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Reconsidering land value taxation

The golden key?

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This paper considers how land value taxation (LVT) may resolve the dilemma of declining central cities and sprawling urban areas. Literature review, discussions with professionals, and personal observations are used to address this objective. The paper begins with an overview of LVT that focuses on why some planners have labeled LVT the 'golden key'. Next it presents the theoretical arguments pro and con regarding these anticipated effects, followed by a summary of the empirical evidence on LVT that has been published to date. The evidence indicates that LVT may not be the golden key, but it does appear to offer an effective tool for encouraging development in some central city areas. Copyright © 1996 Elsevier Science Ltd

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Over the past century concern has grown regarding both urban blight and sprawling development. The causes of this shift in development patterns are complex, but a loss of development interest in many existing central cities has resulted in urban blight within older areas and sprawling development through the city as a whole. Urban blight and sprawl have a variety of social, economic, and environmental consequences. Sprawling development wastes resources by increasing public revenue requirements and promoting ineffective and inefficient infrastructure and services. Urban sprawl increases travel time and distance. It reduces the viability of mass transportation, thus increasing reliance on independent modes of transportation. This automobile excess increases pollution, congestion, alienation, and the use of scarce energy resources. As people begin to leave the city to escape these urban ills, the resulting deterioration exacerbates the abandonment, thus lowering land values and reducing the local tax base. Sprawl also causes ex-urban land prices to rise, thus encouraging farmland to convert to urban uses. Higher transportation and land costs increase development costs. Together, urban blight and sprawling development create a physical isolation that perpetuates a cycle of poverty by reducing the access of the poor to services and jobs.

The general failure of traditional public planning mechanisms to maintain development interest within central cities warrants inquiry into alternative tactics. Public land use policies have traditionally focused on land use issues related to preservation, renewal, and development. Less attention has been given to tools geared to encouraging maintenance and redevelopment. As the fiscal crisis of many municipal governments escalates, the need to encourage an efficient use of existing infrastructure increases.

Throughout this period, some economists and planners have been intrigued with the concept of land value taxation as a way to address these problems. Land value tax (LVT) represent a removal of development improvements from the tax base. This interest in LVT divides along two perceived benefits. Some advocates argue that by concentrat-

ing property taxes on land values alone, LVT would encourage a more efficient use of land. Other resources may also be saved as a consequence of the resulting development patterns. Some promoters also believe that LVT would result in a more equitable distribution of land and the costs and benefits associated with its use by requiring land owners to pay for the unearned benefits that they receive. Both arguments recommend LVT as an alternative to a property taxing system where buildings and other improvements to land are included in the tax base, as is most common in the United States.

I believe that land use planners need to take a new look a LVT as a tool for managing land use. My intent here is to consider how land value taxation may resolve the dilemma of declining central cities and sprawling urban issues. I begin with an overview of LVT that focuses on why some planners have labeled LVT the 'golden key'. Next I present the theoretical arguments pro and con regarding these effects, followed by a summary of the empirical evidence on LVT that has been published to date. I close with a summary of the current state of the research on land value taxation and recommendations for future research.

The 'golden key'

LVT has been labeled as the 'golden key' to urban development and renewal by several planning scholars.[1] They claim that a reduction of the burden on land improvements together with an increase in the responsibility placed on land ownership would provide an effective tool for guiding land use and development. LVT is suggested as an alternative to the general system of taxing land and improvement values equally.

Real property taxes, where land and improvements are taxed equally, are thought to discourage building construction and maintenance, delay development and redevelopment, increase land and building prices, encourage land speculation, and promote inefficiently and under-used land. Taxes on improvements are also thought to decrease the intensity of development by favoring smaller buildings. Some of this development may be diverted to other locations, thus decreasing the density of development. By increasing the cost of improvements, taxes on this type of investment are thought to lower the quality and quantity of development and maintenance. By delaying development and redevelopment, high improvement taxes are expected to hinder land use succession. The subsequently smaller stock in improvements is also expected to increase building prices for consumers. If these theories are true, the cumulative effects of a total real property tax system have promoted underdeveloped central cities and sprawling development patterns.

Lenders and developers claim that many deteriorated and vacant apartment units litter the urban landscape because they have deferred renovations to avoid higher taxes.[2] As a consequence, rising construction and service costs may be shutting lower income people out of the land market. Buildings that would otherwise be built may not get constructed, and existing buildings may not be maintained. As buildings decline from lack of maintenance, or even just from normal wear and tear, older decaying buildings may be allowed to continue to persist beyond their economic life. The cumulative impact of these individual effects may be underdeveloped central cities and sprawling development patterns. If so, the property taxation system that is used in the

[1]Haila, A 'The effects of land value tax on land use' *Land Use Policy* 1985, 240–243; Roberts, P 'Property taxes and land value taxes' *The Real Estate Appraiser*, 1975 (Sept/Oct) 12–24; Gaffney, M 'Land planning and the property tax' *Journal of the American Institute of Planners* 1969 **35** 178–187; Browning, C E 'Land value taxation: promises and problems' *Journal of the American Institute of Planners*, 1963 **29** (4) 301–309; Pickard, J *Changing Urban Uses as Affected by Taxation* Research Monograph 6, Urban Land Institute, Washington, DC (1962); Rawson, M *Property Taxation and Urban Development* Research Monograph 4, Urban Land Institute, Washington, DC (1961)

[2]Wall Street Journal New Staff 'Developers raze units to ease apartment glut' *Wall Street Journal* 11 May 1988

United States, where both land and buildings are taxed at equivalent rates, would tend to favor the land speculator over the builder, the larger land owner over the smaller, and the suburbs over central cities.

In the broadest sense, LVT is a property taxing system in which land is taxed at a higher rate than improvements. Assuming constant revenue needs, the most conspicuous consequence of this system, relative to the current system, should be a removal of an unnecessary deterrent to development. Higher levels of investment in both new construction and rehabilitation would effectively increase the building supply and possibly improve their quality. With an increase in the supply of buildings, their prices should decline. As a major holding cost of land ownership, an increase in land taxes would make land speculation more costly. As land previously withheld from use enters the land market, land prices begin to decline. Lower prices on land and buildings should make investment in both more affordable to a wider range of income groups. Higher land taxes should also accelerate urban redevelopment by making under-used land less beneficial. If slums and blight result from poor maintenance and under-improvement, a switch from real property taxes to LVT should reduce the level of urban decay. Finally, a higher tax on land should shift much of the tax burden from land users to land speculators. By reducing land speculation, LVT should encourage more compact and efficient urban development and lower the price of land, while maintaining an adequate municipal tax base. By reducing the extent of infrastructure the municipal revenues can be shifted to other needed activities, including better maintenance, or taxes could be reduced.

LVT is often considered an equitable tax in terms of benefits received. Community investment in roads, schools, and utilities, as well as investments made by neighboring property owners, are primary causes of increases in land values. Land speculators frequently realize substantial gains from community investments. Zoning and other land use controls sometimes redistribute land values.[3] As a result of these community actions, landowners sometimes realize significant windfalls and wipeouts.[4] Land taxes would require landowners experiencing a windfall to pass the benefits of the community's investment back to the community. Land taxes would also relieve some of the burden on landowners that experience a wipeout by lowering their taxes.

To summarize, proponents of LVT argue that the removal of taxes on improvements should produce higher levels of investment, higher quality improvements, and higher intensities and densities of development, and that higher levels of land taxes should be capitalized into land prices, which should discourage land speculation and under-use of land resources. If the locational advantages offered by established central cities would funnel development into these areas, blighted downtowns may be revitalized by land value taxes and sprawling development patterns would be less likely to occur. LVT may thus produce a more efficient land use pattern and a more equitable allocation of the tax burden relative to benefits received. If these theories are true, taxing both land and buildings may be contributing to the decline of central cities in the United States in two ways: high taxes on improvements discourage investment in improvements and low taxes on land encourage land speculation. A restructuring of the property tax may be a way to refocus investment into central city redevelopment. The following section compiles the theoretical examinations of these ideas.

[3]Harrison, A J *Economics and Land Use Planning* St Martins Press, New York (1977)

[4]Hagman, D and Misczynski, D *Windfalls for Wipeouts: Land Value Capture and Compensation*, Planners Press, Washington, DC (1978)

Theoretical pros and cons

For a century economists have been intrigued with the concept of LVT as the ideal source of government revenue. With ideas postulated by Smith,[5] Ricardo,[6] and Mill,[7] Henry George proposed the concept of LVT in *Progress and Poverty* in 1879. George's philosophy held that the economic value of a parcel of land was created primarily by activities of society, and that the benefits from the land, as represented by the economic rent, should therefore be captured by society. As a committed capitalist, George did not advocate public land ownership. Instead, he proposed that the economic rent of land should be returned to society through an annual tax on land value. Land taxes also coincided with his belief that public revenues should be secured in a way least restrictive to the function of the open market. George's proposition was based on traditional economic theories that land taxes are neutral with respect to land development decisions. A tax is neutral when it affects all investment decisions equally. Thus, no particular investment activity would be favored or discouraged. According to these theories, land taxes represent the only major tax that is both efficient and equitable.[8]

A basic principle of property tax theory is that, in general, people will attempt to adjust their economic behavior to minimize the taxes that they are required to pay. Tax shifting occurs when participants in the system adjust their behavior to avoid a tax. Shifting is thought to cause price distortions and subsequent welfare losses to occur. This welfare loss is referred to as an 'excess burden' because beyond the direct burden of paying the monetary cost of the tax levy, the actual bearers of the tax must forgo goods, services, or savings that they would otherwise have been able to obtain. Tax shifting only occurs when participants in the system adjust their behavior to avoid the tax. Prices are distorted through the capitalization of the taxes. A capitalized value represents the present value of the cash flow that an asset is expected to produce in the future. An expected positive cash flow, such as the recovery of a tax cost, would cause a price to rise. The taxes would thus be positively capitalized into the price. Alternatively, an expected negative cash flow, such as an unrecovered tax cost, would cause prices to decline and thus be negatively capitalized.

When a tax is introduced or increased, the following process ensues. First, producers increase prices to maintain their return to what it would have been without the tax. Next, users who are willing and can afford to pay the increased prices reduce the amount that they would have spent on other goods and services or that they would have saved. The users who are unable to adjust their spending patterns, because of limited discretionary income, must forgo that good or service or find a less expensive substitute. Taxes that can be shifted become positively capitalized into a higher price. Taxes that cannot be shifted are negatively capitalized and cause prices to decline.

Real property owners may attempt to avoid property taxes in several ways. First, they may attempt to shift this tax burden to another person by raising prices. Developers may raise their prices and landlords may increase their rents to cover the property taxes assessed. Second, land purchasers and users may forgo or delay something that they had previously spent money on, or they may decide to cut back on the level or defer the timing of their land use. Third, if property taxes vary geographically, these consumers may shift their real estate investment across a tax boundary. These adjustments effectively change the alloca-

[5]Smith, A *The Wealth of Nations* Random House, London (1776)
[6]Ricardo, D *The Principles of Political Economy and Taxation* Everyman's Edition, London (1817)
[7]Mill, J S *Principles of Political Economy* Lee S. Shepard, Boston (1672)
[8]George, H *Progress and Poverty* Robert Schalkenbach Foundation, New York (1937)

tion and use of land resources. Thus, property tax shifting may occur in four forms: changes in investment level (or in the amount of investment), changes in investment timing (whether sooner or later), changes in location (or between jurisdictions), and changes in incidence (or between tax payers). Thus, property tax shifting influences what, when, and where investment is made and who pays the tax.

Using these concepts, property taxes are thought to have a distinct effect on land and buildings primarily because of key differences between them. First, land and improvements differ in origin. As Becker (p 16) explains,[9]

> the quantitative supply of land has been determined by nature as a gift to man. In addition, many qualitative characteristics of land, such as soil conditions, contour, gradient, and level of the water table, have been similarly determined by nature, at least originally. The quality of land as reflected in its value for urban use also depends upon the amount and type of public capital improvements, including streets, street lighting, water utilities, sewers, and schools. In a larger sense, it is the general presence of an urban land with locational or site value. On the other hand, the quantity and quality of improvements and tangible personality spring from specific human effort applied to create each unit of nonland property.

Within legal, economic, and technological limits, property owners control the quality and quantity of the improvements to their land. While some site specific characteristics of land can be changed, the locational advantages depend primarily on activities beyond the influence of the owner. Second, land is durable. Improvements, whether a building, parking lot, or fence, will eventually disappear without maintenance and repair. The relatively indestructible nature of land makes its supply virtually fixed over time. Though longer lasting than many other produced goods, improvements can be created and demolished. They also require continued investment to maintain their supply. Thus the supply of improvements varies over time. Finally, land is fixed in location. The immobility of land causes each parcel to be somewhat unique. Location is the most essential element of urban land. Immobility also makes land the ideal government revenue source. Improvements can be moved as a whole or disassembled and distributed to several locations. Relative to land, improvements are a form of capital, which is mobile and reproducible.

Taxes on land

There appears to be consensus on the impact of land taxes on land prices. The ability, or inability, to shift taxes determines the incidence of taxes on land, or who actually pays the tax. The source, durability, and immobility of land prevent owners from shifting their tax burden. Owners may attempt to increase the price or rent of their land to cover this cost. Users that are unable or unwilling to pay the increase in price will adjust their spending by using less land. Unable to sell at a higher price, land owners can only reduce this tax cost by either using their land more intensively or selling the property at a lower price. Thus, land taxes effectively serve as a *holding cost* for land ownership. Knowing that they also will be unable to shift this cost, potential purchasers will be likely to reduce their offer price to cover the additional holding cost. As such, land taxes would be negatively capitalized into land prices. The negative capitalization of land taxes indicates that the price of land would fall as taxes increase. Some scholars hold that the higher taxes

[9]Becker, A P 'Principal of taxing land and buildings for economic development' *Land and Building Taxes* University of Wisconsin Press, Madison, WI (1969)

leave consumers more or less neutral to the lower land prices,[10] whereas others contend that the price reduction would give access into the market to developers and owners that would otherwise be priced out of the land market.[11] While the long-term costs would be the same, those with less access to capital resources could more easily purchase land, so long as they had sufficient cash flow, or income resources, to be able to carry the holding costs.

As the average holding cost per unit of land rises, the amount of investment in land is expected to shrink to a point where costs equal a higher additional revenue. With a fixed supply of land, substitution of land investment merely changes the amount of land used for a particular purpose, such as urban versus rural land. The recurrent nature of the property tax increases the persistence of land taxes. By effectively charging owners for withholding their land from use, land taxes penalize land speculation. As serviced land within central cities previously withheld from the market begins to compete with unserviced land at the fringe, the cost of providing services may begin to deter development at the fringe. However, as speculators leave the market, the serviced land supply also increases. As these land prices drop, sprawl may increase as a result of the greater supply of this resource. It is important to note that the negative capitalization of land taxes into land prices only suggests lower *relative* prices. Land prices may also increase as a result of higher levels of neighborhood investment. Consequently, the actual prices occurring in a land value tax system would be the net effect of the negative capitalization of higher land taxes, which cannot be shifted, and the positive capitalization of increased investment in the neighborhood occurring as a result of lower improvement taxes, as will be discussed in the next section.

There is less consensus on the impact of land taxes on development. The minority view concurs with the views of Henry George, that development decisions are neutral to land taxes.[12] As a fixed cost, land taxes bear no relation to the extent of development of any given site. Instead, the amount of the tax is based on the potential value of a given site, which is primarily determined by external causes. Location, access, and exposure define the advantages and disadvantages of an urban site. According to this view, the land tax merely provides no disincentive, as does the improvement tax, to develop the site to its capacity because the land tax liability should remain unchanged. However, the majority of theoretical models show that land taxes hasten development.[13] According to this view, land taxes should amplify market pressure, because the taxes are highest on the very sites in most demand. The larger the tax level, the stronger the pressure either to develop or redevelop the property to cover the cost of the tax or to sell to someone else who will. More recent analysis suggests that the timing conclusions depend on the definition of the tax base: a tax on the market value of land encourages development and a tax on the current use of land is neutral.[14] The extent of the effect on development should depend on the difference between the potential and existing economic development of the site.[15] As taxes on under-used land value increase, the pressure for development is likewise expected to increase.

Taxes on improvements

There appears to be consensus on the impact of improvement taxes on investment. Most experts agree that improvement taxes effectively

[10]Skaburskis, A Personal Communication: Letter. 5 April 1995

[11]Becker *op cit* Ref 9

[12]Tideman, T N 'A tax on land value is neutral' *National Tax Journal* 1982 **35** (1) 109–111

[13]Skouras, A 'The non-neutrality of land taxation' *Public Finance* 1978 **33** (1–2) 113–134; Bentick, B L 'The impact of taxation and valuation practices on the timing and efficiency of land use *Journal of Political Economy* 1979 **87**(4) 859–868; Mills, D E 'The non-neutrality of land value taxation' *National Tax Journal* 1981 **34** (1) 125–129; Noguchi, Y 'On the neutrality of the property tax' *Land Economics* 1982 **58**(4) 383–385; Wildasin, D E 'More on the neutrality of land taxation' *National Tax Journal* 1982 **35**(1) 105–108

[14]Bentick, B L and Pogue, T F 'The impact on development timing of property and profit taxation' *Land Economics* 1988 **64**(4) 317–324

[15]Roakes, S L, Barrows, R and Jacobs, H M 'The impact of land value and real property taxation on the timing of central city redevelopment in New Zealand' *Journal of Planning Education and Research* 1994 **13** 174–184

serve as a *development cost*. By influencing the location and supply of their improvements, owners can reduce their taxes on improvements. Owners may restrict their investment in new improvements until the market is willing to pay a price sufficient to cover the tax on any additional improvements.[16] Taxes may also be reduced on existing improvements through neglect, relocation, or demolition.[17] When a tax is levied on improvements, it increases the average cost per building unit so that the total cost per building also rises.

High taxes on improvements provide a disincentive to invest in all forms of investment in land improvements including development, maintenance, and redevelopment. Thus, improvement taxes are expected to discourage improved structural standards and lead to an effectively lower supply of improvements. Improvement taxes also increase local business costs. This element is generally thought to render a locality economically less attractive than places with lower levels of tax. Finally, some excise effects of improvement taxes are likely to be passed on to consumers in a way that is likely to be regressive to income. Within regions throughout the United States, lower income persons and renters generally live within older, higher taxing jurisdictions, where improvement tax incidence is most likely shifted from owners to renters, and higher income persons and homeowners live in the lower taxing jurisdiction where taxes are more likely to be shifted from renters to owners. Conversely, a removal of the tax on improvements is expected to increase the levels of investment, hasten redevelopment, and increase the intensity and density of land use and development.

The incidence of tax on improvements, or who actually pays the tax, is somewhat controversial. The traditional, or 'old' view of tax incidence, is that in the long term the tax on improvements is shifted to the user through higher prices. As was discussed earlier, improvements represent a wasting asset. This condition means that without continued investment the effective supply of building stock shrinks. To recover the cost of improvements, investors can reduce their investment in improvements until their effective supply degrades to cover the tax costs. This reduction in the level of investments in new improvements is anticipated to continue until the revenue from existing improvements rises sufficiently to reimburse their owners for the taxes.[18]

Others have challenged this conclusion with a 'new' view, which states that a substantial share of the tax on improvements is borne by the owners and only a portion of the tax on improvements is borne by the consumers.[19] A 'crucial assumption of the old view is that a tax on real property does not affect the long-run rate of return to capital in general'.[20] This conclusion is possible because proponents of the old view only consider the changes occurring in a local economy (partial equilibrium analysis) rather than at a larger global scale (general equilibrium analysis). Since property taxes are assessed throughout an economy, adherents to the new view believe that more than the local economy should be considered when assessing effects. By assuming that capital investment is perfectly mobile among regions and industries, they conclude that 'a uniform nationwide tax on improvements cannot be shifted by owners to tenants or users of property'.[21]

As with many land use issues, I find that the disagreement primarily stems from a difference in perspective rather than a truly different theory, like two blind people describing an elephant based on what they 'see' by touching different parts. The counter, or new view focuses on

[16]Heilbrun, J *Urban Economics and Public Policy* (3rd edn) St Martin's Press, New York (1987)
[17]Becker *op cit* Ref 9
[18]Becker *op cit* Ref 9
[19]Aaron, H J *Who Pays the Property Tax?* Brookings Institution, Washington, DC (1975)
[20]Heilbrun *op cit* Ref 16, 455
[21]Heilbrun *op cit* Ref 16, 410

the global economy, and asserts that at the regional or national scale taxes have a similar impact on incidence for improvements as on land.[22] According to the new view, a substantial share of the tax on improvements is borne by the owners and only a portion of the tax on improvements is borne by the consumers. According to the new view, forward shifting, from owners to renters, occurs in higher taxing areas, and backward shifting, from renters to owners, occurs in lower taxing areas.[23] However, while there is disagreement between the old and the new views concerning the global effects, both views agree that the local, or 'excise' effects are likely to be the same.

The global effect is the long-run decline in the net return to capital and is equal to the average rate of tax throughout the region. Excise effects are differences in the local gross cost of capital and occur as a result of varying local tax rates. Both the old and new views agree that the primary effect of the improvement tax is to make local capital services, including housing and business costs, more expensive.[24] Because investors have control over the supply of improvements, an increase in the cost of local capital services would probably continue to act as a disincentive to improvements in higher taxing areas. The excise effects of a higher local improvement tax, relative to the regional average, encompass the shifting of investment and location already mentioned. Essentially, the improvements tax increases the cost of development, which is generally passed on to consumers through higher prices.

What do we know?

Although the interest in LVT persists, the empirical evidence is somewhat scarce. A likely reason for this shortage is a lack of data sources. Only in New Zealand, Australia, South Africa, and Jamaica is LVT practiced in its pure form. Approximations of LVT exist in a variety of forms. In the United States and some Canadian provinces, a few communities practice a graded tax, where land is taxed at a higher rate than improvements. Pittsburgh is the largest city in the United States that uses a graded tax system and has provided the database for many studies. British Columbia, Canada, has also provided a database. Building-tax abatements have also been associated with LVT as an incentive for development investment.[25] However, tax abatement systems only decrease the tax on improvements without raising the tax on land. Thus, tax abatements may produce different effects than LVT.

A common problem with existing data sources is that low tax levels may not represent the effects of the LVT system at higher tax levels. A critical tax level may exist, below which other factors may swamp the effects of the taxing systems. A similar revenue requirement would require higher land taxes and lower improvement taxes relative to the traditional real property tax (RPT) system, where land and improvements are taxed equally. Because a graded tax system and a tax abatement system would be likely to result in less relative change in each of these taxes, they may not produce the same range of results as an undiluted LVT. The impact of LVT can also be reduced or neutralized by undervaluation of land parcels, by delayed or infrequent revaluations, and by the use of valuations based on current-use value instead of market value. Cities that use LVT experience continuing political pressure from landowners to use these measures. The success

[22]Aaron *op cit* Ref 19
[23]Heilbrun *op cit* Ref 16, 413
[24]Heilbrun *op cit* Ref 16, 466
[25]Severn, A 'Building-Tax abatements: an approximation to land value taxation' *American Journal of Economics and Sociology* 1992 **51**(2) 237–245

of these pressures has reduced the number of useful examples of the impact of LVT. These limitations may explain why the research on the effects of land and improvements taxes on investment and land use is sometimes inconsistent.

Very few studies specifically focus on the effect of land and improvement taxes on prices. Most studies that measure the effect of property taxes on land values do not separate the impact of land and improvement taxes.[26] These studies appear to concur that real property taxes are capitalized into land prices: with all other things being equal, land prices increase with a decrease in real property taxes. Studies that have measured the relative impact of the graded tax system in Pennsylvania cities have been inconclusive.[27] The independent effects of opposing changes in land and improvement taxes could not be separated. One study, which evaluated a tax abatement system, showed that lower improvement taxes resulted in a increase in land prices, indicating that lower improvement taxes were positively capitalized to produce higher land prices.[28] Here, the effective improvement tax changed, while the effective land tax remained constant. This evidence also indicates that the rise in prices occurring in this study were due to speculation rather than investment.

Several studies estimate the expected shift in tax burden resulting from a change from real property tax to an LVT. All of the communities studied within this group operated within the RPT system at the time of the study. These studies all approximate the change in tax burden by first computing the existing total property value to land value ratios for the community as a whole and then separately for individual properties. Next, they compare the community ratio to the ratios for individual properties. If a property's ratio is less than the community's, then the taxes assessed on the property are presumed to increase. Likewise, a property with a higher ratio than the community would be presumed to experience a decrease in assessed property taxes.

The results of these studies have varied, but they have generally predicted that the tax burden would increase on lower density properties, which included different land uses in different cities. In Burnaby, British Columbia, Rawson[29] determined that throughout the city all types of residential property in average to good condition could expect a decrease in taxes with a switch from an RPT to an LVT system. Smith[30] also found that multi-family and most single family residential, as well as commercial and industrial uses in San Bernardino, California, would experience a reduction in tax burden. Neuner, Popp, and Sebold estimated likewise.[31] Their calculations indicated that a change to a land value tax system in San Diego, California, would redistribute the tax burden from hotels, motels, commercial, industrial, and public uses to residential, general business, agricultural, and undeveloped land. Smith and Neuner *et al* noted that the residences in central city areas experienced more of the increased tax burden than residences in suburban areas.

All of these studies estimated the impact of a change in taxing system under static conditions. None of them considered changes in land prices, investment, or land use resulting from the tax change. For example, one explanation for the increased tax burden for residential properties in San Diego in 1974 may have been the effects of land speculation on prices. Over-assessment of properties in older and declining neighborhoods, which has been shown to occur,[32] may also explain this inconsistency.

[26]Church, A M 'Wealth distributive effects of the property tax' *Assessors Journal* 1974 **9** 41–55; Church, A M 'Capitalization of the effective property tax rate on single family residences' *National Tax Journal* 1974 **27** (Mar) 113–122; Wales, T J and Wein, E G 'Capitalization of residential property taxes: an empirical study' *Review of Economics and Statistics* 1974 **55** (Aug) 329–333; Lewis, C and McNutt, P 'The incidence of property taxes on single family housing' *Journal of Real Estate and Urban Economics* 1978 **7** (Fall) 344–361; Chinloy, P 'Effective property taxes and tax capitalization' *Canadian Journal of Economics* 1978 **11** (Nov) 740–750

[27]Bourassa, S C 'Land value taxation and new housing development in Pittsburgh' *Growth and Change* 1987 **18**(4) 44–56; Mathis, E J and Zech, C E 'An empirical test: the economic effects of land value taxation' *Growth and Change* 1982 **13**(4) 2–5; Pollakowski, H O *Adjustment Effects of a Tax on Land: the Pittsburgh Case* Lincoln Institute of Land Policy, Cambridge, MA (1982)

[28]Wassmer, R W 'Property tax abatement and the simultaneous determination of local fiscal variables in a metropolitan area' *Land Economics* 1992 **68** 263–282

[29]Rawson *op cit* Ref 1

[30]Smith, T R 'Land value versus real property taxation: a case study comparison' *Land Economics* 1970 **66**(3) 305–313

[31]Neuner, E J, Popp, D O and Sebold, F D 'The impact of a transition to site value taxation on various classes of property' *Land Economics* 1974 **50**(2) 181–185; Popp, D O and Sebold, F D 'Redistribution of tax liabilities under site value taxation: San Diego county' *American Journal of Economics and Sociology* 1972 **31**(4) 413–426

[32]Peterson, G E, Solomon, A P, Madgid, H and Apgar Jr, W C *Property Taxes, Housing and the Cities* Heath, Lexington, MA (1973); Englebert, E 'The political aspects of real estate taxation in relation to metropolitan growth and planning' in Becker, A (ed.) *Land and Building Taxes: Their Effect on Economic Development* University of Wisconsin Press, Madison, WI (1969)

Several studies have focused on the impact on investment of variations in improvement taxes. While the level of effect has varied, studies have generally shown that a reduction in improvement taxes leads to increased investment levels. Using aggregate data from the United States, Greison[33] estimated that an elimination of the tax on improvements would increase the supply of structures by up to 23%. Focusing specifically on the hotel industry in Waikiki, Hawaii, Pollock and Shoup[34] estimated that the elimination of the tax on structures may result in as much as a 25% increase in the amount of investment in hotels. Using a cross-sectional analysis of 91 US Standard Metropolitan Statistical Areas, Tanzel[35] calculated that a given percentage reduction in the improvement tax induces an equal percentage increase in housing quantity and quality. Later, using a sample of owners of new single-family houses from the 1977 nationwide Annual Housing Survey, she confirmed and increased the relative impact of a lower improvements tax on improved housing quality from 34% up to a maximum level of 58%.[36]

Tax abatement programs, which effectively lower the improvement tax while holding the land tax constant, have also been shown to increase investment. One of the earliest studies[37] determined that a tax abatement program produced a 5–10% increase in property value. McDonald[38] determined that any increase in land or capital intensity that exceeded the amount of revenue lost would make a tax abatement program beneficial. Wolkoff[39] determined only a 2–5% increase in investment and cautioned that the benefits may be too trivial to warrant several indirect costs. Morse and Farmer[40] determined that the increase would be 25%. It is important to note that some of these studies focused on changes in property value rather than investment in improvements. As seen in studies discussed earlier in this report, property values, or market prices, may have risen as a result of speculation rather than investment.

Other studies approximate the effects of LVT in the United States. Mathis and Zech[41] found no evidence that cities in Pennsylvania using a graded tax experienced more development than cities using an RPT system. Several criticisms appeared noting numerous flaws with the research design of Mathis and Zech's study.[42] While Mathis and Zech[43] responded with some re-evaluation of their data using suggestions offered, they did not deal with all of the problems mentioned. Therefore, the worth of this study is questionable. Bourassa[44] used multiple regression to study the effect of the graded tax in Pittsburgh. He determined that the lower improvements tax rate had a significant effect on new housing construction, whereas the higher land tax rate did not. More specifically, he found that the lower improvements tax rate increased the number of new housing units, but not the average cost of the new units. He later decided that the lack of influence by the increase in land tax was probably due to the negative capitalization of the land tax into the land prices.[45]

Studies focusing on the effect of a full LVT system on investment are few. Edwards[46] found evidence that metropolitan areas in Australia using LVT have a significantly higher average housing value and a substantially larger housing stock than those using a real property tax system. This finding is consistent with other research that has determined that lower improvement taxes, together with higher land taxes, have resulted in increased levels of investment in improvements.

[33]Grieson, R E 'The economics of property taxes and land values: The elasticity of supply of structures' *Journal of Urban Economics* 1974 **4** 367–381

[34]Pollock, R and Shoup, D C 'The effect of shifting the property tax base from improvement value to land value: an empirical estimate' *Land Economics* 1977 **53**(1) 67–77

[35]Tanzer, E P 'The effect of housing quality of replacing property by site-value taxation' *Journal of Urban Economics* 1985 **17** 305–318

[36]Tanzer, E P 'Housing quality and the structure tax: evidence from microdata' *Journal of the American Real Estate and Urban Economics Association* 1987 **15** 32–45

[37]Morgan, W E and Hackbart, M H 'An analysis of the state and local tax exemption programs' *Southern Economic Journal* 1974 **41** 2

[38]McDonald, J F 'An economic analysis of local inducements for business' *Journal of Urban Economics* 1983 **13** 322–333

[39]Wolkoff, M J 'Chasing a dream: the use of tax abatements to spur urban economic development' *Urban Studies* 1985 **22**(4) 305–315

[40]Morse, G W, Farmer, M C 'Location and investment effects of a tax abatement program' *National Tax Journal* 1986 **39** 229–236

[41]Mathis and Zech *op cit* Ref 27

[42]Coffin, D A and Nelson, M A 'The economic effects of land value taxation – commentary' *Growth and Change* 1983 **14**(3) 44–46; Liu, B C 'Mathis and Zech's empirical test of land value taxation: a critique of a commendable but unsuccessful effort to measure the effects of a basic levy' *American Journal of Economics and Sociology* 1985 **44**(2) 137–143

[43]Mathis, E J and Zech, C E 'The economic effects of land value taxation – reply' *Growth and Change* 1983 **14**(3) 47–48

[44]Bourassa *op cit* Ref 27

[45]Bourassa, S C 'Economic effects of taxes on land: a review' *American Journal of Economics and Sociology* 1992 **51** 109–113

[46]Edwards, M E 'Site value taxation in Australia: where land is taxed more and improvments less, average housing values and stocks are higher' *American Journal of Economics and Sociology* 1984 **43**(4) 481–495

Empirical evidence on the timing of redevelopment is weak. Based on a visual analysis of Sydney, Australia, where LVT is used, Archer[47] reported evidence of accelerated commercial redevelopment. Although Archer did discuss other likely reasons for the change, his empirical model did not control for any of these other causes. In a comparison of the effect of RPT to LVT on the length of time to redevelopment for commercial properties in Auckland and Wellington, New Zealand, where both systems were used, Roakes *et al*[48] concluded that LVT did not hasten the process of redevelopment. Here, redevelopment was influenced by a scarcity of developable land, population growth, and the adaptability of existing buildings. They also noted that the low tax level and infrequent revaluations during a period of tremendous development may have swamped the effects of the taxing systems.

Evidence of the influence of property taxes on location is inconsistent. Visual analysis was used in Auckland, New Zealand, where a variety of tax bases were used in different jurisdictions, but showed no evidence of distinguishable effects.[49] Low tax levels may have influenced this effect. More rigorous models have detected a centralizing effect. Using a multiple regression model to compare the impact of a graded tax system in three types of cities (central city, suburban city, and a relatively isolated city), Bourassa[50] determined that the increase in housing investment only occurred in the central city. While cautioning against generalizing beyond the conditions of this study, he concluded that LVT may provide a strategy for central cities to encourage development and attract households. Wassmer[51] determined that the tax abatement program discouraged location in the central city by increasing land prices. Here, the decrease in improvement taxes appeared to be positively capitalized into the land prices. Without a simultaneous increase in land taxes, the reduction in improvement taxes appeared merely to increase speculation.

Conclusion

Sorting through the evidence indicates that many of the theories appear sound. The evidence verifies that tax capitalization appears to be occurring, but does not clearly determine the resulting price outcome. Land prices increased with a decrease in real property taxes. They also appeared to increase as a result of the tax abatement system. Land prices were determined to decrease as a result of higher land taxes. Without separating the effects of land and improvement taxes, it is impossible to determine the relative impact of these opposing changes. While the relative prices, considering other comparable property variables as constant, may be lower, the actual prices may increase, owing to other changes in the property market. Of communities that have adopted a version of LVT, none have reported problems with insufficient tax base. Thus, those currently left out of the market may benefit from lower relative prices, while central cities may actually experience a total price increase. These two seemingly contradictory results can be explained by considering the overall impacts of the change in taxing systems. The separate effects can be isolated by separating the independent effects of changes in the two taxes in relation to other changes in the property market, but also by separating the influence of these two taxes on improved and unimproved land.

The influence on investment appears to have the strongest support,

[47]Archer, R W *Site Value Taxation in Central Business District Redevelopment* Research Report 19, Urban Land Institute, Washington, DC (1972)

[48]Roakes, Barrows and Jacobs *op cit* Ref 15

[49]Woodruff, A H and Ecker-Racz, L L 'Property taxes and land-use patterns in Australia and New Zealand' in Becker, A (ed.) *Land and Building Taxes: Their Effect on Economic Development* University of Wisconsin Press, Madison, WI (1965); Clark, W A V *The Impact of Property Taxation on Urban Development* Report No. 187, Institute of Government and Public Affairs, University of California–Los Angeles, Los Angeles, CA (1975)

[50]Bourassa, S C 'Land value taxation and housing development: effects of the property tax reform in three types of cities' *American Journal of Economics and Sociology* 1990 **49**(1) 101–111

[51]Wassmer *op cit* Ref 28

but not in all cases. An increase in land taxes together with a lower improvement tax, as in the LVT and graded tax systems, appear more likely to increase investment than the tax abatement system, where only improvement taxes are altered. Without a simultaneous increase in land taxes, a tax abatement system has had the opposite effect of higher prices with no more investment, indicating that speculation was merely increased.

The research indicates that LVT does not hasten redevelopment. LVT is not likely to be effective for preserving uses that are threatened by redevelopment. While the theories indicate that the pressure to develop fringe areas may be reduced by freeing access to inner city land, LVT alone would not provide any direct protection from market demand. Particularly in the US, numerous factors favor fringe development over infill and redevelopment.[52] More importantly, by maintaining investment in already developed areas, LVT may encourage rehabilitation and maintenance, and subsequently prevent decline from occurring. The conditions where LVT appears likely to be most effective are where investment has begun to shift from central areas to fringe areas. LVT must stem a shift that has just begun to occur. The key is to prevent a level of deterioration that discourages investment from occurring. If land speculators are forcing land users to move to other locations, LVT may provide a tool for interrupting this cycle. LVT would be likely to have no effect, either positive or negative, in places where land owners are already responding to market demand. LVT may not be the 'golden key', but it does appear to offer an effective tool for encouraging development in some central city areas.

LVT appears most likely to amplify existing market forces. Thus, LVT appears most useful for encouraging investment and development in places where latent demand exists, but is currently unmet. By removing a cost to develop, LVT should stimulate investment, which may translate into development of vacant land and redevelopment of obsolete structures. However, as these land prices drop, sprawl may increase as a result of the greater supply of this resource. The location and extent of services will influence this supply. While LVT appears to influence the amount and location of investment, as already noted, there is no evidence that LVT hastens redevelopment. However, this result may be due to databases that have been limited by low taxes, infrequent revaluations, and inaccurately low valuations.

The lack of good databases forms an enduring obstacle to research in this area. Most of the research to date has focused on the economic impacts of land and improvement taxes. Little research has focused on the circumstances that have instituted an LVT-type system. Here the lens would shift to the politics of tax policy. While few communities use an LVT-type taxing system, most of these have continued to use this system. What brought about the change? What happened after the change? And, what were the reasons and effects in the few communities that changed away from an LVT-type tax system? Wellington, New Zealand, and British Columbia, Canada, both fit this pattern. These cases may present additional clues for determining whether and how an LVT-type system could be instituted.

[52]Jackson, K T *Crabgrass Frontier: The Suburbanization of the United States* Oxford University Press, Oxford (1985)