

# Proceedings of the 2009 Land Policy Conference

# MUNICIPAL REVENUES AND LAND POLICIES

Edited by Gregory K. Ingram and Yu-Hung Hong

---

# Municipal Revenues and Land Policies

Edited by

*Gregory K. Ingram and Yu-Hung Hong*

 LINCOLN INSTITUTE  
OF LAND POLICY  
CAMBRIDGE, MASSACHUSETTS

© 2010 by the Lincoln Institute of Land Policy

All rights reserved.

*Library of Congress Cataloging-in-Publication Data*

Municipal revenues and land policies /  
edited by Gregory K. Ingram and Yu-Hung Hong.  
p. cm.

Includes bibliographical references and index.

ISBN 978-1-55844-208-5 (alk. paper)

1. Municipal finance—United States. 2. Land use—Government policy—United States.  
I. Ingram, Gregory K. II. Hong, Yu-Hung. III. Lincoln Institute of Land Policy.


HJ9141.M86 2010

336.2'014—dc22                      2010006976

*Designed by Vern Associates*

Composed in Sabon by Achorn International in Bolton, Massachusetts.

Printed and bound by Puritan Press Inc., in Hollis, New Hampshire.

 The paper is Rolland Enviro100, an acid-free, 100 percent PCW recycled sheet.

MANUFACTURED IN THE UNITED STATES OF AMERICA

# CONTENTS

<i>List of Illustrations</i>	<i>ix</i>
<i>Preface</i>	<i>xiii</i>
<b>The Importance of Municipal Finance</b>	<b>1</b>
1. <i>Municipal Revenue Options in a Time of Financial Crisis</i>	3
Gregory K. Ingram and Yu-Hung Hong	
2. <i>Financing Cities</i>	26
Robert P. Inman	
<b>Intergovernmental Transfers and Municipal Fiscal Structures</b>	<b>45</b>
3. <i>Intergovernmental Transfers to Local Governments</i>	47
David E. Wildasin	
COMMENTARY	77
Michael Smart	
4. <i>Trends in Local Government Revenues: The Old, the New, and the Future</i>	81
J. Edwin Benton	
COMMENTARY	113
Jocelyn M. Johnston	
5. <i>Creative Designs of the Patchwork Quilt of Municipal Finance</i>	116
Michael A. Pagano	
COMMENTARY	141
Carol O’Cleireacain	

<b>Broad-Based Local Taxes and Development Impact Fees</b>	145
6. <i>The Contribution of Local Sales and         Income Taxes to Fiscal Autonomy</i>	147
John L. Mikesell	
COMMENTARY	179
Cynthia L. Rogers	
7. <i>The Effects of Development Impact Fees on         Local Fiscal Conditions</i>	182
Gregory S. Burge	
COMMENTARY	213
Albert Saiz	
8. <i>A New Financial Instrument of Value Capture in São Paulo:         Certificates of Additional Construction Potential</i>	218
Paulo Sandroni	
COMMENTARY	237
Margaret Walls	
<b>Financing Submunicipal Services</b>	241
9. <i>Governance Structures and Financial Authority in         Submunicipal Districts: Implications for Fiscal Performance</i>	243
Robert J. Eger III and Richard C. Feiock	
COMMENTARY	268
Richard Briffault	
10. <i>Does a Rising Tide Compensate for the Secession of the         Successful? Illustrating the Effects of Business         Improvement Districts on Municipal Coffers</i>	271
Leah Brooks and Rachel Meltzer	
COMMENTARY	303
Lynne B. Sagalyn	

<b>11. <i>Does TIF Make It More Difficult to Manage Municipal Budgets? A Simulation Model and Directions for Future Research</i></b>	306
David F. Merriman	
COMMENTARY	334
Mark Skidmore	
<b>12. <i>Homeowners Associations and Their Impact on the Local Public Budget</i></b>	338
Ron Cheung	
COMMENTARY	367
John E. Anderson	
<b>Capital Financing of Infrastructure</b>	371
<b>13. <i>Complex Debt for Financing Infrastructure</i></b>	373
Jeffrey I. Chapman	
COMMENTARY	395
Mark D. Robbins and William Simonsen	
<b>14. <i>Prospects for Private Infrastructure in the United States: The Case of Toll Roads</i></b>	399
José A. Gómez-Ibáñez	
COMMENTARY	428
José C. Carbajo	
<b>Comparisons of the Property Tax with Other Revenue Instruments</b>	431
<b>15. <i>An Analysis of Alternative Revenue Sources for Local Governments</i></b>	433
David L. Sjoquist and Andrew V. Stephenson	
COMMENTARY	474
William F. Fox	

<b>16. <i>The Best of Times or the Worst of Times? How Alternative Revenue Structures Are Changing Local Government</i></b>	<b>476</b>
Tracy M. Gordon and Kim Rueben	
COMMENTARY	497
Michael J. Wasylenko	
<i>Contributors</i>	507
<i>Index</i>	511
<i>About the Lincoln Institute of Land Policy</i>	536

# 15

## *An Analysis of Alternative Revenue Sources for Local Governments*

---

David L. Sjoquist and Andrew V. Stephenson

Property taxes are the single most important source of own-source revenue for local governments, accounting in 2006 for 45.2 percent of own-source revenue and 71.7 percent of tax revenue. But the importance of the property tax has declined; in 1970 property taxes were 55.3 percent of own-source revenue and 84.5 percent of taxes. However, total taxes as a share of local own-source revenue was virtually unchanged from 1970, suggesting that nontax revenue has not increased in relative importance.

This chapter explores several of the alternative revenue sources and funding mechanisms that local governments use, focusing on the significant alternatives and on relatively newer sources or funding mechanisms. We are particularly interested in exploring how these alternatives stack up to the property tax in terms of the various criteria used to evaluate taxes. The chapter starts by considering local sales and local income taxes, which are not new sources of local revenue, but have the potential to grow in significance. It then turns to a host of relatively new mechanisms, including tax increment financing, impact fees, business improvement districts, community facilities districts, monetization of government assets, and front footage tax as a benefit tax. Of course, many other revenue sources could have been considered, including fees and user charges, business license fees, and property transfer taxes. But it was necessary to limit what revenue sources to include.

Property taxes, local sales taxes, and local income taxes are evaluated using a standard set of criteria, including issues associated with efficiency, equity,

---

We thank Rayna Stoycheva for her assistance, and James Alm, Bill Fox, and Sally Wallace for helpful comments on an earlier draft.



and administration, as well as other relevant factors. The other revenue sources do not necessarily lend themselves to an evaluation along these same factors. Furthermore, the literature on these alternatives is more limited, which prevents us from being able to say much about how they relate to some of the criteria. In addition, some of the sources are not taxes—for example, impact fees—or are mechanisms for funding special public services using property taxes—for example, tax increment financing and business improvement districts. Thus, not all criteria are relevant, although we try to focus on efficiency and equity where appropriate and feasible.

### *Property Taxes, Local Sales Taxes, and Local Income Taxes* ———

In this section we compare local sales taxes, income taxes, and the property tax along several dimensions. Others have also drawn such comparisons, including Brunori (2003), Oates and Schwab (2004), and Edwards (2006), who also considers other revenue sources. We start with a brief discussion of the structure of local sales and local income taxes and how their importance has grown. We then contrast the three taxes using the criteria typically employed to evaluate taxes.

#### RELIANCE AND DESCRIPTION OF LOCAL SALES AND LOCAL INCOME TAXES

In 1934 New York City was the first city to adopt a local sales tax. The number of states that allow local governments to employ a sales tax has increased from 12 in 1963 to 33 today.<sup>1</sup> In 1994, the last year that the Advisory Commission on Intergovernmental Relations (ACIR) published the information, 6,579 local governments and 50 percent of municipalities with population over 100,000 relied on the sales tax.

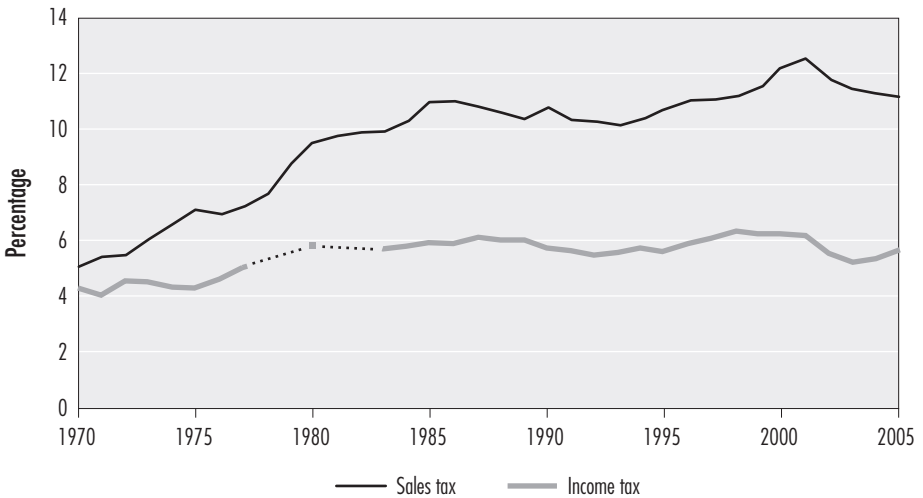
The first local income tax was adopted by Philadelphia in 1938, but adoptions by other major cities did not occur until after World War II. The use of the local income tax has been concentrated in a handful of states, primarily in the mid-Atlantic and Midwest regions. In 1997 there were only eleven states in which local governments imposed the local income tax and three states that allowed local payroll taxes. Since 1970 in only one state, Iowa, did local governments begin using an income tax, but there has been increased use of the local income tax within several of the fourteen states. Most large cities that currently use the income tax adopted it by 1970.

Figure 15.1 illustrates the growth in local sales tax and income tax revenue as a share of local government taxes. Between 1970 and 1985, sales taxes increased continuously from 5 percent of total local taxes to nearly 11 percent.

---

1. Five states do not have a state sales tax: Alaska, Delaware, Montana, New Hampshire, and Oregon. Alaska does allow access to the sales tax to some local governments. The Census Bureau reports general local sales tax revenue for Kentucky, but that is a misclassification. We thank John Mikesell for pointing that out.

**Figure 15.1**  
Local Sales and Income Taxes as a Percentage of Total Taxes



Note: The dotted lines represent estimated numbers; data not available for these years.

Source: Tax Foundation (2005); U.S. Census Bureau, various years.

The share then declined over the next decade before increasing to 12.4 percent in 2001. Since the 2001 recession, local sales tax revenue has declined as a share of total local taxes.

There is less reliance on income taxes than on sales taxes at the local level, and there has been little growth in local income taxes as a percentage of taxes since 1980. Much of the growth occurred in the 1960s, when local income tax revenue as a percentage of local tax revenue went from 1.4 percent in 1960 to 4.2 percent in 1970 as a result of the levying of local income taxes in Michigan, Maryland, and New York City. Their share of total tax revenue increased in the 1970s when Indiana authorized their use; in 1980 local income taxes were 5.8 percent of local tax revenue, the same percentage as in 2005–2006.

The reliance on local sales taxes varies across states. Table 15.1 shows local sales tax revenue as a percentage of local taxes for the states with local sales taxes. There is a substantial range, from 1 percent to over 50 percent. Local sales taxes are generally more dominant in the southern states.

How local sales taxes are imposed and how the revenues are used varies across states. For example, Georgia has six alternative local option sales taxes with a maximum rate of 3 percent.<sup>2</sup> All of them are levied at 1 percent, are

2. Atlanta's local sales tax is the only noncounty sales tax and the only tax that is exempt from the restriction that the total local sales tax rate in any jurisdiction cannot exceed 3 percent. The total local sales tax rate in the city of Atlanta is 4 percent.

**Table 15.1**  
Local Sales Taxes as a Percentage of Local Tax Revenue, 2006

State	Sales Tax Revenue/ Local Tax Revenue (%)	State	Sales Tax Revenue/ Local Tax Revenue (%)
Arkansas	50.2	Alaska	14.5
Louisiana	49.7	Kansas	14.0
Oklahoma	39.5	Iowa	11.1
Alabama	38.6	Texas	10.7
New Mexico	37.5	North Dakota	9.6
Colorado	29.7	Nebraska	9.0
Arizona	24.8	Ohio	8.2
Tennessee	24.3	Virginia	8.1
Missouri	23.3	Illinois	5.1
South Dakota	21.3	Nevada	4.4
Georgia	19.9	Florida	3.9
North Carolina	18.9	Wisconsin	3.2
Washington	18.4	South Carolina	2.9
Utah	18.0	Vermont	1.3
Wyoming	17.2	Minnesota	1.3
New York	16.6	Pennsylvania	1.0
California	15.8		

Source: U.S. Census Bureau (2007).

county-wide (but revenue from some is shared with municipal governments), and must be approved through referenda. Some are permanent, while others have a five-year limit but can be reauthorized through referenda. The statewide average local sales tax rate in Georgia is 2.8 percent, with most counties at 3 percent and a few at 2 percent.

California allowed locally administrated sales taxes as early as 1944. In 1955 the state established the Bradley-Burns sales tax, which is imposed at 1 percent and split between the county government at 25 percent and the city or county, depending on the location of the sale, at 75 percent. The revenue goes to the general fund. All counties have opted to impose the Bradley-Burns sales tax. In addition, a local option sales tax of up to 1.5 percent can be imposed by referenda. The revenue of the majority of these sales taxes is earmarked, especially for transportation.

Generally, the local sales tax base is the same as the state sales tax base, but not in all states. For example, in Georgia food for home consumption is not included in the state sales tax base, but is included in most, but not all, local sales tax bases.

There were two distinct periods of increased adoption of local income taxes: the late 1940s and the 1960s, both periods of significant fiscal stress. In 2006 local income taxes were imposed in 14 states. New Jersey, Oregon, and the California cities of Los Angeles and San Francisco collect payroll taxes from firms rather than income taxes from workers; these taxes are not considered income taxes by the Bureau of the Census. In only five states do local income taxes account for more than 10 percent of local tax revenue: Pennsylvania, 16.5 percent; New York, 19.4 percent; Ohio, 21.1 percent; Kentucky, 30.9 percent; and Maryland, 33.1 percent.

Wallace and Edwards (1999) provide an overview of the structure of local income taxes. The type of jurisdiction that is eligible to use an income tax varies across states. In most cases, the local income tax is relatively simple. Rates vary from less than 1 percent to almost 5 percent (with 1 percent being common). In Maryland and Iowa the tax is a percentage of the state income tax. Typically, the tax applies to wages and salaries but not income from capital. In most places, it is levied on nonresidents at the same rate as on residents. An exception is the Detroit area, where essentially the tax is shared fifty-fifty between the jurisdiction of residence and the jurisdiction of employment.

Early discussions of the local income tax can be found in the 1968 "Municipal Income Taxes: An Economic Evaluation, Problems of Administration, Alternative Sources of Revenue" issue of the *Proceeding of the Academy of Political Science*. Due and Mikesell (1994) provide a detailed discussion of the structure of local sales taxes. Useful summaries of the issues associated with local sales and income taxes are provided by the ACIR (1988, 1989) and Mikesell's chapter 6 in this volume.

### TAX STRUCTURE IN THEORY AND IN REALITY

The structures of the actual real-world property, sales, and income taxes are not the hypothetical forms of these taxes generally treated in theoretical models that explore issues of equity and efficiency. For example, Mieszkowski's (1972) analysis of the property tax assumes that all property in a jurisdiction is taxed, and at a uniform rate. But since the modern property tax was adopted in the nineteenth century, exemptions and differential treatment of property have increased. Furthermore, since the passage of Proposition 13 in California, the property tax has become more and more tied to the acquisition value of the property. In theoretical models, the sales tax is frequently considered a tax on just retail purchases, with rates being the only difference between jurisdictions. But what is included in sales tax bases differs across jurisdictions, includes business purchases, and excludes most services.

The differences between the real-world versions of the taxes and their typical depictions in economic analysis, and the interstate differences in the structure of the taxes, need to be considered when comparing the relative desirability of the three taxes. While it would be senseless to consider every difference, we address some of the major differences between the general concept of these taxes and the real-world versions.

### LOCAL TAXES AS BENEFIT TAXES

Because of the potential mobility of tax bases across local jurisdictions, it is generally believed that local taxes should be benefit taxes and that local jurisdictions should not engage in redistribution. It is commonly argued that property value, and thus the property tax, is related to the benefits received by the property owner from public services. The possible relationship between the benefits of public services and the property tax is discussed in two alternative contexts. First, there is the position espoused by Hamilton (1975), Fischel (2001), and others that property taxes are equal to the benefits received from local government services. This view is based on the assumption that households can choose from among a large number of jurisdictions that provide choices of housing and public services, with associated property taxes. Thus, households sort themselves, à la Tiebout, among the jurisdictions so that the marginal benefit of the public service equals the marginal cost to the household in the form of additional property taxes. In this world, the property tax is essentially the price that a resident pays for the public service, so that in choosing a jurisdiction, which is equivalent to choosing the public service level, the property tax at the margin equals the marginal benefit of the public service.

Such a view of the property tax is not universally accepted. Others, for example Zodrow (2001), argue that the property tax is not a benefit tax, but rather a distortionary capital tax. Zodrow contends that the assumptions underlying the benefit view are too restrictive to match reality, and that the empirical evidence does not support the benefit view. For example, the benefit view assumes a large number of jurisdictions so that households can sort into homogeneous jurisdictions, that fiscal zoning is sufficiently restrictive to prevent lower property tax base households from moving into a jurisdiction, that the property tax applies uniformly within each jurisdiction, and that other factors do not affect the choice of jurisdiction. Thus, the perceived advantage of the property tax is in part dependent on which view of the property tax, the benefit view or the capital tax view, is correct. For a discussion of these two contrasting views, see Zodrow (2008).

The theoretical link between property tax and the benefits of the public expenditures is clear in the benefit view of the property tax as espoused by Hamilton. But is it the case that local sales and income taxes are benefit taxes? There is no obvious link between local sales taxes paid and benefits received. Given the amount of interjurisdictional shopping, a substantial percentage of local sales taxes are likely paid to jurisdictions other than the jurisdiction of residence. We did not uncover a theoretical model of the sales tax similar to the model that underlies the benefit view of the property tax.

If public services are financed by a local residence-based flat rate income tax, it is conceivable that sorting by income level could occur if it were possible to prevent lower-income households from moving into higher-income jurisdictions. That is, if there were an income equivalent to fiscal zoning, there would be a stable sorting of households into homogenous jurisdictions. However, that

possibility doesn't seem likely, which is a conclusion also reached by Oates and Schwab (2004).

The second context in which the property tax is thought to be related to benefits is based on a more ad hoc argument, namely that the benefits of public services are positively associated with the value of one's property regardless of whether households sort across jurisdictions according to property value. The benefits of public services such as police protection, fire service, and streets networks are likely greater the greater the household's property value. While this argument has some intuitive appeal, there is no empirical evidence that we are aware of that confirms it.

To some extent, a similar argument could be made regarding the local income tax. To the extent that a household's demand (and thus marginal benefit) for local public services is positively related to household income, the income tax is related to benefits. However, since preferences can vary across households with the same income level, the association between benefits and income tax will be closer for some households than others. On the other hand, it is hard to draw a link between local sales tax burden and benefits received, other than perhaps an indirect link between the volume of purchases and income. Because sales taxes may be paid to jurisdictions other than the jurisdiction of residence, even that link is weak.

There are local public services for which the benefits would seem to be unrelated to property value. Education is one such service. We don't find the idea that property value increases with higher-quality education a very convincing argument for linking property taxes and the benefits of education. Strauss (1995) argues that the benefits of K-12 education are more closely associated with income than with property wealth. He suggests that while education generates economic benefits to the student in the form of increased earnings potential, it also generates social benefits and is a form of merit good, and thus is a form of social insurance. To the extent that education is a form of income redistribution, Strauss argues that it should be financed by a broad-based ability-to-pay tax. Thus, a broad income or consumption tax would be an appropriate revenue instrument for financing education. In Arkansas, Iowa, Kentucky, and Ohio, local income taxes are used to fund school districts.

We conclude that local sales taxes are not related to the benefits of local public services. It is an open question whether a local income tax or the property tax better reflects the benefits of local public services. However, we believe that the benefits of education and such public services as recreation are probably more closely aligned with income, while the benefits of most other public services, for example, fire protection, are probably most closely associated with property value.

Another aspect of the potential link between benefits enjoyed and taxes paid concerns nonresidents. It is commonly argued that commuters, shoppers, and tourists benefit from local government public services such as police, fire, and roads, but do not provide revenue commensurate with those benefits. Furthermore, to

the extent that local public services are subject to congestion, commuters and other visitors to a jurisdiction increase the cost of providing a given service level. This raises both an equity issue—namely, that nonresidents impose uncompensated costs on residents—and an efficiency issue—namely, that residents will provide less than the optimal level of the public service because their tax price must cover full cost of the public services, including the negative externality caused by nonresidents.

It is the case that property taxes are levied on businesses and residents but not on commuters. But it is not clear that workers don't generate property tax revenue. Suppose that for office buildings and factories there is a certain amount of physical capital (property tax base) per worker, sort of a fixed proportion input function. Thus, associated with each worker is a fixed amount of property tax base. In that sense workers do share part of the burden for local public services. Of course, governments and nonprofits are exempt from the property tax, and thus workers in these industries do not share the burden of local public services in this way.

To the extent that property tax and other revenue sources do not capture the burden placed on a jurisdiction from nonresidents, a sales tax or an income tax might do better. Clearly, a sales tax generates revenue from nonresidents only to the extent that they purchase taxable products or services. Tourists and shoppers are likely to make larger purchases than workers, and thus are more likely to contribute more revenue per trip. One of the benefits claimed for local income taxes levied by general purpose governments is that such taxes broaden the burden of paying for local public services to nonresident workers (Wallace and Edwards 1999). On the other hand, a local income tax will generate revenue only from workers and not from other visitors to the jurisdiction.

In the 1970s there were attempts to measure whether nonresidents exploited the central city in the sense that the cost of providing public services to nonresidents exceeded the revenue generated by nonresidents. Neenan (1970), one of the first to conduct such a study, found a significant net benefit to nonresidents. However, not all studies found that suburbanites were not contributing their fair share of revenue. Bradford and Oates (1974) found that the net effect of nonresidents was of minor quantitative importance. Shields and Shideler (2003) explored empirically whether there was congestion in the provision of local public services by Pennsylvania cities due to in-commuters. They used these results to determine whether commuters should be taxed in order to obtain an efficient level of public services. Given that such a tax was needed, they estimated the magnitude of the tax and found it to be very small, suggesting that there may not be a significant equity issue or under-provision of local public services.

#### **MOBILITY AND TAX BASE COMPETITION**

If a local tax is not a benefit tax, it is desirable to fund local public services with a tax whose base is immobile with respect to the tax rate. If a tax base is very responsive to the jurisdiction's tax rate, small tax differentials will result in large locational inefficiencies. Furthermore, to the extent that local jurisdictions must

be concerned with the mobility of the tax base and thus must engage in tax competition, the greater the likelihood that local public service levels will be inefficiently low; see Wilson (1999) for a survey of tax competition.

Which local tax has the more mobile tax base is obviously an empirical question, and there have been several studies of tax base mobility. Ladd and Bradbury (1988) estimated an elasticity of the property tax base of  $-0.15$  with respect to the property tax rate. Luce (1994) estimated a property tax rate elasticity of  $-0.371$  for the Philadelphia area. Haughwout et al. (2004) estimated the effect of property, sales, and income tax rates on the respective tax bases of Houston, New York, Philadelphia, and Minneapolis and found that the elasticity varies by tax and city. For Houston, New York, and Philadelphia, the property tax base elasticity was  $-1$ , which puts these cities on the top of their revenue hill. In other words, a 10 percent increase in their property tax rate results in a 10 percent reduction in their property tax base, and thus no increase in revenue. The elasticity for Minneapolis was much lower, around  $-0.3$ . The estimated elasticity of New York's sales and income taxes was estimated to be around  $-0.5$ , while the estimated elasticity of Philadelphia's gross receipts tax ranged between  $-0.19$  and  $-0.027$ . Haughwout et al. estimated a small elasticity for Philadelphia's income tax, but they argued that that tax had a significant negative effect on the overall size of Philadelphia's economy. (See also the references listed in their footnote 12 for additional evidence consistent with their results.)

Much of the focus on the mobility of sales taxes has been on the effect of differential sales tax rates on cross-border shopping; see, for example, Fisher (1980), Fox (1986), Mikesell (1970, 1971), Mikesell and Zorn (1986), Tosun and Skidmore (2007), and Walsh and Jones (1988). These studies generally find that a sales tax rate 1 percentage point higher is associated with per capita sales along a state's border that are between 1 and 7 percent lower. For example, Walsh and Jones (1988) explored the effect on grocery purchases from a 3 percentage point phased-in reduction of West Virginia's sales tax rate on grocery purchases. They found that grocery sales along the West Virginia border increased by about 5.9 percent for each percentage point reduction in the sales tax rate. It is expected that differential sales tax rates across a jurisdiction within a state would have similar, if not greater, effects on the location of purchases.

Related to cross-border shopping is the effect of the government's general inability to tax Internet sales on consumers' decision to purchase products online. Goolsbee (2000) and Ballard and Lee (2007) used the variation in sales tax rates to estimate the effect of sales tax rate differentials on the likelihood that a household will make an Internet purchase. Goolsbee estimated an elasticity of Internet purchases with respect to a measure of the metropolitan area tax price of  $-2$  to  $-4$ . Ballard and Lee estimated a much smaller elasticity of  $-0.2$ , while Alm and Melnik (2005) estimated an elasticity of the tax price of  $-0.5$ .

Much of the research on the effect of local income taxes on tax base mobility has focused on Philadelphia. Differential income tax rates across jurisdictions in the Philadelphia region have been shown to result in migration of workers. Grieson (1980) estimated that Philadelphia lost 14 percent of its employment



between 1965 and 1975 as a result of its high income tax rate, which was three to four times the tax rate in surrounding jurisdictions. Inman et al. (1987) obtained an estimated elasticity of employment with respect to the wage tax rate of between  $-0.11$  and  $-0.14$ . Luce (1994) obtained an elasticity of  $-0.6$  for wage tax rate differential using data from the Philadelphia area.

Because of the concern with the mobility of jobs across jurisdictions, a flat income or payroll tax would seem to be preferred to a progressive income tax. However, Goodspeed (1989) has shown that adopting a progressive income tax does not result in large distortions. He constructed a general equilibrium model of a metropolitan area and examined the efficiency and redistributive properties of a local income tax relative to a local head tax. He found that the local income tax resulted in an inefficient allocation of people across communities, but that the aggregate welfare loss was small for his benchmark values. In his two-jurisdiction model, he found that the aggregate welfare loss was slightly more than 0.5 percent of tax revenue.

Calabrese (2001) presents a positive model of local income redistribution determined through majority voting. The amount of redistribution is constrained by housing market distortions and by the ability of people to move across jurisdictions. The results of the multi-community model indicate that, similar to Epple and Romer's (1991) property tax model predictions, local redistribution leads to sorting of the population, with the poorest households located in the communities with the highest grant levels. However, he found that migration is larger if the redistribution is financed through income taxation than through property taxation.

There is also related research on tax base mobility that uses the interstate tax rate differential to estimate the effect on economic activity. Mark, McGuire, and Papke (2000) examined activity over nine jurisdictions in the District of Columbia metropolitan area, which includes two states and Washington, DC, and found a negative relationship between sales and personal property taxes and economic activity, but the real estate property tax differentials did not affect the geographic distribution of the property tax base. Holcombe and Lacombe (2004) considered adjacent counties along state borders and found that high state income tax rates led to lower growth in personal income in the border counties of those states. Hoyt and Harden (2005) investigated the impact of state taxes on the distribution of employment and population between counties contained in border versus interior metropolitan areas, and Coomes and Hoyt (2008) examined how differences in state income tax rates influence the choice of state of residence for households moving into multistate metropolitan areas.

The tax competition literature in economics focuses on how the mobility of capital affects the choice of property tax rate. But, local governments provide more targeted special breaks and other benefits to attract businesses that have large property tax bases. And, while there is such competition for property tax base, it seems particularly intense over the sales tax base when sales taxes are an important source of local revenue. This competition focuses on particular

businesses, mainly shopping centers, and is referred to as the “fiscalization of land use.” Given that Proposition 13 has made sales taxes the principal source of revenue over which local governments in California have some control, sales tax base competition in California is intense. Lewis and Barbour quote a former legislative representative of the California State Association of Counties as follows: “It is . . . clear that this situs allocation of sales tax greatly encourages cities to pursue commercial development over both industrial and residential development. This incentive is so strong that cities and counties actually attempt to ‘steal’ sales tax generators from other localities” (1999, 12). Officials in the St. Louis metropolitan area express similar views.

Lewis (2001) surveyed local government officials in California regarding their preferred development. Not surprisingly, he found that retail projects were the most preferred land use, that sales tax revenue was the principal factor influencing development decisions by local governments, and that a retail project increased the likelihood that the city would provide economic incentives. Wassmer (2002) investigated whether this competition for sales tax base was reflected in the location of retailing. He found that the greater the reliance on sales tax revenue, the more likely that retailing sprawled from the central city, confirming the existence of fiscalization. In particular, he found that a 10 percent increase in reliance on local sales taxes in the state led to a 2.4 percent increase in retail sales in noncentral metropolitan areas.

To explore property tax base competition, Pagano (2003) investigated the effect of a city’s fiscal structure on the amount of vacant land. The argument is that a city dependent on property taxes would be more inclined to develop all of its land. However, his regression results did not support the hypothesis. Pagano also conducted an analysis of 15 land development projects in three cities. In these case studies, he found that the nature of the development differed by the city’s fiscal structure. For example, the city with more reliance on sales taxes favored retail development, whereas the city with more reliance on income taxes favored development that created jobs.

The existing evidence on tax base mobility doesn’t allow one to draw a firm conclusion regarding the relative mobility of the three tax bases, in part because the values of the estimated tax base elasticity are not consistent across studies. The findings of Haughwout et al. (2004) suggest that the elasticity for a given tax probably varies widely across jurisdictions. Other than the findings of Haughwout et al., the evidence is consistent with the property tax base being somewhat less mobile.

#### **OTHER ECONOMIC EFFECTS AND ECONOMIC EFFICIENCY**

In addition to distorting the location of economic activity and household location, there are other economic distortions caused by property, local sales, and local income taxes. For example, the property tax reduces the ratio of capital to labor in production, and assessment limitations reduce the turnover of property (O’Sullivan, Sexton, and Sheffrin 1995).

The property tax can also distort the size of the urban area. Haurin (1980) was one of the first to explore the effect of a property tax on the size of an urban area in a theoretical urban model; the results are indeterminate. Brueckner (1997) points out that local governments usually require developers to pay only a fraction of the infrastructure costs associated with their projects, thereby encouraging excessive spatial growth of cities. Given that the land portion of the property tax has no effect on resource allocation, the tax on capital will increase the land-to-capital ratio. This means that it will take more land to house a given population, and thus it would seem that the property tax would encourage urban sprawl (Brueckner 2001a).

Brueckner and Kim (2003) argued that there are two countervailing effects of the property tax regarding urban size: the improvement effect, and the dwelling size effect. The property tax depresses the amount of improvements; given no change in dwelling size, this will reduce population density and spur the spatial expansion of the urban area. However, dwelling size falls as a result of the increased price of housing service, which results in an increase in population density, thereby reducing the size of the urban area. Thus, the effect of a property tax on the size of the urban area is indeterminate. Song and Zenou (2006) estimated the relationship between the property tax and the size of the urban area, and found that the property tax contracts urban area.

The sales tax is far from a general consumption tax. First of all, it only applies to a small percentage of household consumption; most services are not taxed, and many tangible products, such as food for home consumption, are not taxed. The numerous exemptions in the sales tax base affect the choice of goods and services consumed, with services and food for home consumption being the biggest categories of exemptions. Theory suggests that these exemptions will shift consumption toward services and away from restaurant purchases. Merriman and Skidmore (2000) investigated the effect of the exemption for services. Their empirical results suggest that the exemption is responsible for as much as one-third of the decline in the retail sector as a share of income and one-eighth of the increase in the service sector as a share of income during the 1982–1992 period. The sales tax on purchases by businesses leads to tax pyramiding, and thus differential effective sales tax rates on final consumption. Ring (1999) estimates that about 40 percent of sales tax revenue comes from purchases by businesses.

Since local income taxes are generally flat rate taxes with few, if any, exemptions, they score well in terms of economic efficiency, although they provide an incentive to increase the capital-to-labor ratio. Local income taxes can also affect the size of the city. Wildasin (1985) constructed a monocentric urban model and demonstrated that, under certain conditions, an income tax results in a larger, more dispersed urban area and in a reduction in welfare.

There have been some efforts to measure the welfare loss from local taxes. DiMasi (1987) developed an urban spatial computable general equilibrium model with an endogenous amount of land in urban use. Basically, DiMasi's model is a monocentric urban model of spatial location with costly commuting. He adopted

a non-nested CES functional form for the production and utility functions, and calibrated the model using data from the Boston area. He calculated a welfare gain of 6.6 percent of tax revenue from switching to a graded property tax system (one in which land is taxed at three times the rate on capital). Sullivan (1985) analyzed the effects of a switch from a land value tax to a residential property tax, while Sullivan (1984) considered a switch to an industrial property tax. He reports a welfare loss of 6.5 percent of tax revenue for the switch to a residential property tax and 4.6 percent for the switch to an industrial property tax.

Only recently has empirical evidence of the efficiency loss from sales tax exemptions been presented. Baum (1998) used a general equilibrium model to examine the exemption for food-for-home consumption, finding a small efficiency loss. Iorwerth and Whalley (2002) found a substantial welfare loss in a simulation model for Canada. Hawkins (2002) applied a partial equilibrium model to several general sales tax structures and found that exemptions and high tax rates result in inefficiencies. He estimated that the excess burden—the reduction in economic welfare beyond the revenue raised—ranges between 17 and 39 percent. As expected, the welfare loss increases when the tax structure includes more generous exemptions and a higher tax rate. We were unable to find welfare loss estimates for local income taxes.

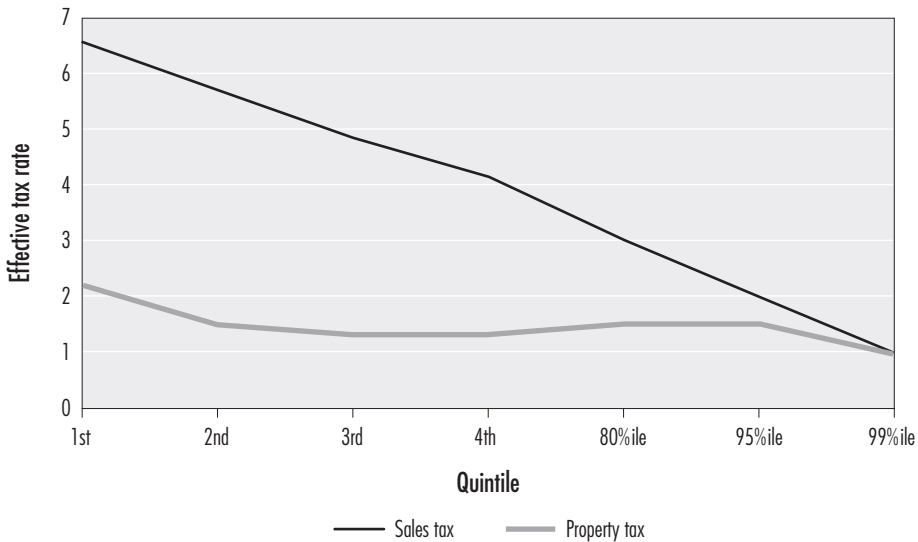
## EQUITY

As noted above, it is generally argued that local governments should rely on benefit taxes or, in other words, they should not engage in income redistribution because the mobility of residents and workers will make this self-defeating (Oates 1972). Nonetheless, the relative equity of these taxes is important.

The property tax under the capital tax view is mildly regressive (Aaron 1975; Pechman 1985; Plummer 2003). However, given variations in the ratio of assessed value to fair market value, the property tax suffers from substantial horizontal inequities. O'Sullivan, Sexton, and Sheffrin (1995) provide evidence of the very large horizontal inequities that arose in California due to Proposition 13.

Compared to the property tax, sales taxes as a percentage of current income are more regressive. The Institute on Taxation and Economic Policy (2003) has estimated the tax burden for the property tax and sales tax for all 50 states. The tax burden of the sales tax for states that exclude food-for-home consumption is less regressive than that for states that do tax food-for-home consumption. Figure 15.2 compares the effective sales tax rate (tax burden divided by income) to that for the property tax for Georgia (the results for other states are similar). Because the effective tax rates depend on the level of tax, we divided the effective tax rate by the effective tax rate for the top 1 percent of the households in terms of income. Thus, a larger number for lower-income households implies that the lower-income household pays a higher effective tax rate. As can be seen, the sales tax is very regressive and is much more regressive than the property tax. However, if one measures sales tax burden using lifetime income, the sales tax is much less regressive, and perhaps proportional (Fullerton and Rogers 1993).

**Figure 15.2**  
Tax Burden, Georgia



Source: Calculated based on data provided by the Institute on Taxation and Economic Policy (2003).

Local income taxes are probably slightly regressive, since not all income sources are taxed, and the excluded income (largely returns to capital) are largely associated with higher-income households. Self-employment income and retirement income are generally not subject to the local income tax, which leads to horizontal inequities. However, we were unable to find any study of the equity of the local income taxes. States that tie the local income tax to the state income tax (for example, Maryland) have a progressive local income tax with less horizontal inequities because a larger percentage of total income is taxed. New York City's income tax is more like a state income tax in that most sources of income are taxed and there is a progressive tax rate structure.

### FISCAL DISPARITIES

Shifting from the property tax to the local sales tax or local income tax could affect the geographic distribution of fiscal capacity, and thus alter the level of fiscal disparities. We are unaware of any nationwide analysis of the geographic distribution of the property tax base as compared to the sales tax or income tax base.<sup>3</sup> Bowman and Mikesell (1978) considered fiscal disparities of local income

3. Lewis and Barbour (1999) report that 1996 per capita sales tax revenue across California cities varied from \$2.25 to \$56,891.84, which suggests substantial disparities in fiscal capacity. However, they do not provide information on the dispersion of the property tax base.

taxes in Indiana and Maryland and local sales taxes in Ohio and Virginia as compared to the property tax. Using county-level data, they found that in three of the four cases local nonproperty taxes resulted in greater fiscal disparity than the property tax, the exception being the income tax in Indiana. McGuire (2001) reported that fiscal disparities would not improve for Illinois cities by shifting from the property tax to a local sales tax, but that the dispersion of a local income tax base would be less than the dispersion of the property tax base. Oates and Schwab (2004) compared the distribution of property tax base per pupil to income tax base per pupil for Massachusetts, New Jersey, New York, and Texas, and found that property tax wealth is distributed more unequally across school districts than is income.

Data from Ohio and Georgia provide mixed evidence regarding whether the property tax base per capita is more equally distributed across jurisdictions than is the sales tax base per capita. Figures 15.3 and 15.4 compare property tax base per capita divided by the state property tax per capita to the equivalent measure for the sales tax for Georgia and Ohio, respectively. As shown, there is greater variation across counties in the sales tax base per capita than in the property tax base per capita in Ohio and less in Georgia, which implies that the sales tax base per capita is more equally distributed than the property tax base in Georgia and less equally distributed in Ohio.

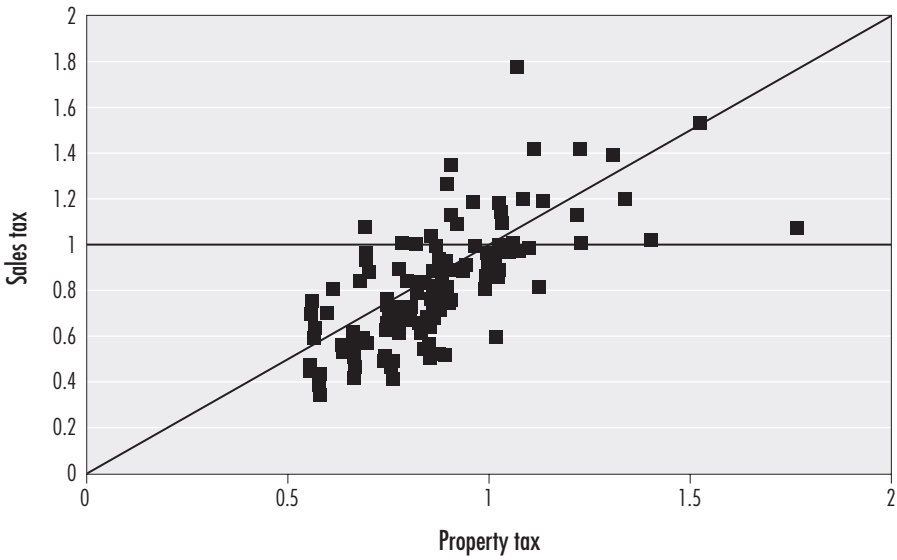
Based on the existing evidence, it is not clear whether fiscal disparities will increase or decrease with the adoption of a sales tax or a local income tax. The effect on fiscal disparity from switching to a local sales or local income tax appears to be state-specific.

### TAX DIVERSIFICATION

Suggestions have been made (ACIR 1988) that diversifying the local government tax structure is desirable because it allows a local government to select the tax mix that maximizes the government's objective function. With the ability to use alternative tax instruments, local governments can choose among various possible tax portfolios that yield different values for revenue growth, stability, and equity but maintaining total tax revenue across tax portfolios (Dye and McGuire 1991; Harmon and Mallick 1994; Misiolek and Perdue 1987; White 1983). But a concern is whether adopting a local sales or local income tax will result in a corresponding reduction in property taxes or in an increase in public services.

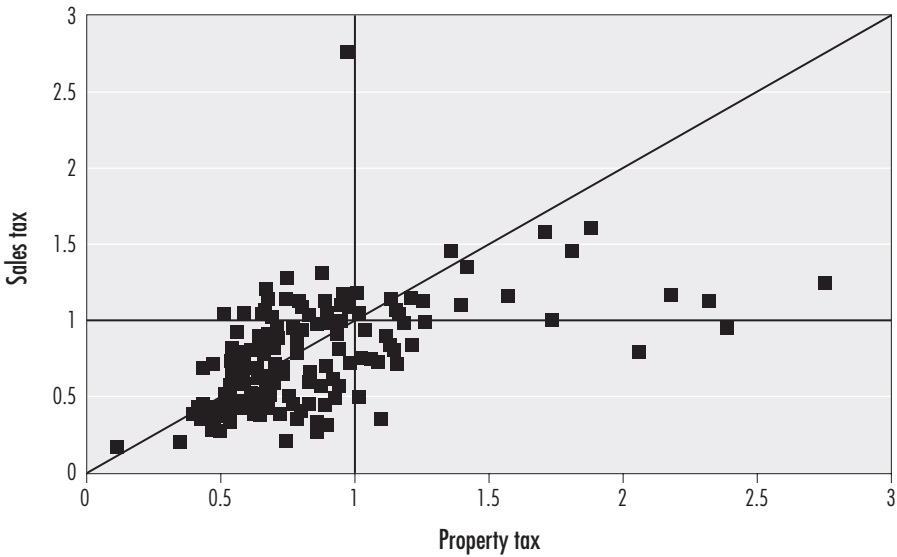
Even if one assumes that decisions about expenditures are made by rational median voters who base the decisions on their tax prices, it is possible that the tax structure could affect the level of expenditures. First, a diversified tax structure implies a broader tax base, which could reduce the marginal excess burden and thus taxpayer resistance to tax increases. Support for this argument was obtained by Becker and Mulligan (1998) and is consistent with the results of Kau and Rubin (1981). Second, a different tax structure may lead to a change in the percentage of taxes that are exported, which may alter tax prices. Third, diversification could alter the distribution of tax prices across individual voters and hence

**Figure 15.3**  
Ohio Tax Base per Capita



Source: Calculated based on data from the Ohio Department of Revenue Web site, <http://tax.ohio.gov>.

**Figure 15.4**  
Georgia Tax Base per Capita



Source: Georgia Department of Revenue (2008).

could change the identity of the median voter. The main alternative to the median voter view of expenditure determination is the Leviathan view of government (Buchanan 1967; Buchanan and Wagner 1977), under which government decision makers rather than voters determine expenditure levels. This view suggests that using more tax instruments, and thus a more complex tax structure, results in greater manipulation of voters by government officials who are assumed to prefer larger public spending than the median voter.

The empirical evidence of the effect of the tax structure on the level of expenditures or revenue is mixed. Wagner (1976) found that cities with diversified tax structures have higher expenditures than cities with less-diverse tax structures, thus providing support for the Leviathan view of government. Similar results were obtained by Baker (1983), Breeden and Hunter (1985), Clotfelter (1976), and Suyderhoud (1994). However, Ladd and Weist (1987) obtained contrary results. Deran (1968) compared cities with and without local income taxes and concluded that those with an income tax have lower per capita taxes. Likewise, Stockfish (1985) found no effect on expenditures as a result of the adoption of value-added taxes in Europe. Jung (2001) investigated the extent to which the adoption of a local sales tax in Georgia reduced property taxes and estimated that 28 percent of local sales tax revenue was used to reduce property taxes.

Sjoquist, Wallace, and Edwards (2004) found that the adoption or presence of a local sales tax or a local income tax in a city leads to a decrease in the level of property taxes per capita. Sjoquist, Walker, and Wallace (2005) estimated a mixture model, which allows cities to differ in whether and how much property tax is reduced. They found that some cities did not increase expenditures, but that others did.

The implicit assumption is that the level of public expenditures would be larger if the Leviathan model matched reality than if the median voter prevailed. The real issue, however, is whether public expenditures are at the efficient level.

### TAX ADMINISTRATION

The administration of the property tax is expensive, but not particularly complex. Sjoquist and Walker (1999) found that there are substantial economies of scale in the assessment of property and that improvements in the quality of assessment increases cost. They estimated assessment cost per parcel to be \$5.73 if the assessment office had to assess 30,000 parcels, and that a 10 percent increase in the quality of assessment, as measured by decrease in the coefficient of dispersion, increased total cost by 13.2 percent. Because of the threat of foreclosure if property taxes are not paid, collection rates are high. Other than the tax on personal property, evasion of the property tax is difficult.

Several administrative issues arise with local sales taxes.<sup>4</sup> Two of the most important concern the conformity of the local sales tax base with the state sales tax base and whether there will be local rather than state administration of the

---

4. See Due and Mikesell (1994) for an extensive discussion of administrative issues associated with local sales taxes.



tax. As noted above, the local sales tax base is the same as the state base in most states, but there are exceptions. In these cases, not only is there the problem of determining which tax rate to apply in a given jurisdiction, but the retailer also has to determine what tax rate applies to particular products.

In most states that have local sales taxes, the state administers them. However, in three states, local governments administer the tax; and in four states, there is a mix of state and local administration. Local administration adds to the compliance burden of the vendors. One argument in favor of local administration is that it should result in greater compliance; local governments are likely to be more aggressive in ensuring that all vendors who are supposed to collect sales taxes are in fact doing so.

Administration of a local income tax can be more difficult than administration of a local sales tax. Conlon (1968) argued that it is difficult to speak generally about the problems of enforcement because the scope and application of local income taxes vary considerably. In many states, the local government administers and collects the tax. If the local income tax is piggy-backed on the state income tax, administration is greatly simplified. However, it is necessary to identify the jurisdiction in which the individual lives and, in most cases, works. Situs issues are significant when the local income tax is based on place of work. If an individual, for example, a construction worker or a delivery person, works in several jurisdictions, records have to be kept of the income earned in each of the jurisdictions for which income tax is due. It is more likely that the local income tax varies from the state income tax than it is that the local sales tax differs from the state sales tax. These differences increase the compliance costs. Ohio provides an illustration of these complexities (Wallace and Edwards 1996).

Information that allows a true comparison of the administrative costs of the three alternative local taxes does not exist. However, based on somewhat ad hoc comparisons, we conclude that the administrative costs of a local income tax that is tied to the state income tax would be the lowest, followed by a sales tax tied to the state sales tax. The cost of operating the property tax is probably the highest of the three. Administrative complexity, however, is probably the largest for the local sales tax, followed by the local income tax, particularly if it is based on place of work. While the issue of appropriate assessment of property is clearly a difficult task, the complexity of the overall administration, including compliance, is probably lower than for the other two taxes.

#### **OTHER FACTORS**

Several other factors are also relevant in comparing local taxes. The cyclical stability of the tax bases is an important characteristic. Most studies find that the sales tax base is more volatile than the property tax base (Dye and Merriman 2005). One of the advantages of the property tax is that the rate is set after the jurisdiction determines the property tax base. Thus, property tax revenue is even more stable than the property tax base. Several studies compare the stability of the two taxes, including Matthews (2005) and Winters (2007).

One of the purported benefits of the sales tax is that it is nearly invisible—one hardly notices the few pennies paid on each purchase when the purchase is small and the tax rate is low. While this may be a benefit from the elected official's point of view, it weakens the link between the decision regarding the level of public expenditures and the tax price. Given the visibility of the property tax and voter resistance to property tax increases, elected officials are thought to be more conservative in their budget decisions. This factor is related to the discussion above on tax diversification.

Both the local sales tax and local income tax generally raise substantial revenue from relatively low tax rates. For example, it was estimated that a 1 percent local income tax levied in 1994 in the Atlanta region, with revenue split fifty-fifty by place of work and place of residence, would have generated \$102.7 million for the city of Atlanta, compared to \$89.5 million in property tax revenue (Edwards, Sjoquist, and Wallace 1996). In 2007 the 1 percent local sales tax levied in the city of Atlanta generated \$124.7 million.

The allowable tax rates for most local sales and income taxes are set by the state. Local governments have no control at the margin over the revenue generated. The only action they can take to increase revenue is to influence the size of the tax base within the jurisdiction. To the extent that all jurisdictions within the state employ a local option sales or income tax, the tax revenue is essentially a state grant program in which the grant share equals the jurisdiction's share of the total statewide tax base. When local government cannot change the tax rate or definition of the tax base, providing local sales and income taxes as an option does not increase the fiscal control of local government beyond what it has with the property tax, although it probably provides more fiscal freedom to increase property tax rates if the sales or income tax revenue is used to reduce property taxes.

### CONCLUSIONS REGARDING PROPERTY, SALES, AND INCOME TAXES

A substantial volume of research has addressed the factors related to a comparison of the three local taxes. However, as is evident from the preceding discussion, it is hard to draw firm conclusions about which tax wins out. The issue is not whether to use just the sales tax rather than the property tax, but instead how the relative mix of the three taxes should change. The real question is, at the margin, which tax should be increased or decreased. That is an even harder question to answer based on available evidence than determining which tax is more desirable in general.

In the absence of assessment limitation, the property tax is probably closer to being a benefit tax, or at least the property tax is more closely linked to local public service benefits, than either the local sales or income tax. However, with acquisition value property tax, it may well be that income tax is more closely related to the benefits of local public services than property taxes. It is hard to suggest that the sales tax is very closely linked to benefits.

The research on tax base elasticity, with the exception of Haughwout et al. (2004), is consistent with the view that the property tax base is less mobile than

the bases of the two other taxes. In terms of welfare loss, DiMasi (1987) found a relatively small welfare loss for the property tax. Since the local income tax rate is an addition to the federal and state income tax rates, and the estimated marginal welfare loss from income taxes is large, the welfare loss from a local income tax is likely to be large. The local sales tax is an addition to the state sales tax, so the welfare loss from an increase in the local sales tax rate is likely to be relatively large.

Whether fiscal disparities are reduced with the adoption of local sales or local income taxes seems to be state-specific. The property tax is not the most equitable in terms of vertical equity, and with acquisition value assessment, it also suffers from large horizontal inequities. The property tax is costly to administer, but compliance is high and administrative complexity is low.

While a consumption tax at the national level is believed to be a desirable replacement for the income tax, at the local level the sales tax has a lot working against it. Its redeeming feature is that it is so popular. A lot of positive things can be said about a local income tax in terms of equity, probable link to public service benefits, and stability. However, the tax base does seem to be mobile, and the welfare loss is probably large given that it is an addition to the federal and state income taxes. Thus, we are hard-pressed at this time to argue strongly that the property tax should be replaced, wholly or in large part, with either a local sales tax or a local income tax.

### *Tax Increment Financing* —————

We turn now to other financing mechanisms, beginning in this section with tax increment financing. Tax increment financing (TIF) is a mechanism for capturing the gain in tax revenue from the increase in economic activity resulting from public investment within a specified district as a way to finance the public investment. See Merriman's chapter 11 in this volume for a description of tax increment financing and its importance.

#### **VALUE CAPTURE TAX OR PROPERTY TAX?**

Evaluating tax increment financing depends upon whether TIF is considered a benefits tax (or a value capture tax) or just a property tax. Chapman claims that the incremental tax "is analogous to the benefit charge approach to property tax incidence, since the redevelopment benefits are accruing to the property owner" (1998, 185). TIFs are popularly portrayed as almost costless to local governments (DeSue 2004; Pendered 2004). However, we argue that the TIF tax increment is simply a complicated means for earmarking revenue for financing public improvements.

A local government could, in principle, use general revenue funds to finance public improvements in some district rather than establishing a TIF. In this case, the increase in the tax revenue due to increases in property value or new development within the district would go to the general fund. Unless the general property

tax is a benefit tax, it is hard to see that the tax on the incremental property tax base within the district is a value capture tax.

It is easy to show that it should make no difference to existing taxpayers if the public improvement is financed from the general property tax base or from the incremental property value. Let  $G_0$  be the existing level of government services (which we assume do not change),  $G_1$  the public improvement,  $B_0$  the initial property tax base,  $B_1$  the base as a result of the public improvement (so that  $B_1 - B_0$  is the incremental property tax base),  $t_0$  the original property tax rate,  $t_1$  the new tax rate if  $G_1$  is financed from the general fund, and  $t_2$  the new tax rate if  $G_1$  is financed using TIF. Note that  $t_2$  applies to both the general fund and the TIF.

Before the public improvement, the government's budget is  $t_0 \times B_0 = G_0$ . To finance the public improvement out of general funds (assuming that the public improvement is paid for after it is in place), the government's budget is  $t_1 \times B_1 = G_0 + G_1$ . With a TIF,  $G_1$  is paid by a tax on  $f$  percent of the tax base increment (since the tax rate on the increment is the same as the general tax rate, only part of the increment may be needed to finance  $G_1$ ). Thus,  $t_2 \times (B_1 - B_0) \times f = G_1$ . The general fund expenditures,  $G_0$ , are financed as  $t_2 \times (B_1 + [B_1 - B_0] \times [1 - f]) = G_0$ . Combining  $G_1$  and  $G_0$  yields  $t_2 \times B_1 = G_0 + G_1$ . Thus,  $t_1 = t_2$ , so the tax rate is the same regardless of how  $G_1$  is financed. (There is an advantage to making the public improvement this period and collecting tax revenue the following period; in the second period, the property tax base will have increased so that taxes paid by existing property will be lower.)

For TIF financing to be a value capture tax, only the increase in value due to the public improvements would be taxed. However, the tax is imposed on new development within the district, not just the increase in the value of existing property. The whole point of the investment in public improvements is to increase the size of the tax base through new development. Furthermore, the tax is imposed permanently, not just until the increase in value is captured. The TIF remains in existence until the investment in public improvements is financed, at which point the incremental tax base becomes part of the regular property tax base. Therefore, TIF is not a value capture or benefit tax; rather it is a property tax for which the revenue is earmarked.

#### OTHER ASPECTS OF TIF

While we believe that TIF is in principle just a way of earmarking property taxes, this method of financing public improvements may have two possible beneficial attributes from the perspective of the sponsoring municipality. First, a TIF allows for the incremental revenue that would have gone to all overlapping taxing jurisdictions, not just the municipal government sponsoring the TIF, to be used to finance the public improvement. (In principle, it would be possible for the overlapping governments to share the cost of the public improvements, with each financing its share out of its general fund.) This generates more incremental revenue than if only the municipality's tax rate was used to finance the public improvement. One of the implications of this attribute of a TIF is that

the municipal government will be inclined to invest more in a TIF district than it would invest in the same area without the TIF, a point that Brueckner (2001b) makes.

To illustrate this point, assume that a local government's objective is to invest in an area in order to maximize the net tax revenue, which is given by  $t \times I(G) - G$ , where  $t$  is the tax rate and  $I$  is the incremental property tax base value, which is a function of the public investment  $G$ . It is assumed that the tax rate is given. Maximizing this expression with respect to  $G$  yields  $dI / dG = 1 / t$ . The larger  $t$ , the greater the revenue-maximizing value of  $G$ . Thus, if the tax rate equals the sum of the tax rates of the overlapping jurisdictions, as is the case with a TIF, the investment will be larger. Of course, this could lead to an inefficiently high level of public investment.

A second possible advantage of TIFs is that they may make it politically easier for a municipality to fund the public improvement, since the alternative would require the direct use of general fund revenue and, if debt is issued, voter approval would normally be required. Brueckner (2001b) and others have suggested that TIF may circumvent opposition to the public improvement on the part of taxpayers outside the TIF district. Brueckner suggests that if the jurisdiction-wide property tax rate has to increase in order to finance district-specific public improvement, property owners outside the district are likely to oppose the public improvement.

On the other hand, there is some concern that TIF programs are more complex and costly than if the sponsoring government simply undertook the public improvement as part of its normal budgeting process. While there are requirements specified by the state that must be met in order to undertake a TIF, many of these provisions would be considered good practice in making any decision involving a major public improvement in an area.

#### EFFECT OF TIFS ON PROPERTY VALUE

One way to determine whether a TIF is successful is to measure the increase in land value within the district. Efficiency would require public investment to occur to the point that the marginal increase in land value equaled the marginal public investment. Many studies have investigated whether TIF districts result in an increase in property values in the TIF district or in the area surrounding it. But these studies do not determine whether the marginal increase in value equals the marginal public investment. See chapter 11 in this volume for a discussion of these studies.

#### EQUITY ISSUES

There are issues concerning the equity of the financing of TIF districts. Lawrence and Stephenson (1995) present a model of tax increment financing in order to show the implications of using tax bases of overlapping jurisdictions to finance the public investment. Consider the following three cases:

1. Suppose that the investment in the TIF district is economically efficient—at the margin the investment equals the increase in land value within the district—and the increment is used to finance only the investment. Once the investment is paid for, all overlapping jurisdictions are able to utilize the increment in the property tax base. In this case, the cost of the investment is shared in proportion to the relative tax rates. Is this a fair way of sharing the cost of the investment? If the overlapping jurisdictions share the same boundaries, it is immaterial how the cost is shared, since the effect on taxpayers is the same regardless of how the jurisdictions share the cost. But if the jurisdictions are not coterminous, how the cost is shared does matter. If the investment does not result in an increase in required public services, the benefit to any jurisdiction from the TIF increment is the additional tax revenue that comes from the increment, since with the increment each jurisdiction can reduce the taxes on its residents by the jurisdiction's levy on the increment.
2. As a second case, suppose that part of the increment is due to the natural growth in property value—growth that would have occurred in the absence of the TIF. If the cost of the investment is the only thing financed from the increment, it does not matter whether some of the increment is the result of natural growth so long as the investment was efficient. Only that part of the increment needed to finance the investment is not available to the jurisdictions; the rest of the increment would be released to the jurisdictions. If the increment that is due directly to the public improvement is sufficient to finance the public improvement, and the discount rate for the overlapping jurisdictions equals the interest rate on the bonds, it makes no difference to the overlapping jurisdictions if the sponsoring jurisdiction uses the natural increment to pay off the bonds sooner or allows access to the natural increment. Clearly, if the overlapping jurisdictions have an opportunity cost of time that exceeds the bond interest rate, these jurisdictions will be worse off if they do not have access to the natural increment until the bonds are paid off.
3. Finally, if the sponsoring jurisdiction uses the increment to finance the efficient level of the investment as well as to expand the investment beyond the efficient level and to increase public services, the taxpayers in the non-sponsoring jurisdictions are financing public services that are obligations of the sponsoring jurisdictions. If the jurisdictions are coterminous, there is no equity issue since it is the same taxpayers. But if the jurisdictions are not coterminous, there is an equity issue.

Chapman (1998) lists two distributional consequences of TIF districts in addition to the distributional consequences generated by the sharing of the increment. He points out that early TIF districts were used to match urban renewal funds. To the extent that low-income housing was demolished in the TIF district

and not replaced, Chapman notes, the displaced inhabitants bear a burden that is regressive.

The second distributional issue mentioned by Chapman concerns the financing of increased public services in the district. With a TIF public improvement, the tax on the property tax increment is dedicated to paying for the improvement, either by paying the debt service or on a pay-as-you-go method. If the public improvement results, as hoped, in investment in the district, the demand for public service is likely to increase. For example, if the population of the district increases, there will be a need for additional schools, police, fire, and so on. But generally, the property tax increment in the district cannot be used to finance these public services until the costs of the public improvements are paid for (the debt is paid off). Thus, there will be either a reduction in the public services in the rest of the jurisdiction or an increase in the tax rate. Furthermore, the increment in the property tax base is usually included in calculations of state education aid programs, and thus state education aid is reduced, but the tax base increment is not available to the school system.

#### **MISUSE OF TIFS**

TIFs are subject to abuse. First, some TIFs are set up or operated so that they never expire, and thus the increment is never released to the other jurisdictions. Second, TIFs can be set up in districts that are likely to experience natural growth in the property tax base. This allows the municipality to capture all of the overlapping property tax revenue for its use. Reportedly, some sponsoring governments designate large TIF districts in order to maximize the property tax base increment. This might be done in order to capture all possible spillover effects of the public improvement on property values, or to capture the natural increment that might arise in the area beyond the immediate TIF area.

As with any economic development tool, TIFs have the potential to become a costly mistake. Specifically, TIFs can be ineffective or harmful (1) if development incentives are provided to businesses that either would have made the private investments in the absence of the public support and/or are simply moving from one part of the jurisdiction to another; (2) if the TIF stimulates growth that creates increased service demands without generating sufficient revenues to cover these services; and (3) if the TIF leads to investments in TIF districts for which the economic development projects do not provide sufficient incremental revenue to pay for the debt.

#### **CONCLUSIONS REGARDING TIF**

TIF should be thought of as a way of earmarking revenue for public investments within a specific district. It should not be thought of as a value capture tax. The evaluation of TIFs should be based on whether they lead to an improvement in the efficiency of local government public investment or economic development incentives. There are a lot of case studies of TIFs and some empirical analyses of the effect of TIFs on property values, but no studies have addressed the effect of

TIF on economic efficiency. Merriman in chapter 11 argues that tax increment financing could lead to a substantial increase in the volatility of the property tax base and revenue upon the dissolution of a TIF district.

### *Impact Fees*

---

An impact fee is a one-time charge on new development to pay for the construction or expansion of off-site capital improvements that are necessitated by and benefit the new project. For a description of impact fees and their use, see Burge's chapter 7 in this volume. Burge focuses on the revenue implications of impact fees, while we focus on issues of efficiency and equity.

#### **ECONOMIC EFFICIENCY**

The use of impact fees to finance public infrastructure in a new development is expected to be economically efficient, particularly in comparison to using the property tax. The ideal is for the value of the impact fee to be equal to the cost of the infrastructure and for the structure of the impact fee to allow for the provision of appropriate incentives to the developer. Impact fees are similar to user fees and thus are expected to be efficient, since with appropriately designed impact fees the developer's decisions are based on the true marginal social cost of the public infrastructure required for the project (Ihlanfeldt and Shaughnessy 2004). If impact fees are to be user charges, the impact fees have to be structured in such a way that the fee on a given house equals the impact the house has on the necessary infrastructure. In practice, impact fees are rarely structured so that economic efficiency is achieved (Snyder and Stegman 1986).

Efficiency is expected not only in the source of finance, but also in the use of the funds. Once money from impact fees are collected, local governments are obligated to use the funds for the public infrastructure that services the specific developmental projects. Impact fees are therefore more efficient than general taxation in elevating a community's value because the fees match revenues with new development (Brueckner 1997). Some authors associate impact fees with improvement in the economic development of the community (Nelson and Moody 2003).

Brueckner (1997) compared the growth trends across cities to determine the relative efficiency of different infrastructure financing methods. Included in his analysis were impact fees and other cost-sharing arrangements; his criterion for efficiency is maximization of the aggregate value of land in the city. The findings suggest that the aggregate value of land was greatest for cities that used impact fees, a result that is consistent with the theoretical expectations, since user fees can be set equal to the marginal social cost. Irrespective of the fact that impact fees are usually underpriced and set equal to the average rather than the marginal cost of the new development, in a second-best world impact fees seem to come the closest to efficiency.



Empirical work on the efficient use of user fees tests the impact on growth for communities. Nelson and Moody (2003) found a significant positive association between impact fees collected per building permit in one year and growth of jobs over the ensuing two years. This finding is robust to the inclusion of base year employment growth, prior decade employment growth, property taxes per capita, the value of local building permit activity, and regional, temporal, and other factors. Hence, the authors conclude that impact fees do not diminish job growth in the local economy.

## EQUITY

Equity is one of the crucial characteristics needed to justify impact fees (Levine 1994). Impact fees are equitable given that they are based on the benefit principle of taxation. However, there is still the question of who bears the final burden of the fee: the initial landowner, the developer, the purchaser of the new housing, or the owner of existing housing.

Authors have identified two views of impact fee incidence: the “old view” (Altshuler and Gómez-Ibáñez 1993) and the “new view” (Yinger 1998). The old view takes the demand curve for new housing as downward-sloping. Both demand and supply are taken to be neither perfectly elastic nor perfectly inelastic. The impact fee works like an excise tax, where the supply curve shifts to the left by the amount of the fee, resulting in a higher price for new homeowners and a lower net of fee price received by developers. Buyers will demand more existing homes that are close substitutes, and the developers will demand less land, pushing the price of land down. Therefore, some of the burden may shift toward landowners. Who bears the burden depends on market conditions. If it is a strong market, consumers bear the burden; but if it is a soft market, landowners and developers bear the burden in the form of reduced profits (Altshuler and Gómez-Ibáñez 1993). At the end of the day, the prices of new homes increase by less than the fee amount, the prices of existing homes increase by something less than the increase in new homes’ prices, land is now cheaper, and developers’ economic profits return to zero.

The new view is based on the assumption that the demand for housing is perfectly elastic. Yinger (1998) provides a theoretical model expressing this view. The expected benefit from the improvement in the infrastructure is capitalized into the prices of the new homes. Owners of existing homes receive an increase in equity. The fees lead to higher home values due to the improvements in infrastructure. The impact fee is set equal to the value of the future benefit new homeowners expect, which in turn is equal to the increase in housing values, but the property taxes reduce these housing values, and the developers face medium-term losses. Since Yinger assumes competitive developers, the price of land will fall to preserve zero developer profits. Higher home values mean a larger property tax base, and with a given government budget, property tax rates fall. The lower property tax rate has two effects: (1) it increases the prices of new houses and gives further compensation to developers, hence less backward

shifting to landowners; and (2) it gives existing homeowners an overall capital gain.

Ultimately, under the new view, the prices of new homes will be less or more than the fee depending on the property tax savings homeowners expect. If it is assumed that the quality of the infrastructure is the same for both types of financing, price increases will be the same rate for new and existing homeowners (this price increase is equal to the capitalized value of the property tax savings because the burden of the impact fee shifts from existing homeowners to developers). In addition, landowners' price will either increase or decrease depending on whether the property tax-induced increase in the price of new housing is less or more than the magnitude of the fee.

To summarize, both views predict an increase in the prices of existing homes, but for different reasons. In the old view, this occurs when buyers substitute existing homes for new homes, while for the new view, the increase is due to reduction in the property tax rates as well as capitalization of benefits from the infrastructure. Empirically, a number of authors have estimated the effect of impact fees on housing prices. Some of the main findings are summarized in table 15.2.

While impact fees can be structured so that the new development pays the full cost of the required public infrastructure, the distribution of the impact fees across individual properties can vary. Assuming that the incidence of the impact fee is on the purchaser of new housing, the impact fee can be regressive or progressive depending on the structure of the program. A flat impact fee is regressive,

**Table 15.2**  
The Burden of the Impact Fee

	Change in Price of New Home per \$1 of Impact Fee	Change in Price of Old Home per \$1 of Impact Fee	Change in Price of Land
Singell and Lillydahl (1990)	+\$3.21	+\$7,000	
Delaney and Smith (1989)	+\$1.43 <sup>a</sup>	+\$2,600 <sup>b</sup>	
Ihlanfeldt and Shaughnessy (2004)	+\$1.60	+\$1.60	-\$1
Dresch and Sheffrin (1998)	+\$0.25	+\$0.23	
Mathur (2007)		(no effect, +\$0.83, +\$1.03) <sup>c</sup>	
Mathur, Waddell, and Blanco (2004)	(no effect, +\$2.66, +\$4.58) <sup>d</sup>		

<sup>a</sup> The amount by which the price in the city with impact fee exceeded the price in the other city.

<sup>b</sup> The price difference between new and existing house prices.

<sup>c</sup> Results are for the effect on low-valued homes, all homes, and high-valued existing homes, respectively.

<sup>d</sup> Results are for the effect on low-valued homes, all homes, and high-valued new homes, respectively.

since lower-income residents are likely to purchase a smaller house. Structures that charge different fees according to the size of the residence are less likely to be regressive, but they may ignore the type of residence.

#### OTHER ISSUES AND CONCLUSIONS

Designing an impact fee system is difficult and potentially costly, but administering the system is not particularly costly. The collection rate is high because the city can deny the issuance of a building permit until the impact fees are paid. Developers argue that impact fees reduce economic development, although that is not consistent with the findings of Nelson and Moody (2003). Competition for new development can cause jurisdictions to not impose impact fees or to use impact fees to finance only part of the public infrastructure.

Impact fees are justified from an economic efficiency perspective. They give appropriate signals to developers, unlike financing public infrastructure for new development using the property tax. The major equity concern is whether impact fees reduce the production of affordable housing.

#### *Business Improvement Districts*

---

Business improvement districts (BIDs) are local organizations into which local business and property owners pay mandatory fees or taxes in order to supplement the cost of public services in their local area. See chapter 10 by Brooks and Meltzer in this volume for a discussion of the origin and current status of BIDs.

#### EVALUATION

BIDs are essentially a mechanism by which a sub-jurisdictional group of taxpayers can increase the level of public services. The public services provided by BIDs generally supplement or are complementary to those provided by the local government. In a 1999 survey, Mitchell (2001) found that BIDs are predominantly concerned with marketing downtown businesses, providing supplementary sanitation and security, and advocating public policies on behalf of the businesses. Since the benefits from the services provided by BIDs are largely limited to the geographic area, it is not likely that the municipal government will finance these supplementary services from its general fund. Thus, an alternative mechanism must be used.

In theory, businesses could voluntarily fund the services. However, the problem of free riding would make it difficult, if not impossible, to rely on voluntary contributions. BIDs are a means for overcoming the presumed unwillingness of the municipal government to provide the services and the free rider problem of voluntary provision.

One factor in evaluating BIDs is whether the supplementary level of public services is efficient. Helsley and Strange (1998) provide a theoretical model that determines the efficiency of BIDs and other private government mechanisms. According to their model, whether a BID is efficient is dependent on whether there

is a fixed cost. With no fixed cost, the price an additional member pays is equal to the marginal cost of admitting the new member. This assumes that the cost of provision of the public good is nearly proportional to the population (Bergstrom and Goodman 1973). However, if there are fixed costs, the price charged is equal to average cost. The model also predicts that nonmembers receive welfare gains.

In practice, it may be that the level of the supplementary public services is not the level that would maximize social welfare. However, if in the absence of a BID, the supplementary public service will not be provided or will be provided on a voluntary basis, the level of supplementary public services financed by a BID should be welfare-enhancing. Furthermore, since at least a majority of property owners must approve the establishment of the BID and its tax rate, it would follow that the increase in public services should not exceed the welfare-maximizing level. Of course, it is possible that, given a BID, the local government reduces the level of public services it provides to the district. However, the services that BIDs provide are generally not substitutes for existing local services, such as paying for regular police officers, and thus it is not likely that the municipality will be able to reduce the public services it provides. It is also possible that the existence of a BID will reduce support for general public services provided throughout the jurisdiction. But, given that BIDs do not normally include residential areas, and thus voters, this outcome is not likely.

BIDs are also expected to be efficient in the use of the funds. Theoretically, decentralized provision of the public good should be more efficient when public goods are local (Brooks 2008). There should be fewer crimes, better sanitation and maintenance, better visitor services, better marketing and promotional programs, capital improvements, and beautification for the area whenever a BID exists. These businesses are a form of quasi-local government and act in their best interest while avoiding government bureaucracies.

The issue of equitability or fairness is also relevant. First, critics of BIDs claim they are undemocratic since private citizens have control over the district, typically a downtown area (Steel and Symes 2005). This may affect the rights of disadvantaged residents, such as homeless people and street vendors. BIDs are also criticized by other businesses for serving their own self-interests and ignoring their competitors, as well as for the process in which they elect board members.

Second, the property tax in this setting may be more like a benefit tax. There is relative homogeneity in the makeup of a BID; the district generally comprises businesses. In addition, the property owners have to agree on the imposition of the assessment and the use of the revenue. Finally, the benefits from the public services provided by the BID are likely to be positively correlated to the value of property. For example, more valuable property is associated with more workers or customers. Thus, a reduced crime rate benefits each business proportionately to its size and is thus related to its property value. BIDs, therefore, can be viewed as more of a benefit tax than the general property tax.

Finally, we can consider the effects BID's have had. Many authors have looked at the effect of having BID's and have found lower crime rates (Brooks 2008; Hoyt 2005). Brooks (2008) found that BID's reduce crime cheaply, with one out of every seven prevented crimes estimated as violent. She compared the BID's' security cost of \$3,000 to the social cost of \$57,000 per victim of serious assault, the least costly violent crime (Brooks 2008; Cohen et al. 2004). Hoyt (2005) found that crime reduction is associated with BID's and is not offset by more crime in the areas surrounding the BID.

Ellen, Schwartz, and Voicu (2007) looked at effects such as increases in property value. They found that, overall, BID's have a positive impact on the value of commercial property, although this varies across BID sizes. They suggest that larger BID's, made up of mainly office spaces, have a large and positive impact on commercial property. On the other hand, small BID's, consisting of primarily retail or industrial space, seem to have less impact. The budget for the large BID's seem to be the driving force behind their success.

BID's are generally financed by property taxes collected by the local government. Thus, issues such as administration and stability associated with the property tax are relevant, as is the issue of fiscal disparities across BID's in a given jurisdiction.

In summary, BID's appear to be a desirable mechanism through which businesses in a defined area can solve a free rider problem in order to provide supplementary public services that enhance economic welfare in the district. They give local businesses a way to vitalize their business environment at a cost that is shared by most of the beneficiaries.

### *Community Facilities District*

---

Community facilities districts allow local jurisdictions to establish separate districts, usually consisting of undeveloped land, in order to finance public infrastructure and services on both a pay-as-you-go basis and through the issuing of debt (Chapman 2008). Community facilities districts provide a means for financing infrastructure when local governments are unable or unwilling to use the general fund to do so. Community facilities districts finance the infrastructure improvements and service provision by levying special fees or taxes in the district. Establishment of the district requires the approval of the registered voters or landowners in the district. Such approval is easily obtained because the land is generally undeveloped and there are only one or at most a few landowners. Community facilities districts are used in Texas, Arizona, and California, where they are called community service districts, and Florida, where they are called community development districts (CDDs).

A CDD is initiated by a request for its establishment by the landowners.<sup>5</sup> After a public hearing, the local government can grant permission to establish

---

5. The discussion of CDDs is drawn from Chapin and Thomas (n.d.).

the district. Such districts differ from traditional special districts in that they are established at the request of and operated by the landowners, not the government, and have broad powers to fund, construct, and operate a broad array of infrastructure, as opposed to the limited authority of most special districts. CDDs can impose special assessments, user fees, or property taxes, and can issue bonds. Since 1980, when they were first authorized in Florida, 362 CDDs have been established in Florida, most since 2000. In 2003 their revenues were \$1.22 billion.

In practice, one or more developers get the local government to establish a CDD. The developer controls the CDD by appointing the members of the CDD board. The CDD builds the infrastructure necessary to support the development, and the property is developed and sold. Assessments, typically based on front footage or lot size, are then imposed on the new owner to pay for the infrastructure. The CDD—that is, the developer—has powers similar to a local government, but the CDD is not responsible to the voters: neither the members of the CDD board nor the expenditures are subject to a voter referendum. At some point, the CDD is turned over to the residents and operated like a homeowners association.

CDDs are a form of quasi-private local government, but with broader powers than BIDs. Since the developer pays for the necessary infrastructure, this aspect of a CDD is similar to the use of impact fees. But in addition, the CDD can provide the public services and impose fees or taxes to fund them. CDDs are new mechanisms for imposing assessments; they are not new revenue sources (assessments based on front footage and lot size are discussed below). Thus, an evaluation should be based on performance of the district.

However, little is known about the behavior or performance of CDDs. In Florida there is little oversight by the local government, and there are reports of abuse and resident unhappiness with CDDs. For example, there are newspaper reports of CDDs putting in infrastructure that is not for public use, although the law stipulates that infrastructure improvements financed by the CDD must be for public use. In 2008 Georgia voters turned down a constitutional amendment to allow community facilities districts.

### *Monetization of Assets*

---

In what appears to be a recent phenomenon, governments are selling or leasing assets that produce a stream of annual revenue to the lessee or new owner. In other words, governments are trying to capitalize the value of the revenue stream, a process known as monetization of assets. While state governments are more often engaged in this activity, local governments have not been absent. See chapter 14 by Gómez-Ibáñez for additional discussion of the monetization of assets. Swope (2007) provides several examples:

- Chicago sold a 99-year lease to the Chicago Skyway toll road to a Spanish-Australian consortium for \$1.83 billion and sold four downtown parking garages to Morgan Stanley for \$563 million. Chicago is also considering

selling Midway Airport, several recycling centers, and several city-owned marinas.

- Harris County, Texas, studied selling its network of local toll roads, which had an estimated market value of up to \$20 billion. The county decided against it.
- Indiana sold a 75-year lease on the Indiana Toll Road for \$3.85 billion.
- Virginia provided a 99-year lease of the 9-mile Pocahontas Parkway for \$603 million.

Does selling these assets make sense? Suppose local governments and private businesses operated at the same level of efficiency and that capital markets functioned perfectly. In such a world, the stream of net revenue from the asset would be the same regardless of who operated it. If the interest rates were the same for the government and the private business, the business would pay the present value of the net revenue stream, which is the stream of net revenue that the government could generate if it invested the present value of its net revenue stream. In such a world, there should be no financial advantage to the local government from selling the asset.

But of course, government may not operate the asset with the same aggressiveness or efficiency as a private business would. For example, the government may not charge the revenue-maximizing toll on a road or for parking. Swope (2007) reports that Chicago's four city-owned downtown garages, located beneath Grant Park and Millennium Park, charged below-market prices, yet still had lots of empty spaces. The proceeds from their sale will be used to retire the outstanding debt on the facility, replace the lost revenue through the creation of a trust fund, and invest \$122 million in capital improvements.

When Indiana calculated the net present value of its toll road, it came up with a value of \$1.9 billion, but Macquarie-Cintra paid \$3.85 billion. The difference comes from higher tolls (Indiana had not increased the toll for 20 years) and from the belief that the business would run the toll road more efficiently than Indiana did.

Furthermore, governments and businesses face different interest rates and taxes. Since interest on government debt is tax-exempt, government should get lower interest rates. The net revenue to the business will be subject to taxes. This suggests that the present value of a given stream of net revenue would be less for the business than for the government, which suggests that the government should not sell the asset. However, the government may be constrained, perhaps politically, in the amount of debt it can take on, so the opportunity interest rate is higher than the interest rate faced by business. Furthermore, the business can depreciate the investment, which has positive tax consequences.

Chapman (2008) points out that there are at least three concerns associated with this technique. First, some believe that the government could have more aggressively managed the asset; second, there is long-run uncertainty as to what the future will be like in 99 years, so the long-run lease may not ultimately make sense; and third, it is very clear that the prices charged for the use of these

assets will rise, which possibly could be regressive. In addition, the price that a private vendor imposes—for example, a revenue-maximizing price—may not be the price that maximizes social welfare.

There are huge transaction costs involved in arriving at an appropriate contract for the long-term lease of a public asset. Determining the net revenue over a 99-year period is certainly a difficult, if not impossible, task. Given the uncertainty and the risk of bankruptcy, one would expect the business to heavily discount the estimated net revenue.

In addition to the issues associated with estimating net revenue, the lease needs to anticipate the potential issues that might arise over the period. However, there is a large probability that some issues will not be identified or will not be appropriately resolved. The city of Atlanta entered into a long-term lease on its water and sewer system. In less than six years, the parties agreed to end the lease due to the many issues that arose that were not adequately dealt with in the lease. Political issues can also arise. For example, Toronto sold its toll road, but when the concessionaire began exercising its right to raise tolls, there was opposition by the public, which led the government to take the concessionaire to court. Toronto lost.

The capitalization of assets is part of a larger effort on the part of government to generate revenue from commercialization. For example, local governments have leased the naming rights of sports facilities, allowed vinyl advertising wraps on buses (a more aggressive form of traditional advertising on buses), sold product placement in schools, and more. Suffolk County, New York, is attempting to sell naming rights to its parks, while Nassau County is likely to sell 65 digital signs outside the six major county parks. A high school near Houston's airport is thinking of selling ad space on its roof. Chicago is considering selling naming rights to its transit stations. Police departments have agreed to place advertisements on the doors of police cars in exchange for essentially free cars. Some cities are considering allowing advertising on their Web sites. Schools have allowed advertising in the building and on sports equipment (U.S. Government Accountability Office 2004). Klara (2009) provides a list of the ways local governments have used their assets to generate advertising revenue.

The criteria used to evaluate tax instruments do not seem to apply to the use of government property for advertising. There are administrative costs, but there are no compliance issues. Equity and efficient conditions do not seem relevant. The main concern is whether this is appropriate use of government property and whether it compromises the functions of government. For example, would the Widget Corporation police car command the same respect as a regular police car, and should schools take advantage of their captive students?

### *Front Footage Tax as a Benefit Tax* \_\_\_\_\_

Some public services and public infrastructure improvements are financed through benefit taxes. California's Proposition 13 prohibits the use of property taxes, so benefit districts are established in which some tax other than the property tax



must be used. In other jurisdictions, local governments attempt to link the benefit of the service or infrastructure to the revenue source. For example, governments are attempting to impose user charges on such services as responding to traffic accidents (Segal 2009). One common revenue source for infrastructure financing is a tax based on the property's front footage.

Colwell and Turnbull (2003) suggest that the costs of most urban infrastructure, such as roads, sidewalks, pipes, and cable, and of some services, such as trash collection and school busing, are associated with the front footage. Because of this, frontage is generally associated with the marginal social costs of such infrastructure and services. As Colwell and Turnbull note, economists have not had much interest in considering issues associated with the shape of residential lots. The focus of their research is on residential land use and city size, comparing the effects of frontage tax, area tax, and property tax. Their model implies that a frontage tax reduces land consumption but has an ambiguous effect on total land area. We are unaware of any empirical research that addresses the effect of front footage taxes.

Frontage or lot size taxes would be easier to administer than the traditional ad valorem property tax. Measuring frontage or lot size is a lot easier than determining market value. Implementing zoning that imposes minimum front footage or lot size would be easier than implementing zoning that establishes minimum value. Thus, such a tax would be more likely to satisfy the zoning conditions necessary for the tax to be a benefit tax in the Hamilton sense. Such a tax would likely be more regressive than an ad valorem property tax because the market value per foot or square foot is probably higher for property owned or rented by higher-income households.

Local property-related taxes that are based on something other than property values may be desirable alternatives to the ad valorem property tax, at least for some services. To the extent that taxes such as a front footage tax are more closely related to the cost of public services, they would provide appropriate incentives to property owners. It is also likely that such taxes would satisfy the desire to have local benefit taxes.

### *Summary and Conclusions*

---

With the resistance to increases in general property taxes, local governments have sought new revenue sources and funding mechanisms. In this chapter we have explored some of these alternative revenue sources and mechanisms. We have provided a comparative evaluation of the property tax, local sales tax, and local income tax, which are not new sources of local revenue but have the potential to grow in significance. While a substantial volume of research has addressed the factors related to a comparison of the three taxes, it is hard to draw firm conclusions about which tax wins out. But based on the review of the evidence, we are hard-pressed at this time to argue strongly that the property tax should be replaced, wholly or in large part, by either a local sales tax or a local income tax.

In addition, we have considered several relatively new mechanisms, including tax increment financing, impact fees, business improvement districts, community facilities districts, monetization of government assets, and benefit taxes. Our evaluation suggests that some of these alternatives—for example, impact fees, business improvement districts, and frontage taxes—are positive additions to local revenue mechanisms. For other mechanisms, such as community facilities districts, too little is known to draw conclusions about their desirability.

---

#### REFERENCES

- Aaron, Henry J. 1975. *Who pays the property tax?* Washington, DC: Brookings Institution.
- Advisory Commission on Intergovernmental Relations (ACIR). 1988. Local revenue diversification: Local sales taxes. SR-12. <http://www.library.unt.edu/gpo/acir/Reports/staff/SR-12.pdf>.
- . 1989. Local revenue diversification: Local income taxes. SR-10. <http://www.docstoc.com/docs/3483708/A-STAFF-REPORT-Local-Revenue-Diversification-Local-Income-Taxes-Advisory>.
- Alm, James, and Michael Melnik. 2005. Sales taxes and the decision to purchase online. *Public Finance Review* 33(2):184–212.
- Altshuler, Alan A., and José A. Gómez-Ibáñez. 1993. *Regulation for revenue: The political economy of land use exactions*. Washington, DC: Brookings Institution, and Cambridge, MA: Lincoln Institute of Land Policy.
- Baker, Samuel H. 1983. The determinants of median voter tax liability: An empirical test of the fiscal illusion hypothesis. *Public Finance Quarterly* 11(January):95–108.
- Ballard, Charles L., and Jaimin Lee. 2007. Internet purchases, cross-border shopping, and sales taxes. *National Tax Journal* 60(4):711–725.
- Baum, Donald N. 1998. Economic effects of eliminating the sales tax exemption for food: An applied general equilibrium analysis. *Journal of Economics* 24(1): 125–148.
- Becker, Gary, and Casey Mulligan. 1998. Deadweight costs and the size of government. Working paper 6789. Cambridge, MA: National Bureau of Economic Research.
- Bergstrom, Theodore C., and Robert P. Goodman. 1973. Private demand for public goods. *American Economic Review* 63:280–296.
- Bowman, John H., and John L. Mikesell. 1978. Fiscal disparities and major local non-property taxes: Evidence from revenue diversification in Indiana, Maryland, Ohio, and Virginia. *Proceeding of the Seventieth Annual Conference*, 412–422. Washington, DC: National Tax Association–Tax Institute of America.
- Bradford, David F., and Wallace E. Oates. 1974. Suburban exploitation of central cities and government structure. In *Redistribution through public choice*, ed. Harold Hockman and George Peterson, 43–90. New York: Columbia University Press.
- Breeden, Charles H., and William J. Hunter. 1985. Tax revenue and tax structure. *Public Finance Quarterly* 13 (April):216–224.
- Brooks, Leah. 2008. Volunteering to be taxed: Business improvement districts and the extra-governmental provision of public safety. *Journal of Public Economics* 92(1–2):388–406.

- Brueckner, Jan K. 1997. Infrastructure financing and urban development: The economics of impact fees. *Journal of Public Economics* 66:383–407.
- . 2001a. Property taxation and urban sprawl. In *Property taxation and local government finance*, ed. Wallace E. Oates. Cambridge, MA: Lincoln Institute of Land Policy.
- . 2001b. Tax increment financing: A theoretical inquiry. *Journal of Public Economics* 81:321–343.
- Brueckner, Jan K., and Hyun-A Kim. 2003. Urban sprawl and the property tax. *International Tax and Public Finance* 10(1):5–23.
- Brunori, David. 2003. *Local tax policy: A federalist perspective*. Washington, DC: Urban Institute Press.
- Buchanan, James M. 1967. *Public finance in a democratic process*. Chapel Hill: University of North Carolina Press.
- Buchanan, James M., and Richard Wagner. 1977. *Democracy in deficit: The political legacy of Lord Keynes*. New York: Academic Press.
- Calabrese, Stephen M. 2001. Local redistribution financed by income tax. *Public Finance Review* 29(4):259–303.
- Chapin, Tim, and John Thomas. n.d. Investigating the community development district (CDD) model of infrastructure financing. Working paper, Florida State University, Department of Urban and Regional Planning.
- Chapman, Jeffrey I. 1998. Tax increment financing as a tool of redevelopment. In *Local government tax and land use policies in the United States*, ed. Helen F. Ladd, 182–198. Northampton, MA: Edward Elgar.
- . 2008. The fiscalization of land use: The increasing role of innovative revenue raising instruments to finance public infrastructure. *Public Works Management and Policy* 12(4):551–567.
- Clotfelter, Charles T. 1976. Public spending for higher education: An empirical test of two hypotheses. *Public Finances* 31(2):177–195.
- Cohen, Mark A., Roland T. Rust, Sara Steen, and Simon T. Tidd. 2004. Willingness-to-pay for crime control programs. *Criminology* 42(1):89–109.
- Colwell, Peter F., and Geoffrey K. Turnbull. 2003. Frontage tax and the optimally compact city. In *The property tax, land use and land use regulation*, ed. Dick Netzer, 287–315. Northampton, MA: Edward Elgar.
- Conlon, Charles F. 1968. Enforcement of the municipal income tax. *Proceedings of the Academy of Political Science, Municipal Income Taxes: An Economic Evaluation, Problems of Administration, Alternative Sources of Revenue* 28(4):59–62.
- Coomes, Paul A., and William H. Hoyt. 2008. Income taxes and the destination of movers to multistate MSAs. *Journal of Urban Economics* 63(3):920–937.
- Delaney, Charles J., and Marc T. Smith. 1989. Impact fees and the price of new housing: An empirical study. *American Real Estate and Urban Economics Association Journal* 17(1):41–54.
- Deran, Elizabeth. 1968. Tax structure in cities using the income tax. *National Tax Journal* 21:147–152.
- DeSue, Tedra. 2004. A TIF by any other name: Both Carolinas look to districts. *Bond Buyer* 30.
- DiMasi, Joseph A. 1987. The effects of site value taxation in an urban area: A general equilibrium computational approach. *National Tax Journal* 40(4):577–590.

- Dresch, Marla, and Steven M. Sheffrin. 1998. The role of development fees and exactions in local public finance. *Proceedings of the Ninetieth Annual Conference on Taxation*, 363–369. Washington, DC: National Tax Association.
- Due, John F., and John L. Mikesell. 1994. *Sales taxation: State and local structure and administration*, 2d ed. Washington, DC: Urban Institute Press.
- Dye, Richard F., and Therese J. McGuire. 1991. Growth and variability of state individual income and general sales taxes. *National Tax Journal* 44(1):55–60.
- Dye, Richard F., and David F. Merriman. 2005. State revenue stability: Alternative conceptualizations. *Proceedings of the Ninety-Seventh Annual Conference on Taxation*, 258–268. Washington, DC: National Tax Association.
- Edwards, Barbara M., David L. Sjoquist, and Sally Wallace. 1996. *An analysis of a local tax on earnings*. Atlanta: Research Atlanta.
- Edwards, Mary. 2006. State and local revenues beyond the property tax. Working paper WP06ME1. Cambridge, MA: Lincoln Institute of Land Policy.
- Ellen, Ingrid G., Amy E. Schwartz, and Ioan Voicu. 2007. The impact of business improvement districts on property values: Evidence from New York City. Working paper, Brookings-Wharton Papers on Urban Affairs, 1–31.
- Epple, Dennis, and Paul Romer. 1991. Mobility and redistribution. *Journal of Political Economy* 99(4):828–858.
- Fischel, William A. 2001. Municipal corporations, homeowners, and the benefit view of the property tax. In *Property taxation and local government finance*, ed. Wallace E. Oates, 33–77. Cambridge, MA: Lincoln Institute of Land Policy.
- Fisher, Ronald C. 1980. Local sales taxes: Tax rate differentials, sales loss, and revenue estimation. *Public Finance Quarterly* 8:171–188.
- Fox, William F. 1986. Tax structure and the location of economic activity along state borders. *National Tax Journal* 39:387–401.
- Fullerton, Don, and Diane Lim Rogers. 1993. *Who bears the lifetime tax burden?* Washington, DC: Brookings Institution.
- Georgia Department of Revenue. 2008. *2007 statistical report*. Atlanta: Georgia Department of Revenue.
- Goodspeed, Timothy J. 1989. A re-examination of the use of ability to pay taxes by local governments. *Journal of Public Economics* 38(3):319–342.
- Goosbee, Austan. 2000. In a world without borders: The impact of taxes on Internet commerce. *Quarterly Journal of Economics* 115(2):561–576.
- Grieson, Ronald E. 1980. Theoretical analysis and empirical measurements of the effects of the Philadelphia income tax. *Journal of Urban Economics* 8(1): 123–137.
- Hamilton, Bruce W. 1975. Zoning and property taxation in a system of local governments. *Urban Studies* 12:205–211.
- Harmon, Oskar Ragnar, and Rajiv Mallick. 1994. The optimal state tax portfolio model: An extension. *National Tax Journal* 47(2):395–402.
- Haughwout, Andrew, Robert Inman, Steven Craig, and Thomas Luce. 2004. Local revenue hills: Evidence from four U.S. cities. *The Review of Economics and Statistics* 86(2):570–585.
- Haurin, Donald R. 1980. The effect of property taxes on urban areas. *Journal of Urban Economics* 7:384–396.
- Hawkins, Richard R. 2002. Popular substitution effects: Excess burden estimates for general sales taxes. *National Tax Journal* 55(4):755–769.

- Helsley, Robert W., and William C. Strange. 1998. Private government. *Journal of Public Economics* 69(2):281–304.
- Holcombe, Randall G., and Donald J. Lacombe. 2004. The effect of state income taxation on per capita income growth. *Public Finance Review* 32(3):292–312.
- Hoyt, Lorlene M. 2005. Do business improvement district organizations make a difference? *Journal of Planning Education and Research* 25(2):185–199.
- Hoyt, William H., and J. William Harden. 2005. MSA location and the impact of state taxes on employment and population: A comparison of border and interior MSAs. Working paper 2005–01. Lexington: Institute for Federalism and Intergovernmental Relations, University of Kentucky.
- Ihlanfeldt, Keith R., and Timothy M. Shaughnessy. 2004. An empirical investigation of the effects of impact fees on housing and land markets. *Regional Science and Urban Economics* 34(6):639–661.
- Inman, Robert P., Sally Hines, Jeffrey Preston, and Richard Weiss. 1987. Philadelphia's fiscal management of economic transition. In *Local fiscal issues in the Philadelphia metropolitan area*, ed. Thomas F. Luce and Anita A. Summers, 98–115. Philadelphia: University of Pennsylvania Press.
- Institute on Taxation and Economic Policy. 2003. *Who pays? A distributional analysis of the tax systems in all 50 states*. Washington, DC: Institute on Taxation and Economic Policy.
- Iorwerth, Aled Ab, and John Whalley. 2002. Efficiency considerations and the exemption of food from sales and value added taxes. *Canadian Journal of Economics* 35(1):166–182.
- Jung, Changhoon. 2001. Does the local option sales tax provide property tax relief? The Georgia case. *Public Budgeting and Finance* 21(1):73–86.
- Kau, James B., and Paul H. Rubin. 1981. The size of government. *Public Choice* 37:261–274.
- Klara, Robert. 2009. Special report: Cities for sale. *Adweek* 9 March. [http://www.adweek.com/aw/content\\_display/special-reports/other-reports/e3ia76af7fdae63c0c12757a376bc645398](http://www.adweek.com/aw/content_display/special-reports/other-reports/e3ia76af7fdae63c0c12757a376bc645398).
- Ladd, Helen F., and Katharine Bradbury. 1988. City taxes and property tax bases. *National Tax Journal* 41(4):503–523.
- Ladd, Helen F., and Dana R. Weist. 1987. State and local tax systems: Balance among taxes versus balance among policy goals. In *The quest for balance in state-local revenue structures*, ed. Frederick D. Stocker, 39–69. Tax Policy Roundtable/Property Tax Papers Series #TRP-16. Cambridge, MA: Lincoln Institute of Land Policy.
- Lawrence, David B., and Susan C. Stephenson. 1995. The economics and politics of tax increment financing. *Growth and Change* 26(Winter):105–137.
- Levine, Jonathan C. 1994. Equity in infrastructure finance: When are impact fees justified? *Land Economics* 70(2):210–222.
- Lewis, Paul G. 2001. Retail politics: Local sales taxes and the fiscalization of land use. *Economic Development Quarterly* 15(1):21–35.
- Lewis, Paul G., and Elisa Barbour. 1999. *California cities and the local sales tax*. San Francisco: Public Policy Institute of California.
- Luce, Thomas F., Jr. 1994. Local taxes, public services, and the intrametropolitan location of firms and households. *Public Finance Quarterly* 22(2):139–167.

- Mark, Stephen T., Therese J. McGuire, and Leslie E. Papke. 2000. The influence of taxes on employment and population growth: Evidence from the Washington, DC metropolitan area. *National Tax Journal* 53(1):105–123.
- Mathur, Shishir. 2007. Do impact fees raise the price of existing housing? *Housing Policy Debate* 18(4):635–659.
- Mathur, Shishir, Paul Waddell, and Hilda Blanco. 2004. The effect of impact fees on the price of new single family housing. *Urban Studies* 41(7):1303–1312.
- Matthews, John. 2005. Tax revenue volatility and a state-wide education sales tax. FRC Policy Brief 109. Atlanta: Fiscal Research Center, Andrew Young School of Policy Studies, Georgia State University.
- McGuire, Therese J. 2001. Alternatives to property taxation for local governments. In *Property taxation and local government finance*, ed. Wallace E. Oates, 301–314. Cambridge, MA: Lincoln Institute of Land Policy.
- Merriman, David F., and Mark Skidmore. 2000. Did distortionary sales taxation contribute to the growth of the service sector? *National Tax Journal* 53(1):125–142.
- Mieszkowski, Peter M. 1972. The property tax: An excise tax or a profits tax? *Journal of Public Economics* 1:73–96.
- Mikesell, John L. 1970. Central cities and sales tax rate differentials: The border city problem. *National Tax Journal* 23:206–214.
- . 1971. Sales taxation and the border county problem. *Quarterly Review of Economics and Business* 11:23–29.
- Mikesell, John L., and C. Kurt Zorn. 1986. Impact of the sales tax rate on its base: Evidence from a small town. *Public Finance Quarterly* 14(3):329–338.
- Misiolek, Walter S., and D. Grady Perdue. 1987. The portfolio approach to state and local tax structure. *National Tax Journal* 40(1):111–114.
- Mitchell, Jerry. 2001. Business improvement districts and the “new” revitalization of downtown. *Economic Development Quarterly* 15(2):115–123.
- Neenan, William, B. 1970. Suburban-central city exploitation thesis: One city’s tale. *National Tax Journal* 23(2):117–139.
- Nelson, Arthur C., and Mitch Moody. 2003. Paying for prosperity: Impact fees and job growth. Brookings Institution Center on Urban and Metropolitan Policy. Washington, DC: Brookings Institution.
- Oates, Wallace E. 1972. *Fiscal federalism*. New York: Harcourt Brace Jovanovich.
- Oates, Wallace E., and Robert M. Schwab. 2004. What should local governments tax: Income or property? In *City taxes, city spending: Essays in honor of Dick Netzer*, ed. Amy Ellen Schwartz, 7–41. Northampton, MA: Edward Elgar.
- Ohio Department of Revenue. 2005. Real estate, public utility, and tangible personal property assessed value and taxes charged/levied including special assessments for taxes payable by county. [http://tax.ohio.gov/division/tax\\_analysis/tax\\_data\\_series/publications\\_tds\\_property.stm](http://tax.ohio.gov/division/tax_analysis/tax_data_series/publications_tds_property.stm).
- . 2005–2006. County and transit authority and permissive sales and use tax collections and tax rates. [http://tax.ohio.gov/division/tax\\_analysis/tax\\_data\\_series/sales\\_and\\_use/s1/documents/s1m0706.pdf](http://tax.ohio.gov/division/tax_analysis/tax_data_series/sales_and_use/s1/documents/s1m0706.pdf).
- O’Sullivan, Arthur, Terri A. Sexton, and Steven M. Sheffrin. 1995. *Property taxes and tax revolts: The legacy of Proposition 13*. New York: Cambridge University Press.
- Pagano, Michael A. 2003. City fiscal structures and land development. Discussion paper for the Brookings Institution Center on Urban and Metropolitan Policy. Washington, DC: Brookings Institution.

- Pechman, Joseph A. 1985. *Who paid the taxes, 1966–85*. Washington, DC: Brookings Institution.
- Pendered, David. 2004. Tax allocation districts jump-start projects far and wide. *Atlanta Journal-Constitution*, 21 June.
- Plummer, Elizabeth. 2003. Evidence on the incidence of residential property taxes across households. *National Tax Journal* 56(4):739–753.
- Ring, Raymond J. 1999. Consumer's share and producer's share of the general sales tax. *National Tax Journal* 52(1):79–90.
- Segal, David. 2009. To budgeters, there's no fee too extreme. *New York Times*, 11 April.
- Shields, Martin, and David Shideler. 2003. Do commuters free-ride? Estimating the impacts of interjurisdictional commuting on local public goods expenditures. *Journal of Regional Analysis and Policy* 33(1):27–42.
- Singell, Larry D., and Jane H. Lillydahl. 1990. An empirical examination of the effect of impact fees on the housing market. *Land Economics* 66(1):82–92.
- Sjoquist, David L., and Mary Beth Walker. 1999. Economics of scale in property tax assessment. *National Tax Journal* 52(2):207–220.
- Sjoquist, David L., Mary Beth Walker, and Sally Wallace. 2005. Estimating differential responses to local fiscal conditions: A mixture model analysis. *Public Finance Review* 33(1):36–61.
- Sjoquist, David L., Sally Wallace, and Barbara Edwards. 2004. What a tangled web: Local property, income and sales taxes. In *City taxes, city spending: Essays in honor of Dick Netzer*, ed. Amy Ellen Schwartz, 42–70. Northampton, MA: Edward Elgar.
- Snyder, Thomas P., and Michael A. Stegman. 1986. *Paying for growth: Using development impact fees to finance infrastructure*. Washington, DC: Urban Land Institute.
- Song, Yan, and Yves Zenou. 2006. Property tax and urban sprawl: Theory and implication for U.S. cities. *Journal of Urban Economics* 60(3):519–534.
- Steel, Mark, and Martin Symes. 2005. The privatisation of public space? The American experience of business improvement districts and their relationship to local government. *Local Government Studies* 31(3):321–334.
- Stockfish, J. A. 1985. Value added taxes and the size of government: Some evidence. *National Tax Journal* 38(4):542–547.
- Strauss, Robert P. 1995. Reducing New York's reliance on the school property tax. *Journal of Education Finance* 21(1):123–164.
- Sullivan, Arthur M. 1984. The general equilibrium effects of the industrial property tax: Incidence and excess burden. *Regional Science and Urban Economics* 14(4):547–563.
- . 1985. The general equilibrium effects of the residential property tax: Incidence and excess burden. *Journal of Urban Economics* 18(2):235–250.
- Suyderhoud, Jack P. 1994. State-local revenue diversification, balance, and fiscal performance. *Public Finance Quarterly* 22(2):168–194.
- Swope, Christopher. 2007. Unloading assets. *Governing*, January. <http://www.governing.com/articles/1roads.htm>.
- Tax Foundation. 2005. *Facts and figures on government finance*. <http://www.taxfoundation.org/publications/show/147.html>.
- Tosun, Mehmet S., and Mark L. Skidmore. 2007. Cross-border shopping and the sales tax: An examination of food purchases in West Virginia. *The B.E. Journal of*

- Economic Analysis and Policy* 7(1): Art. 63. <http://www.bepress.com/bejeap/vol7/iss1/art63>.
- U.S. Census Bureau. Various years. *State and local government finances*. Washington, DC. <http://www.census.gov/govs/estimate/>.
- U.S. Government Accountability Office. 2004. *Commercial activities in schools*. GAO-04-810. Washington, DC: U.S. Government Printing Office.
- Wagner, Richard E. 1976. Revenue structure, fiscal illusion, and budgetary choice. *Public Choice* 25(Spring):45–61.
- Wallace, Sally, and Barbara M. Edwards. 1996. State and local individual income taxes: Analysis and options. *Taxation and economic development: A blueprint for tax reform in Ohio*, ed. Roy Bahl, 283–356. Columbus, OH: Battelle Press.
- . 1999. Personal income tax. *Handbook on taxation*, eds. W. Bartley Hildreth and James A. Richardson, 149–190. New York: Marcel Dekker.
- Walsh, Michael J., and Jonathan D. Jones. 1988. More evidence on the “burden tax” effect: The case of West Virginia, 1979–1984. *National Tax Journal* 61(2):261–265.
- Wassmer, Robert W. 2002. Fiscalisation of land use, urban growth boundaries, and non-central retail sprawl in the western United States. *Urban Studies* 39(8):1307–1327.
- White, Fred C. 1983. Trade-off in growth and stability in state taxes. *National Tax Journal* 36(1):103–114.
- Wildasin, David E. 1985. Income taxes and urban spatial structure. *Journal of Urban Economics* 18(3):313–333.
- Wilson, John D. 1999. Theories of tax competition. *National Tax Journal* 52(2): 269–304.
- Winters, John. 2007. *Tax revenue stability of replacing the property tax with a sales tax*. FRC Policy Brief 164. Atlanta: Fiscal Research Center, Andrew Young School of Policy Studies, Georgia State University.
- Yinger, John. 1998. Development fees and special assessments. *National Tax Journal* 51(1):23–41.
- Zodrow, George R. 2001. Reflections on the new view and the benefit view of the property tax. In *Property taxation and local government finance*, ed. Wallace E. Oates, 79–111. Cambridge, MA: Lincoln Institute of Land Policy.
- . 2008. Property tax incidence and the mix of state and local finance of local expenditures. *State Tax Notes* 48(May 19):567–580.