

USING VALUE CAPTURE TO FINANCE INFRASTRUCTURE AND ENCOURAGE COMPACT DEVELOPMENT

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Transportation investments often increase nearby land values. This can choke off development, pushing new growth to cheaper sites remote from these investments. This “leapfrog” development creates a demand for infrastructure extension that starts the process over again. Transportation infrastructure, intended to facilitate development, thus chases it away. Resulting sprawl strains the transportation, fiscal, and environmental systems upon which communities rely. Several jurisdictions around the country utilize a value-capture technique embedded in their property tax to help finance infrastructure and motivate affordable compact development. They reduce the tax rate on assessed building values and increase the tax rate on assessed land values. The resulting compact development should facilitate better transportation and accommodate economic growth with reduced fiscal and environmental costs. This technique’s ability to foster affordable compact development might help bridge the gap between those who advocate growth boundaries and those who fear the impact of growth boundaries on affordable housing.

Keywords: *property tax; smart growth/sustainable development; value capture infrastructure; transportation finance; sprawl*

Introduction

Many state and local jurisdictions face an array of challenges. These include:

- Increasing the supply of affordable housing;
- providing and maintaining essential transportation infrastructure;
- reducing traffic congestion;
- preserving rural conservation, recreation, and agricultural land;
- reducing air pollution; and
- accomplishing the above (and more) within a balanced budget

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Often, these challenges appear as needs that compete for funding. Addressing some of these challenges may result in fewer resources to address others. In some cases, addressing one challenge may seem to exacerbate another. For example, there is an intense debate about whether imposing urban growth boundaries will raise housing costs inside the urban growth boundary—thus preserving rural lands at the expense of affordable housing.

These challenges are complex. For successful resolution, jurisdictions must employ a broad array of regulatory, policy, and spending programs. This article examines the role of land economics as a common thread that connects these challenges.

Land values in general (and particularly in an urban context) reflect the value of public goods and services available to particular sites. Transportation facilities and services, in particular, make some sites attractive (valuable) and others not. The concept of financing transportation infrastructure through taxation (capture) of publicly created land value is often referred to as “value capture.”

Although there has been renewed interest lately in value capture for transportation finance, this concept is not new. For example, Congress understood the concept of value capture when it required private landowners to help finance the paving of streets in Washington, D.C. during the 1800s. This article will also discuss the documentation of land value increases created by Washington, D.C.’s Metrorail subway system.

The article then looks at how the property tax interacts with the dynamics of the real estate market. This relationship holds a key to one of the tools that might address the challenges mentioned above and bring mutually reinforcing results. In other words, addressing one challenge with this property tax technique makes it easier to resolve the other challenges as well.

Put simply, the traditional property tax contains both a cause and a remedy for these challenges. The portion of the property tax levied against the value of buildings increases the cost of their construction and maintenance. The portion of the property tax levied against the value of land helps reduce speculation and make land more affordable. Therefore, by reducing the property tax on buildings and increasing the property tax on land, progress can be made toward addressing the challenges listed above. This technique is often referred to as a “split-rate” property tax.

This article briefly reviews a few studies on this topic and examines Washington, D.C.’s attempt to utilize value capture to fund a portion of a new infill Metrorail station. It then looks at the impact of property tax reform on sprawl in light of the debate about urban growth boundaries. The last section of the article compares value capture using a split-rate property tax with other techniques for transportation infrastructure finance such as tax-increment financing.

Transportation Investments and Land Values

In the 1800s, streets in the District of Columbia were mostly unpaved. In dry and wet weather, dust, dirt, and manure sullied homes and businesses. In wet weather, mud made roads difficult to navigate. Paving streets and sidewalks presented a tremendous advance. In addition to making properties more accessible and the air cleaner, it also helped people maintain clean homes and businesses.

Yet, paving streets and sidewalks was expensive. Although everyone benefited from cleaner air and easier access, people whose property fronted a paved street benefited more. Paving made their property (specifically their land) more valuable. Therefore, Congress (which manages municipal affairs within the District)¹ enacted laws beginning in 1894 requiring adjacent property owners to contribute 50% of the cost of first-time paving of streets, gutters, curbs, and sidewalks through a special assessment (D.C. Code, 2001 Ed. 9-401.04 through 9-421.13).

In the years after World War II, increases in federal grants may have caused state and local governments to ignore this sound concept of property-owner contribution toward transportation infrastructure finance. The Washington metropolitan area did not use this concept to help

finance the most recent advance in the region's transportation—the Metrorail subway system. The region began building the 103-mile Metrorail system in the 1970s, with the latest segment of the planned system opening in January 2001. Additions to the system are in various stages of planning and construction.

Over the past three decades, as new Metrorail stations opened, landowners found they could rent or sell nearby properties at a premium price. In other words, land values for properties convenient to Metrorail stations increased by a greater percentage than did overall land values for the region because people value access to safe, affordable, and convenient transit services. This value increase also occurred because employers and retailers realize that proximity to Metro brings much greater visibility and accessibility to clients, employees, and customers. Advertisements of property for sale or for lease never fail to mention proximity to a Metrorail station if that can be claimed. Expensive advertising space would not be wasted proclaiming this fact unless property owners and brokers understood that this proximity translates into additional value for the seller. One study showed that the magnitude of the total increases in land value approached the cost of building the system.² For a list of other studies, see “Does Public Transit Raise Site Values Around Its Stops Enough to Pay for Itself, Were the Value Captured?” by Jeffery J. Smith (2003).³

The ability of transit-created land values to pay for transit infrastructure was demonstrated in 1995. At that time, the RF&P Corporation offered to pay 100% of the design and construction costs for a new Metrorail station between the National Airport and Braddock Road stations. RF&P owned a large rail-switching yard south of National Airport, known as Potomac Yards. The company could not develop the yard, despite its large size, because roads in the areas had already reached capacity at rush hour. However, the Metrorail system's yellow and blue lines ran through the property and local officials indicated that a new station would provide sufficient access to permit additional residential and commercial development. On the basis of the enhanced development value of the land if a Metrorail station was built, RF&P Corporation offered to finance the entire design and construction cost of a new Metrorail station.⁴

Impact of High Land Values Near Transportation Infrastructure

All too often, land near valuable public infrastructure (such as a subway station or major road intersection) remains vacant or grossly underutilized because landowners hold out for prices in excess of what buyers and renters will pay today. This drives developers to seek cheaper sites farther away from public infrastructure. Once this cheaper land is partially developed and inhabited, the occupants of this area create political pressure to extend the infrastructure to their area. Once the infrastructure is extended, land prices at the remote inexpensive area begin to rise, choking off development there (even though additional capacity exists) and driving developers and users even farther away.

This cycle leads to “leap-frog” development, also known as sprawl. Sprawl—discontinuous development often characterized by segregation of land uses and low average densities—inhibits walking, cycling, and the use of transit, necessitates auto travel; pollutes the air; and creates political and economic dependence on petrochemical suppliers. People waste energy and time in traffic jams, reducing productivity. Pollution and auto accidents endanger health. Per capita infrastructure costs are high because roads, sewers, and other infrastructure elements must extend through sparsely occupied areas. Meanwhile, undeveloped areas are too small and too scattered to support meaningful agricultural or conservation uses.

Transportation infrastructure, created with an intention to facilitate development, perversely seems to chase it away and foster sprawl that requires much more land (and much more investment in transportation infrastructure) to serve a given number of households and businesses.

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Value Capture As a Remedy to Sprawl

But perhaps transportation infrastructure investment is not at fault. Instead, the way we allow landowners to appropriate the values created by that investment causes the problem. Landowners can profit from their land in two ways. First, they can develop a site and rent or sell it to someone else. Second, they can wait for population growth, wage increases, or public infrastructure improvements to impart value to their site, which they can appropriate through a higher rent or sale price.

This second approach to profiting from land ownership fosters leapfrog development. The opportunity to profit from other people's work, without expending significant effort or funds, combined with the knowledge that land values typically rise faster than inflation over time due to increases in population, wages and infrastructure improvements, discourage some landowners from developing or selling their land at current market prices. After all, why should I sell my land at market value today if I have good reason to believe that it will be worth substantially more in the future? As more landowners withhold their land from the market, based on expectations of higher values in the future, an artificial scarcity of developable land results in real increases in land rents and prices. Thus, land speculation can become somewhat of a self-fulfilling prophecy.

Of course, this self-fulfilling prophecy can also become a self-defeating one. If landowners seek too much rent (from current and prospective users), then certain businesses will fail, unemployment may rise, and families may be displaced. At some point, this situation can lead to a recession or deepen an ongoing one. Regardless of whether the incentive to speculate on rising land values will ultimately lead to higher or lower land values, the end result will be disadvantageous to businesses and households seeking convenient and affordable locations in thriving communities.

Property tax reform can help the public sector capture publicly created land values that arise from transportation infrastructure investments. At the same time, this value-capture technique creates economic incentives to develop land adjacent to public infrastructure and amenities while reducing development pressures in more distant areas.⁵ This technique recognizes that the property tax is really two different taxes, each with very different economic consequences.

TAXES ON BUILDING VALUES

Part of the property tax is a tax on the value of buildings and other improvements. This value is determined in large part by the effort (labor and materials) expended by the owner in producing and maintaining it.⁶ Because buildings must be produced and maintained in order to have value, a tax on building values is a cost of production—a tax on the owners' efforts to create and maintain value in their buildings. For example, a property owner who installs a new heating system for his tenants must raise rents by an amount sufficient to cover not only labor and materials, but also to cover the increased property tax.

The increased property tax will be due not only in the year that the heating system is installed but every year thereafter that it adds value to the property. Using a net present value calculation, a 1% or 2% property tax is equivalent to a one-time sales tax on building labor and materials of between 9% and 17%.⁷ This tax is substantial and, at the high-end, exceeds some of the taxes imposed to discourage the consumption of liquor and cigarettes.

Taxes on the value of buildings (and other goods and services that are produced) result in lower production (Peterson, 1973, pp. 108-109). Typically, when new or higher taxes are imposed, some marginal producers will go out of business. In the case of buildings, property owners can avoid the tax on buildings by allowing their buildings to decline in value or, in the extreme, by boarding them up or tearing them down. To the extent that taxes on buildings result in fewer buildings and lower quality for those that are built, the market of space users will bid up the price of the diminished supply available to meet their needs. Thus the property tax on buildings inflates residential and commercial rents. Because commercial rents rise, some business tenants cannot succeed. Building construction, improvement, and maintenance activities

decrease because their costs increase. As a result, the tax on building values exacerbates problems of housing affordability and unemployment.⁸

TAXES ON LAND VALUES

The other part of the property tax is a tax on the value of land. Land value is determined, in large measure, by the value of public goods and services that are available to particular sites. Thus, the value of land reflects the value of public infrastructure investments that benefit particular locations. As a result, taxes on land values are often referred to as *value-capture* taxes, because they return to the public treasury wealth that is primarily created by public expenditures in the first place.⁹

Unlike buildings, land is not produced. Because property owners cannot avoid a tax on land by producing less land (and because they cannot move it from a high-tax jurisdiction to low-tax jurisdiction), a tax on land values is not a cost of production. Instead, it is a cost of ownership. The price of land generally reflects a capitalization of the benefits people expect to receive from owning it. By making land ownership more costly (less desirable), a value-capture tax on land values results in *lower* land prices.¹⁰

To counteract sprawl and promote affordable residential and commercial rents, municipalities can reform the property tax by reducing the tax rate applied to building values while increasing the tax rate applied to land values. Some refer to this reform as a *two-rate* or *split-rate* property tax. If the tax on building values is eliminated, the resulting property tax is referred to as a *site-value* or *land-value* tax.

Because land cannot move and higher land taxes reduce land prices, land owners cannot avoid a tax on land values or pass it on to space users. Thus, a land tax motivates landowners to generate income from which to pay the tax. The greatest economic imperative to develop land will exist where land values are highest, adjacent to existing infrastructure and amenities. At the same time, a reduction in the tax rate applied to building values makes that development more profitable. Areas distant from infrastructure will have low land values and taxes and, thus less economic motivation for development.

Consequently, transforming the property tax on land and buildings into a value-capture tax on land values can encourage development adjacent to existing infrastructure. Because the demand for developed space is limited at any given time, the greater utilization of land adjacent to existing infrastructure will help reduce the demand for development in outlying areas. Reduced demand to develop outlying areas combined with a lack of nearby infrastructure will keep land values and taxes low, minimizing premature urbanization of rural areas.

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Studies on the Impacts of a Value-Capture Property Tax

An econometric study, published in the *National Tax Journal*, indicates that transforming the traditional property tax into a value-capture, split-rate tax would shrink an urbanized area (DiMasi, 1987). In reality, an urban area would not shrink, but new development would tend to occur within the existing urbanized area, rather than outside it. The econometric model assumes that landowners maximize present income by renting to the highest paying user. But most urban areas contain vacant and underutilized land. Thus, a split-rate property tax may have a more robust impact than the model indicates.

Pittsburgh began utilizing a split-rate property tax in 1913. Until the late 1970s, the city taxed buildings at one half the rate of land values. Then Pittsburgh increased its tax on land values, leaving the tax on building values the same. By the early 1990s, the city taxed buildings at one sixth the rate on land.

In spite of the severe depression in steel and related industries, residential and office development within Pittsburgh grew substantially in the 1980s. Contrary to national trends, development within the city limits outpaced suburban development (Oates & Schwab, 1997, See

Appendix, Table 5). In 1978, five Pennsylvania cities employed a split-rate property tax. Currently, about 20 jurisdictions do.¹¹ Each of these cities experienced more development after implementing a split-rate tax than did neighboring cities of comparable size and economic character.¹² Harrisburg, the state capital, implemented a split-rate tax in 1975 and saw the number of vacant and boarded-up buildings decline from more than 1,800 to about 700 over seven years (Rybeck, 1991, quoting Robert Kroboth, Finance Director of Harrisburg).¹³

The increase in jurisdictions utilizing a split-rate tax demonstrates its political feasibility. Revenue neutral studies comparing the traditional and split-rate taxes also demonstrate the split-rate's political attractiveness. For example, a study of the split-rate tax's impact in the District of Columbia showed a reduction in the tax burden on most residential and neighborhood business properties. Vacant lots and surface parking lots experienced tax increases.¹⁴

Financing a New Metrorail Station in Washington, D.C.

During the 1980s and 1990s, the District of Columbia had been interested in developing a new Metrorail station between the existing stations at Rhode Island Avenue and Union Station. The area approximately halfway between these two stations, near the intersection of New York and Florida Avenue in Northeast Washington, contains vacant land, empty warehouses, and other derelict industrial property. As with Potomac Yards, nearby arterial streets had already reached capacity during rush hour, inhibiting development. Unfortunately, the District government lacked the substantial financial resources required to complete such a project—estimated at about \$84 million.

In the late 1990s, Dr. Marc Weiss, a senior advisor to the Director of the D.C. Department of Housing and Community Development, organized a group of landowners in the area and impressed upon them that they could not get a Metrorail station unless they agreed to make a financial contribution toward its realization. Although the landowners recognized the advantages of a Metrorail station in their neighborhood, they were not so quick to agree to contribute financially to its construction, especially because the existing stations were built without special contributions.

In light of the District's experience with substantially increased land values near Metrorail stations, the Department of Public Works, the Deputy Mayor for Economic Development, and the District's Chief Financial Officer did not agree to shift the cost burden back to the public sector.

PROPERTY OWNER CONTRIBUTION PROPOSAL

Initially, some of the large property owners proposed that the nearby landowners contribute \$25 million toward the cost of the station project. However, they also asked for a dollar-for-dollar credit for special assessment payments that would offset any future increases in property taxes.

From the perspective of the Department of Public Works, the offset provision would have transformed the landowner contribution toward the station into merely an advance of future taxes. In light of the District's experience with substantially increased land values near Metrorail stations, the Department of Public Works, the Deputy Mayor for Economic Development, and the District's Chief Financial Officer did not agree to shift the cost burden back to the public sector. In fact, even in the absence of an operating Metrorail station, the mere announcement of an intent to build a station had already led to increases in property values near the proposed station.¹⁵

Landowners claimed that without the offset provision, higher regular property taxes would compel them to "pay twice" for the station. However, the top commercial property tax rate in the District at that time was \$2.05 per \$100 of assessed value. Therefore, to the extent that the new station would enhance land value by \$100, an owner would pay an additional \$2.05 per year. The net present value of an annual payment of \$2.05 is only between \$20 and \$30 (using capitalization rates between 10% and 7%). Because property tax payments based on higher land value assessments will not even capture one third of the value created and because the landowner con-

tribution of \$25 million is less than one third of the station cost, the argument about double payment was unconvincing.

No doubt, the District of Columbia will benefit from the new station. Yet, the costs of this station to the District are not limited to initial design and construction. Area governments subsidize Metrorail service so that riders pay less than the full cost. This new station will, in fact, increase the District's Metrorail operating and capital improvement program subsidies. The Metrorail capital improvement program, over time, will eventually rebuild the station in its entirety as its component parts wear out. At the present time, the Washington Metropolitan Area Transit Authority (WMATA—which runs the Metrorail and Metrobus system) projects a \$3.7 billion shortfall in funding for rehabilitation and capital improvement projects necessary to maintain transit service for a growing number of transit patrons between now and the year 2025 (Layton, 2001). Even if the District could finance the entire cost of the station, it would not seem advisable for the District to do so and provide windfall gains to commercial landowners when adequate funding for many basic transportation facilities and services remains uncertain.

Just as the original paving of streets enhanced property values, Metrorail also increases land values of properties that are convenient to station entrances (Benjamin & Sirmans, 1996). Thus, to allocate the projects costs in an equitable manner to those who will benefit, nearby land owners, who will benefit financially from the new Metrorail station should make a special contribution for its construction.

Congressional lawmakers were sufficiently impressed by the landowners offer of \$25 million toward this project that Congress offered to contribute an additional \$25 million upon local enactment of benefit assessment legislation to collect the private sector contributions. Thus, the council of the District of Columbia and the mayor enacted legislation creating a Metro Benefit Assessment fee requiring property owners, within approximately 2,000 feet of the new Metrorail station, to retire the debt service on \$25 million of general obligation bonds sold by the District.¹⁶ The fee, however, only partially represents a value-capture technique because it is based on total assessed value and not on the value of land alone. The fee also taxes landowners efforts to construct and maintain their buildings. As a result, the burden of financing the private sector station contribution will be shifted off of the owners of vacant parcels within the benefit assessment area onto the owners of developed properties.

HYPOTHETICAL EXAMPLE

If you have two parcels of identical size, shape, and zoning with a Metrorail station entrance in between, we know that each property will receive the same Metro benefit in increased land values. In this example, Property "A" is vacant and its land value has increased as a result of the station from \$200,000 to \$250,000. Property "B's" land value has likewise increased from \$200,000 to \$250,000 but also includes a building currently assessed at \$750,000. (The value of the building does not change as a result of the new Metrorail station.) Assume that the District must raise \$1,000 in total from these properties annually for 20 years to retire the private-sector share of Metro-related debt service.

Under a value-capture approach, both properties experience an identical Metro benefit and would be charged an identical fee based on their land value alone (see below). Under a property tax surcharge, a tax rate would be applied to the total value (land plus buildings) for each property.

	<i>Surcharge Fee</i>	<i>Value-Capture Fee</i>
Vacant property A	\$ 200	\$500
Improved property B	\$ 800	\$500
Annual fee requirement	\$1,000	\$1,000

If paid out over 20 years:

Vacant property A	\$ 4,000	\$10,000
Improved property B	\$16,000	\$10,000
Total fee collected	\$20,000	\$20,000

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Impact of Value Capture on Urban Growth Boundaries

As mentioned above, a split-rate property tax tends to promote compact development where land values are high—such as around existing infrastructure. Another approach to compact development is to impose an urban growth boundary. Inside the boundary, development may occur and might even be encouraged. Outside the boundary, development is discouraged. One concern raised about this technique is that by restricting the supply of land available for development, urban growth boundaries drive up land prices to the detriment of households and businesses with limited incomes.

Proponents of growth boundaries point out that many jurisdictions without growth boundaries have seen property prices rise as steeply as (or more steeply than) jurisdictions that employ growth boundaries. Furthermore, they argue that a more expensive home may be a worthwhile trade-off for employment, schools and shopping within easy walking, cycling, or transit distance—thereby allowing many households to spend less money on cars and gasoline.

If an urban growth boundary is tightly drawn, it stands to reason that it would create pressure for increases in land prices within the boundary. To the extent that a jurisdiction employing a tight growth boundary would also employ a split-rate property tax, the lower tax on buildings would help minimize the cost of building and maintaining homes and businesses within the boundary. At the same time, a higher tax on land values would help moderate land prices and discourage the hoarding of vacant parcels where development was deemed appropriate. Therefore, a value-capture, split-rate property tax might be appropriate in lieu of—or in addition to—an urban growth boundary to promote affordable, compact development.

Comparison to Other Infrastructure Finance Approaches

Some may be curious about how a split-rate property tax compares to other techniques for financing new transportation infrastructure. For the sake of brevity, I will only make comparisons to Special Assessment Districts and Tax Increment Financing.

SPECIAL ASSESSMENT DISTRICTS

As mentioned above, transportation infrastructure investments often confer property value benefits that are geographically limited. When new transportation infrastructure investments are made, jurisdictions often create a “special assessment district”—sometimes also referred to as a *benefit assessment district*. Within the district, it is assumed that the property owners will obtain a special benefit from the new infrastructure investment. An additional tax or fee is levied within this area to help pay for the infrastructure. This charge may be new, but typically it is simply a surcharge on an existing tax or fee.

The benefits from new infrastructure investment, as reflected by land values, typically are most pronounced immediately adjacent to a new facility and taper off as the distance between the facility and an individual property increases. Special assessment districts are much less precise than the market in measuring the level of benefits that accrue to each property. Officials must make a somewhat arbitrary decision about where to draw the boundaries. Either a property

is inside the special assessment district or it is not. In the D.C. Metrorail case, District officials consulted real estate professionals to help determine a reasonable boundary for the district.

Typically, the special assessment charge for properties inside the district does not directly relate to the benefits each property owner receives from the new infrastructure. But, if officials based the charge on land values, then it would directly relate to benefits received.

TAX INCREMENT FINANCING

Tax Increment Financing (TIF) has become a relatively well-known technique for financing new infrastructure. It assumes that in the absence of new infrastructure, new private investment in real estate will not occur. Therefore, within a defined area, revenues from one or more taxes are benchmarked. By legislation, any revenues within this area above these benchmarked amounts are diverted from a jurisdiction's general fund and dedicated to a special fund used to finance new infrastructure.

Based on this questionable assumption about private investment, TIF makes it appear that this infrastructure investment has no cost to the public treasury (because supposedly in the absence of the new infrastructure investment, property, sales, and income tax revenues would remain static). Therefore, the investment of public funds can be made without appearing to cut spending on existing programs or raise tax rates. As with the special assessment district, the boundary of the TIF district will be somewhat arbitrary.

Furthermore, because tax increment financing obtains revenues from existing taxes, any negative incentives embedded in the existing tax structure remain. Thus, although TIF can succeed in raising revenues, it lacks the positive incentives associated with the split-rate tax that promote more compact and affordable development.

In general, a split-rate property tax uses market forces better than these other techniques to promote compact and affordable development. Also, it automatically captures land value increases from a wide array of new and improved public facilities and services. From an equity standpoint, owners who receive the greatest benefits would pay proportionately more than those who receive the least. On the other hand, a split-rate property tax typically produces revenues for a jurisdiction's general fund. Therefore, a split-rate property tax does not provide a dedicated revenue source that can help structure debt financing for transportation projects.

These alternative techniques must be evaluated on a case-by-case basis. In most instances, they are not very sensitive to the fact that properties receive different levels of benefit from infrastructure projects. Finally, they do nothing to diminish the adverse affects of the property tax applied to building values. In cases where a surcharge is applied to the tax on buildings, they exacerbate these adverse effects. Their primary advantage is that they provide a discrete and dedicated source of revenue to finance a project. A jurisdiction might obtain the best of both techniques by creating a special assessment district generates dedicated revenues from a tax on land values alone.

Conclusion

Both theoretical models and practical experience lead to the conclusion that a value-capture, split-rate property tax can help make transportation infrastructure investments self-financing (Tucker, 1958, p. 11).¹⁷ Furthermore, it provides economic incentives to help reverse urban sprawl (Gihring, 1999).¹⁸ Compact development, by utilizing existing infrastructure, conserves natural and financial resources and promotes walking, cycling, and public transit. Of course, zoning and other land-use controls must be coordinated to insure appropriate development and the establishment of public open space within urban areas.

Land derives its value from the desirability of its surroundings. Increasing taxes on land values discourages speculation and returns to the public treasury economic values that are largely

created by public expenditures in the first place. A building, on the other hand, derives its value from the owner's work in constructing and maintaining it. Reducing taxes on building values reduces the cost of providing commercial and residential space. Thus, a split-rate tax promotes affordable housing. By making commercial rents and building improvement activities more affordable, it also promotes job creation. Together, these tax changes promote the clustering of development adjacent to existing infrastructure, reducing development pressure on outlying areas and discouraging urban sprawl. A value-capture, split-rate tax can help harmonize economic incentives with public policy objectives for affordable housing, economic development, and environmental protection.

Notes

1. Some may think that this statement should be written in the past tense. However, please note the following headline and first sentence from an article in *The Washington Post* written by staff writer Craig Timberg (2002): "House Votes to Freeze D.C. Spending Until New Congress."

The House of Representatives voted yesterday to freeze spending in the D.C. government until January, forcing months of delays in new initiatives such as raises for city firefighters and teachers. (p. B04)

The District's budget is an Act of Congress. Although the District's fiscal year begins October 1st, it is common for Congress to enact the District's budget much later. Other Congressional actions are taken pursuant to Article VI of the District of Columbia Home Rule Act. It states:

Sec. 601. Notwithstanding any other provision of this Act, the Congress of the United States reserves the right, at any time, to exercise its constitutional authority as legislature for the District, by enacting legislation for the District on any subject, whether within or without the scope of legislative power granted to the Council by this Act, including legislation to amend or repeal any law in force in the District prior to or after enactment of this Act and any act passed by the Council. (D.C. Code, 2001 Ed. §1-206.01)

2. See Rybeck (1981). Walter Rybeck, my father, has worked extensively on this issue. Although we have similar perspectives, this article represents my views on this topic.

3. The Smith (2003) review has recently been published by the Victoria Transportation Policy Institute on its Web site. It can be obtained by contacting Jeffrey Smith at geonomist@juno.com or by going to the VTPI Web site at <http://www.vtpi.org/smith.htm>.

4. See Dougherty (1995). After the 1995 offer was made, nearby residents lobbied officials to reduce the amount of development that would be allowed on this site. As a result, the landowner no longer has sufficient development density to support the costs of constructing a new Metrorail station at this location. But the corporate landowner's proposal did establish the principal that under the right circumstances, the value of Metrorail service to nearby property can be sufficient to cover the costs of construction and make this infrastructure self-financing.

5. See Peterson (1973). In particular, see chapters by Dick Netzer, Mason Gaffney and George Peterson.

6. Building value cannot be totally divorced from its location. An office building in the middle of an Iowa cornfield (where there is no market for office space) and an obsolete building on a site ripe for redevelopment might both have negative value. In other words, prospective owners would pay more for the land if these structures were not there.

7. Assume that a property owner adds a new roof costing \$12,000 and thereby increases the value of the building by \$12,000. A 1% property tax would result in an annual payment of \$120. Assume that the roof lasts 15 years and that the going rate of inflation is about 4%. If the cost of replacing the roof rises at the same rate as inflation, the value of the roof's remaining useful life in each year will be higher than under a simple straight-line depreciation. This improvement will offset the effect of depreciation on the tax payment to some degree. In this example, tax payments would decline by about \$4.40 each year instead of by \$8. The 1% tax payment due each year is then reduced by the effect of inflation, which becomes more significant as time goes by. Thus, if the assessor uses the "cost-to-replace-minus-depreciation" method of calculating improvement value, the total sum of tax payments adjusted for inflation over 15 years is \$1,043.65. This would be equivalent to a one-time sales tax of 8.7% at the time of installation.

A similar result (multiplied by 2) would be obtained if the property tax rate were 2% of value. The longer the useful life of the improvement and the lower the rate of inflation, the more onerous the property tax becomes in terms of its sales tax equivalent.

Also, if an improvement adds more value to the building than its cost, the improvement component of the property tax becomes more onerous. Examples include certain cosmetic improvements like painting and landscaping, which are likely to be made immediately prior to sale—thereby providing a good return on investment. However, these same improvements, as demonstrated above, are expensive to undertake and maintain if ownership does not change. A similar result would occur if the cost to replace a building component escalated more rapidly than the general rate of inflation.

For more about the comparability between a property tax on buildings and a sales tax on building improvement/maintenance services, see Netzer (1966, 1973).

8. See interview with Netzer (2003). Netzer notes that reducing taxes on structure would generate employment. Therefore, I conclude that imposing taxes on structures reduces employment.

9 "Value capture," as described here, was enumerated in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) as an innovative financing technique to be included in Long-Range Plans and State Transportation Improvement Plans, see sections 134(g)(2)(B) and 134(h)(2)(B). Public capture of infrastructure-created values can allow some of these investments to become self-financing.

As mentioned, value capture was not used to finance the initial construction of the Washington area's Metrorail subway system. However, where the Washington Metropolitan Area Transit Authority (WMATA) owns real property adjacent to station entrances, it has been very aggressive in charging market rate for long-term leases of land or air rights. In this way, WMATA has accomplished some value capture.

10. See interview with Dick Netzer in *Land Lines* (2003).

11. See DiMasi (1987). Using data from Boston, the distance from the central business district to the outer urban ring of the model contracted by more than half a mile when the current property tax was replaced by a split-rate tax that taxed land values at three times the rate on building values.

12. In 2000, a controversial countywide reassessment of property values by a private firm, dramatically raised land values in Pittsburgh. Most local jurisdictions in Allegheny County do not employ a split-rate tax. For this reason, some complained that the private firm did not pay attention to the apportionment of total value into its land and building components. In the spring of 2001, Pittsburgh officials announced that they would abandon Pittsburgh's split-rate property tax in favor of a traditional property tax with a single tax rate on the value of land and buildings combined. The other split-rate jurisdictions in the county (McKeesport, Duquesne, and Clairton) responded by further reducing their tax rates on building values.

In Philadelphia, a split-rate property tax is gaining favor. It is being promoted by the Controller, Jonathan Saidel, who has obtained endorsements from local Realtors and the Chamber of Commerce. For more information about Pennsylvania jurisdictions' experience with a split-rate property tax, contact the Joshua Vincent, Director, Center for the Study of Economics. He can be reached by e-mail at centerforthestudyofeconomics@msn.com or by phone at (215) 988-9998.

13. Studies on the number and value of building permits in several cities before and after the implementation of a split-rate property tax as reported in Steven Cord and Joshua Vincent, Center for the Study of Economics, newsletter, *Incentive Taxation*.

14. ProHousing Property Tax Coalition, "Real Property Tax Rates for Tax Year 1992," testimony presented to the Committee of the Whole, Council of the District of Columbia, June 21, 1991. The Coalition noted in its testimony that to avoid windfalls or wipeouts, the transition from the current property tax to a split-rate approach should be phased-in to allow property owners to adjust their behavior to obtain the benefits of the new economic incentives.

15. At a meeting of area landowners in February 2000, real estate broker Mark Mallus noted that property values within the vicinity of the proposed station had already risen significantly. Given the region's congested roads and the economic opportunities created at centrally located stations, the mere expectation of future access to Metro can have this effect.

16 "New York Avenue Metro Special Assessment Authorization Act of 2001" DC Law 14-44, effective October 26, 2001 (D.C. Code, 2001 Ed. 47-881 *et seq.*).

17. Reporting that land value increases in excess of general inflation along a subway extension in New York City exceeded the costs of construction by between five and seven times.

18. This article concludes that a split-rate property tax would promote more compact development patterns than the current property tax system.

References

- Benjamin, J. D., & Sirmans, G. S. (1996). Mass transportation, apartment rent and property values. *The Journal of Real Estate Research*, 12(1), 1-8.
- DiMasi, J. (1987, December). The effects of site value taxation in an urban area: A general equilibrium computational approach. *National Tax Journal*, 40, 577-590.
- Dougherty, J. (1995, November 27). Private developer to build \$20 million Va. metro station: Public private partnership is lauded. *Passenger Transport*, 53(47), 7.
- Gihring, T. (1999, winter). Incentive property taxation: A potential tool for urban growth management. *Journal of the American Planning Association*, 65(1), 62-79.
- Layton, L. (2001, August 18). Metro sees \$3.7 billion shortfall by 2025. *The Washington Post*, p. B01.
- Netzer, D. (1966). *Economics of the property tax*. Washington, DC: The Brookings Institution.
- Netzer, D. (1973). Is there too much reliance on the property tax. In G. Peterson (Ed.), *Property tax reform* (p. 21). Washington, DC: The Urban Institute.
- Netzer, D. (2003, July). *Land Lines* (Newsletter of the Lincoln Institute of Land Policy), 15(3). Retrieved from <http://www.lincolnst.edu/pubs/pub-detail.asp?id=835>.

- Oates, W., & Schwab, R., (1997, March). The impact of urban land taxation: The Pittsburgh experience. *National Tax Journal*, 50(1), 1-21.
- Peterson, G. (Ed.). (1973). *Property tax reform*. Washington, DC: The Urban Institute.
- Rybeck, W. (1981, October 24). Transit-induced land values: Development and revenue implications. *Commentary*, 23-27.
- Rybeck, W. (1991, spring). Pennsylvania experiments in property tax modernization. *NTA Forum* (newsletter of the National Tax Association), p. 3.
- Timberg, C. (2002, November 14). House Votes to Freeze D.C. Spending Until New Congress. *The Washington Post*, p. B04.
- Tucker, G. T. (1958). *The self supporting city*. New York: Robert Schalkenbach Foundation.