribute more generally to economic well-being. So what are the effects of public services on economic growth and jobs?

CHAPTER 6

The effects of state and local public services on economic development

Given that state and local tax cuts will almost always lead to reductions in public services, it is important to understand the effects of state and local public spending on economic growth. Only armed with such an understanding may we achieve a balanced view of the effects of state and local tax cuts and incentives.

Public spending and economic growth

The evidence for the positive economic effects of increases in public services is compelling. Bartik (1991), in a survey of 30 studies since 1979, reported that 60% of the studies found at least one positive and statistically significant effect of state and local public services on local business growth. Increases in spending for education and infrastructure, in particular, were most consistently positively correlated with growth.[27]

Ronald Fisher (1997) also summarized the literature on the effects of state and local public services on economic development. He argued that it was important to understand this literature because "taxes, of course, are a means by which public services may be financed. If taxes reduce growth or inhibit development, then presumably no democratic government would collect taxes unless there were (at least partially) offsetting benefits. Accurate estimates of the possible negative effects of taxes require similar estimates of the possible benefits from the public services financed by the taxes" (Fisher 1997, p. 53). Fisher reported that 27 of 43 studies found positive effects of public spending on economic growth. Spending on transportation services had the clearest positive impact on economic growth, but many studies also found that spending on public safety and education had a positive influence on the economy. Fisher further suggested that the studies he reviewed might not have picked up all the positive effects of educational investment because some of the benefits of public spending on education spread across jurisdictions as

people move. Thus, educational investment may have weak state and local effects but stronger national effects. Fisher concluded, "some public services clearly have a positive effect on some measures of economic development in some cases" (1997, p. 54).

Both Bartik (1991) and Fisher (1997) point out that some public services, such as roads and highways, stimulate economic activity by reducing private-sector production costs (i.e., publicly provided transportation services make it cheaper for firms to transport goods). Other public services, such as education and health services, increase the productivity of inputs (such as labor) and reduce their quality-adjusted prices, thus increasing output in the private sector. In this way, tax reductions may negatively impact growth and employment by forcing cutbacks in public services and increasing the costs of doing business.

However, the fact that tax cuts are likely to cause reductions in public services does not, by itself, prove that business tax incentives will fail to stimulate economic activity. After all, it is still possible that the positive effects of tax cuts are greater than the negative effects of public services reductions.

The question becomes, which effects on growth are stronger: those of public services or those of taxes? If a state cut taxes and financed the tax cut by reducing public services, would the state experience economic growth and job expansion as a result of the tax cut—or economic decline and job loss due to the cutbacks in public services?

Unfortunately, most of the studies referred to above cannot shed light on this issue because they measured either the effects of taxes on the economy or the effects of public services on the economy, but not both. From the studies on the effects of taxes, Bartik and Wasylenko estimated an average or median tax elasticity of -0.3 or -0.2. From the studies of public services, Fisher (1997, p. 61) reported, "the positive public service elasticities reviewed here vary from 0.02 to 0.65." However, the data did not allow Fisher to calculate an average or median public service elasticity that could be compared to the average or median tax elasticities reported by Bartik and Wasylenko.

The net effects of state and local taxes and public spending increases

There are, however, some studies that provide information on what would happen if taxes were raised to pay for more public services. All of these studies suggest that state and local tax increases used to finance increases in public services may accelerate state and local growth.

Helms (1985) found that increases in state and local taxes used to increase public spending on health, highways, schools, or higher education caused growth in state personal income.

Bartik (1989) found that increases in state and local taxes increased the rate of small-business creation if the additional tax revenues were spent on local schools and fire protection.

Munnell (1990) found that state and local tax increases used to finance improvements in highways, sewerage, and other infrastructure increased the growth rate of private employment.

Goss and Phillips (1994) found a negative and statistically significant effect of state and local personal taxes on state employment growth rates. However, they also found a positive and statistically significant effect of total state economic development agency spending on employment. They concluded that a doubling of state "economic development spending, financed by personal taxes, would increase the employment growth rate by an estimated one percent" (1994, p. 297).

Bartik (1996) found that increases in higher education and health spending, financed by property tax increases, would increase state manufacturing output in the long run (11 years). On the other hand, increases in spending on roads, financed by non-property tax increases, would reduce manufacturing output in the long run. All other increases in state public services financed by tax increases had little net effect on a state's economic performance.

More importantly, Bartik's 1996 study—the only study to consider the effects of a change in one state's tax and spending policy on its neighboring states—found that increases in most public services, paid for by tax increases, had significant positive effects on regional or multi-state economic development. This suggests that if a state were to cut taxes and pay for the tax cut by reducing public services, its neighboring states would suffer a decline in output and employment. If all states cut taxes and reduced public services, one could expect a national decline in output and employment.

Bartik and Erickcek (2003), using a regional econometric model, analyzed the economic impacts of eliminating the state of Michigan's fiscal year 2004 budget deficit by raising taxes or cutting spending. They concluded that raising taxes by $925 million would be better for jobs and the economy than cutting spending by the same amount. They estimated that "if the state decided to balance its fiscal year 2004 budget by increasing taxes, instead of cutting state spending, the net impact on state employment would be an increase of 7,610 jobs and an increase in state personal income of $309 million."

While the results of just a few studies are not enough to conclude definitively that the positive economic effects of tax cuts are outweighed by the negative economic effects of cutbacks in public services, they should give pause to the proponents of tax cuts as a solution to state and local economic problems. Indeed, it is clear that a policy of increasing state and local public

services and taxes may be more effective in spurring economic growth and generating jobs than a policy of cutting taxes and public services.

The fact that public spending can stimulate the economy more than tax cuts should come as no surprise. After all, when taxes are cut, part of the forgone tax revenue will not be spent locally—some of it will be saved, some will be spent out of state, and some will be taxed by other jurisdictions. But when taxes are raised in order to increase public services, the additional spending is typically done locally.

CHAPTER 7

Conclusion: The policy implications of state and local taxes

Studies that examine why firms locate where they do show that state and local taxes play only a minor role in investment decisions and that lower taxes fail to generate a significant number of new jobs. State and local tax incentives do not work because state and local taxes are not a significant cost of doing business and do not substantially affect profits. Nor are state and local taxes the only or the most important determinant of a state's business climate. Furthermore, tax incentives are not necessary to maintain competitiveness and they fail to promote large-scale saving and investment.

In short, state and local tax cuts and incentives are not effective for stimulating economic activity or creating jobs in a cost-efficient manner. On the contrary, by forcing reductions in public services, tax cuts and incentives may retard economic and employment growth.

Indeed, most of the surveys discussed above found that public services were key determinants of business location decisions. Econometric studies, too, suggest that public services such as education and infrastructure spur economic growth and influence business location decisions. Hence, as Bartik writes, "[a]n economic development policy of business tax cuts may fail to increase jobs in a state or metropolitan area if it leads to a deterioration of public services to business. An economic development policy of tax increases may succeed in increasing jobs if it significantly improves public services to business. Policy makers must consider both tax and public service effects on business if they are to successfully increase their area's job growth" (Bartik 1991, p. 8-9).

Of course, the purpose of state and local government is not only to promote economic growth. So, even if there were instances when the positive economic effects of tax cuts equaled or outweighed the negative economic effects of public-services cutbacks, a policy of state and local tax and spending cuts would not necessarily be justified. After all, a principal motive for state and local public spending is to provide direct benefits to citizens through pub-

lic services in order to improve their quality of life. People benefit directly from public educational institutions, recreational facilities, parks, museums, cultural facilities, public health services, fire protection, police protection, foster care services, child protection services, roads, bridges, airports, port facilities, job training programs, snow removal, environmental protection programs, wildlife protection programs, weather prediction services, labor laws, emergency and disaster relief, and consumer protection programs. The positive economic effects of public spending come in addition to these direct benefits. Hence, while policy makers must consider both tax and public-services effects on business and economic growth, they should also consider the effects of public services on the quality of life of the citizens they represent.

Appendix

As mentioned in the discussion of the recent econometric studies, some researchers have arrived at estimates of the cost per job created by state and local tax cuts that are lower than our estimates of $39,400 to $78,800. They have done so largely by attributing all employment effects of state and local tax cuts to reductions in business taxes alone. This method essentially disregards the revenue losses from non-business state and local taxes (which account for about 70% of all state and local tax revenue), substantially lowering their job cost estimate. The assumption that only state and local taxes paid by business influence the level of employment is probably a mistake. But, if correct, then it has enormous implications of which policy makers should be aware.

In addition, some researchers have implicitly assumed that the effects of tax cuts on employment specifically are the same as the effects of tax cuts on economic activity in general. This assumption is probably unwarranted, as well, and lowers the estimate of the cost per job created by tax cuts.

Take, for example, the job cost estimates of Timothy Bartik, a distinguished scholar and leading expert in the field. Bartik (1992) used 1982 data to estimate that the cost per job created by state and local *business* tax cuts varied from about $1,900 to $10,800 annually depending on whether the tax elasticity was as high as -0.85 or as low as -0.15. Updating his 1989 estimate to 2001 would imply an annual cost per job of between $2,800 and $15,800. Bartik (1994, p. 859, fn. 5) acknowledged that his "elasticity estimates combine studies that look at business taxes with studies that look at overall taxes." But he argued that the "elasticity estimates do not seem to depend on the tax measure." Therefore, he concluded, "It is reasonable to assume that the effects estimated for overall taxes are attributable to the business taxes included in that overall tax measure."

But, there is some evidence that elasticity estimates do depend on the tax measure. Wasylenko's (1997) review of the econometric research, which includes all the studies reviewed by Bartik in 1991, suggests that business taxes may have a smaller effect on economic activity than do all taxes: 20 of the 33 studies measuring the effects of business taxes reported tax elasticities of -0.2 or less. "The median values of these elasticity estimates cluster between 0.0 and -0.26, indicating not much responsiveness of economic activity among regions to business taxes" (Wasylenko, p. 45). By comparison, the median total tax elasticities, based on various categories of 41 studies, varied between -0.02 and -0.58 with most studies reporting elasticities greater than -0.2. Furthermore, for the five studies in Bartik's survey and the six studies in Wasylenko's survey that specifically measured the effects of state and local business taxes on employment, the tax elasticities were only -0.08 and -0.09, respectively.

Given that tax elasticity estimates, such as Bartik's elasticity range of -0.85 to -0.15, are typically derived mostly from studies that measure the effects of all (business and non-business) state and local taxes, it may be most appropriate for researchers to calculate costs per job based on the revenue losses from cuts in all (business and non-business) state and local taxes. Had Bartik calculated the revenue losses from a cut in *all* state and local taxes he would have estimated the cost per job created by state and local tax cuts in 2001 at between $9,300 and $52,500. Alternatively, given that the elasticity estimates do seem to depend somewhat on the tax measure, it may make more sense for researchers to estimate the cost

per job from business tax cuts alone if they use elasticity estimates derived from studies that measured the effects of state and local business taxes on employment. Had Bartik used a long-run elasticity of employment with respect to state and local business taxes of -0.08, based on the five studies in his literature survey that specifically measured the effects of state and local business taxes on employment, he would have estimated the cost per job created by business tax cuts in 2001 at $29,600.

If, instead, it is more reasonable to attribute all economic effects of state and local tax cuts to changes in business taxes alone, then government officials should be aware of the policy implications: raising or lowering non-business state and local taxes while holding public services constant will have no effect on business activity and employment. This argument may not make economic sense. If a state were to reduce personal income taxes while maintaining its level of public services, then, at minimum, we should expect there to be some demand-side stimulus to the economy from increased personal spending, even taking into account the fact that much of the additional spending will be on products that are made out of state. In addition, the reduced personal income taxes and unchanging levels of public services should enable firms to offer lower wages to employees and thereby reduce business costs. Some of the recent econometric studies control for changes in wages and therefore may be attributing some employment effects to changes in wages rather than to changes in taxes that induce changes in wages. Researchers who believe that only state and local business taxes influence employment should perhaps make explicit their assumption that raising or lowering non-business taxes while holding spending constant has no effect on jobs. This will help prevent some proponents of tax cuts from trying to have it both ways: low-balling the costs per job of tax cuts by ignoring the revenue losses from non-business taxes, but then asserting that raising non-business taxes is a job killer.

Finally, some researchers have implicitly assumed that the effects of tax cuts on employment specifically are the same as the effects of tax cuts on economic activity in general. Then they use tax elasticities derived from estimates of the effects of taxes on economic activity as if they were derived from estimates of the effects of taxes on employment when calculating the costs per job created by tax cuts. But, most of the econometric studies did not specifically measure the effects of changes in taxes on employment. Instead, they usually estimated the effects of changes in taxes on one or more categories of "economic activity" such as output, income, new plant births, investment, or employment. The effects of taxes on "economic activity" in general are likely to be greater than the effects of taxes on employment because the non-employment elements of economic activity typically change in more than a one to one ratio to employment. For example, there is usually about a two-to-one ratio between changes in output and changes in employment and a six-to-one ratio between changes in investment and changes in employment. Thus, if tax changes cause a 2% growth in output they probably induce only about a 1% change in employment. The employment effects that some researchers attribute to tax changes may, therefore, be exaggerated by a factor of two or more, leading the estimated costs per job created by tax cuts to be understated by a factor of two or more.

Endnotes

1. For the last two years, states have raised taxes in response to declining tax revenues (caused by anemic economic growth) and constitutional requirements to balance their budgets. See National Conference of State Legislatures, *State Budget Actions,* annual publication, years 1995 through 2003.

2. For details, see Professor Kenneth Thomas's book *Competing for Capital: Europe and North America in a Global Era* (2000).

3. See *Budget of the U.S. Government, Fiscal Year 2004*, Historical Tables, table 15.3.

4. See National Conference of State Legislatures, *State Budget Actions 2002* and *State Budget Actions 2003.*

5. Businesses are allowed to deduct (subtract) the state and local taxes they pay from their income to determine the amount of their income that is subject to federal taxation. The deductibility of state and local taxes reduces businesses' federal taxable income and thereby lowers the taxes that firms pay.

6. According to the Internal Revenue Service's *Statistics on Income Bulletin* (spring 2003), total business receipts and costs (deductions) in 2000 (the most recent year for which complete data are available) amounted to $24,032.2 billion and $22,634.4 billion, respectively. According to Census data, in fiscal year 2000-2001 total state and local tax revenues were $914.1 billion. The methodology developed by the U.S. Advisory Commission on Intergovernmental Relations (1981) suggests that the share of state and local taxes paid by business was roughly 30% in 2000-2001. Applying this methodology, the amount of state and local taxes paid by business in 2000-2001 was approximately $274.2 billion (30% of $914.1 billion). Dividing $274.2 billion first by $24,032.2 billion and then by $22,634.4 results in the estimates that state and local taxes paid by business reduced revenues by 1.1% and represent about 1.2% of the total costs of doing business. Given a federal corporate income tax rate of 35% and a top marginal tax rate on income derived from partnerships and sole proprietorships of 39.6% in 2000, the impact of federal deductibility is conservatively estimated to reduce the burden of state and local taxes by one-third.

A business sponsored trade association, The Council on State Taxation (see Cline, Fox, Neubig, and Phillips 2003), has calculated that state and local business taxes amounted to $371.6 billion in 2000-2001, or 40.4% of total state and local taxes. Using this much higher estimate of the burden of state and local taxes on businesses does not substantially change the results reported above: state and local taxes paid by business represent about 1.5% of business receipts and 1.6% of total business costs before deductibility, and 1% of receipts and 1.1% of total costs after federal deductibility.

7. For an overview of incidence analysis, see chapter 17 in Stiglitz (1986).

8. See Galor and Zeira (1993).

9. Again, unless the tax cut is financed by reductions in state surplus accounts such as "rainy day" funds.

10. As Peter Orszag and Nobel Prize-winning economist Joseph Stiglitz (2001) noted: The state "government spending that would be reduced if direct spending programs are cut is often concentrated among local business. By contrast, the spending by individuals and businesses that would be affected by tax increases often is less concentrated among local producers—since part of the decline that would occur if taxes were raised would be a decline in the purchase of goods produced *out of state*" (emphasis in the original).

11. See Bartik (1991) for an elaboration of this argument.

12. The area encompassing Covington, Kentucky and Cincinnati, Ohio is an example of a metropolitan area that has more than one government. These two cities, separated only by the Ohio River, have nearly identical access to markets and supplies. Therefore, it is possible that a firm doing business in the area would be largely indifferent to whether it locates in Covington or Cincinnati. In such a case, tax cuts and incentives could influence where the firm locates. In this specific example, the metropolitan area includes political jurisdictions that are not all from one state. Metropolitan areas often include only governments that are part of the same state, such as a city government and one or more county governments (for example, the Los Angeles metropolitan area).

13. For some of the best research on the number and costs of firm-specific tax incentives, consult Good Jobs First, a Washington D.C.-based research organization, at goodjobs@ctj.org.

14. See Peters and Fisher (2002).

15. Furthermore, there are no guarantees that companies that receive tax breaks will remain in state. There are many examples of firms that have received large state and local tax incentives only to leave the state after exploiting the incentives. Obviously, incentives provided to firms that do not remain in state fail to generate long-term economic activity or employment. It is clear in these cases that the tax revenues foregone could have been used more effectively to stimulate economic activity and create jobs.

16. See, for example, Hinkley and Hsu (2000) or United States General Accounting Office (1993) or Lynch et al. (1996).

17. A related problem is that tax incentives may be granted for political rather than sound economic reasons. Large firms with political clout and administrative ability may be the firms best able to influence state and local tax law. And yet, there is no evidence that the firms receiving tax incentives are the firms most deserving of them. Aside from providing an unfair and undeserved advantage to large, politically well-connected firms, lucrative tax incentive programs also create the potential for political abuse in the form of bribery, payoffs, and illegal campaign contributions.

18. Many high-tech firms, which are among the most sought-after firms because they generally pay high wages, need to locate where highly skilled labor exists. Hence, high-tech firms often need to locate in good school districts and in close proximity to universities and research centers. This fact helps to explain the popularity of Silicon Valley near San Francisco and the Route 128 area outside of Boston. State and local tax cuts and incentives are thus doomed to fail to attract high-tech firms to many areas. Indeed, rather than offering incentives, governments may do better in attracting businesses and creating jobs by using the tax revenues to enhance the quality of their workforces.

19. The data on business location decisions indicate that many new businesses locate in the area where the founder lived or according to the geographical preferences of their top executives. Obviously, when personal factors such as these are important, tax cuts and incentives can do little to influence location decisions.

20. Note that some of the consistent findings described derive primarily from the literature on the effects of public spending on economic activity that is discussed in Chapter 6.

21. Meta analysis involves the application of mathematical techniques to statistically analyze the results of multiple empirical studies of an issue, such as the effects of tax cuts on economic activity.

22. According to the August 2003 issue of the *Survey of Current Business* (Table 1.14), compensation of employees in 2001 was $5,874.9 billion. In 2001 state and local taxes paid by businesses amounted to $274.2 billion and all state and local taxes were $914.1 billion (see endnote 6). 5,874.9 divided by 274.2 equals 21.4 and 5,879.9 divided by 914.1 equals 6.4.

23. Total state and local taxes in 2001 were $914.1 billion. Total private-sector employment was 116 million. Dividing $914.1 billion by 116 million establishes that there was about $7880 in state and local taxes per employee in 2001. Dividing $7880 by the tax elasticity of 0.2 yields the cost per job of $39,400.

24. Some researchers have arrived at lower estimates by attributing all employment effects of state and local tax cuts to reductions in business taxes alone. Thus, they essentially ignore the revenue losses from non-business state and local taxes (which account for about 70% of all state and local tax revenue) and this substantially lowers their estimate. The assumption that only state and local taxes paid by business influence the level of employment is probably a mistake. But, if it is correct, then it has enormous implications that policy makers should be aware of: raising or lowering non-business state and local taxes while holding public services constant will have no effect on business activity and employment. In addition, some researchers calculate lower job cost estimates because they make the questionable assumption that the effects of taxes on economic activity are the same as the effects of taxes on employment. As explained in the appendix, these lower estimates are probably unreasonably low.

25. See, for example, Robert Hall and Dale Jorgenson (1967).

26. Estimations are based on Chirinko, Fazzari, and Meyer (1999), who calculated that the long run elasticity of capital formation with respect to the user cost of capital is about 0.25. In addition, the elasticity of output with respect to the capital stock is conventionally assumed to be 0.3 (Fazzari 1999). Finally, regression analysis indicates that the elasticity of employment with respect to output between 1997 and the present in North Carolina has been about 0.6. That is, 0.9 times 0.25 equals 0.23; 0.23 times 0.3 equals 0.07; and, 0.07 times 0.6 equals 0.04.

27. Again, it is important not to confuse a "statistically significant" effect with a "large" effect. In other words, these studies suggest that increases in public services have a high probability of causing increases in state and local economic growth. However, the fact that the results of these studies are statistically significant does not necessarily tell us that public services have a large impact on growth

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