Taxing Simply

District of Columbia Tax Revision Commission

Taxing Fairly

Full Report

District of Columbia Tax Revision Commission
1755 Massachusetts Avenue, NW, Suite 550
Washington, DC 20036
Tel: (202) 518-7275
Fax: (202) 466-7967
www.dctrc.org

The Authors

Stephen T. Mark
Institute of Government and Public Affairs
University of Illinois at Chicago
Chicago, Ill.

Therese J. McGuire
Institute of Government and Public Affairs and
College of Urban Planning and Public Affairs
University of Illinois at Chicago
Chicago, Ill.

Leslie E. Papke
Department of Economics
Michigan State University
East Lansing, Mich.

CHAPTER B

The Effect of Taxes on Economic Development

Stephen T. Mark, Therese J. McGuire, and Leslie E. Papke

Introduction

The District of Columbia faces both an immediate fiscal crisis and the prospect of long-standing dismal economic performance. Employment declined in the 1990s, and the continuing population decline has accelerated in recent years. The District's unemployment rate was 8.5 percent in 1996, compared with a regional unemployment rate of just 3.9 percent. The District's tax base is limited by the vast federal presence (over 40 percent of real property is tax-exempt) and by federal prohibitions on tax instruments (the District is prohibited from taxing the income of nonresident workers, who constitute 67 percent of the District workforce). The District's tax rates on business and individuals are the highest in the region. The combination of high tax rates, narrow tax bases, and a poorly performing economy creates problems for the District's fiscal and economic future.

In this chapter, we draw lessons for reform of the District's economic development policy from a large amount of literature. We begin with a brief description of the present state of the District's and the surrounding metro area's economies. We then describe the array of economic development tools presently available in the District and in the Maryland and Virginia counties that constitute the metropolitan area. The next section reviews and draws lessons from the empirical literature that examines interregional and intraregional business location and employment decisions. We then review the literature on enterprise zones, and in the final section, we draw policy conclusions from our survey of the literature.

The economy of the Washington metropolitan area

The Washington metropolitan area consists of the District and parts of Maryland and Virginia. For purposes of this study, we consider the metropolitan area to be the District, the closest counties in Maryland (Charles, Montgomery, and Prince George's) and Virginia (Arlington, Fairfax, Loudoun, and Prince William), and the city of Alexandria, Va.

The economy of the District deteriorated in the 1990s in a number of ways. First, population decline accelerated, with a 9.1 percent decline between 1989 and 1994, after a decline of just 4.3 percent during the full decade of the 1980s (Figure B-1). This has harmed the revenue from the individual income tax, which registered a real decline of 13.2 percent during the five-year period. As Figure B-2 indicates, individual income tax revenue reached a high in real dollars in 1988. District private-sector and government jobs also declined in the 1990s (Figure B-3), and the District unemployment rate recovered very little from its recession high in 1992 (Figure B-4).

At the same time that population declined, District income per capita increased 12.6 percent in the 1990s (Figure B-1). In contrast, real income per capita in Montgomery, Prince George's, and Fairfax counties, as well as that in the city of Alexandria, declined between 1989 and 1994. These trends suggest that the population leaving the District has a mean income below the District mean income, and that this population has been moving to the suburban counties. District income per capita of $30,684 was quite high relative to the national average of $21,696 in 1994. The District's high average income can perhaps be explained by its income distribution, which is characterized by a disproportionately high concentration of high-income households.

Between 1989 and 1994, private employment declined by 13,000 jobs, and federal civilian jobs declined by 2,000 (Figure B-3). The federal decline is a net figure and hides the gain of 11,000 federal civilian jobs between 1989 and 1992, followed by the loss of 13,000 federal civilian jobs between 1992 and 1994.

As shown in Figure B-4, District unemployment rates are consistently higher than those rates in the metro area, reflecting this poor employment news. District rates have been consistently above metro area rates. The recent era can be divided into three parts. From 1986 to 1990, District unemployment rates were about twice metro area rates. In 1991 and 1992, the rates increased in both the District and the region, reaching peak annual averages of 8.6 percent and 5.3 percent, respectively, in 1992. Between 1992 and 1996, the unemployment rate declined considerably in the region (to 3.9 percent), but not in the District, where average unemployment for 1996 was 8.5 percent.[1]

Figure B-3 shows that the service sector's share of private-sector jobs in the District increased from 47.9 percent in 1974 to 66.2 percent in 1994. The shares of every other subsector of the private economy decreased.[2] Figures B-5 and B-6 illustrate that the economies in the Maryland and Virginia suburbs also increased their reliance on the service sector, but their employment bases remained more diversified than the District's.

The District's share of total metropolitan area employment fell for each major industry between 1974 and 1994 as demonstrated in Figure B-7. Overall, the

Figure B-1

Population, per Capita Income, and Total Income in D.C. and Selected Suburban Counties

	District of Columbia		Montgomery Co.		Prince George's Co.		Arlington Co.		City of Alexandria		Fairfax Co.	
Year	Population	% Change	Population	% Change	Population	% Change	Population	% Change	Population	% Change	Population	% Change
1979	655,600		581,800		665,600		154,100		102,700		608,600	
1984	633,400	-3.4%	635,300	9.2%	679,700	2.1%	165,100	7.1%	108,500	5.6%	705,300	15.9%
1989	624,200	-1.5	741,700	16.7	722,400	6.3	170,400	3.2	110,700	2.0	828,800	17.5
1994	567,100	-9.1	802,700	8.2	759,700	5.2	174,600	2.5	112,900	2.0	911,500	10.0

Year	Per Capita Income	% Change	Per Capita Income	% Change	Per Capita Income	% Change	Per Capita Income	% Change	Per Capita Income	% Change	Per Capita Income	% Change
1979	$23,285		$27,662		$18,558		$29,185		$28,119		$25,800	
1984	23,775	2.1%	31,132	12.5%	19,898	7.2%	30,584	4.8%	30,650	9.0%	28,592	10.8%
1989	27,243	14.6	36,750	18.0	23,292	17.1	34,697	13.4	35,556	16.0	33,570	17.4
1994	30,684	12.6	35,536	-3.3	22,645	-2.8	35,376	2.0	35,333	-0.6	33,529	-0.1

Year	Total Income	% Change	Total Income	% Change	Total Income	% Change	Total Income	% Change	Total Income	% Change	Total Income	% Change
1979	$15,265,821		$16,092,977		$12,352,070		$4,497,729		$2,887,765		$15,700,967	
1984	15,060,309	-1.3%	19,778,430	22.9%	13,525,703	9.5%	5,049,656	12.3%	3,326,385	15.2%	20,164,499	28.4%
1989	17,003,937	12.9	27,255,510	37.8	16,825,213	24.4	5,910,958	17.1	3,935,997	18.3	27,821,091	38.0
1994	17,400,594	2.3	28,525,598	4.7	17,204,500	2.3	6,176,701	4.5	3,988,382	1.3	30,560,975	9.8

Note: Dollar amounts in 1994 dollars. CPI-adjusted total income figures in thousands of dollars.

Source: U.S. Department of Commerce, Bureau of Economic Analysis.

Figure B-2

D.C. Individual Income Tax Revenue

Fiscal Year	In Nominal Dollars (thousands)	In 1995 Dollars (thousands)	Real Growth
1983	$352,812	$539,845	
1984	386,635	567,114	5.1%
1985	417,509	591,342	4.3
1986	444,824	618,533	4.6
1987	513,201	688,484	11.3
1988	592,828	763,711	10.9
1989	603,469	741,683	-2.9
1990	637,910	743,822	0.3
1991	615,746	688,985	-7.4
1992	620,208	674,178	-2.1
1993	589,521	621,751	-7.8
1994	650,660	669,100	7.6
1995	643,676	643,676	-3.8

Source: D.C. Comprehensive Annual Financial Report and author's calculations.

District's share of total private employment fell from 34.8 percent to 23 percent during the 20-year period. The sharpest decline was for the wholesale trade sector, with a drop of 31.5 percent to 8 percent. We would expect to see the District's share of employment decline over time as the metropolitan area grows, since the vast majority of land available for development is outside of the District. However, it is troubling that these declines in the District's share of total metropolitan employment reflect declines in absolute numbers of jobs in the District for all sectors but services, mining, and "other" (Figure B-3). Service-sector employment in the metro area virtually exploded during the 20-year period — from 403,483 jobs in 1974 to 1,024,386 jobs in 1994. The District did not maintain its share of service-sector jobs, however, as its share fell from 44.1 percent to 30.4 percent.

Figure B-8 displays the tax rates imposed in 1995 in the metropolitan area's various jurisdictions. Taxes in Maryland were slightly higher virtually across-the-board than taxes in Virginia, and the District's tax rates were much higher than those found in any of the Washington suburbs. The property tax stands out, with the D.C. rate being approximately twice the rates imposed in the suburbs.

Figure B-3

D.C. Employment by Sector

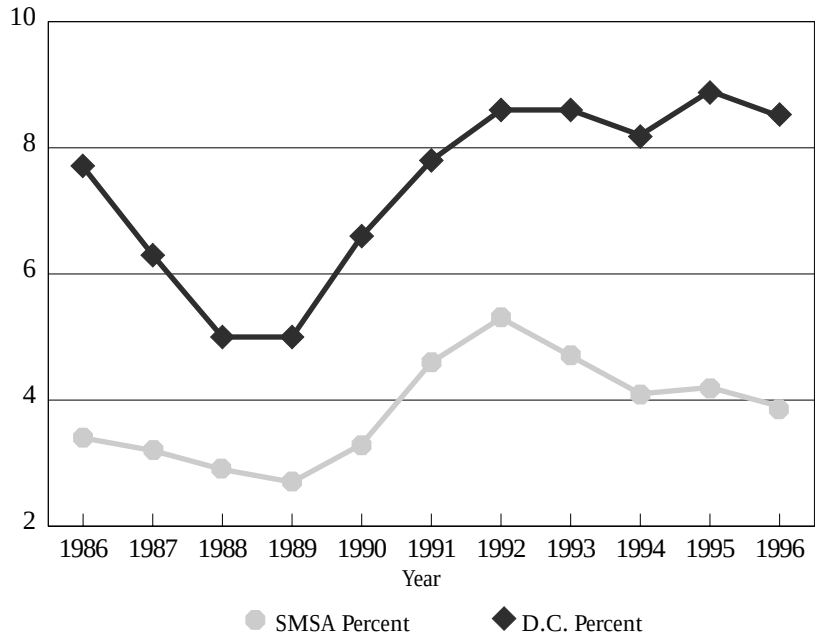
						Percent of Total				
	1974	1979	1984	1989	1994	1974	1979	1984	1989	1994
Private Employment Total	371,509	396,703	414,177	483,664	470,359	100.0%	100.0%	100.0%	100.0%	100.0%
Other	3,232	4,271	5,742	6,325	8,783	0.9	1.1	1.4	1.3	1.9
Mining	404	380	681	588	494	0.1	0.1	0.2	0.1	0.1
Construction	25,269	15,784	13,048	16,024	10,606	6.8	4.0	3.2	3.3	2.3
Manufacturing	16,609	15,935	15,240	16,698	14,073	4.5	4.0	3.7	3.5	3.0
Transportation and Public Utilities	30,104	28,375	26,528	25,646	24,060	8.1	7.2	6.4	5.3	5.1
Wholesale Trade	14,646	12,985	10,119	8,680	6,286	3.9	3.3	2.4	1.8	1.3
Retail Trade	55,705	55,809	56,503	59,652	51,161	15.0	14.1	13.6	12.3	10.9
F.I.R.E.*	47,750	53,604	48,498	51,987	43,398	12.9	13.5	11.7	10.7	9.2
Service	177,790	209,560	237,818	298,064	311,498	47.9	52.8	57.4	61.6	66.2
Government Employment Total	305,001	311,058	284,288	294,917	291,399	100.0%	100.0%	100.0%	100.0%	100.0%
Federal	214,436	229,976	209,312	213,386	210,980	70.3	73.9	73.6	72.4	72.4
Military	25,476	21,978	25,775	25,504	27,803	8.4	7.1	9.1	8.6	9.5
State and Local	65,089	59,104	49,201	56,027	52,616	21.3	19.0	17.3	19.0	18.1
Total Employment	**676,510**	**707,761**	**698,465**	**778,581**	**761,758**					
Private Sector						**54.9%**	**56.1%**	**59.3%**	**62.1%**	**61.7%**
Government						**45.1%**	**43.9%**	**40.7%**	**37.9%**	**38.3%**

**Finance, Insurance, and Real Estate.*

Source: U.S. Department of Commerce, Bureau of Economic Analysis.

Figure B–4

Annual Average Unemployment Rates
District of Columbia and the D.C. Standard Metropolitan Statistical Area (SMSA), 1986–1996



Economic development policy in the District

The recent fiscal crisis of Washington, D.C., has elicited a number of economic development initiatives from the District government, the District business community, and the federal government. To gain perspective on the potential benefits of these proposals, we will outline the economic development programs currently in place, compare them with economic development activities in the surrounding jurisdictions, and report on the programs' accomplishments.

In newspaper articles and surveys, District businesspersons comment that the District government is uncooperative, unresponsive, uncaring, and "not-so-friendly to business."[3] O'Cleireacain (1997) concludes that the District "has no effective economic development strategy." Although the District has launched some economic development policy initiatives, they apparently have been poorly received in the business community and largely ineffective in generating gains in private-sector

Figure B-5

Suburban Maryland Employment by Sector

						Percent of Total				
	1974	1979	1984	1989	1994	1974	1979	1984	1989	1994
Private Employment Total	367,817	443,652	564,906	733,239	735,582	100.0%	100.0%	100.0%	100.0%	100.0%
Other	2,610	3,470	5,249	7,139	8,252	0.7	0.8	0.9	1.0	1.1
Mining	864	857	1,685	1,462	1,368	0.2	0.2	0.3	0.2	0.2
Construction	43,938	46,018	53,728	74,099	58,365	11.9	10.4	9.5	10.1	7.9
Manufacturing	21,769	23,782	29,996	33,485	31,588	5.9	5.4	5.3	4.6	4.3
Transportation and Public Utilities	13,252	16,446	19,889	36,255	37,590	3.6	3.7	3.5	4.9	5.1
Wholesale Trade	15,235	22,858	30,813	35,499	32,586	4.1	5.2	5.5	4.8	4.4
Retail Trade	103,285	118,285	137,076	167,659	160,668	28.1	26.7	24.3	22.9	21.8
F.I.R.E.*	47,425	46,777	58,862	82,812	80,796	12.9	10.5	10.4	11.3	11.0
Service	119,431	165,159	227,608	294,344	324,369	32.5	37.2	40.3	40.1	44.1
Government Employment Total	161,076	172,821	164,267	177,451	184,034	100.0%	100.0%	100.0%	100.0%	100.0%
Federal	67,537	71,453	70,100	71,042	73,686	41.9	41.3	42.7	40.0	40.0
Military	19,756	15,584	18,934	20,097	19,161	12.3	9.0	11.5	11.3	10.4
State and Local	73,783	85,784	75,233	86,312	91,187	45.8	49.6	45.8	48.6	49.5
Total Employment	**528,893**	**616,473**	**729,173**	**910,690**	**919,616**					
Private Sector						**69.5%**	**72.0%**	**77.5%**	**80.5%**	**80.0%**
Government						**30.5%**	**28.0%**	**22.5%**	**19.5%**	**20.0%**

**Finance, Insurance, and Real Estate.*

Note: Maryland suburbs are defined as Charles County, Montgomery County, and Prince George's County.

Source: U.S. Department of Commerce, Bureau of Economic Analysis.

Figure B-6

Suburban Virginia Employment by Sector

						Percent of Total				
	1974	1979	1984	1989	1994	1974	1979	1984	1989	1994
Private Employment										
Total	367,817	443,652	564,906	733,239	735,582	100.0%	100.0%	100.0%	100.0%	100.0%
Other	2,610	3,470	5,249	7,139	8,252	0.7	0.8	0.9	1.0	1.1
Mining	585	850	1,461	1,838	1,228	0.2	0.2	0.3	0.2	0.1
Construction	33,737	40,775	47,545	77,679	57,465	10.3	9.5	8.3	9.7	6.8
Manufacturing	12,649	18,589	30,887	36,886	35,085	3.9	4.3	5.4	4.6	4.2
Transportation and Public Utilities	27,637	31,160	44,365	58,210	57,916	8.5	7.3	7.8	7.3	6.9
Wholesale Trade	16,652	21,033	30,813	39,602	39,820	5.1	4.9	5.4	4.9	4.7
Retail Trade	71,405	91,680	114,959	153,223	163,931	21.8	21.4	20.2	19.1	19.5
F.I.R.E.*	56,356	67,007	68,150	91,819	88,213	17.2	15.7	12.0	11.5	10.5
Service	106,262	154,310	227,059	333,977	388,519	32.5	36.1	39.9	41.7	46.2
Government Employment										
Total	164,948	168,277	187,660	206,228	216,991	100.0%	100.0%	100.0%	100.0%	100.0%
Federal	72,632	79,406	87,605	92,534	97,369	44.0	47.2	46.7	44.9	44.9
Military	48,528	38,669	42,030	42,835	39,325	29.4	23.0	22.4	20.8	18.1
State and Local	43,788	50,202	58,025	70,859	80,297	26.5	29.8	30.9	34.4	37.0
Total Employment	**491,850**	**596,289**	**757,417**	**1,006,496**	**1,058,573**					
Private Sector						**66.5%**	**71.8%**	**75.2%**	**79.5%**	**79.5%**
Government						**33.5%**	**28.2%**	**24.8%**	**20.5%**	**20.5%**

**Finance, Insurance, and Real Estate.*

Note: Virginia suburbs are defined as Alexandria City, Arlington County, Fairfax County, Loudoun County, and Prince William County.

Source: U.S. Department of Commerce, Bureau of Economic Analysis.

Figure B-7

D.C. Metropolitan Area Employment by Sector

						Percent of Total				
	1974	1979	1984	1989	1994	1974	1979	1984	1989	1994
Private Employment										
Total	367,817	443,652	564,906	733,239	735,582	100.0%	100.0%	100.0%	100.0%	100.0%
Other	2,610	3,470	5,249	7,139	8,252	0.7	0.8	0.9	1.0	1.1
Mining	1,853	2,087	3,827	3,888	3,090	21.8	18.2	17.8	15.1	16.0
Construction	102,944	102,577	114,321	167,802	126,436	24.5	15.4	11.4	9.5	8.4
Manufacturing	51,027	58,306	76,123	87,069	80,746	32.5	27.3	20.0	19.2	17.4
Transportation and Public Utilities	70,993	75,981	90,782	120,111	119,566	42.4	37.3	29.2	21.4	20.1
Wholesale Trade	46,533	56,876	71,745	83,781	78,692	31.5	22.8	14.1	10.4	8.0
Retail Trade	230,395	265,774	308,538	380,534	375,760	24.2	21.0	18.3	15.7	13.6
F.I.R.E.*	151,531	167,388	175,510	226,618	212,407	31.5	32.0	27.6	22.9	20.4
Service	403,483	529,029	692,485	926,385	1,024,386	44.1	39.6	34.3	32.2	30.4
Government Employment										
Total	631,025	652,156	636,215	678,596	692,424	48.3%	47.7%	44.7%	43.5%	42.1%
Federal	354,605	380,835	367,017	376,962	382,035	60.5	60.4	57.0	56.6	55.2
Military	93,760	76,231	86,739	88,436	86,289	27.2	28.8	29.7	28.8	32.2
State and Local	182,660	195,090	182,459	213,198	224,100	35.6	30.3	27.0	26.3	23.5
Total Employment	**1,697,253**	**1,920,523**	**2,185,055**	**2,695,767**	**2,739,947**					
Private Sector						**62.8%**	**66.0%**	**70.9%**	**74.8%**	**74.7%**
Government						**37.2%**	**34.0%**	**29.1%**	**25.2%**	**25.3%**

**Finance, Insurance, and Real Estate.*

Source: U.S. Department of Commerce, Bureau of Economic Analysis.

Figure B-8

Tax Rates in the D.C. Metropolitan Area
1995 Calendar Year

	Unincorporated Business Income Tax[1]	Corporate Income Tax Rate	Sales Tax Rate[2]	Personal Income Tax Rate[3]	Commercial/ Industrial Property Tax Rate[4]
District of Columbia	9.975%	9.975%	5.75%	9.50%	$2.150
Virginia		6.00	4.50	5.75	
Arlington County					0.940
City of Alexandria					1.070
Fairfax County					1.160
Loudoun County					0.990
Prince William County					1.360
Maryland		7.00	5.00		
Charles County				7.50	1.120
Montgomery County				8.00	1.013
Prince George's County				8.00	1.057

[1] *This tax imposed only in the District.*
[2] *Virginia sales tax equal to 3.5 percent tax imposed by state and 1 percent tax imposed by locality.*
[3] *Tax rate on income more than $20,000. Maryland income tax equal to 5 percent tax imposed by state and local tax equal to 50 percent or 60 percent of state tax. Maryland personal income tax imposed at 6 percent on income over $100,000. Combined with county income tax, maximum marginal rate comes to 9.6 percent in Prince George's and Montgomery counties, and 9 percent in Charles County.*
[4] *Maryland property tax equal to sum of variable state tax, variable local tax, and in some cases, minimum additional local tax for special taxing districts. Data for Charles County for property tax year 1993–1994.*

Source: Arlington County Consolidated Annual Financial Report, 1996.

employment. The District's Budget and Financial Plan for the 1997 fiscal year establishes a new agency, the Business Services and Economic Development Agency. The new agency consolidates the responsibilities previously distributed among 11 different departments.[4]

The District's economic development policies include an active industrial revenue bond program (a group of loan funds governed by federal targeting regulations), three enterprise zone designations, and an array of business services.

INDUSTRIAL REVENUE BONDS AND OTHER LOAN PROGRAMS

Private purpose bonds, also known as industrial development and industrial revenue bonds, provide a way for private industry to borrow money at below-market-level

interest rates through the tax-exempt securities market. The *Tax Reform Act of 1986* imposed limits, or caps, for each state on the total amount of industrial revenue bonds, other than debt associated with nonprofit 501(c)(3) organizations. The Act also limited these bonds to tax-exempt institutions and manufacturers. The formula for the caps is the greater of $50 per capita or $150 million. For the District and some of the smaller states, $150 million is the applicable maximum, meaning that its volume cap comes to more than $270 per capita — a much greater maximum than the $50 per capita limit that Maryland and Virginia face.

The District issues a substantial volume of industrial revenue bonds. Since the inception of its program in 1985, the District has issued $2.5 billion in industrial revenue bonds, which is estimated conservatively to represent an annual subsidy of $50 million to the benefiting institutions.[5] In comparison, while $129 million in industrial revenue bonds were issued in the District in fiscal year 1996, just $12 million were issued in Fairfax County, $15 million in Prince William County, $68 million in Loudoun County, and none in Arlington County or the city of Alexandria.[6] When bond issues declined from $184 million in 1993 to $44 million in 1994 and $52 million in 1995, the District responded by passing the *Speedy Authorization Act*, prompting a rebound to $129 million in 1996.

It appears that bond issuance has been positively associated with growth in at least one sector of the economy. A large share of the borrowers in this program have been hospitals, and health care is one of the few economic sectors in the District showing growth. In the intervals 1985–1989 and 1989–1993, private-sector jobs in the District grew by 12.4 percent and then declined by 3.5 percent. At the same time, the number of health care jobs grew by 55 percent and 40.4 percent, respectively. The District's share of regional health care jobs jumped from 35.1 percent in 1985 to 42.8 percent in 1993. In contrast, between 1977 and 1985, before the industrial revenue bond program was in place, the District's share of regional health care jobs had declined from 40 percent to 35.1 percent.

The District's success in using industrial revenue bonds has mixed revenue implications. District borrowers have almost all been tax-exempt institutions, primarily hospitals and universities. Therefore, the increases in employment produce a disproportionately small payback in tax revenue. To the extent employees in the benefiting industries reside in the District, however, some of the growth resulting from the subsidy yields additional income tax revenue. Also, the city's retail economy, and thus its sales tax revenue, benefit from the presence of commuters.

Of the District's 52 industrial revenue bond issues totaling $2.5 billion, just four issues totaling $8.3 million were for manufacturing firms. These manufacturer-subsidizing issuances occurred in 1985, 1986, and 1987. While all of the District's $129 million in industrial revenue bond proceeds went to tax-exempt institutions in 1996, of the $32.5 million issued in the city of Baltimore, just $10 million went

to tax-exempt entities; the rest went to manufacturers. Of the suburban issuances in 1996, $3 million went to private entities in Fairfax County, and all of Prince William County's issuance of $15 million went to private entities.

The District also has five much smaller loan programs, which have lent a total of $4 million to small- and medium-sized businesses and nonprofit groups since fiscal year 1996. Much of this money comes from the U.S. Department of Housing and Urban Development and can be loaned only to businesses meeting strict criteria, such as location in a blighted neighborhood. Baltimore reported lending $4 million in economic development loans in fiscal year 1996, so the District's program is not atypical.

Enterprise zones in the District and surrounding counties

Another legislative effort undertaken in the District is its economic development zone program.[7] The District established three enterprise zones under the 1988 tax code, but administrative regulations were not enacted until 1994.

Enterprise zone businesses are entitled to three tax credits — two on labor and one on capital. For District residents who earned a low income prior to employment in the zone, the District credits half of each worker's wages, up to $7,500, for two years. An additional credit equal to half of the worker's compensation insurance premium is granted as well. Both of these credits apply against the corporate or unincorporated business income tax. The District also grants a property tax abatement on improvements within zones. The abatement in the first year amounts to 80 percent of the tax due. The credit declines each year, reaching a value of 16 percent in the fifth year before termination.[8]

Maryland has three enterprise zones, two in Prince George's County and one in Montgomery County. Zone businesses receive a $3,000 credit for three years for hiring a disadvantaged worker, and a $500 credit for one year per nondisadvantaged worker hired. Maryland also allows an 80 percent abatement of the property tax due for five years. The abatement declines to 10 percent between the sixth and tenth years, after which it is terminated.[9]

Virginia has one zone in Alexandria. The zone provides businesses a grant of $1,000 per zone resident hired and $500 per nonzone resident. Both of the Virginia grants can be claimed for three years. Although there is no abatement of the local property tax in Virginia, significant state income tax credits are offered to zone businesses. Thirty percent of the value of major new zone construction, up to $125,000, is credited against a business' income tax liability to Virginia. This credit is refundable, so taxable income can be earned by qualified zone businesses when the credit exceeds the firm's tax liability. Zone firms also receive a credit worth 80 percent of their income tax liability in the first year of establishment or expansion in the zone, and 60 percent in the following nine years.[10]

Also available to zone firms in Maryland and Virginia are statewide job-creation tax credits available against business income taxes for firms creating new jobs in those states. In Maryland, firms that in the course of two years create 60 or more sufficiently high-paying jobs are entitled to a credit equal to the lesser of 2.5 percent of the wages paid, or $1,000 per job.[11] In Virginia, businesses that create more than 100 new jobs may claim a credit of $1,000 per job in excess of the 100-job minimum.[12]

The enterprise zone incentives in Maryland and Virginia have experienced a moderate level of use. Alexandria's zone, created in 1994, has four businesses claiming credits for 52 new jobs.[13] The two zones in Prince George's County — one established in 1995 and the other in the mid-1980s — also have yielded four claimant businesses that are responsible for 152 new jobs.[14] The District economic development zone program, in the tax code since 1988 and open for business since 1994, has yielded one qualified business, the Good Hope Marketplace. The project is under construction and no new-jobs figure is available.[15]

The greater generosity of the Virginia enterprise zone program and the greater success of the Maryland program suggest two differences between the financial positions of the District and the two states. Because District tax revenues have been declining in the 1990s, District authorities may feel they cannot afford the generous credits the zone program would provide were businesses to participate in greater numbers. Also, insofar as District nonresidents benefit from economic development aid, the city gets less political and financial gain from zone participation. The fact that 67 percent of District workers are nonresidents suggests that a large proportion of its entrepreneurs are as well — meaning that many of the tax breaks to the business community would accrue to nonresidents.[16]

Business services

The District's reorganization of the economic development activities into the Business Services and Economic Development Agency reflects a concern about management and responsiveness. All the suburban counties have economic development agencies. Their missions are inherently easier than the District's. They publicize their extraordinary growth and attempt to reinforce it. The Fairfax County Economic Development Authority concentrates its efforts on marketing, with a third of its $3.8 million budget spent on advertising.[17] It boasts a Web site and advertises in the *Economist* and on CNN.

Tax breaks to individual firms

Recently, the District negotiated its first firm-specific tax deferral for the Bureau of National Affairs, Inc., which agreed to remain in the District, where it employs 1,100 people, in exchange for a 10-year deferral of its real property taxes. The bill

was passed by the District Council, but included a requirement that the mayor submit legislation establishing standards for granting economic development incentives by September 16, 1997.

Inter- and intraregional econometric studies

The question, "Do taxes matter?" has captured the attention of many researchers. From individual firm location decisions to aggregate regional employment growth rates, researchers have attempted to determine whether taxes and other policy variables are significant factors in explaining why some regions outperform others economically. Answering the question is of obvious importance to policymakers, who must impose taxes to finance public expenditures but want to minimize any resultant harm to the economic development of their regions.

To answer the question, we surveyed the vast empirical literature on this topic, seeking consensus findings and lessons for policymakers. Our job was made easier by the fact that several surveys of the relevant literature have been conducted in recent years. In essence, we surveyed the surveys and developed our own interpretation of the findings and conclusions reached by the authors.

By econometric studies we refer to statistical analyses that relate a variable of interest (the dependent variable), such as branch plant openings or aggregate employment growth, to several variables (the independent variables), such as electricity costs or quality of the labor force, that are theoretically expected to influence the variable of interest. This method of analysis enables the researcher to determine, in a rigorous way, which of the independent variables are statistically significant factors for explaining the dependent variable. These types of studies provide systematic evidence based on data and verifiable facts, which are more compelling than anecdotal evidence or information from interviews with business managers, who may have an incentive to exaggerate the importance of taxes.

In this discussion we say that a variable "matters" if it has a statistically significant relationship to the dependent variable. If the effect of the variable is not statistically different from zero, we say that the variable "does not matter." Statistical significance should not be confused with the size or importance of the effect. A variable can be statistically significant, and thus matter, but the estimated coefficient and elasticity may be small, in which case we would say that the variable is not an important factor.

The different studies can be divided into two categories: interregional studies, which compare one region to another (where a region is often a state, county, or metropolitan area), and intraregional studies, which compare areas to one another within one region (such as municipalities in a standard metropolitan statistical

area). This division is sensible because the set of important factors is likely to differ for interregional location decisions compared to intraregional decisions. In particular, because many labor market and cost factors are constant within a given region, taxes, which vary from one locale to another within a region, might be expected to be important factors in intraregional analyses.

We relied on three recent surveys of the relevant literature. Even though Wasylenko (1997) focused on taxes and Fisher (1997) on expenditures, the two articles referenced many studies in common. One such reference is a third survey of the literature by Bartik (1991).

We selected for our review 16 articles discussed by Wasylenko, Fisher, or Bartik. We considered these studies to be both important contributions to the literature and illustrative of our main points. We did not provide a comprehensive review; this had been done by the three authors mentioned and by many others. Rather, our aim was to use a representative set of articles to draw a consensus set of findings and policy implications. The 16 articles are listed and briefly described in Figure B-9, where we have categorized them as interregional or intraregional studies. In the table, we described the dependent variable; we indicated whether the unit of observation was state, metropolitan area, or local government; and we indicated whether tax variables (and spending variables in those studies that include them) were found to be statistically significant factors.

The interregional studies examined differences in economic development across states or standard metropolitan statistical areas. The studies used different measures of economic activity and explanatory factors. The intraregional studies examined differences in location activity or employment across areas within a given metropolitan area. Many, but not all, interregional studies found that taxes were a statistically significant factor — for example, the two most recent studies, Hines (1996), which examined the location of foreign branch plants in the United States, and Tannenwald (1996), which examined investment by manufacturing companies, came to opposite conclusions about the effect of taxes — but the findings were not always robust to changes in specification, time period, or measurement. As noted in Figure B-9, the finding of a significant tax effect in Wasylenko and McGuire (1985) could not be replicated by the same authors using more recent data.[18] Authors of intraregional studies more consistently find a significant effect of tax differentials on local economic activity. However, in both types of studies, when taxes are statistically significant, the size of the effect has not been large. Other factors, such as labor costs or labor quality, tended to be more important. These empirical findings have been supported by the evidence gathered in surveys of businesses, which consistently place taxes low on the list of critical factors in location decisions.

The fact that contradictory results for tax and spending variables have been found not only across the different studies but within the same study gives one

Figure B-9

Econometric Studies of Tax Effects

INTERREGIONAL

Bartik (1985)
- Plant locations, Fortune 500 firms 1972–1978
- States
- Tax variables matter

Carlton (1983)
- New branch plants, 1967–1971
- SMSAs
- Tax variables do not matter

Dalenberg and Partridge (1995)
- Employment, 1966–1981
- Metropolitan areas
- Tax and spending variables matter

Helms (1985)
- Personal income, 1965–1979
- States
- Tax and spending variables matter

Hines (1996)
- Foreign direct investment, 1987
- States
- Tax variables matter

Mofidi and Stone (1990)
- Investment and employment, 1962–1982
- States
- Tax and spending variables matter

Papke (1987)
- New capital expenditure, 1978
- States
- Tax variables matter (spending variables do not)

Papke (1991)
- New plant births, 1975–1982
- States
- Tax and spending variables matter

Tannenwald (1996)
- Investment, 1991
- States
- Tax variables do not matter (spending variables do)

Wasylenko and McGuire (1985)*
- Employment, 1973–1980
- States
- Tax and spending variables matter

INTRAREGIONAL

Charney (1983)
- New firm locations, 1970–1975
- Zip code areas in Detroit
- Tax variables matter

Erickson and Wasylenko (1980)
- Number of firms relocating, 1964–1974
- Suburban municipalities in Milwaukee
- Tax variables do not matter

Fox (1981)
- Amount of industrial land, 1970
- Municipalities in Cleveland
- Tax and spending variables matter

Luce (1994)
- Employment, 1980
- Municipalities in Philadelphia
- Tax and spending variables matter

McGuire (1985)
- Building permits, 1976–1979
- Communities in Minneapolis-St. Paul
- Tax variables matter

Wasylenko (1980)
- Number of firms relocating, 1964–1974
- Suburban municipalities in Milwaukee
- Tax variables matter (for some industries)

**Using more recent data, McGuire and Wasylenko (1987) and Carroll and Wasylenko (1991) were unable to confirm their earlier results.*

pause. It may be that a spending variable is a positive factor for manufacturing, but a negative factor for wholesale trade; or that a tax variable may be a negative factor if the dependent variable is measured one way, but not a factor if it is measured another; or the results may change as the sample size is varied (each of these examples exists in at least one study listed in Figure B-9). In other words, it is not appropriate to place much confidence in a bottom-line conclusion that "taxes matter" or "taxes do not matter" based on one or more of these studies.

A different conclusion from this literature is that there is a role for publicly provided services in shaping a conducive environment for business. Many of the studies examined both taxes and government expenditures and found that spending on education, highways, and other types of services likely to be valued by firms has had a positive effect on economic activity. Indeed, some studies found that an increase in taxes coupled with an increase in spending on desirable services is a net plus for economic development. There is also a practical lesson in the empirical results on taxes and spending. While the regression results may indicate that a cut in taxes would result in a statistically significant but small boost in economic activity, this is a marginal effect; the result depends on holding all other factors, including government spending, constant. For state and local governments facing balanced-budget rules, such an experiment is not feasible.

In summary, there are several policy lessons to be learned from interregional and intraregional econometric studies. Many studies found that the level of taxes matters, i.e., that tax variables are statistically significant determinants of economic activity; many others, however, did not, casting doubt on how the literature would answer the simple question posed at the beginning of this section. Even when taxes do matter, the magnitude of the effect is small, and other factors are more important in explaining differences in economic activity across space. Finally, in creating an environment conducive to economic development, how governments spend their tax revenues may be more important than the level of the taxes. Our overarching conclusion is that cutting taxes is not a panacea for a poorly performing regional economy. As McGuire (1992) stated in her review of Bartik (1991), "[The] message to policymakers is that the effects of state and local tax policy are so uncertain that concern over this issue [economic development] should not be a driving force in general fiscal policy decisions."[19]

An overview of enterprise zone programs

Enterprise zone programs are geographically targeted tax, expenditure, and regulatory inducements that have been part of subnational economic development strategies since the early 1980s. By 1993, 37 states and the District had established some

form of enterprise zone initiative and in 1994, the federal government created a program of empowerment zones based on the state models.

While they differ in specifics, all the programs provide tax preferences to capital and/or labor and other development incentives to encourage investment expansion or location, and to enhance employment opportunities for residents in depressed areas. A survey by Erickson and Friedman (1991) showed that most enterprise zone programs use tax incentives: 51 percent offer sales or use tax credits, job creation credits, and wage credits; 49 percent offer employer income tax credits; 43 percent offer selective hiring credits; and 37 percent offer investment credits. In addition, 20 states made property tax reductions available at the option of the local government.

In her survey of spatially targeted economic development strategies, Ladd (1994) compared zone programs to other policy approaches aimed at combatting urban distress. She described three broad approaches: people-oriented strategies, place-based people strategies, and pure-place strategies. Most state enterprise zone programs are purely place-based strategies or place-based people strategies, in that place-specific assistance is used to help the residents of distressed urban areas.

Critics of enterprise zone programs point out that, although the stated goal is to increase wages and employment in the targeted area, typically the capital incentives are larger than the wage subsidies. (For example, investment tax credits will be stated in percentage terms, while wage subsidies are capped at a dollar amount.) Fisher and Peters (1997) found that in the 20 state enterprise zone programs they analyzed, typical capital incentives had a much larger effect on the price of capital goods than average labor incentives had on wages.

Gravelle (1992) noted that subsidies to capital increase employment in only a roundabout fashion: Since a capital subsidy causes firms to substitute capital for labor, employment increases only when the subsidy actually induces more production. Therefore, if the goal of the enterprise zone program is to increase local employment, subsidies to labor are more appropriate.

Proponents of geographically targeted subsidies argue that the enterprise zone investment may give individuals employment experience that enhances their long-term employability. Thus, even a relatively short-term economic development program may have long-term effects.[20]

A thorough discussion of these arguments is beyond the scope of this review. Instead, this section focuses primarily on empirical studies of zone performance. First, we discuss key issues in evaluating zone performance. Next, we give a brief guide to the literature and summarize the findings of a recent survey article. Finally, we review studies of zone performance in three states: Maryland, Indiana, and New Jersey.

Why is zone performance difficult to measure?

Zone evaluation depends primarily on two factors — program goals and the nature of the available data. Often, the legislation is unclear about whether the goal of the zone program is to increase net employment or investment. Studies typically assume that the intent of the legislation is to create new jobs in the zone — not merely relocate jobs from outside of the zone. These jobs may be full-time, part-time, or of limited duration, since the legislation typically does not specify the type or duration of job it is intended to create.

In practice, zone success is frequently measured by the amount of investment undertaken after the designation, the increase in the number of firms in the zone, and the change in zone employment. Cost is measured by direct government spending and foregone revenue per job created (or, if the goal of the program is zone-resident employment, cost per zone-resident job).

Determining which new jobs result from zone designation presents a practical difficulty. The key methodological issue is how to separate the effects of zone designation from jobs and investment that arise from other factors, for example, general upturns in the economy or in the area surrounding the zone. Alternatively, which of the measured changes in jobs and investment are attributable solely to the zone program?

Surveying existing participants several years into the zone program creates selection bias that tends to inflate evidence of zone success. Firms that left the zone during the program are not surveyed. The remaining firms tend to be winners that make the zone program look successful. The study of the New Jersey zone program by Rubin (1990) illustrated this problem.

Econometric analysis better performs the mental experiment that imagines what would have happened in an area had it not been designated a zone. If the zone sites were randomly selected, the effect of the program could be measured by comparing the performance of the experimental and control groups. Actual enterprise zone designation, of course, is based on economic performance, so the data are non-experimental. This problem is called "sample selection" and can be addressed with a variety of techniques.[21]

Most enterprise zone programs have not been evaluated using appropriate econometric techniques. We next provide a brief summary of the literature to date and conclude with a discussion of three evaluations of state programs, two of which employ methods that take selection bias into account.

A brief guide to the literature

Most of the literature consists of descriptive studies of zone programs. While descriptive enterprise zone studies do not attempt to measure the effectiveness of the programs, they provide useful lessons on enterprise zone construction.

Informative surveys of these studies are found in Brintnall and Green (1988), Funkhouser and Lorenz (1987), and Ladd (1994).

One descriptive study is particularly interesting for its comparison of tax incentives versus administrative assistance. Elling and Sheldon (1991) examined the effectiveness of tax incentives in 47 zones in Illinois, Indiana, Kentucky, and Ohio. They found that the main contributors to high application rates are the administrative resources devoted to the zone, and the services, such as technical assistance, the zone provides. They concluded that tax and financial incentives appear to be an ineffective part of the zone programs.

The most detailed survey is provided by Ladd (1994). She compared enterprise zone programs to other spatially targeted development strategies and provided a context for zone evaluation. She concluded that "experience to date with enterprise zones provides a reasonably clear indication that … the zones have not proved to be a cost-effective means of providing jobs."[22]

SPECIFIC STATE PROGRAMS

Three state programs are of particular interest. Maryland's enterprise zone program is one of the first, and its counties border the Washington area. Indiana and New Jersey have programs that also began in the early 1980s, and have been evaluated using the preferred econometric techniques discussed above.

Maryland

The U.S. General Accounting Office (GAO) (1988) reviewed Maryland's enterprise zone program after four years of operation. The Maryland zone businesses were offered investment credits and general employment credits (credits offered for disadvantaged and nondisadvantaged workers alike). Most of the GAO findings were based on a study of employment levels in three enterprise zones in the program. Two of the selected zones were considered "best instances" as defined by duration and efficient administration. The GAO found that while employment increased between 8 percent (63 workers) and 76 percent (555 workers) for participating businesses in the three zones, follow-up interviews with employers indicated that factors other than the program seemed to account for these differences.

Indiana

Papke (1994) analyzed the effects of the Indiana enterprise zone program on investment and unemployment. Several specifications were used to separate the effects of zone designation from other influences. She examined the effects on the local labor market and on two types of capital investment — inventories, which were targeted by the investment incentives, and investment in machinery and equipment, which would likely coincide with increased economic development.

The estimates indicated that the Indiana enterprise zone program permanently increased the value of inventories by about 8 percent in the zones, relative to what it would have been without the program. However, the value of machinery and equipment was reduced by about 13 percent, indicating a shift in the type of capital investment.

Zone designation also appears to have had a large impact on the local labor market. Unemployment claims declined by about 19 percent following designation — about 1,500 fewer claims per year. Since the employment incentives were relatively modest, this improvement may reflect a demonstration effect described by zone administrators.

Papke (1993) used Census Bureau data from 1980 to 1990 to compare the economic well-being of Indiana zone residents before and after the enterprise zone program. In spite of the reduction in unemployment rates in the zones, the income numbers suggest that zone residents were not appreciably better off with the Indiana enterprise zone program. Ongoing research by Papke examining migration patterns in and out of the Indiana zones may provide an explanation for these findings if she can determine whether the reduction in unemployment claims found near the Indiana zones are due to increased employment or to migration of unemployed workers away from the zones.

New Jersey

Boarnet and Bogart (1996) analyzed New Jersey's tax incentives, including: 1) credits against the state corporation business tax if a firm hires new full-time employees, 2) reduced sales taxes on some purchases, 3) reduced sales taxes on retail sales, and 4) reduced unemployment insurance taxes. Boarnet and Bogart found no evidence that the program had a positive effect on municipal employment or on municipal property values.

Policy lessons from the empirical literature

The studies of the effects of taxes on economic development and business location appear to have concluded that taxes "matter." But that consensus is not wholly satisfying for two related reasons. First, while the majority of the high-quality empirical studies of this issue found taxes to be a statistically significant factor, several other studies reached the opposite conclusion. Second, the somewhat scattershot nature of the findings makes it difficult for researchers to advise policymakers, who are anxious to know whether their tax policies and tax incentives are likely to be effective economic development tools.

In summary, while most researchers find taxes to be a statistically significant factor in business location and expansion decisions, the economic effect of taxes tends to

be both small and less important than other factors. Labor force availability and quality, for example, appear to be more important for explaining differences across locations in economic activity. The way that tax revenues are spent tends to be important — important enough that high relative taxes may not be a deterrent to economic growth if the revenues are used to finance services of value to business, such as education and transportation infrastructure. The studies do make clear that a policy of cutting taxes to induce economic growth is not likely to be efficient or cost-effective in the general case. In specific cases, where a city's taxes have gotten far out of line or a state's industrial base is particularly sensitive to a specific tax, reductions in taxes may be warranted. But the evidence does not support the blanket use of tax incentives in the name of economic development.

The small number of credible empirical studies of enterprise zones has come to a preliminary, but incomplete, conclusion that the tax incentives offered through the programs may well affect the location of capital, but not necessarily employment. The employment and welfare of zone residents do not seem to be measurably improved by zone designation. The tentative policy lesson we can draw from this still-evolving literature is that the effectiveness of the tax incentives offered in enterprise zones depends upon the policy goal. If the idea is to increase investment in the zone, the evidence indicates that site-specific tax breaks to capital may be effective. If the goal is to improve the employment or welfare of zone residents, the evidence appears to indicate that zone programs, as currently structured, are not sufficient.

References

Bartik, Timothy J. "Business Location Decisions in the United States: Estimates of the Effects of Unionization, Taxes and Other Characteristics of States." *Journal of Business and Economic Statistics*, Vol. 3, No. 1 (January 1985), pp. 14–22.

Bartik, Timothy J. *Who Benefits From State and Local Economic Development Policies?* Kalamazoo, Mich.: W.E. Upjohn Institute for Employment Research, 1991.

Boarnet, M.G. and W.T. Bogart. "Enterprise Zones and Employment: Evidence from New Jersey." *Journal of Urban Economics*, Vol. 40 (1996), pp. 198–215.

Brintnall, M. and R. Green. "Comparing State Enterprise Zone Programs: Variations in Structure and Coverage." *Economic Development Quarterly*, Vol. 2, No.1 (1988), pp. 50–68.

Carlton, Dennis. "The Location and Employment Choices of New Firms: An Econometric Model with Discrete and Continuous Endogenous Variables." *The Review of Economics and Statistics,* Vol. 65 (1983), pp. 440–449.

Carroll, Robert and Michael Wasylenko. "Employment Growth and State Government Fiscal Behavior 1973 to 1987." Chapter 2 in Therese McGuire and Dana Wolfe Naimark eds. *State and Local Finance for the 1990's: A Case Study of Arizona.* Tempe, Ariz.: Arizona State University School of Public Affairs, 1991.

Charney, Alberta. "Intraurban Manufacturing Location Decisions and Local Tax Differentials." *Journal of Urban Economics,* Vol. 14 (1983), pp. 184–205.

Dalenberg, Douglas R. and Mark D. Partridge. "The Effects of Taxes, Expenditures, and Public Infrastructure on Metropolitan Area Employment?" *Journal of Regional Science,* Vol. 35, No. 4 (November 1995), pp. 617–640.

de Bartolhome, Charles A.M. and Mark M. Spiegel. "Does State Economic Development Spending Increase Manufacturing Employment?" *Journal of Urban Economics,* Vol. 41 (1997), pp. 153–175.

Elling, R.C. and A.W. Sheldon. "Determinants of Enterprise Zone Success: A Four-State Perspective." In R.E. Green, ed. *Enterprise Zones: New Directions in Economic Development,* pp. 136–154. Newbury Park, Calif.: Sage Publications, 1991.

Erickson, R.A. and S.W. Friedman. "Comparative Dimensions of State Enterprise Zone Policies." In R.E. Green, ed. *Enterprise Zones: New Directions in Economic Development,* pp. 155–176. Newbury Park, Calif.: Sage Publications, 1991.

Erickson, Rodney and Michael Wasylenko. "Firm Location and Site Selection in Suburban Municipalities." *Journal of Urban Economics,* Vol. 8 (1980), pp. 69–85.

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

Fisher, Peter S. and Alan H. Peters. "Tax and Spending Incentives and Enterprise Zones." *New England Economic Review* (March/April 1997), pp. 109–130.

Fox, William. "Fiscal Differentials and Industrial Location: Some Empirical Evidence." *Urban Studies,* Vol. 18 (1981), pp. 105–111.

Funkhouser, R. and E. Lorenz. "Fiscal and Employment Impacts of Enterprise Zones." *Atlantic Economic Journal*, Vol. 15, No. 2 (1987), pp. 62–76.

Gravelle, J.G. "Enterprise Zones: The Design of Tax Incentives." CRS Report for Congress 92-476 S, Washington, D.C.: Congressional Research Service, June 3, 1992.

Helms, L. Jay. "The Effect of State and Local Taxes on Economic Growth: A Time Series-Cross Section Approach." *The Review of Economics and Statistics*, Vol. LXVII (November 1985), pp. 574–582.

Hines, Jr., James R. "Altered States: Taxes and the Location of Foreign Direct Investment in America." *The American Economic Review,* Vol. 86, No. 5 (1986), pp. 1,076–1,094.

Ladd, H.F. "Spatially Targeted Economic Development Strategies: Do They Work?" *Cityscape*, Vol. 1, No. 1 (August 1994), pp. 93–218.

Luce, Jr., Thomas F. "Local Taxes, Public Services, and the Intrametropolitan Location of Firms and Households." *Public Finance Quarterly*, Vol. 22, No. 2 (April 1990), pp. 139–167.

Marlin, Matthew R. "The Effectiveness of Economic Development Subsidies." *Economic Development Quarterly,* Vol. 4, No. 1 (1990), pp. 15–22.

McGuire, Therese J. "Are Local Taxes Important in the Intrametropolitan Location of Firms? An Empirical Analysis of the Minneapolis-St. Paul Metropolitan Area." *Journal of Urban Economics*, Vol. 18 (1985), pp. 226–234.

McGuire, Therese J. Review of *Who Benefits from State and Local Economic Development Policies?* by Timothy J. Bartik. *National Tax Journal*, Vol. 45, No. 4 (1992), pp. 457–459.

McGuire, Therese J. and Michael Wasylenko. "Employment Growth and State Government Fiscal Behavior: A Report on Economic Development for States from 1973 to 1984." Report prepared for the New Jersey State Local Expenditure, Revenue, and Policy Commission. Trenton, N.J.: July 1987.

McHone, W. Warren. "State Industrial Development Incentives and Employment Growth in Multistate SMSAs." *Growth and Change* (1984), pp. 8–15.

Mofidi, Alaeddin and Joe A. Stone. "Do State and Local Taxes Affect Economic Growth?" *The Review of Economics and Statistics,* Vol. 72, No. 4 (November 1990), pp. 686–691.

O'Cleireacain, Carol. *The Orphaned Capital: Adopting the Right Revenues for the District of Columbia.* Washington, D.C.: Brookings Institution, 1997.

Papke, Leslie E. "Subnational Taxation and Capital Mobility: Estimates of Tax-Price Elasticities." *National Tax Journal,* Vol. XL, No. 2 (1987), pp. 191–203.

Papke, Leslie E. "Interstate Business Tax Differentials and New Firm Location: Evidence from Panel Data." *Journal of Public Economics,* Vol. 45 (1991), pp. 47–68.

Papke, Leslie E. "What do we know about enterprise zones?" in: J.M. Poterba, ed. *Tax Policy and the Economy,* Vol. 7, pp. 37–71. Cambridge, Mass.: MIT Press, 1993.

Papke, Leslie E. "Tax Policy and Urban Development: Evidence from the Indiana Enterprise Zone Program." *Journal of Public Economics,* Vol. 54 (1994), pp. 37–49.

Rubin, M. "Urban Enterprise Zones: Do They Work? Evidence from New Jersey." *Public Budgeting and Finance,* Vol. 10 (1990), pp. 3–17.

Tannenwald, Robert. "State Business Tax Climate: How Should it Be Measured and How Important Is It?" Federal Reserve Bank of Boston, *New England Economic Review* (January/February 1996), pp. 23–38.

U.S. General Accounting Office. *Enterprise Zones: Lessons from the Maryland Experience.* GAO/PEMD-89-2 (1988).

Wasylenko, Michael. "Evidence of Fiscal Differentials and Intrametropolitan Firm Relocation." *Land Economics,* Vol. 56 (1980), pp. 339–349.

Wasylenko, Michael. "Taxation and Economic Development: The State of the Economic Literature." *New England Economic Review* (March/April 1997), pp. 37–52.

Wasylenko, Michael and Therese McGuire. "Jobs and Taxes: the Effect of Business Climate on States' Employment Growth Rates." *National Tax Journal,* Vol. 38, No. 4 (December 1985), pp. 497–512.

Endnotes

[1] Recently, the D.C. unemployment rate improved relative to the metropolitan area; the D.C. rate was 6.8 percent, and the region rate was 3.4 percent in May 1997.
[2] Actually, jobs in the unidentified industries in the "Other" category also increased.
[3] Stephen C. Perry, "Factors Which Influence Business to Stay in or Leave the District of Columbia," (Washington, D.C.: George Washington University, Center for the Advancement of Small Business, 1994); Bob Levey, "Todd Allan Takes a Walk to Maryland, and It Didn't Need to Happen," *Washington Post,* November 12, 1993; "Playing Games with D.C. Business," *Washington Post,* May 23, 1997.
[4] Government of the District of Columbia, *A Vision for America's First City: FY 1997 Budget and Multiyear Plan* (Washington, D.C.: May 1996).
[5] The interest rate on tax-exempt debt will be less than that payable on taxable debt, and the difference will be determined by the marginal tax rate. If the marginal tax rate is 30 percent and the market interest rate is 8 percent, a borrower would pay 8 percent on a taxable bond, but only 5.6 percent on tax-exempt debt. The estimate of an annual subsidy of $50 million is based on the assumption of a two percentage point difference between taxable and tax-exempt interest rates.
[6] Reliable totals for the Maryland counties in the region could not be obtained.
[7] The District refers to enterprise zones as economic development zones. We will use the term enterprise zone.
[8] D.C. Tax Code, Title 5, Chapter 14 and Title 47, Chapter 18.
[9] Maryland Department of Business and Economic Development, Business Location Portfolio.
[10] Literature provided by the Alexandria Economic Development Partnership.
[11] Literature from the Maryland Department of Business and Economic Development.
[12] 1996 Virginia Corporation Income Tax Form.
[13] Based on conversations with staff of the Virginia Department of Housing and Community Development.
[14] Based on conversations with staff of the Prince George's County Economic Development Corporation.
[15] O'Cleireacain (1997).
[16] U.S. Census Bureau, Journey to Work Division.
[17] Fairfax County Economic Development Authority, Financial Statements.
[18] McGuire and Wasylenko (1987) and Carroll and Wasylenko (1991).
[19] McGuire (1992), p. 458.
[20] Bartik (1991).
[21] Papke (1994).
[22] Ladd (1994), p. 207.