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**FISCAL
DECENTRALIZATION
AND LAND POLICIES**



Edited by Gregory K. Ingram and Yu-Hung Hong

Fiscal Decentralization and Land Policies

Edited by

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Interjurisdictional Competition Under U.S. Fiscal Federalism

Sally Wallace

There is little debate about the United States being a decentralized country. In terms of governance, there are 50 state governments plus the District of Columbia and 87,525 local governments.¹ Various fiscal measures of decentralization, including expenditure and revenue shares of subnational government, also support the claim. For instance, in 2005 the federal government collected 58.5 percent of all federal, state, and local tax revenue (excluding off-budget funds); states collected 24.5 percent; and local governments collected 17 percent.² On the expenditure side, the federal government made 47 percent of all government expenditures in 2005, whereas states made 28 percent of all expenditures and local governments made 25 percent. Although it is somewhat difficult to compare measures of decentralization among countries, the U.S. subnational revenue and expenditure shares put decentralization in the United States at a higher level than that of the Organisation for Economic Co-operation and Development (OECD) averages of 32 percent for expenditures and 19 percent for taxes (Bahl and Martinez-Vazquez 2008).

The system of fiscal federalism in the United States allows state governments to structure their tax and expenditure policies and to define the fiscal powers

1. According to the U.S. Bureau of the Census, in 2002 local governments included 3,034 counties, 19,429 municipalities, 16,504 townships, 35,052 special districts, and 13,506 independent school districts (U.S. Bureau of the Census 2002).

2. Including the “off-budget” social insurance receipts, the federal government collects 66 percent of tax revenue, the state collects 20 percent, and local governments collect 14 percent.

and responsibilities of their local governments. The result is that state and local governments in the United States possess significant latitude to make expenditure and taxing decisions for their constituents or “constituents in waiting,” those whom they would like to attract to their jurisdictions. The subnational government share of expenditures and revenues in the United States has increased since the 1980s, which may reflect an increase in the ability to engage in competition for economic development.³ In 1980 the state and local share of all government expenditures was 42.3 percent, and the state and local share of tax revenue (including payroll taxes) was 30.1 percent. By 1990 those shares had increased to 43.7 percent and 32.7 percent, respectively. In addition, as noted above, by 2005 the shares of state and local expenditures and revenues had increased yet again. With state and local governments playing an important role in U.S. public finances, there is good reason to expect those governments to be players in the bid for economic development. This situation can be contrasted with other federal systems such as France, Belgium, New Zealand, and Greece, where provincial and local governments have less autonomy with respect to tax and expenditure policy.

The United States Constitution gives state governments plenty of room to determine their tax structure, explicitly disallowing only duties on imports or exports. Among states in the United States, some local governments are more free to choose their fiscal instruments than others. One way to measure how much fiscal latitude local governments have been given is an index of the extent of “home rule” versus “Dillon’s rule.” Home rule refers to the ability of local governments to undertake activities unless specifically disallowed by the state (similar to the federal/state relationship); Dillon’s rule refers to the situations in which local governments are allowed to undertake activities explicitly allowed by the state (Geon and Turnbull 2004). Geon and Turnbull developed an index of the extent of home rule, or Dillon’s rule, for counties in the United States using information on the constitutional, legislative, and institutional characteristics reported in Krane, Rigos, and Hill (2001). For the 38 states for which they have data, 12 (32 percent) are classified as strong home rule states and 9 (24 percent) are classified as strong non-home rule states. The remainder are somewhere in between. Their analysis suggests that the playing field among local governments in the United States may not be level in terms of local governments’ ability to set fiscal policies to attract new business, an interesting caveat discussed below.

3. There are at least two sides to this argument. First, one reason for the increased presence of state and local governments in the U.S. fiscal arena is due to increased responsibilities of the subnational governments for expenditures such as Medicaid and education. In this case, the increased size of the state and local sectors may not reflect additional leverage in attracting business, but, in fact, may suggest less ability to attract businesses through tax reductions. At the same time, state and local governments have become a bigger player in terms of taxation and expenditure and, as such, may have more leverage to engage in economic development competition and more tools to use.

The ways to promote economic development in the United States include a host of state and local tax strategies (property tax abatements and corporate income tax reductions, for example), cost-reduction strategies (job training, land price reductions), and other inducements aimed at improving general business climate (ease of incorporation, providing quality public services). Some of these strategies are targeted to particular business opportunities, and others are more general strategies offered to any business or individual. This study focuses on interjurisdictional competition among local governments. This competition is comprised of general incentives (“good business climate”) and specific or targeted tax (property tax abatements) and expenditure strategies (infrastructure development).⁴ On the expenditure side, both traditional public goods expenditures (better schools, roads, etc.) as well as the use of public funds for targeted expenditures such as training facilities and programs specific to attracting companies, land deals, and the like are considered. This study asks whether there is evidence that interjurisdictional competition in the United States has been “good” in terms of increasing welfare.

In this chapter, actual strategies of interjurisdictional competition in Alabama, North Carolina, Georgia, and Texas are used to shed light on the effects of those specific strategies on improving welfare, measured indirectly as improvements in employment and personal income. First, the theoretical and empirical literature on interjurisdictional fiscal competition is surveyed. This survey demonstrates a lack of consensus regarding the welfare and distributional implications of such competition in the United States. After presenting a set of illustrative cases of specific incentive packages in the Southeast, possible directions are considered for future research that could help the policy world better understand and develop fiscal incentives as the competition matures.

The following section highlights the findings of the theoretical literature regarding competition and efficiency. It is followed by a brief survey of selected empirical studies that deal with interjurisdictional competition. Then, case studies are described, and the effects of the tax and expenditure incentives on local economic development are considered. Finally, policy implications of competition from the perspective of findings in the literature and the need for additional research are examined.

Does Interjurisdictional Competition Promote Efficiency? —————

As many contributors to this volume have noted, fiscal decentralization can lead to a more efficient provision of local public goods, but only under a well-known

4. This definition of tax competition is close to the definition presented in Wilson and Wildasin (2004), where they also provide alternative definitions of tax competition. Fiscal competition refers to the expenditure and revenue side of the budget, and, as such, fiscal packages may include a combination of tax breaks and specific expenditures.

set of conditions. There are many caveats to the decentralization-efficiency conclusion, including issues related to the mobility of capital and labor, the existence of externalities, and economies of scale in public goods production and provision.

Interjurisdictional competition—competing for mobile bases—is a natural outcome in a U.S.-type system of fiscal federalism. If subnational governments (state and local) are given significant expenditure assignments and allowed substantial taxing power, they can respond to individuals and businesses in a manner that may enhance economic efficiency in a Tiebout world. Jurisdictions that do not respond to their citizens' demands risk losing population and businesses, and this sorting is efficient under certain conditions. Jurisdictions can use these same instruments to attract new and expanding businesses. The greater the ability of local governments to set tax and expenditure policy, the greater leverage they can exercise in doing business with individuals and companies.

This study looks at horizontal fiscal competition for mobile tax bases (between governments at the same level). Theory regarding the implications of interjurisdictional competition on efficiency is well developed (Fischel 1975; Oates 1972; Tiebout 1956). Individuals and businesses vote with their feet to push governments to more closely match their demands with the package of taxes and expenditures that is offered. In the case of competition for local economic development, the incentive package (usually a targeted type of tax and expenditure package) is a motivator for movement of factors (capital and labor) among jurisdictions.⁵ Competition comes in the form of specific tax and expenditure package bids to attract mobile factors. With mobile factors (particularly capital), competition pushes the net tax rate on capital down and the proverbial “race to the bottom” is on.

The questions that have arisen are whether this type of competition, which is quite expected in a decentralized system, is efficient and whether there truly is a race to the bottom. Irrespective of the answer to the theoretical question is the more real-world issue: Why would state and local governments in the United States engage in these policies if they were not welfare enhancing, and how much competition is sustainable?⁶

The argued inefficiency of interjurisdictional competition is a departure from the basic Tiebout model, which would predict that competition increases welfare. In fact, Oates (1972), Wilson (1986), and Zodrow and Mieszkowski (1986)

5. A number of other types of interactions among governments are discussed in the general competition literature. For example, copycat behaviors associated with yardstick or other competition may influence local economic development tools. Here the spatial models of competition that analyze copycat and yardstick competition models are only briefly discussed, although they are all related and are important parts of the general literature on competition.

6. A closely related theoretical question is why jurisdictions engage in specific competition at all. Glaeser (2001) presents five alternative reasons for this competition, four of which are grounded in welfare or revenue maximization and one of which is corruption and influence.

conclude that tax competition can *reduce* welfare. More recently, a literature has developed that finds that interjurisdictional competition can be welfare *enhancing* (see Wilson 1999; Wilson and Wildasin 2004). Can these competing theories help us understand the effect of tax and expenditure incentives?

Returning to the Tiebout model, competition is viewed as a means to efficiently sort factors of production among jurisdictions. In one case of tax competition, the taxes imposed are equal to the marginal cost of any expansion in public goods associated with attracting new business (investment). Brennan and Buchanan's Leviathan model (1980) uses the Tiebout view to show that competition keeps Leviathan at bay and is welfare enhancing.

Oates (1999, 1134) notes that "in their eagerness to promote economic development with the creation of new jobs, . . . state and local officials tend to hold down tax rates, and consequently, outputs of public services so as to reduce the costs for exiting and prospective business enterprise." The inefficiency "sticks" because many of the assumptions of the Tiebout model do not hold: mobility is not costless, voting for the "right" tax and expenditure package is not easy due to packaging of referenda and lumpiness of tax rate adjustments, and there are barriers to information on costs and benefits. A Leviathan view is quite different; the differences in the tax rates may, in fact, be more in line with constituent preferences, but precompetition, bureaucracy, and political influences pushed taxes and expenditures above their optimal levels.

In Zodrow and Mieszkowski's model, differentials in the tax rates on capital, as a form of interjurisdictional competition, yield fiscal externalities as capital migrates from high-taxed to relatively low-taxed jurisdictions, thus expanding the tax base of other jurisdictions. The failure of jurisdictions to account for these externalities leads to inefficiently low levels of taxation. This literature has been extended to include the interaction of competition and environmental externalities. In an attempt to pull in new firms, localities also may reduce their environmental standards (Cumberland 1981).

Wilson (2001) and Wilson and Wildasin (2004) present models in which interjurisdictional competition could be welfare enhancing and potentially lead to larger government. In Wilson (2001), if the revenue associated with capital expansion is used to finance a public input (versus a public good) and self-motivated government officials are in play, (tax) competition that attracts capital can lead to more efficient government production. The result is that, given a tax structure, officials choose a level of public input. Increased public input increases the productivity of capital, thereby attracting capital. Wages rise, and the net tax base expands. In another interesting case, summarized by Wilson and Wildasin (2004), tax competition could reduce the rents associated with tax exporting. In their example, if property is owned by nonresidents, some of the property tax burden may be exported. In this case, a lack of representation could lead to inefficiently high property tax rates. Competition for mobile capital could dampen the tendency to set these exportable taxes at an inefficiently high level (return of Leviathan).

Each theoretical model of interjurisdictional competition is developed with a series of assumptions regarding the mobility of factors, the total supply of factors of production, the general openness of the economy, the production of public goods, the use of tax revenue, pre-existing distortions, benevolence of the leaders, tax structure, expenditure benefits, information asymmetries, and so forth. Most theoretical models of competition start from similar points regarding the objective function of governments: either maximize utility of their constituents or maximize revenue. If we look to these models to yield policy advice regarding the effects of various tax and expenditure incentives schemes, the notion that the “devil is in the details” resounds loudly. The assumptions required to make the models “work” are restrictive.

To create a model that can guide our thinking about how to use local fiscal incentives, it is necessary to check how closely the underlying assumptions approximate the local setting. In fact, each case becomes unique as far as applicable assumptions regarding pre-existing distortions (e.g., the existing mix of distortionary taxes), the relative size of the local economy (small cities versus large counties), capacity utilization in the public sector, supply of labor (consider areas with high levels of domestic or international migration or tight labor markets), mobility of factors, quality of information about the costs of attracting business, and even the instruments made available to local governments (e.g., caps on property taxes, availability of local income taxes). Including all the particular nuances that pertain to a *specific* incentive scheme would create an intractable model.⁷ The theoretical models, then, may not lead us toward good policy advice. Instead, it could be useful to turn to the empirical evidence to examine what has been learned thus far about the effects of interjurisdictional competition on welfare and government.

Empirical Studies

A substantial empirical literature is directly or closely related to the issue of competition. Unfortunately, it does not help policy makers identify the “best” strategy for fiscal incentives. As noted above and by other authors (in particular, Wilson and Wildasin 2004), various theoretical models can be supported by the same empirical finding. For instance, the finding that states mimic the tax policy of neighbors may mean that competition for mobile tax bases leads to a race to the bottom in terms of tax rates, or it may be used to support the notion of yardstick competition, where citizens view relative tax and expenditure policies as a way to evaluate the performance of their officials.

The empirical literature considered here attempts to measure the effects of competition on welfare. Translating the theoretical effect of competition on wel-

7. Specific or targeted tax incentives will also induce additional distortions between new and pre-existing capital and labor mobility due to exacerbated price differentials.

fare to an empirical model is difficult, so the approach tends to be indirect. Economic growth is the typical proxy used to measure welfare, and it is usually operationalized by measuring the change in the level of gross state product, change in the level of employment, or change in the level of personal income. These factors seem to be accepted as empirical measures. Interjurisdictional competition has been modeled in various ways, including differences in tax rates, expenditures by type, and general business climate. If taxes or expenditures matter in business location decisions or, more generally, in economic growth (gross state product, employment), changes in the relative level of taxes and expenditures (competition) will have an effect on those same measures.

Before focusing on interjurisdictional competition in the form of taxes, expenditures, and economic development, it is worthwhile to mention other related work in this area. First, do tax differentials have an impact on welfare? Without entering into the debate regarding magnitudes, many studies find that tax differentials do matter (Auerbach 1997; Harberger 1962). The implicit assumption in the theoretical models underlying the empirical work is that tax differentials (which could result from incentive packages) encourage mobile factors to migrate toward the lowest tax jurisdiction given a level of expenditures. The result is a change in prices of factors and outputs, which, depending on price elasticities (among other parameters), could lead to welfare loss. The more targeted and local the incentive, the more prices are distorted. In addition, greater mobility of capital and labor occurs at the local level, however, which tends to lessen the welfare loss.

Several studies have been made of the *determinants* of the use of specific incentive and other economic development tools in the competition literature (Anderson and Wassmer 1995; Edmiston and Turnbull 2003). Using Georgia data on incentives, Edmiston and Turnbull find that the use of incentives (a dichotomous choice variable) is significantly affected by the use of such incentives in surrounding states, which is evidence of competition as a motivator in determining the use of incentives. Also, a large literature exists on copycat behavior of governments, including yardstick competition models, which might be considered a type of competition. Some of the pioneering empirical work here includes Besley and Rosen (1998), Case (1992), Case, Hines, and Rosen (1989), and Ladd (1992).

Turning to the empirical literature that focuses on taxes and economic development, Mark, McGuire, and Papke (1997), Tannewald (1996), Wasylenko (1997), and others conclude that taxes do matter in business location decisions, but the magnitude of the impact varies substantially among these studies. Still, the results suggest that taxes have a relatively small impact on economic development in the United States. Papke (1996) notes that nontargeted general tax incentives create a small effect on the after-tax rate of return to capital and so have a limited effect on business location decisions. Tannewald finds that in choosing expansion sites, businesses pay as much attention to the level of public services as they do to the after-tax rate of return. Bartik (1991) reports similar findings. Mark, McGuire, and Papke (1997) survey economic development and fiscal policy research up to 1997 and

conclude that the literature regarding the effect of taxes on economic development is inconclusive. The authors summarize the literature that addresses the impact of enterprise zones on economic activity. They conclude that the results are mixed and likely to be influenced by the nuances of a particular enterprise zone package of incentives. Like the theoretical literature, these studies suggest that many other conditions matter in explaining economic growth and job creation, including public expenditures, labor costs, location, and transportation costs.

The literature on the cost benefit of particular types of tax and expenditure incentives is specific to targeted tax and expenditure programs.⁸ These studies often use multiplier effects to gauge the local impact of interjurisdictional competition in the form of targeted tax and expenditure incentives. Those incentives produced by local governments are often done *ex ante*, and *ex-post* follow-ups are rare. Connaughton and Madsen (2001), however, conducted one *ex-post* study that was done for the incentive packages offered in South Carolina (for BMW) and in Alabama (for Mercedes-Benz). They conclude that in the case of BMW, the job growth associated with the firm location was much smaller than that estimated by the state. LeRoy, Lack, and Walter (2007) analyzed about 4,000 economic development incentives in Michigan from 2001 to 2004 and conclude that these incentives have led to “inefficient and unsustainable land use patterns by reducing the number of jobs in the state’s largest metro area” (p. 101). They argue that targeted incentives can lead to net fiscal loss for local governments.

This brief review of the theory and empirical evidence of tax competition demonstrates that, under various conditions, interjurisdictional competition may or may not be welfare enhancing. At the same time, empirical studies suggest that taxes, at least, seem to matter in business location decisions and to some extent in the migration behavior of individuals. There is little consensus on the magnitude of impact of tax differentials on job creation and economic development, however.

So, has interjurisdictional competition led to an increase in welfare? Are we on a race to the bottom? Because targeted fiscal incentives and other benefit incentive schemes are likely to be small relative to the U.S. economy, it would be difficult to isolate an empirical impact of specific incentives on the entire economy. Earlier work does demonstrate that tax-induced distortions can lead to significant welfare losses in the economy. If the costs of specific incentive packages were estimated for the entire country, it might be possible to estimate the effects of the competition on welfare nationally; the likelihood of calculating the total cost of these incentives, however, is low (as is the ability to control for other factors).

In this debate, it might be helpful to analyze the impact of specific targeted incentives on the local economy. This kind of approach obviously neglects the

8. Koven and Lyons (2003) provide a good set of case studies.

welfare impacts of fiscal externalities, which may, over time, be large. It also fails to specifically estimate the welfare cost of the incentive-induced price differentials. This type of analysis does, however, offer a practical look at the impact of these incentives on the economy.⁹ If targeted incentives are not generating significant net economic benefits locally and the public sector shrinks in relative terms, there may be a “bad” type of competition. That, of course, is not a definitive statement regarding welfare effects because the presence of the Leviathan mechanism may be in play.¹⁰

Competition in the United States

State and local governments offer a variety of actual incentive packages to lure business. The “drop in the bucket” relationship between targeted packages of taxes, expenditures, and general business support, and trends in the macro economy and public finances, stacks the deck against finding evidence of an impact of specific types of competition at a national level. It might be useful, however, to ask where evidence can be found of a national race to the bottom in terms of local taxes. As reported by Wilson and Wildasin (2004), Slemrod (2001) found evidence of convergence in taxes among countries (1985–1995), but Alm, Chen, and Wallace (2003) did not (in the case of U.S. state and local taxes). Looking at published census data on state and local government finances, several interesting trends may be observed. First, between 1980 and 2004, state and local taxes more than tripled (in nominal terms), income taxes more than quadrupled, sales taxes grew by 3.5 times and property tax by 3.6 times, and intergovernmental revenue more than quadrupled.

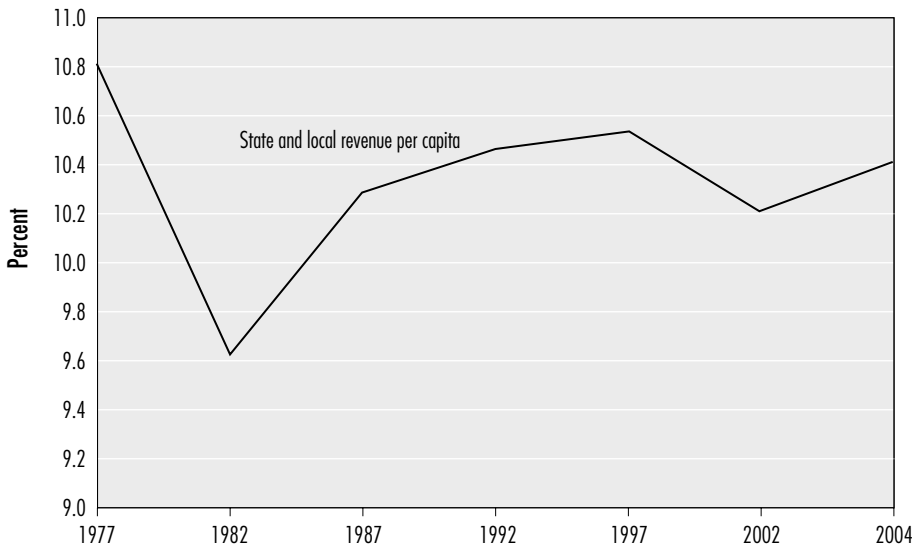
As a share of personal income, state and local tax revenue rebounded after 1982 and, since 1982, has increased from 9.6 percent of personal income to 10.41 percent in 2004 (figure 9.1). State and local expenditures as a share of personal income also increased over this time period, from 15.7 percent of personal income in 1982 to 19.6 percent in 2004.

At the local level, considering all general revenue, property taxes as a share of local government general revenue have declined (from 33.7 percent in 1977 to 28.1 percent in 2004), while sales tax revenues at the local level have increased as a share of total general revenue (from 4.6 percent in 1977 to 6.1 percent in 2004). The pattern of change in these shares is demonstrated in figure 9.2. It is difficult to conclude from these data alone that a marked shift has occurred in the level or composition of taxes. A similar conclusion is reached in Alm, Chen, and Wallace

9. It also omits the distinction between new firms and expanding firms, or tax incentives to keep firms.

10. For example, Zax (1989) finds evidence that competition does help contain government expenditures.

Figure 9.1
State-Local Revenue as a Share of Personal Income

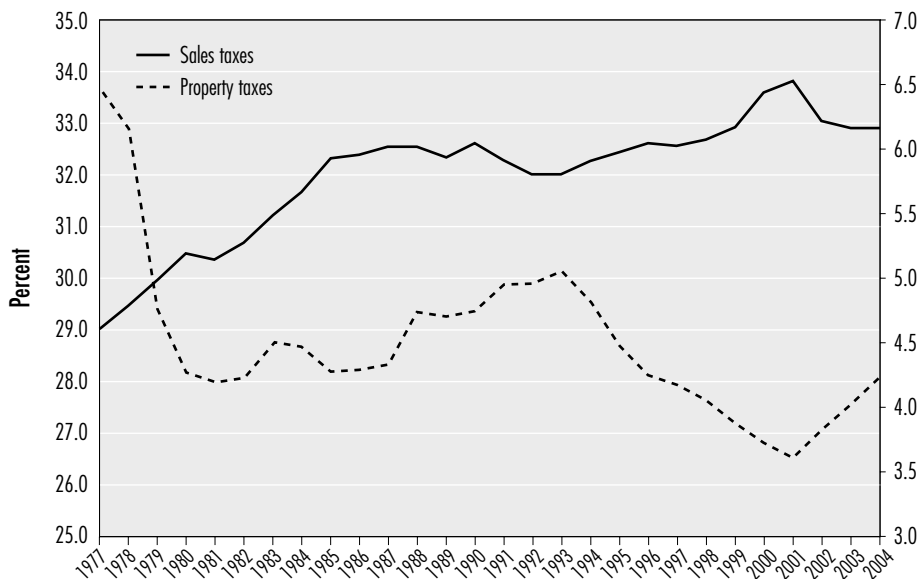


Source: Tax Policy Center, State and Local Government Finance Data Query System.

(2003). At best, it could be argued that a small shift away from the property tax (in relative terms) toward income tax at the state and local levels has taken place. It could also be argued, however, that these taxes would have been higher absent the various incentive programs proliferating during this period.

Turning to case studies of specific incentive packages in the South, the data in table 9.1 summarize a few of the many relatively large incentive packages offered to companies since 1993. In this region, Alabama has been one of the most active states in attracting large businesses. The auto industry has led the way in the region in terms of incentive-related investment. The Center for Automotive Research (2003) studied automotive capital investment in North America between 1993 and 2003. It found that although the average investment between 1998 and 2003 was similar for the North and South, the *growth* in automotive investment was greater in southern states. The study also found a significant difference between the North and South in the mix of incentive packages offered. In relative terms, northern states offered more incentives in the form of tax abatement, whereas southern states offered a package more evenly balanced between abatements and infrastructure development. Southern states also offered more in terms of employee recruitment and training, and larger overall incentive packages. On an absolute

Figure 9.2
Taxes as a Percent of General Revenue of Local Government



Source: Tax Policy Center, State and Local Government Finance Data Query System.

level, northern states offered, on average per incentive package, \$69.7 million in abatements, \$10.9 million in infrastructure, and \$2.5 million in training and employee recruitment, whereas southern states offered \$54.3 million, \$62.9 million, and \$25.7 million, respectively. These findings (particularly the package of incentives in southern states) support the conclusions of previous studies that suggested that taxes may be important in business location decisions but that public goods, infrastructure, and general quality of life are also important.

Table 9.1 includes the cost of the incentive package per job from direct employment effects. This calculation does not include any induced or indirect employment effects, which would make the per job cost substantially lower. The table also includes employment effects taken from a variety of economic impact studies. Additional studies of the same business locations may exist, but those cited provide ample room for discussion here.

As shown in table 9.1, state and local governments have employed a variety of tax and expenditure programs to attract industry. All the cases reviewed included the following incentives: state and local property and sales tax abatements, financing of land acquisition and site development, and some type of training. Other incentives include job tax credits, specific road development, and,

Table 9.1
 Illustrative Examples of Targeted Tax Incentives in the South

State (year of agreement)	Business Courtied	State Cost of Tax Incentives	Sample of Incentives and Intergovernmental Partnerships	Initial Employment Impact (no. of employees)	Evidence of Economic Impact (total jobs: direct, induced, and indirect)	Cost per Job (direct jobs) in Nominal Terms and in 2006 Dollars (in parentheses)
South Carolina (1992)	BMW	\$150 million	Payment in lieu of taxes (property tax), state technical education, state job creation tax credit, state—port authority— county lease purchase of land, state and county revenue bonds	1,900; expansion to 4,327	South Carolina State Development Board: 10,137 (based on direct jobs of 1,900). Connaughton and Madsen: 4,845 (based on direct jobs of 1,900). University of South Carolina: 16,691 (based on direct jobs of 4,327). Holmes and McCallum: 9,575	\$78,947 (\$113,441)
Alabama (1993)	Mercedes-Benz	\$258 million	State and local sales tax abatements, site and infrastructure development, state education subsidies (classes at the University of Alabama), local government low-interest loans	1,500		\$172,000 (\$239,967)
Alabama (1999)	Honda	\$158 million	State and local tax abatements (corporate, property tax), site preparation and purchase, state training	1,500	None available	\$105,333 (\$127,462)

Alabama (2002)	Hyundai	\$252 million	State and local property and sales tax abatements, site development, state training facility	2,200	Auburn University of Montgomery, reported in <i>FDI Magazine</i> : 11,000	\$114,545 (\$128,362)
Mississippi (2000)	Nissan	\$295 million; expansion to \$363 million	State jobs tax credit, local property tax abatements, site and road preparation and development, state training facilities	5,800	University of Southern Mississippi: 16,215	\$62,586 (\$73,271)
Texas (2003)	Toyota truck plant	\$133 million	Facilities development, infrastructure development, property tax abatements	2,000	Texas comptroller's office estimate: 16,000	\$66,500 (\$72,861)
Georgia (2006)	Kia plant	State: \$248.05 million (at minimum employment of 2,500) Local: \$147 million	State jobs tax credits, city/county property tax abatements, state/local sales tax exemptions, state technical education (building and education), state land purchase, state grading and infrastructure development (potential federal transportation fund use)	2,500 (contractual minimum)	Reported in Georgia General Assembly legislation: 14,000	\$158,200 (\$158,200)

Sources: Texas: Federal Reserve Bank of Dallas (2004); South Carolina: Connaughton and Madsen (2001), University of South Carolina (2002); Alabama: Holmes and McCallum (1993), Linn (2002); Georgia, Alabama, South Carolina, and Mississippi: Hill and Brahmst (2003), McCandless (2006).

in the case of Alabama and Mercedes-Benz, a “Saturday school” for children of foreign employees to help them excel in studies, particularly math.

The direct cost per job in nominal terms varies widely. In real terms, the largest cost per job was the package given for Mercedes-Benz in Alabama, at \$239,967 per job in 2006 dollars. That is more than three times the per unit cost for the Toyota incentives in Texas. In Alabama, the state felt the high cost of the deal very early. Public school officials did not release funds needed to pay out part of the incentive package, and the state had to raid its pension system to make the payment and repay the pension account with a loan at 9 percent interest. Governor Jim Folsom Jr. lost his reelection bid in the midst of the postincentive controversy. Still, two economic impact studies of the Alabama Mercedes-Benz deal find the deal to be very positive for the state. Holmes and McCallum (1993) estimated total employment effects of 9,575. A direct employment impact of 1,500 jobs yields an implicit employment multiplier of 6.3. Kebede and Ngandu (1999) estimate that the multiplier effects of the Alabama case would lead to cost recovery of the incentives in four to seven years.

How reliable are economic impact studies of incentive packages? Are they reasonable empirical approaches, providing answers regarding the potential welfare benefits of this competition? The short answer is probably not, at least not in their current stage. The economic impact studies found were *ex-ante* studies. The *ex-post* analysis was typically done on an *ad hoc* basis and simply looked at employment trends without controlling for the multitude of other factors that affect regional employment, factors that make it difficult to isolate the effect of an incentive package.

Economic impact studies use input-output models to analyze the impact of direct employment and expenditures on induced impacts (“ripple effects” due to expenditures in other industries) and on indirect impacts (impacts of increased spending by employees in the supply chain). As is well known, because expenditures in any one sector will require expenditures in other sectors (induced effects) and newly employed individuals will spend part of their earnings, expansionary investment will increase the overall level of economic activity. These complicated interactions are often summarized in a multiplier, which is the result of an underlying production and consumption model of the economy. The larger the multiplier, the larger the total effect (direct, indirect, and induced) on the economy.

The size of the multiplier is a function of the production process as well as the propensity of employees to consume locally. The closer the supply chain is to the actual production in question, the larger the potential multiplier because more of the productive activity stays within physical proximity of the main production activity (in this case, automobile manufacturing). In general, national multipliers can be expected to be larger than regional multipliers when estimating the effects of business investment in a local area, which is the case with most of the literature on the economic effects of the investments in the automotive sector. The published economic impact studies should give some pause regarding the conclusions. The University of South Carolina (2002) reports a jobs multiplier

of 3.9 in its analysis of BMW, Hill and Brahmst (2003) report a job multiplier of 7.5 for the industry, the implicit jobs multiplier used by Holmes and McCallum (1993) is 6.3, and Bivens (2003) reports general employment multipliers in the manufacturing industry of 2.91 and, for auto parts, of 4.6.

The difference in employment multipliers demonstrates the debate regarding the impact of the automotive industry. Understanding those impacts, however, is an important step to determining the net benefits of these incentive programs. Connaughton and Madsen (2001) present a case against the size of multipliers used to justify the public investment for the Alabama Mercedes-Benz and South Carolina BMW incentive packages. They focus on the supply-chain relationships and the assumptions regarding the expansion of the supply chain in these two cases. Recall that the more local the supply chain, the larger the multiplier effect. Connaughton and Madsen demonstrate that, in the case of the original South Carolina and Alabama impact studies, estimates were made of the increased supply chain, and that increased supply chain was included as a direct employment effect. This double counts the employment effect because the multiplier of the U.S. Census RIMS II model used in both cases includes an indirect effect of the supply chain.

Connaughton and Madsen (2001) estimate a time-series model of the growth in supply-chain firms (defining 34 Standard Industrial Classification industries as suppliers of the automobile manufacturing industry) before and after operations began in South Carolina's BMW plant. They use a straightforward model of the general form for the period 1982 to 1997:

$$Firms_t = \alpha_0 + \alpha_1 Firms_{t-1} + \alpha_2 Dummy_t + \alpha_3 Trend_t^* Dummy_t + e_t$$

In this regression, the variable *Firms* is the number of supply-chain firms, *Dummy* is a dummy variable for the post-BMW operations period (1995–1997), and *Trend* is a year dummy variable. The dummy variable, and, in alternative specification, the interaction of the dummy and trend variable, are insignificant. Connaughton and Madsen conclude that there is little reason to believe the expanded supply-chain argument used in supporting the tax incentive package in South Carolina. In addition, they provide data on the domestic versus imported content of BMW production, making South Carolina content only 13.9 percent of total value of the final output (Connaughton and Madsen 2001, 301). This analysis demonstrates the type of scrutiny that is warranted in the case of economic impact studies used to justify the benefits relative to the costs of tax incentives. The authors convincingly question an important underlying assumption regarding the magnitude of the multiplier, which, in turn, will have large effects on the bottom-line calculations of the benefits of such investments.

Other issues seem to be missing from the economic impact analyses of the industry. Three are listed here. First, the studies appear to assume that employment is not displaced from other areas. Although a displacement effect could be captured in a lower multiplier, that does not appear to be the case in the analyses reviewed for this analysis. Relatively high unemployment in the Southeast was

one reason given for the early incentive packages, so the job displacement effect may not have been much of a worry. In the late 1990s, however, trends in employment were quite different, but still did not seem to be taken into account in the analysis of the economic impacts.

Second, the interpretation of the incentive package itself should be carefully modeled, and again, it is not obvious how it should be done. If the investment of the automotive industry includes the monies paid out through incentives (not future tax liabilities reduced, but the cost of infrastructure and so on), the loss of government expenditures in other areas should be used to offset the net new spending.

Finally, to the extent that taxes on residents are increased to offset the cost of incentive packages, changes in consumption or income of residents should also enter into the analysis. For example, if governments have to raise income taxes to offset the cost of incentive programs, a person's work behavior or purchases of various goods and products may change. In the long run, these secondary outcomes could, in fact, affect the level of revenue from local sales or income taxes.

Where Are We Now? ---

This review of the theoretical, empirical, and existing economic impact literature on the effects of interjurisdictional competition on welfare has not brought us very far in being able to advise state and local governments about the most effective types of incentives as governments engage in competition. The theoretical and empirical literatures are constrained by assumptions that may not be relevant to actual cases. The empirical literature is hampered by the question, What are we measuring? Welfare changes? A proxy for welfare? Effects on revenue? The economic impact literature is all over the map regarding the multiplier effects of investment, is often not forthcoming about labor market assumptions, and looks at local benefits seemingly without including potential costs (and benefits) in the state, region, and country. This review suggests that the theoretical or empirical evidence at this point on the effect of interjurisdictional competition on welfare is inconclusive.

To return to the central question—is interjurisdictional competition good or bad in its effects on welfare?—the literature needs to more closely measure changes in welfare. I could not find one study of these incentives that asked the question that if \$200 million is spent on attracting an automobile plant, is that better than investing \$200 million in schools? Or, does the type of automobile manufacturer matter? Are all jobs created equal? Would the incentives have yielded more benefits in one area versus another, including across state borders? If we give up x amount of dollars in land deals, infrastructure development, and so forth to attract a business, who pays for that expenditure? What is the resulting distribution of tax burdens?

Competition for jobs continues, perhaps increasingly as the global economy becomes more interconnected. From the perspective of state and local govern-

ments, it is not clear that this race to the bottom has yielded overall declines in tax rates. There has been some increased use in relative terms of personal income taxes, however. Corporate income tax shares have fallen (although the period 2004 to 2006 saw a slight increase in those tax revenues), and property taxes have come under fire from local citizens responding to large increases in assessments during the housing boom. So, although incentive packages may reflect a potential race to the bottom due to interjurisdictional competition, at some point taxes are changed to supplement the incentive packages. Is the growth in taxes and expenditures lower than it otherwise would be in the absence of targeted incentives?

Although the literature reviewed here is inconclusive, it is difficult to believe that the uncoordinated, mixed packages of incentives among state and local governments are made in a welfare-maximizing way. A Tiebout framework would, for example, suggest that tax incentives could increase welfare, but the types of incentive packages that can be seen today provide a complicated series of price distortions and change the tax burdens of residents in sometimes unpredictable ways (due to the volatile nature of the actual costs of these packages). It could very well be that simpler strategies, such as having government provide better information for firms to make location decisions, would increase the efficiency of competition. At this point, the policy implications of alternative strategies are unknown.

To provide research that is useful to the policy debate on tax incentives, it is necessary to be practical and to employ economic theory and applied empirical work to answer these important questions. In an intergovernmental system like the United States, the notion of cooperation may be out of reach at this time, but research can shed some light on overall welfare implications. Given the specificity of many fiscal incentive programs, a case study approach—similar to that begun here—may be the best way forward toward understanding the actual economic cost of incentive packages in the U.S. system. Advocates, politicians, and bureaucrats engaged in economic development are unlikely to champion such research.

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