Incentive Property Taxation: A Potential Tool for Urban Growth Management

Thomas A. Gihring

In their efforts to find more effective policies and mechanisms for urban growth management, planners have yet to step off the regulatory plateau and discover new approaches elsewhere. The subject of this study undertaken in Vancouver, WA and Seattle is "incentive" property taxation linked to growth management. Using county property assessment files, hypothetical tax applications were performed on classes of land use. Simulating a heavy tax on land values and light tax on improvement values demonstrated the shifting of tax burden onto the land-intensive uses associated with urban sprawl, such as parking lots, and the reduction of tax burden on land-intensive uses such as apartments and office buildings. The study suggests that property owners might respond to tax-based financial inducements to reduce the ratio of land-to-improvements value by building more intensively on underutilized sites. Prospects for infill development and the appropriation of speculative gain are also examined.

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The urban land use planning profession, having received its legal basis historically from state enabling legislation and the local police power, has grown comfortable with the regulatory environment as a modus operandi. Rarely have planners looked beyond regulations for solutions to the twin problems of urban sprawl and central city stagnation. This study opens the case for a revised property tax system, by examining its power to influence land use allocation and its potential as a supplemental tool for managing urban development.

Recently, two vocal environmentalists have raised the issue of property taxes and their effects on the contemporary urban landscape. Both denounce the present system of property taxation as regressive. In his book Home From Nowhere (1996), James Kunstler targets the car-dominated American habitat as a failed experiment, asserting that "our system of property taxes may be the single most insidious, pathogenic factor contributing to the geography of nowhere" (Kunstler 1996). Alan Durning of Northwest Environmental Watch makes the argument in This Place on Earth that the nation's existing tax codes send the wrong message by penalizing work and investment, thereby accelerating urban decline (Durning 1996).

Adhering to a progressive liberal view of economic justice, proponents of the "green tax" movement maintain that value should accrue to the creator of value (Katzenberger 1992). The three factors of production commonly cited as combining to produce wealth are labor, capital, and land, where:

• wages are the return to labor,
• interest is the return to capital, and
• rent is the return to land, or to the steward of land, which is the public domain.

Unlike capital and labor, which are associated with productive enterprise, land refers to the gifts of nature. The mispricing or misuse of these free, fragile natural endowments, limited in quantity, leads to environmental degra-
dation. According to Durning, "Taxes on [land] raise the price of using [it], which tells people to conserve. . . . Taxes on labor and capital tell businesses and households to scrimp on workers and tools—. . . . to practice unemployment and underinvestment. A reasonable tax policy would tax the gifts of nature first and tax labor and capital only as a last resort" (Durning 1996, 227).

The alternative method proposed by Kunstler, Durning, and a growing number of environmentalists and converts to neotraditional planning rests on a foundation laid by a nineteenth century reformer. In his seminal book Progress and Poverty, the political economist Henry George laid out his fundamental premise for reform: the abolition of involuntary poverty by opening the earth's resources on equal terms to all. Wider access to land could be accomplished, he argued, by reducing taxes on wages and capital and raising taxes on land holdings. That would induce owners of unused sites to sell them at reasonable prices, thus bringing idle land into productive use and creating more employment (George 1880).

The basic principle recognized by land value taxation is this: land value accrues cumulatively, in a process generated by the community as a whole; as such, that value belongs to the community; it is only the building value that is created by private capital investment, and as such, belongs to the owner. Hence it is just for the public sector to appropriate land rent through taxation.

In its pure form—the abolition of all taxes save the tax on land—Henry George's theory was never actually applied. The idea of differential taxation, however, lived on and was incorporated into law in several British Commonwealth countries, Taiwan, Denmark, Holland, and two states in the United States. The city of Pittsburgh adopted land value taxation (LVT) during the municipal reform period of the 1920s, and several jurisdictions followed suit under Pennsylvania enabling legislation (Pickard 1962). In 1993, New York State adopted legislation allowing local use of the two-rate system. The stated aim was to stimulate development by increasing tax rates on land and reducing rates on buildings (Hennesy 1993).

Benefits of Land Value Taxation

Land use decisions by individual property owners could be affected by taxation if the financial incentives or disincentives were sufficiently strong in proportion to the full economic rent. That is, if the additional tax burden imposed on land by converting from an equal-rate tax to a land-based tax were to approach the speculative gain derived from land value inflation, an owner may decide to convert to a more building-intensive use or to sell the land to a buyer willing to undertake a substantial capital investment. Proponents of two-rate incentive taxation anticipate several significant benefits to the public interest (Gaffney 1993). They are elaborated below.

1. Placing proportionately higher taxes on land would make it more costly to hold on to vacant or underutilized, centrally located sites. Trends toward infill development and a gradual decentralization of urban development would emerge. The demand for peripheral sites at the urban fringe would correspondingly diminish.

2. Reducing the tax burden on improvements would facilitate revitalization and the replacement of obsolete buildings in older central cities. Property owners, responding to the financial incentives to reduce the land-to-building value ratio, would build more intensively on vacant and underutilized sites. The cumulative effect over time
and space would be to increase property values, and thus the tax base, where that is most needed.

3. The two-rate tax would discourage land speculation, that is, the holding of unimproved or under-improved property for the purpose of reselling profitably without any substantial capital investment. A differential tax rate that was high compared to land price inflation could diminish the accumulating windfall for the holdout owner. That is, if the tax would capture a large portion of the land’s economic rent, the owner would in all likelihood capitalize the depletion into a lower resale price.

Urban Growth Management

The previous discussion makes apparent the close relationship between the expected benefits of land value taxation and the commonly stated objectives of urban growth management (UGM). In general, UGM seeks to promote a suitable relationship between land use and infrastructure, that is, more efficient use of land in order to conserve land rather than consume it (Gallion & Eiser 1980). Land use efficiency can be achieved through compact urban form, establishing ordered relationships among the places devoted to utilitarian functions such as work, shopping, recreation, and socializing, and at the same time maximizing their compatibility (by defining zoning districts), maximizing accessibility (by designing a balanced transportation system and reducing distances between origins and destinations), and minimizing energy consumption.

Although the rationale for land value taxation is independent of UGM, the overlap of purpose is clearly discernible. In essence, the double-sided coin of incentive property taxation has these two principal objectives (Rybeck 1992):

1. Tax away the speculative value of property, by rewarding capital investment.
2. Bring idle land into production, by penalizing speculative land holding.

A two-rate system’s expected outcomes can be summarized as follows:

- Discourage urban sprawl
- Encourage infill development
- Discourage building disinvestment
- Intensify land development
- Discourage land speculation
- Restrain rising residential land prices

The overlap between incentive property taxation and UGM can be seen in the legislation adopted by the state of Washington in 1990. Emulating a model established by several precedent-setting states such as Oregon, California, and Florida, the Washington State legislature in 1990 adopted the landmark Growth Management Act (GMA), a comprehensive set of goals, strategies, and enforcement provisions to guide land development (Washington State Growth Strategies Commission 1990). The state’s growth management objectives can be summarized as follows:

- Preserve rural open space and resource lands
- Prevent sprawling, low-density development
- Direct new growth to existing centers
- Encourage infill and contiguous development
- Encourage redevelopment in economically depressed sub-areas
- Revitalize declining central business districts
- Use public infrastructure more efficiently
- Reduce automobile dependency, support transit and pedestrian modes

Applying Incentive Taxation

To date, only limited attempts have been made to use the public’s power of taxation to achieve growth management objectives. Both Washington and Oregon have adopted the practice of assessing farmlands, open space, and forestlands at current use value rather than full market value (that is, exchange value). The intent is to encourage farmers and foresters, through lower taxes, to continue natural resource-based economic activity and to resist the temptation to sell lands located in the urban fringe for development (Washington State Dept. of Revenue 1993).

Negative applications of incentive property taxation also are legally available but, again, in only limited use. The state of Vermont uses a Land Gains Tax to protect rural land from short-term speculation. A high capital gains tax on resale within a one- or two-year period targets owners whose intent in buying up resource lands was to profit from their conversion to urban use, and allows local jurisdictions to capture up to 80% of such windfall profits (Daniels, Daniels, and Lapping 1986).

Even less used are tax mechanisms that incorporate both rewards and restraints concurrently. Planners and lawmakers could profit by examining more carefully how incentive taxation could be used to simultaneously encourage wise land use practices and discourage land speculation and sprawling development.

The Two-Rate Taxation Method

Under the conventional, equal-rate property tax system, each owner’s tax bill is prepared by multiplying the total assessed value (TV) by the levy rate, usually ex-
pressed as a per-thousand-dollar figure, or mill rate. For example, if the assessed value of a given property were $100,000, and the levy rate were $13 per thousand of assessed value, the tax bill would be $1,300. In each county the assessor calculates the levy rate by dividing the total projected revenues authorized for the various taxing districts by the total assessed value of real estate in the county. To find the mill rate, the resulting ratio is multiplied by 1,000.

Under the alternative two-rate property tax system, the total levy rate is split, and applied differentially to land values (LVs) and to improvement values (IVs). The assessed land value of each property is multiplied by the higher fraction of the levy rate, and the assessed building value is multiplied by the lower fraction. In this study, the proportionate rates for land and buildings are derived from a land value tax (LVT) level denoting the percentage of the levy rate that the taxing authority chooses to apply to the land value.

The two methods of taxation are illustrated in the following example of a $13 levy rate applied to a $100,000 property:

**Conventional Application:**
- LV: $40,000
- IV: $60,000
- TV: $100,000
- $100,000 / 1,000 × 13 = $1,300

**Two-Rate Application:**
(Using an LVT level of 75%, the total levy rate of $28.85 is the rate required, when multiplied by the land and improvement ratios, to produce separate mill rates that will yield the revenue-neutral tax of $1,300.)
- LV: $40,000
  - $28.85 × .75 = $21.65
  - $40,000 / 1,000 × 21.65 = $866
- IV: $60,000
  - $28.85 × .25 = $7.25
  - $60,000 / 1,000 × 7.25 = $434
- TV: $100,000
  - $1,300

Note that, in practice, the concept of revenue neutrality applies not to single parcels but to an entire taxing jurisdiction. Thus, individual properties’ tax bills may be either higher or lower as compared to the conventional tax, though all are taxed under the same set of differential rates.

There is general agreement among the advocates of land value taxation that a two-rate system should be introduced gradually so as to minimize the effects of any abrupt change in tax billing for the owners most affected by the differential tax. A phase-in period gives the property owners whose taxes rise an opportunity to gradually adjust property prices downwards, as the capitalized market value of their land diminishes because of the land value tax (Congressional Research Service 1971). The phase-in also gives owners time to adjust their investment decisions. For example, the anticipation of increasingly higher land tax burdens may prompt the earlier sale of underutilized property, or investment in building improvements. A transition period—maybe ten years, more or less—during which the levy rate differential gradually would rise to a concluding level, perhaps short of a 100 percent land value tax, would avoid undue financial stress on land owners. Figure 1 contains the derived mill rates for a revenue-neutral tax application during a simulated phase-in period when the land tax rate is raised incrementally. The initial rate for the Vancouver area is the current conventional rate of $13.93 per thousand assessed valuation.

What is an appropriate concluding LVT level is subject to a variety of opinions. One would hope the rate differential would be enough to appropriate a substantial portion of the land rent within a taxing jurisdiction. In urban areas where growth pressures are strong, high land value inflation would be expected. Consequently, higher LVT levels might be needed in those areas to recapture the annual gains in land value. Where the real estate market is soft, however, too high an LVT level could trigger a shock wave that depresses property values excessively. In terms of the public interest, one could also aim for incentive effects that generate property upgrading and infill development activity.

There is no logical reason not to consider a full tax on land values (excluding an improvements tax). However, the choice was made in this study to advance a method which has some precedent in the United States, namely the Pennsylvania “two-tier” system. In any case, the amount of land rent captured by a full LVT would
differ only minimally from that recovered by the 95% LVT utilized in this study.

A series of hypothetical two-rate tax calculations are run on aggregations of assessed value representing classes of land uses. The series of applications consists of six progressively higher LVT levels, illustrated in figure 1. The derived tax rates, adjusted for revenue neutrality, yield the same total revenue as the conventional rate applied to all properties in the Vancouver urban growth area of Clark County, Washington.

Figure 2 illustrates the application of a graduated two-rate tax rate to the land and improvement assessments on a typical single family residential parcel valued at $173,725; during the phase-in period, the tax on improvements gradually decreases and the tax on land assumes greater proportions. In this particular case, the total tax bill decreases over the phase-in period. In the aggregate, the tax burden would be reduced for some properties but increased for others; the total revenue collected would remain the same.

The Vancouver–Clark County Setting

This study is designed to simulate the fiscal effects of a two-rate tax on properties in the 80-square-mile Vancouver, Washington urban growth area (UGA). This setting offers an opportunity to examine the possibilities of using the incentive power of land taxation in concert with the state’s GMA regulations to bring about a more effective means of managing urban growth. Although the conclusions are preliminary, the study attempts to test the hypothesis that both LVT and GMA objectives can be achieved by changing the conventional taxation system to a two-rate land value tax system.

Clark County is the fastest growing county both in the Portland metropolitan area and in Washington State. (See figure 3.) Population increased 21 percent from 1990–1995, to over 290,000, and is expected to grow by 134,000 persons over the next 20 years. In 1980 about 22,000 Clark County residents were crossing the Columbia River to work sites in Oregon; by 1990 the number had increased to nearly 37,000. This amounts to a third of the county’s work force (Nokes 1995).

The county’s role as a bedroom community is reinforced by the tax disparity between Oregon, which has a personal income tax, and Washington, which does not. Oregon also has no sales tax, whereas Washington (Clark County) imposes a tax of 7.6% on nonfood goods and services. Consequently, many Clark County residents work and shop on the Oregon side of the Columbia River though they sleep on the Washington side. The long-term result is that Vancouver’s central business dis-

![FIGURE 2. Example of a progressive increase in the land tax on a single-family residential parcel.](image)

trict (CBD, located on the edge of the state boundary) has languished. Measured in total assessed value, downtown properties classified as general merchandise retailing account for only 1.4% of the UGA total. A markedly high parcel count in the land use class for parking—over three-quarters of the Vancouver UGA total—suggests that a significant amount of centrally located land area is given over to automobile-related uses.

Much of the current construction boom is in the eastern sector of Vancouver, near the urban growth boundary adjacent to the town of Camas, where new manufacturing plants have located. Recently, a Taiwan-based semiconductor corporation named the Cascade Business Park as its choice for a $1.2 billion manufacturing plant that will employ 800 workers by the end of the decade, and is planned to expand to an eventual work force of 7,000 (Paulson 1996). Comparable expansion activity is anticipated in the area seven miles north of downtown Vancouver, where a new 348-acre branch campus of Washington State University has recently opened.

Urban Sprawl

Concurrently with rapid population and employment growth, raw land is being developed to accommodate housing, industry, and commerce. Land conversions near the urban fringe seem to occur despite the availability of buildable sites within existing urbanized areas. Clark County files of subdivision and building permits show that a land rush of sorts occurred in anticipation of the Vancouver urban growth boundary designation in 1994 and its attendant rezoning. Developers and resident owners expanded urban development into rural areas, appropriating buildable sites on scenic hill-sides and riparian lands.
The corollary of rapid population growth and a high rate of land consumption is low-density urban sprawl, which manifests itself in two ways: (1) leapfrog development and (2) low-density development or extensive land utilization. The antithesis of these sprawl conditions can be found in the GMA objectives listed earlier: (1) centralization (centripetal not centrifugal forces guiding the path of development), as well as contiguous development patterns; and (2) compact, higher-density, or intensive land utilization.

By documenting the location and quantity of both vacant and developed sites, it is possible to measure the extent of urban sprawl. A leapfrog pattern of development is evidenced by the large number of vacant sites found in the inner suburban ring, and lower proportions of vacant sites in some outlying areas. Under a hypothetical "no sprawl" pattern wherein overall vacant site ratios do not exceed that of older sections of the city, the lateral extent of urbanization would be constricted to an area only 63 percent of the current urbanized area. The pattern of scattered, low-density development is firmly imbedded in the regional landscape.
Associating Land Utilization with Land Value Assessment

With reference to the problems of urban sprawl and the GMA objectives that counteract them, the following research questions arise:

- How might a land value tax affect owners’ decisions about land utilization?
- Would shifting the property tax burden onto vacant and underutilized sites create enough financial incentive to stimulate more contiguous development of land within the urban growth boundary?
- Would tax burdens on downtown vacant and underutilized sites induce centralization and revitalization?
- Would a lower tax on improvements facilitate the eventual replacement of low-intensity uses with more building-intensive uses, as envisioned by the Clark County Comprehensive Plan?

To know whether property taxation has any effect on land use, it is necessary to establish an operational relationship between the two concepts. From the planners’ perspective, the key to efficient land use is compact urban form, which is a function of development intensity, and can be measured at its most elemental level as building area coverage. But intensity is a physical phenomenon, not a fiscal measurement. If there is found to be a positive correlation between building intensity and the monetary value of improvements relative to land, then the intensity at which land is used would be reflected in property assessments, the basis for determining tax burden.

Building intensity as a physical measurement of site utilization is expressed as a ratio. Dividing a building’s internal square footage by the lot’s square footage yields a floor area ratio (FAR). Put in valuation terms, building intensity is the building value to land value ratio (BLR). Table 1 contains the aggregated figures from which the site ratios and value ratios are derived. If value ratios correlate with site ratios, then one can expect land value taxation to affect properties according to their intensity of use. That is, on a given parcel the tax burden shift accompanying a change from the conventional to the two-rate system would coincide with the intensity of use. Properties having substantial improvements relative to the land area could anticipate lower taxes, while vacant sites and properties using extensive land areas and with only marginal improvements could expect higher taxes.

Although the number of land use categories is small, it can be seen that building-to-land valuation ratios (BLRs) do generally compare with building-to-lot area ratios (FARs), especially when the three single-family housing types are collapsed into a single category. On average, FARs are about 6% of the BLRs (or 56% if a factor of 10 is used for a clearer graphic illustration). This association is illustrated in figure 4, where the right-hand column represents the overall average.

The notable exception to this norm occurs within the single-family class of properties. Small, single-family lots are found to use about 29 percent of the lot area as building floor space, but large-lot parcels use only about 6 percent of the lot area as building space. Nonetheless, the valuation ratios for these two categories are not very different. Mean lot sizes in the large-lot category are six and a half times the mean size of small-lot parcels, yet their current assessed land value is less than double the mean value of small-lot parcels. Even within geographic sub-areas (square-mile sections) where unit site values are expected to be comparable, larger single-family developed lots are consistently valued lower on a square footage basis.

The implication is that the land components of large-lot single-family land parcels are assessed at a level below what their site use would indicate. Therefore, as current assessments now stand, two-rate results for this particular category will not be consistent with the intensity of land use. The results of this test of association are that, generally, there is a relationship between building intensity and the valuation ratio, which itself determines the degree of tax burden shift. With the exception of large-lot residences, of which there are many, the tax burden for land-extensive uses can generally be expected to rise under the two-rate system.

The L-TV Ratio

The key variable in two-rate taxation methodology is the ratio of land value to improvement value. This study, however, adopts the expression of land-to-total value (L-TV) as the preferred measure. This measure, the proportion of assessed value attributed to land, determines the degree of the tax burden shift caused by the transition from the conventional tax to a two-rate application. The

![Figure 4: Relationship between value and site ratios.](image-url)
TABLE 1. Vancouver UGA—Value ratios, floor area ratios, and mean lot values and sizes, by land use type

<table>
<thead>
<tr>
<th>Building-to-Land Value Ratios (BLRs)</th>
<th>Parcel Count</th>
<th>Land Value</th>
<th>Building Value</th>
<th>Bldg/Land Valuation Ratio</th>
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</thead>
<tbody>
<tr>
<td>Single Family—Small Lot</td>
<td>12,169</td>
<td>$316,920,300</td>
<td>$765,642,100</td>
<td>2.42</td>
</tr>
<tr>
<td>Single Family—Medium Lot</td>
<td>27,698</td>
<td>$811,090,000</td>
<td>$2,246,589,600</td>
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<tr>
<td>Single Family—Large Lot</td>
<td>12,390</td>
<td>601,628,620</td>
<td>1,159,052,000</td>
<td>1.93</td>
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<tr>
<td>Two-Family</td>
<td>889</td>
<td>22,616,100</td>
<td>55,716,100</td>
<td>2.41</td>
</tr>
<tr>
<td>Multifamily</td>
<td>144</td>
<td>5,066,000</td>
<td>17,659,400</td>
<td>2.41</td>
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<tr>
<td>Mixed Use &amp; Group Quarters</td>
<td>15</td>
<td>437,500</td>
<td>1,352,300</td>
<td>2.41</td>
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<tr>
<td>TOTAL</td>
<td>53,305</td>
<td>$1,757,758,520</td>
<td>$4,246,011,500</td>
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</table>

Floor Area Ratios (FARs)

<table>
<thead>
<tr>
<th>Land Use Type</th>
<th>Parcel Count</th>
<th>Lot Square Footage</th>
<th>Building Square Footage</th>
<th>Bldg/Lot Area Ratio</th>
<th>[factored] x10</th>
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</thead>
<tbody>
<tr>
<td>Single Family—Small Lot</td>
<td>12,169</td>
<td>72,431,766</td>
<td>20,679,879</td>
<td>0.29</td>
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<td>Single Family—Medium Lot</td>
<td>27,698</td>
<td>256,181,417</td>
<td>58,037,855</td>
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<tr>
<td>Single Family—Large Lot</td>
<td>12,390</td>
<td>476,975,874</td>
<td>29,467,402</td>
<td>0.06</td>
<td>0.62</td>
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<tr>
<td>Two-Family</td>
<td>889</td>
<td>6,542,657</td>
<td>1,673,711</td>
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<td>1.34</td>
</tr>
<tr>
<td>Multifamily</td>
<td>144</td>
<td>1,483,044</td>
<td>411,464</td>
<td>0.13</td>
<td>1.27</td>
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<tr>
<td>Mixed Use &amp; Group Quarters</td>
<td>15</td>
<td>179,014</td>
<td>35,978</td>
<td>0.13</td>
<td>1.30</td>
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<td>TOTAL</td>
<td>53,305</td>
<td>813,793,772</td>
<td>110,306,289</td>
<td>0.14</td>
<td>1.36</td>
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Mean Residential Lot Values and Lot Sizes

<table>
<thead>
<tr>
<th>Land Use Type</th>
<th>Parcel Count</th>
<th>Mean Lot Value</th>
<th>Mean Lot Size Square Footage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Family—Small Lot</td>
<td>12,169</td>
<td>$26,043</td>
<td>5,952</td>
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<tr>
<td>Single Family—Medium Lot</td>
<td>27,698</td>
<td>29,283</td>
<td>9,249</td>
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<tr>
<td>Single Family—Large Lot</td>
<td>12,390</td>
<td>48,558</td>
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<tr>
<td>Two-Family</td>
<td>889</td>
<td>25,440</td>
<td>7,360</td>
</tr>
<tr>
<td>Multifamily</td>
<td>144</td>
<td>35,181</td>
<td>10,299</td>
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<tr>
<td>Mixed Use &amp; Group Quarters</td>
<td>15</td>
<td>29,167</td>
<td>11,934</td>
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<tr>
<td>TOTAL</td>
<td>53,305</td>
<td>$32,975</td>
<td>15,267</td>
</tr>
</tbody>
</table>

Source: Clark County Department of Assessment and GIS.

measure can be applied to single parcels or to aggregations of parcels. For the Vancouver UGA, the overall ratio of .31 is derived by dividing the summation of assessed land value—$2.7 billion—by the summation of total assessed value—$8.8 billion. In terms of the building-to-total value ratio, which is the reciprocal of the L-TV, the average property contains a building valued at 69 percent of the total assessment.

Under the conventional tax system, the value of site improvements as a proportion of the total property value would make no difference in the tax outcome. Under the two-rate system, the county-wide L-TV ratio determines the breakpoint at which tax burden shift occurs. With land taxed at a higher rate, any property having an L-TV higher than 0.31 would be taxed more than it would be under the equal rate system; any property with land comprising less than 31 percent of the total valuation would be taxed less.

The shift in tax burden under the change from the conventional to a two-rate application is expressed as a percentage, or rate of change in the tax amount, using the conventional tax amount as the base figure. This is
illustrated in figure 2, where the difference between the column height of the conventional tax amount and the column height of any selected LVT application represents tax burden shift. Simulated two-rate property tax applications were performed at all five levels of land value taxation, beginning at a 55 percent tax on land and concluding at a 95 percent tax on land. The local tax rates used are those shown in figure 1.

**Tax Impacts on Land Use Classes**

The overwhelming numbers of single-family residential properties drive the outcome of the two-rate tax application. This land use category consists of over 53,000 parcels, or 80 percent of the total properties in the Vancouver UGA. It accounts for 68 percent of the total assessed value and tax revenue collected within the UGA. (See table 2.) Because of differences in lot size and value, as well as in building size, value, and condition, the land-to-total-value (L-TV) ratio varies within this class of properties; the overall ratio is 0.30. This category's L-TV ratio, which is lower than the overall ratio of .31, is the first indication that single-family residences, as a group, can expect a slightly reduced tax burden under a two-rate application, thereby shifting the burden onto other uses.

Table 3 compares the results of a conventional tax application to the 95 percent LVT, for seven major land use categories. At this highest LVT level, single-family residential properties have a 4.5 percent decrease in tax burden. Multifamily housing types receive the most significant tax break under the two-rate system—a 34 percent reduction. Vacant or unused sites receive the largest tax increases, beginning at 12 percent under the initial 55 percent LVT level, and concluding with a 162 percent increase. Under the conventional system, vacant parcels, which comprise about 11 percent of all Vancouver UGA parcels, contribute only about 5 percent of the total revenue. Under the two-rate system their revenue share rises to 12.4 percent, offsetting the downward revenue shifts in all developed residential parcels combined. As might be expected, commercial uses vary widely in the intensity of land use. In the Vancouver UGA, retail sites appear to be used less intensively than industrial/manufacturing sites. Indeed, a cursory field inspection reveals that strip or auto-related retail configurations predominate in both city and suburban locations. Overall, the upward tax burden shift onto subcategories within the retail/food service land use type ranges from 2 percent to 26 percent, resulting in an average per-property tax increase of about $2,000 under the 95 percent LVT hypothesis.

Thus far, the analysis of tax shifts supports the general premise that the consequences of a two-rate tax system are related to the intensity of land utilization. But when the single-family use category is broken out by parcel size, differences appear. Tax application results (not shown) reveal that under a two-rate hypothesis, taxes are reduced for all sub-categories except large-lot, single-family properties (exceeding 12,000 square feet), where the mean tax increase is a modest $211. If land assessments reflected lot size, the tax shift would be considerably higher. Also noteworthy is a greater downward tax shift for medium-lot parcels (~13.2 percent) as compared to small-lot parcels (~5.6 percent).

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**TABLE 2. Vancouver UGA—Assessed value, by major land use category**

<table>
<thead>
<tr>
<th>Land Use Category</th>
<th>No. of Properties</th>
<th>Pct. of Total Properties</th>
<th>Land Value</th>
<th>Building Value</th>
<th>Total Assessed Value</th>
<th>L-TV Ratio</th>
<th>Pct. of Total Assessed Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential—Single Family</td>
<td>53,836</td>
<td>80.2%</td>
<td>$1,790,547,400</td>
<td>$4,212,701,520</td>
<td>$6,003,248,920</td>
<td>0.30</td>
<td>68.1%</td>
</tr>
<tr>
<td>Residential—Multifamily, Group Quarters</td>
<td>3,180</td>
<td>4.7</td>
<td>176,064,300</td>
<td>751,004,828</td>
<td>927,069,128</td>
<td>0.19</td>
<td>10.5</td>
</tr>
<tr>
<td>Commercial</td>
<td>1,949</td>
<td>2.9</td>
<td>298,996,700</td>
<td>531,968,950</td>
<td>830,965,650</td>
<td>0.36</td>
<td>9.4</td>
</tr>
<tr>
<td>Public, Community Services</td>
<td>212</td>
<td>0.3</td>
<td>10,371,000</td>
<td>25,487,400</td>
<td>35,858,400</td>
<td>0.29</td>
<td>0.4</td>
</tr>
<tr>
<td>Industrial, Utilities</td>
<td>666</td>
<td>1.0</td>
<td>105,207,300</td>
<td>480,024,300</td>
<td>585,231,600</td>
<td>0.18</td>
<td>6.6</td>
</tr>
<tr>
<td>Vacant</td>
<td>7,049</td>
<td>10.5</td>
<td>380,414,540</td>
<td>35,490,700</td>
<td>415,905,240</td>
<td>0.91</td>
<td>4.7</td>
</tr>
<tr>
<td>Farm &amp; Resource Use, Open Space</td>
<td>210</td>
<td>0.3</td>
<td>12,768,040</td>
<td>1,779,400</td>
<td>14,547,440</td>
<td>0.88</td>
<td>0.2</td>
</tr>
<tr>
<td>TOTAL</td>
<td>67,102</td>
<td>100%</td>
<td>$2,774,369,280</td>
<td>$6,038,457,098</td>
<td>$8,812,826,378</td>
<td>0.31</td>
<td>100%</td>
</tr>
</tbody>
</table>

*Source: Clark County Department of Assessment and GIS.*

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TABLE 3. Vancouver UGA—Tax burden shift under 95% LVT taxation, by major land use category

| Land Use Category                      | Conventional Tax Revenue | Pct. of Total Conventional Tax Revenue | 2-Rate Tax Revenue 95% LVT | Pct. of Total 2-Rate Tax Revenue | Revenue Difference | Pct. Change  
|---------------------------------------|--------------------------|----------------------------------------|-----------------------------|----------------------------------|--------------------|-------------------
| Residential—Single Family             | $83,641,526              | 68.1%                                   | $79,904,564                 | 65.1%                            | -$3,736,962        | -4.5%             
| Residential—Multifamily, Group Quarters | 12,916,585               | 10.5                                    | 8,560,833                   | 7.0                              | -4,355,752         | -33.7             
| Commercial                             | 11,577,603               | 9.4                                     | 12,984,548                  | 10.6                             | 1,406,945          | 12.2              
| Public, Community Services            | 499,605                  | 0.4                                     | 465,086                     | 0.4                              | -34,519            | -6.9              
| Industrial, Utilities                  | 8,153,862                | 6.6                                     | 5,180,863                   | 4.2                              | 2,972,999          | -36.5             
| Vacant                                 | 5,794,687                | 4.7                                     | 15,179,939                  | 12.4                             | 9,385,252          | 162.0             
| Farm & Resource Use, Open Space       | 202,685                  | 0.2                                     | 510,721                     | 0.4                              | 308,036            | 152.0             
| TOTAL                                  | $122,786,553             | 100%                                    | $122,786,554                | 100%                             |                    |                   

Tax Impacts on Underutilized Sites

Two primary purposes of land value taxation have been identified: taxing away the speculative value of property, and bringing idle land into production. The demonstration here that the general effect of LVT is to tax vacant parcels and land-extensive uses more heavily, raises two questions:

- Does this tax shift create enough incentive to discourage land speculation, that is, to encourage either sales of land holdings or more intensive site development?
- Would the tax encourage infill development or a more contiguous development pattern?

Land Speculation

To realize the first aim—discouraging land speculation—tax revenues must capture a substantial portion of the economic rent on these sites. One way of looking at this possibility is to capitalize the two-rate tax liability over a holding period and compare it to the land value residual. If the appreciation on land plus whatever net income or worth is derived from the site with property taxes paid is less than the return on an alternative investment, then the owner’s investment decision may be to sell sooner or convert to a more land-intensive use. Table 3 shows that under a 95 percent land value tax, the tax burden shift on vacant sites from the two-rate system amounts to an increase of 162 percent over the tax under the conventional system. For the average site, this is an increase from $822 to $2,154. The question is whether this higher tax liability offsets the annual appreciation in land value.

An alternative approach to the problem is to simply compare the annual tax liability with the annual increase in land value on sample properties. Property sales records reveal the extent to which land values have been rising in Clark County (Clark County Department of Community Services 1996). During the period 1990–1995, average site sales prices rose from $39,500 to $80,300, resulting in a remarkably high average annual rate of increase, 15.2 percent. The following analysis assumes that an owner of a vacant parcel can appropriate this amount of gain each year the property is held. This gain of course is potential; it would be realized only if the site were sold at market value. To differentiate "speculative" gain from simple appreciation in value, the general monetary inflation rate, estimated to be 3.7 percent per year, is subtracted from the total increase in land value over the period of the calculation, eleven years. Tables 4 and 5, and figures 5 and 6 represent "recapture scenarios" for a typical five-acre, exurban vacant site near the eastern fringe of the Vancouver UGA.

Table 4 compares biannual land value increases and speculative gains with biannual tax liabilities over a phase-in period of eleven years. The second line shows how the land value of the subject parcel increases at the second year of each two-year period, and the third line shows the annual net increase (11.5 percent) in speculative gain at those years. Both conventional and two-rate taxes, reported in constant dollars, are shown for the projected land values at these years.

It is evident that under the trend growth rate scenario, the conventional tax can recover only a fraction of the annual speculative gain in value. The tax on land, valued in the third year at approximately $423,000, amounts to about $5,900, in comparison to the annual speculative gain of about $41,000—a recapture rate of 14 percent. The next lines of the table show the effects of a phased-in, differential rate tax. At year three, a 55 percent LVT recovers 16 percent of the speculative gain, marginally

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TABLE 4. Vancouver UGA—Comparison of land value gains and tax liability for a 5-acre, vacant exurban site:
trend growth rate scenario

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 3</th>
<th>Year 5</th>
<th>Year 7</th>
<th>Year 9</th>
<th>Year 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Growth Rate</td>
<td>Base</td>
<td>15.2%</td>
<td>15.2%</td>
<td>15.2%</td>
<td>15.2%</td>
<td>15.2%</td>
</tr>
<tr>
<td>Projected Land Value</td>
<td>$319,000</td>
<td>$423,346</td>
<td>$561,824</td>
<td>$745,599</td>
<td>$989,488</td>
<td>$1,313,153</td>
</tr>
<tr>
<td>Second Biennium Gain</td>
<td>—</td>
<td>$40,904</td>
<td>$50,853</td>
<td>$63,221</td>
<td>$78,598</td>
<td>$97,715</td>
</tr>
<tr>
<td>Conventional Tax</td>
<td>$4,445</td>
<td>$5,898</td>
<td>$7,828</td>
<td>$10,388</td>
<td>$13,786</td>
<td>$18,296</td>
</tr>
<tr>
<td>Percentage of Annual Gain Captured</td>
<td>—</td>
<td>14%</td>
<td>15%</td>
<td>16%</td>
<td>18%</td>
<td>19%</td>
</tr>
<tr>
<td>Two-Rate Tax Level</td>
<td>—</td>
<td>55% LVT</td>
<td>65% LVT</td>
<td>75% LVT</td>
<td>85% LVT</td>
<td>95% LVT</td>
</tr>
<tr>
<td>Two-Rate Tax Phased-in</td>
<td>—</td>
<td>$6,738</td>
<td>$11,448</td>
<td>$19,124</td>
<td>$31,640</td>
<td>$52,144</td>
</tr>
<tr>
<td>Percentage of Annual Gain Captured</td>
<td>—</td>
<td>16%</td>
<td>23%</td>
<td>30%</td>
<td>40%</td>
<td>53%</td>
</tr>
</tbody>
</table>

more than the conventional tax does. By the eleventh year, a 95 percent LVT captures as much as $18,300, but by this time the annual speculative gain in land value is over $97,000. Nevertheless, the two-rate tax captures 53 percent of the projected gain, in contrast to only 19 percent captured under the conventional tax that year. Note (Figure 5 represents these results in graphic form) that the recapture rates on a typical vacant parcel in the city center are almost identical.

Common sense would probably conclude that the high rate of growth in land values in Clark County during the past several years cannot last. If general inflation in the regional economy remains just under 4 percent annually, a 15 percent growth in land prices is too great a difference to be sustained. After ten years the vacant exurban site now worth $319,000 would be valued at $1.3 million under a trend growth rate scenario. But on the other hand, if the growth rate in Clark County property values were to decline gradually, would the land value tax then be able to capture the better portion of the speculative gain?

Table 5 presents a reduced growth rate scenario, using the same subject property, in which annual growth rates in land value decline steadily from 15.2 percent in the base year to 8 percent in year 15, as shown on the first line. As in the trend scenario, the two-rate tax is graduated. Results show that as land price inflation decreases, the amount of speculative gain captured by the differential tax increases significantly, as depicted graphically in figure 6. By the tenth year of the reduced growth rate scenario, the two-rate tax captures over 90 percent of the gain, and probably influences land allocation decisions.

If, according to reason, a high growth in land values is not sustainable, the application of a land tax would itself account for part of a reduced rate. Over time, land market values throughout the sub-regional market would show the dampening effect of increasingly high two-rate tax burdens on vacant sites, capitalized into lower resale prices.

The evidence of the reduced growth rate scenario supports the conclusion that an incentive tax policy that dampens high growth rates in land prices may also restrain land speculation by capturing a larger portion of the speculative gain. It is also evident that the conventional tax falls far short of capturing this unearned increment and affecting either land prices or land allocation decisions towards favoring capital investment.

Contiguous Development

From the point of view of growth management, one goal of land value taxation might be to have owners’ tax burden shifts prompt their decisions to intensify development within urban centers, thus deflecting the pressure on land conversion at the urban fringe. However, this result would be conceivable only if land values and tax burdens were low in the fringe areas and high in the urban centers. Within the Vancouver UGA, a considerable unevenness is found in the land price topography. Measured in unit (per square foot) figures, the assessed market values of residential sites range from over four dollars to less than one dollar on sites near the urban

FIGURE 5. Vancouver UGA—Trend growth rate scenario.
TABLE 5. Vancouver UGA—Comparison of land value gains and tax liability for a 5-acre, vacant exurban site: reduced growth rate scenario

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 3</th>
<th>Year 5</th>
<th>Year 7</th>
<th>Year 9</th>
<th>Year 11</th>
<th>Year 13</th>
<th>Year 15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Growth Rate</td>
<td>15.2%</td>
<td>14.2%</td>
<td>13.1%</td>
<td>12.1%</td>
<td>11.1%</td>
<td>10.1%</td>
<td>9.0%</td>
<td>8.0%</td>
</tr>
<tr>
<td>Projected Land Value</td>
<td>$417,693</td>
<td>$537,133</td>
<td>$678,252</td>
<td>$840,841</td>
<td>$1,023,236</td>
<td>$1,222,083</td>
<td>$1,432,227</td>
<td></td>
</tr>
<tr>
<td>Second Biennium Gain</td>
<td>$37,074</td>
<td>$40,610</td>
<td>$43,140</td>
<td>$44,296</td>
<td>$43,757</td>
<td>$41,288</td>
<td>$36,783</td>
<td></td>
</tr>
<tr>
<td>Conventional Tax</td>
<td>$4,445</td>
<td>$5,820</td>
<td>$7,484</td>
<td>$9,450</td>
<td>$11,715</td>
<td>$14,256</td>
<td>$17,027</td>
<td>$19,955</td>
</tr>
<tr>
<td>Percentage of Annual Gain Captured</td>
<td>16%</td>
<td>18%</td>
<td>22%</td>
<td>26%</td>
<td>33%</td>
<td>41%</td>
<td>54%</td>
<td></td>
</tr>
<tr>
<td>Two-Rate Tax Level</td>
<td>55% LVT</td>
<td>65% LVT</td>
<td>75% LVT</td>
<td>85% LVT</td>
<td>95% LVT</td>
<td>95% LVT</td>
<td>95% LVT</td>
<td></td>
</tr>
<tr>
<td>Two-Rate Tax Phased-in</td>
<td>$6,648</td>
<td>$10,945</td>
<td>$17,396</td>
<td>$26,887</td>
<td>$40,631</td>
<td>$48,527</td>
<td>$56,872</td>
<td></td>
</tr>
<tr>
<td>Percentage of Annual Gain Captured</td>
<td>18%</td>
<td>27%</td>
<td>40%</td>
<td>61%</td>
<td>93%</td>
<td>118%</td>
<td>155%</td>
<td></td>
</tr>
</tbody>
</table>

growth boundary. However, unit prices drop rather quickly outside the downtown area. Immediately northeast of the CBD, mean land values are less than two dollars per square foot; some land values in more outward areas rise to well over that figure.

A more detailed examination of tax effects in geographic sub-areas is accomplished by identifying mile-square survey grid sections that delineate three urban growth corridors extending north, northeast, and east from the CBD. The results of a simulated two-rate tax application on properties within these sectors show no linear relationship between distance from city center and tax burden shift, among either vacant or developed parcels. The LVT is not differentiated geographically between centrally located sites and distant sites. Centralization as a key objective of urban growth management cannot be achieved, under these circumstances, through the application of LVT to individual parcels.

Infill Development

Ideally, under the two-rate system tax burdens would be highest in urban centers, where the presence of substantial building improvements could be expected to result in large tax reductions, and where vacant and underutilized sites would have heavy tax increases, thus providing financial incentives to bring about infill development and general upgrading. The LVT data for Pittsburgh and other cities where development effects have been documented tend to support the notion that the real power of incentive taxation is to stimulate central city revitalization (Oates and Schwab 1992).

The central business district of Seattle is chosen as a subject for this analysis because of the evidence of recent speculative activity in the midst of renewed investments in building improvements. King County assessment records reveal that land values have been rising. Countywide land values during the period 1985–1995 are calculated to have risen, on average, 8.9 percent annually.

For purposes of illustration, it is assumed that long-term owners of downtown sites are in a position to realize the total value of this rate of increase for each year that their properties have been held. The analysis views a portfolio of twenty-eight parcels owned by the Samis Land Co., which recently was entrusted to new management for the purpose of improving their value and use. Historically, the disincentives inherent in the conventional property tax system have offered little redevelopment inducement to Samis, which "... owned more property in downtown Seattle—and had done less with it—than any other private landowner in the city" (Keene 1996, A1). Might an alternative two-rate tax have induced the owners to redevelop these properties sooner, rather than to hold the land for speculation and dampen the general climate for reinvestment?

The method of illustrating the hypothesized tax effects is similar to that in the Clark County example. It is assumed that the taxing jurisdiction phases in the two-rate tax in two-year increments, raising the LVT level initially by 5 percent, and then by 10 percent at each biennial reassessment period. The Seattle school district’s 1995 conventional mill rate of $10.95 is used to derive the differential rates for a revenue-neutral tax application. The rate at which improvement values rise is as-

![Change in Value and Taxes](image)

FIGURE 6. Vancouver UGA—Reduced growth rate scenario.
sumed to decrease, reflecting building depreciation levels prevalent in King County. According to these assumptions, projected land values would increase from the base year by a compounded rate of 8.9 percent annually. From this growth rate is subtracted a long-term general monetary inflation rate of 4 percent, for an annual rate of speculative gain of 4.9 percent. The recapture scenario, summarized in table 6 and illustrated in figure 7, uses two Samis properties and one comparison building.

The Douglas Hotel. Like six other buildings in the Samis portfolio, the Douglas Hotel had been in deteriorated condition, so its improvements are assessed at a nominal $1,000. By Year 3, when the lowest gradation of the two-rate tax is in effect, the conventional tax captures only 25 percent of the annual speculative gain, while the differential tax captures a slightly higher percentage. By Year 11, when the highest LVT ratio is in effect, the conventional tax captures a third of the speculative gain, but the differential tax recovers more than three-quarters of the annual gain.

The Schwabacher Building. This building is more typical of the Samis holdings. Improvements are valued at $295,700, yielding an LTV ratio of .63, considerably higher than the overall county ratio of .43. The recapture rates of the conventional tax are higher than those for the first building, simply because improvements comprise a greater proportion of the total value. However, the two-rate tax recapture rate rises more rapidly, appropriating 26 percent more of the speculative gain by the time a 95 percent LVT is phased in.

<table>
<thead>
<tr>
<th>Parcel Name</th>
<th>Year 1</th>
<th>Year 3</th>
<th>Year 5</th>
<th>Year 7</th>
<th>Year 9</th>
<th>Year 11</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Douglas Hotel (Samis parcel)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Growth Rate</td>
<td>Base</td>
<td>8.9%</td>
<td>8.9%</td>
<td>8.9%</td>
<td>8.9%</td>
<td>8.9%</td>
</tr>
<tr>
<td>Projected Land Value</td>
<td>$366,000</td>
<td>$434,047</td>
<td>$514,746</td>
<td>$610,448</td>
<td>$723,943</td>
<td>$858,539</td>
</tr>
<tr>
<td>Second Biennium Gain</td>
<td>$18,813</td>
<td>$20,702</td>
<td>$22,780</td>
<td>$25,067</td>
<td>$27,584</td>
<td></td>
</tr>
<tr>
<td>Conventional Tax</td>
<td>$4,019</td>
<td>$4,745</td>
<td>$5,602</td>
<td>$6,615</td>
<td>$7,811</td>
<td>$9,223</td>
</tr>
<tr>
<td>Percentage of Annual Gain Captured</td>
<td>25%</td>
<td>27%</td>
<td>29%</td>
<td>31%</td>
<td>33%</td>
<td></td>
</tr>
<tr>
<td>Two-Rate Tax Level</td>
<td>55% LVT</td>
<td>65% LVT</td>
<td>75% LVT</td>
<td>85% LVT</td>
<td>95% LVT</td>
<td></td>
</tr>
<tr>
<td>Two-Rate Tax Phased-in</td>
<td>$5,310</td>
<td>$7,691</td>
<td>$10,914</td>
<td>$15,243</td>
<td>$21,048</td>
<td></td>
</tr>
<tr>
<td>Percentage of Annual Gain Captured</td>
<td>28%</td>
<td>37%</td>
<td>48%</td>
<td>61%</td>
<td>76%</td>
<td></td>
</tr>
<tr>
<td><strong>Schwabacher Building (Samis parcel)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Growth Rate</td>
<td>Base</td>
<td>8.9%</td>
<td>8.9%</td>
<td>8.9%</td>
<td>8.9%</td>
<td>8.9%</td>
</tr>
<tr>
<td>Projected Land Value</td>
<td>$494,500</td>
<td>$586,438</td>
<td>$695,469</td>
<td>$824,771</td>
<td>$978,114</td>
<td>$1,159,966</td>
</tr>
<tr>
<td>Second Biennium Gain</td>
<td>$25,418</td>
<td>$27,970</td>
<td>$30,778</td>
<td>$33,868</td>
<td>$37,268</td>
<td></td>
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<tr>
<td>Conventional Tax</td>
<td>$8,653</td>
<td>$10,190</td>
<td>$12,000</td>
<td>$14,134</td>
<td>$16,647</td>
<td>$19,608</td>
</tr>
<tr>
<td>Percentage of Annual Gain Captured</td>
<td>40%</td>
<td>43%</td>
<td>46%</td>
<td>49%</td>
<td>53%</td>
<td></td>
</tr>
<tr>
<td>Two-Rate Tax Level</td>
<td>55% LVT</td>
<td>65% LVT</td>
<td>75% LVT</td>
<td>85% LVT</td>
<td>95% LVT</td>
<td></td>
</tr>
<tr>
<td>Two-Rate Tax Phased-in</td>
<td>$10,636</td>
<td>$13,657</td>
<td>$17,583</td>
<td>$22,670</td>
<td>$29,279</td>
<td></td>
</tr>
<tr>
<td>Percentage of Annual Gain Captured</td>
<td>42%</td>
<td>49%</td>
<td>57%</td>
<td>67%</td>
<td>79%</td>
<td></td>
</tr>
<tr>
<td><strong>Third Avenue Office Building (comparison property)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Growth Rate</td>
<td>Base</td>
<td>8.9%</td>
<td>8.9%</td>
<td>8.9%</td>
<td>8.9%</td>
<td>8.9%</td>
</tr>
<tr>
<td>Projected Land Value</td>
<td>$22,560,000</td>
<td>$26,754,378</td>
<td>$31,728,578</td>
<td>$37,627,587</td>
<td>$44,623,346</td>
<td>$52,199,763</td>
</tr>
<tr>
<td>Second Biennium Gain</td>
<td>$1,159,607</td>
<td>$1,276,032</td>
<td>$1,404,147</td>
<td>$1,545,125</td>
<td>$1,700,257</td>
<td></td>
</tr>
<tr>
<td>Conventional Tax</td>
<td>$1,749,810</td>
<td>$2,012,416</td>
<td>$2,316,550</td>
<td>$2,668,944</td>
<td>$3,077,444</td>
<td>$3,551,195</td>
</tr>
<tr>
<td>Percentage of Annual Gain Captured</td>
<td>174%</td>
<td>182%</td>
<td>190%</td>
<td>199%</td>
<td>209%</td>
<td></td>
</tr>
<tr>
<td>Two-Rate Tax Level</td>
<td>55% LVT</td>
<td>65% LVT</td>
<td>75% LVT</td>
<td>85% LVT</td>
<td>95% LVT</td>
<td></td>
</tr>
<tr>
<td>Two-Rate Tax Phased-in</td>
<td>$1,902,731</td>
<td>$1,926,827</td>
<td>$1,997,586</td>
<td>$1,823,852</td>
<td>$1,648,744</td>
<td></td>
</tr>
<tr>
<td>Percentage of Annual Gain Captured</td>
<td>164%</td>
<td>151%</td>
<td>136%</td>
<td>118%</td>
<td>97%</td>
<td></td>
</tr>
</tbody>
</table>

Source: King County Assessor; Center for Community Development and Real Estate, University of Washington.
The Third Avenue Office Building. Because the improvement value ($137,240,000) contributes substantially to the total property value of the Third Avenue Office Building, conventional taxes on this premium comparison property are high in the base year and increase during the eleven-year period as land and building values appreciate. In fact, in every subsequent year the tax bill far exceeds the total annual speculative gain on land value, thereby appropriating a large share of the owner’s return on capital investment. This illustrates the built-in disincentive of the equal-rate tax system. In contrast, the two-rate tax during the phase-in period quickly compensates for the disincentive by lowering the tax ratio on improvements, from the point at which 164 percent of the gain in value is captured to a recapture rate of 97 percent. Tax liability gradually diminishes during the phase-in period, yielding an annual savings to the owner of almost $2 million by the eleventh year. Thus, capital investment in building improvements is rewarded through the incentive of lower taxes.

Within the parameters of this study it is impracticable to predict the type of investment decisions that Samis Co. or other property speculators might have made under the taxing systems compared here. To do so would require calculating land value residuals on each property by devising hypothetical proformas to incorporate holding expenses, net operating income, and such capitalized costs as demolition or rehabilitation that buyers might want to negotiate. Nevertheless, the incentives simulated in this scenario do point in a positive direction. The two-rate system appears to substantially penalize the practice of disinvestment, and to reward efforts to improve downtown commercial properties.

Unit land values in the Seattle area are over twelve times those in Vancouver, so in absolute dollar amounts the tax burden effects are substantial. Tax recapture rates are higher in Seattle not because of the higher land costs, but because inflation rates for land values are lower. Because recapture rates are negatively associated with the rate of land value inflation, the policy objective of LVT should be to bring down land price inflation by taxing properties at levels as close to the speculative value of land as possible (full land rent), regardless of the dollar amounts and regardless of their location. In the Vancouver UGA, land values are not much lower in exurban areas than in some central city and suburban areas. This is because the speculative value rather than the use value prevails. Speculative land values often drive developers further out into the urban fringes, thus advancing urban sprawl and exerting upward pressure on land prices, in successive waves.

Evaluation of Two-Rate Taxation

Following the mandate of the Washington State Growth Management Act (GMA), Clark and King county planners are endeavoring through the regulatory mechanisms of zoning and urban growth boundaries to impede the rapid advance of urban sprawl. This study’s analysis strongly suggests that their efforts could be reinforced if legislators and other governmental departments would join in revising the property tax system to offer built-in financial incentives.

Growth Management

The results of the analyses of differential property tax applications show that the alternative tax system does have the potential to produce some of the effects associated with growth management objectives. Under present circumstances, however, there are limitations to that potential.
Centralization. First, centralization as a GMA objective cannot be achieved through LVT alone. Unless sub-regional land value gradients are sufficiently steep, peaking at a central core, the land-based tax system cannot exert a centripetal force on development. Through uncoordinated economic development policies that allow new major growth attractors to be sited in predominantly undeveloped locations, Clark County appears to be, by default, developing around multiple nodes while ignoring established centers. This only increases land speculation, pushing up land values in outlying areas.

Intensification. For the GMA objective of development intensification, the alternative tax system holds considerable promise. The fiscal incentives observed here are consistent, for the most part, with the desired outcomes of rewarding land-intensive uses. However, when land value assessments are not commensurate with lot size, the power of the two-rate tax to induce infill and more intensive development is limited. On sites with low-intensity uses, excessively low land assessments can produce the anomaly of tax reductions rather than tax increases.

Anti-speculation. As for the anti-speculation objective of land value taxation, LVT offers much better prospects for capturing land rent and dampening land market prices than does the conventional system. LVT’s potential for immediate results in the rapidly growing area of Vancouver is limited only by the current high rate of land value inflation. However, the application of the two-rate tax would itself help to dampen land price inflation. Being broad-based, the LVT would be likely to arrest the current high rate of land price inflation in the sub-region, as the added tax liability on land-extensive uses was capitalized into lower selling prices.

Infill development. As for infill development, LVT could precipitate capital investment in buildings, if not in response to the negative incentives, then for the prospect of lower taxes on improved properties. Yet, in instances where land value inflation is high, even a 100 percent land tax would not (in a static model) recapture amounts approaching the annual gain in speculative value on underutilized sites. In such circumstances it might appear that only the “pure” Georgist principle of taxing full economic rent (by raising overall tax rates) would achieve the goal of influencing owner investment behaviors and dampening land value inflation. However, even under the less radical two-rate structure, land value inflation would gradually decrease as an effect of higher taxes on land. Eventually, lower land values would necessitate upward adjustments in the tax rate in order to achieve revenue neutrality.

Other Considerations

Only time and experience will tell whether financial incentives as a management tool could eliminate the need for some GMA regulations. It does seem apparent that certain legal mechanisms would be needed to prevent premature land conversion in outlying locations. The dilemma of using incentive taxation for fringeland sites and is that the greater the margin between use value and market value, the greater is the impact of the tax. Because a high tax on resource lands and open space reserves works against their preservation, a means of reducing market values to use value levels is needed. In this case, effective zoning to preclude urban uses in holding zones may be the only way to dampen speculation by constraining the rise in market values.

In Vancouver and environs, land value taxation could become a powerful accessory to urban growth management if the size of the wide-open urban land development market there were effectively constricted. What are now less desirable central areas would become more appealing to residents and merchants as incentive-driven, infill development changed the character and image of these depressed-value pockets. In the long term the central city would revitalize, as rising land values and new capital investment expanded the tax base.

Thus, tighter growth restrictions coupled with LVT will in time produce dynamic effects. Constricting the size of the sub-regional land market will have the immediate effect of pushing up land values inside the growth boundary; but a land-based tax will counter that trend by pushing them downward. Then, after the positive incentives take hold, property values as a whole will increase in re-centralized areas where infill and redevelopment have taken place.

Regulatory Adjustments

The policy objective of limiting the overall size of the Vancouver sub-regional land market to areas targeted for more intensive development is not possible unless county regulations are strengthened. The urban growth boundary, by state statute, is delineated on the basis of a projected twenty-year build-out. This boundary, though sufficient to protect most resource lands from urban conversion, is ineffective at promoting contiguous rather than leapfrog development within its limits. Indeed, speculation rises in fringe areas because of the uncertainty about precisely where and when sequential development will occur (Brown et al. 1981). If prospective development zones were clearly circumscribed around urban centers, land prices would incorporate their future urban value, while the excluded external sites would remain at their semi-rural use value.
Regulatory Issues

The following issues are raised briefly here with the aim of increasing the effectiveness of urban growth management in concert with land value taxation:

**Concentric Holding Zones.** Perhaps the most urgently needed requirement in the tool box of urban growth management is a mechanism to ensure contiguous, phased development emanating from established growth centers. Such a mechanism would define concentric holding zones beyond which new urban development activities (subdividing, construction, use conversion) would be restricted until a predetermined threshold ratio of developed area to total area had been exceeded. Upheld by the state’s courts, a “tiered” growth control system is in effect in several New York State cities (Freilich 1992).

**Large Lot Zoning.** Clark County, for example, might consider abandoning large lot zoning designations, now regarded as temporary holding districts. Once the inefficient pattern of developing separate lots along county roads becomes established, the possibility of later replotting these sites within a planned urban street network is largely lost. Furthermore, land assessment practice should seriously consider the incorporation of lot sizes into comparable sales data. As a case in point, King County has adopted the assessment method of normalizing lot values on a square-footage basis. Under an LVT system, oversize residential lots would be subject to higher taxes commensurate with their potential return from land price inflation and their more extensive land use.

**Land Banking.** Land banking refers to the acquisition of land in advance of its intended development. The rationale for government purchase and holding of vacant parcels becomes more apparent when seen in the context of land value taxation. In some areas the market demand for permitted uses may not be maturing at the same pace that increases in the tax burden take effect. To avoid triggering premature development and forcing vacant land into low-intensity, undesirable uses through incentive taxation, a local public trust created for this purpose could offer a sale option to landowners.

**Major Facility Siting Provisions.** Washington State in recent years has aggressively pursued economic development strategies that offer generous sales tax abatements to major employers, with no siting stipulations. Such extenuation is fraught with danger to wise land use practices, in that the impulse to minimize land purchase costs can lead to leapfrog patterns of development. The external costs of sprawl, including infrastructure expansion and commuting travel costs, constitute an enormous burden on employees and taxpayers (Tillett 1995). It would be desirable for comprehensive plans under GMA guidelines to contain a major facility siting provision, obliging firms receiving tax abatements to locate within planned urban centers, with priority given to existing centers.

Conclusion

Land value taxation appears to offer much better prospects for promoting efficient land use, dampening land price inflation, and discouraging land speculation than does the conventional property tax system. In the case of the rapidly growing Vancouver UGA, its potential for short-term results is currently limited by high increases in land values. Its potential for long-term results depends on both the effectiveness of regulatory devices to direct the location of new urban growth, and assessment practices that incorporate the unit value of sites.

In the state of Washington, a constitutional amendment would be required to allow counties the option of implementing differential rate taxation. The “uniformity clause” (Article 7, Section 1) provides that all taxes be uniform upon the same class of property, meaning that the land and improvements constituting all real estate must be taxed at the same rate. Despite this encumbrance, a coalition of Georgists and environmentalists continues to advance the proposition. The Association of Washington Cities adopted a resolution urging the state legislature to look into a two-rate system as a means to promote central city revitalization and to help cities meet requirements under the Growth Management Act (Heller 1993).

Land value taxation as a growth management tool is not a cure-all. Further study of its consequences should address questions about its applicability to more distressed urban regions, and include dynamic effects on property values and investment decisions. Perhaps the initial step in a new approach to urban growth management is to embrace a more progressive system of property taxation. Doing this means, first, recognizing the distinction between what is privately generated value in real estate, and what in principle belongs to the community.

ACKNOWLEDGMENTS

The author gratefully acknowledges the financial support of the Robert Schalkenbach Foundation, sponsor of the Vancouver study.

AUTHOR’S NOTE

The author has completed a second study of land value taxation for the Lincoln Institute of Land Policy, in collaboration
with Jim McIntire, Director of the Fiscal Policy Center, Institute of Public Policy & Management, University of Washington. That study further explores the effects of a two-rate tax on urban fringe and resource lands, as well as sub-regional equity issues.

NOTES

1. Leapfrog development, the first dimension of sprawl, is scattered, or noncontiguous, development. One practical measure of sprawl is the extent to which vacant parcels lie within a predominantly developed urban area. The primary data file obtained from the Clark County Department of Assessment shows that seventy-six square-mile sections lie wholly within the Vancouver urban growth boundary.

Comparing the numbers of vacant sites within geographic sub-areas with the numbers of developed sites yields an overall vacant site ratio of 10 percent. How the individual section ratios are distributed is the material indicator of leapfrog conditions. Rather than showing contiguous development emanating from the Vancouver center, the urban region has the look of a checkerboard pattern, with many adjoining sites skipped in favor of outlying sites, especially to the northeast. In some northeast sections more than 15 percent of the parcels remain undeveloped, while in several outer sections those ratios are under 7 percent. No doubt the siting of major new employment attractors in predominantly undeveloped areas is responsible for some of the leapfrog development.

The question might arise, what would the Vancouver urbanized area look like if recent development had occurred more contiguously, at the vacant site levels found in the center city? Using the vacant site ratio of 6 percent found within the 6-square-mile area surrounding the CBD, only 48 rather than 76 square miles would hold the current developed parcel capacity at the same net density levels.

The second dimension of urban sprawl, low-density development, has already been described in terms of land consumption patterns. During the 1990-1995 growth period, about half of the residential land area developed in Clark County was sited on lots zoned as medium (7,000 to 10,000 square feet) and large (10,000 to 40,000 square feet). By way of contrast, typical in-city lots average 5,000 to 7,000 square feet. In the 1995 assessment data, large-lot parcels, averaging over 38,000 square feet, comprise nearly a quarter of the inventory of single-family developed properties. As many as ten of the seventy-six square mile-sections within the UGA contain a majority of large-lot parcels, several of which are located midway between the CBD and the urban growth boundary.

2. The Department of Assessment’s data file does not contain lot and building areas for all properties. Only 73 percent of the commercial property listings, representing less than half the total commercial assessed value, contain this information, whereas 97 percent of the single-family, residential parcel listings record square footage. Since residential properties make up an overwhelming proportion of the total parcel count, the results of an analysis on residential properties should be broadly applicable.

3. Just how significant this apparent divergence is can be determined by constructing a hypothetical distribution of the two quotients based on the overall relationship. If the BLRs were consistently seventeen times the FARs in all residential categories, new hypothetical BLRs would be attained that corresponded precisely with the physical measure of land utilization. In this instance the new site ratios corresponding to the large-lot category would drop from 1.93 to 1.04, and small-lot site ratios would increase. (See table 1.) This group of large-lot properties would now see a jump in total assessed land value from $601 million to $2,136 million, as the grand total assessment remained the same. This difference amounts to an additional $123,871 added to the current average land assessment of each large-lot parcel, resulting in an adjusted mean lot value of $177,550, which is commensurate with lot size and building utilization.

A sample of 969 single-family properties forming a major Vancouver UGA growth sector was drawn for the purpose of measuring the degree of association between calculated FARs and BLRs. The coefficient of correlation across individual parcels is .606.

4. Based on comments offered by William J. Siembieda, Ph.D., former Director, Center for Research and Development, School of Architecture and Planning, The University of New Mexico, Albuquerque, NM, October, 1995.

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