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# Site Value Taxation and Manvel's Land Value Estimates

By RICHARD W. DOUGLAS, JR.

**ABSTRACT.** Replacement of the existing *property tax* with a *tax on site value* requires that the site value base be sufficiently large to generate the same *revenue* as the existing tax. The adequacy of the site value base is examined in view of *Manvel's land value/property value estimates*. The conclusion is that only partial replacement may be feasible in many cases, but this may still produce a desirable effect.

## I

### INTRODUCTION

THE POSSIBILITY of replacing the property tax with a site value (land value) tax has created renewed interest in site value taxation in recent years. Dissatisfaction with the property tax in its present form arises in part because the portion of the tax levied on capital discourages its use. The present tax, it is claimed, has resulted in the migration of capital to low tax jurisdictions, the shrinkage of the tax bases of large cities, and the discontinuous pattern of land development commonly referred to as "urban sprawl."

Substitution of a tax solely on site value may help solve these problems. However, the feasibility of the substitution has been questioned because it is felt that site value may not provide a large enough base to raise the revenue generated by the present property tax. Heilbrun is among those who question the adequacy of the site value base (1). He provides the following analysis:

Let

$C_L$  = Land value

$C_B$  = Capital value

$i$  = The interest rate for land rent capitalization

$t$  = The effective property tax rate on land and capital

Site value provides an adequate base only if land rent equals or exceeds the revenue of the property tax; otherwise, even full collection of rent will not raise enough revenue. This requires that,

$$C_L(i + t) \geq t(C_B + C_L), \text{ or} \\ i/t \geq C_B/C_L$$

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TABLE 1

Locality	t%	$O_B/O_L$	H (i=4%)	H (i=6%)
1. Honolulu, Ha.	.9	1.81	.52	.37
2. Cook Co., Ill.	2.5	2.30	1.27	.97
3. Baltimore Co., Md.	3.4	2.09	1.42	1.12
4. Detroit, Mich.	2.4	2.44	1.29	.98
5. Hennepin Co., Minn.	2.1	2.03	1.04	.79
6. Ramsey Co., Minn.	1.9	2.28	1.06	.79
7. St. Louis Co., Mo.	2.0	1.92	.97	.73
8. New York City, N. Y.	1.9	2.28	1.06	.79
9. Cuyahoga Co., Ohio	2.0	2.15	1.05	.79
10. Franklin Co., Ohio	1.4	1.70	.70	.51
11. Oklahoma Co., Okla.	1.3	2.14	.77	.56
12. Philadelphia, Penn.	2.0	2.18	1.06	.80
13. Shelby Co., Tenn.	1.7	1.67	.80	.59
14. Harris Co., Texas	1.5	2.00	.82	.60
15. Milwaukee, Wisc.*	4.1	2.38	1.71	1.37

\* Includes only the part in Milwaukee Co.

Heilbrun uses Goldsmith's estimates of national wealth to conclude that  $C_B/C_L = 4$  for U.S. urban places. Setting statistical objections to Goldsmith's estimates aside, this implies that the inequality is probably not satisfied for many (or most) urban tax jurisdictions, for the removal of capital from the property tax base would cause a large reduction in revenue compared to what could be regained by increased taxation of site value, due to the high value in capital relative to land.

However, the more recent work of several writers suggest that Heilbrun's pessimism may be unwarranted. Stone has developed a model that looks at adequacy in a dynamic context (2). He computes a rate of growth for capital that allows land rent to increase at least as fast as local revenue requirements, and suggests that this growth rate is realistically attainable. The implication is, if capital is growing fast enough, an increasing share of the property tax may be borne by land.

An additional reason for optimism regarding site value tax adequacy is that, since the use of capital would be encouraged by its removal from the property tax base, land rent may be increased as a result of an increase in land's marginal productivity. This effect might be important if a relatively small number of places were to switch to the site value tax, for capital would be encouraged to migrate from places that retain the present tax. If, however, all localities made the substitution, much or all of the incentive for migration to a particular locality would be eliminated, though there could still be some capital movement due to geographic differences in present tax rates (3).

A final criticism of Heilbrun's position on adequacy is warranted by the unreliability of the data he uses to derive his value of  $C_B/C_L$ . According to Gaffney, most estimates of land value (including the estimate derivable from the Goldsmith data) significantly underestimate true value because they fail to take into account that land is greatly underassessed compared to capital (4). Gaffney feels that the only estimate that comes close to approximating the true value of land is the relatively recent one by Manvel which allows for the under-assessment of land value (5).

Since Manvel's estimate of the value of land relative to capital is substantially higher than earlier estimates, it is instructive to examine the adequacy question in light of his work.

## II

### *MANVEL'S ESTIMATES AND SITE VALUE TAX ADEQUACY*

MANVEL ESTIMATES LAND VALUE as a proportion of total property value for each of several land use categories (6). The land value/total property value proportion for an entire locality ( $C_L/(C_B + C_L)$ ) is the sum of the land value/property value proportions for each use weighted by the corresponding proportion of the locality's total property value that is in each use. The percentage distribution of

property value among uses for several localities is derivable from *Census of Governments* data for the year 1971 (7). Assuming Manvel's land value/property value estimates for each use apply to all of these places, we can use the *Census* data to compute  $(C_L/(C_B + C_L))$  for each of the places listed in Table 1.  $(C_L/(C_B + C_L))$  is converted to  $C_B/C_L$  for presentation in the table.)

Table 1 also shows the effective tax rate for 1971 for each locality (8). The last two columns in the table show the proportion ( $H$ ) of land rents that would be collected by a site value tax that raises the same amount of revenue as the property tax, assuming values for  $i$ . The value of  $H$  is,

$$H = \frac{t(C_B + C_L)}{C_L(i + t)} = \frac{t(C_B/C_L + 1)}{i + t}$$

Alternative values for  $i$  have been used because of the difficulty of choosing an appropriate single value. In Heilbrun's opinion, the appropriate (real) value is fairly low, about 5 or 6 percent, because land is a relatively low risk asset. Manvel's study indicates that real land values have increased in recent years. If these increases are expected to continue, the correct discount rate is somewhat less than the rate that would be appropriate in the absence of expected land value increases (9). Taking this into account, we have decided upon  $i = 4\%$  and  $i = 6\%$  for the computation of  $H$  in Table 1.

Table 1 indicates that, for  $i = 4\%$ , the revenue generated by the present property tax exceeds land rents in 9 of the 15 places listed ( $H > 1$ ). This is true for only two places if  $i = 6\%$ . However, even for  $i = 6\%$ , at least  $\frac{3}{4}$  of land's rental value must be taxed away in order to raise the required revenue for most of the localities shown.

### III

#### *THE FEASIBILITY OF FULL SUBSTITUTION*

TABLE I SUGGESTS that, in spite of Manvel's relatively high estimates, full substitution of the site value tax would place such a heavy burden on land that it is doubtful that most urban localities would find the substitution politically feasible. The analysis presented here is far from conclusive, however, for the following reasons: First, the discount rates used to compute  $H$  were somewhat arbitrarily chosen. If  $i$  is greater than 6 percent, more leeway is provided for site value

taxation. Second, the validity of Manvel's estimates may be legitimately questioned. This is difficult to check by examining other data, however, since alternative estimates that would allow the determination of  $C_B/C_L$  for the various use categories are not available. (The scarcity of data reflects the fact that it is quite difficult to separate land value from total property value since there are relatively few transactions involving the sale of unimproved land.) It is therefore possible that Manvel's estimates understate the true value of land. Finally, even if his estimates are accurate, it is somewhat inappropriate to apply them to each of the places in Table 1, for there may be significant variation among localities in the land value/property value proportions of each use category (10).

Despite the fact that the analysis is subject to some degree of error, the use of Manvel's relatively high land value estimates has, if anything, probably overstated the case for adequacy (11). Therefore it would seem that site value taxation does not present a workable alternative to the present property tax for most urban governments.

#### IV

##### *OTHER ALTERNATIVES—PARTIAL SUBSTITUTION*

THERE ARE, OF COURSE, MANY POSSIBILITIES for property tax reform which could provide a variety of benefits. In particular, a local government might wish to halt the outmigration of capital by eliminating its taxation. The previous analysis asserts that it may be difficult or impossible to raise enough revenue through site value taxation to do this.

There are other ways of regaining the lost revenue, of course, including earnings (income) taxes, direct charges for government-provided services, and closer control of the level of expenditures. If for some reason none of these are feasible, the outflow of capital might still be checked by partial substitution of the site value tax, which would increase the tax rate on site value and reduce (but not eliminate) the tax on capital.

Suppose, for example, it is determined that a local government can collect no more than a certain proportion ( $J$ ) of land rents and still leave an acceptable degree of private equity in land. If the property tax revenue ( $t(C_B + C_L)$ ) cannot be raised solely by taxation of site value (which yields  $Jt(C_L(i + t))$ ), some taxation of capital is required to make up the difference. The rate can be reduced to  $t^*$ ,

however, and the tax will yield  $t^*C_B$ . Thus,

$$t(C_B + C_L) = Jt(C_L(i + t)) + t^*C_B, \text{ or}$$

$$t^* = (t(C_B/C_L + 1) - J(i + t))/C_B/C_L$$

Assume that  $i = 6\%$ ,  $t = 3\%$ , and  $C_B/C_L = 2.0$ , so that it would just be possible to raise enough revenue through site value taxation alone if all rents went to the government. If it is decided that it is inappropriate to take more than  $2/3$  of land's rental value, the shortfall of revenue can be made up by taxing capital at a reduced rate of 1.5 percent. Since the average property tax rate is about 2 percent, the reduction in the rate from 3 percent to 1.5 percent would presumably be great enough to discourage the outmigration of capital (12).

The increase in site value taxation needed to achieve this sort of result would of course be quite different in different places. But it does appear, on the basis of present inadequate measures of land values, that increased taxation of site value may be beneficial even for places which do not have a large enough site value base to allow full substitution for the present property tax.

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1. See James Heilbrun, *Real Estate Taxes and Urban Housing* (New York: Columbia Univ. Press, 1966).

2. See Gerald W. Stone Jr., "Public Spending, Land Taxes, and Economic Growth: An Empirical Analysis of Land as a Tax Base," *American Journal of Economics and Sociology*, Vol. 34, No. 2 (1975), pp. 114-26.

3. This point has been mentioned by Dick Netzer, *Economics of the Property Tax*, Studies of Government Finance (Washington: The Brookings Institute, 1966) and Stone, *op. cit.* Also, Samuel Thorndike, "Some Theoretical Aspects of Building Tax Burdens on Landowners," *Land Economics*, February 1970, pp. 59-67, provides a geometric analysis. The most relevant article, though it is not concerned with site value taxation, is by Peter Mieszkowski, "The Property Tax: An Excise Tax or a Profits Tax?" *Journal of Public Economics*, 1 (1972), pp. 73-95.

4. See Mason Gaffney, "Adequacy of Land as a Tax Base," in Daniel M. Holland, *The Assessment of Land Value* (Madison: Univ. of Wisconsin Press, 1970) pp. 157-212.

5. See Allan Manvel, "Trends in the Value of Real Estate and Land, 1956 to 1966," in *Three Land Research Studies*, National Commission on Urban Problems, Research Report No. 12, Washington, D.C., 1968. Gaffney, *op. cit.*, feels that even Manvel's estimates are somewhat low.

6. Manvel's land value/property value estimates for the following use categories are: Single Family Housing, 0.28; Multi-family Housing, 0.20; Commercial Property, 0.40; Industrial Property, 0.24; and Acreage, 0.85. In addition, it is assumed that a value of 1.00 applies to vacant land.

7. *Census of Governments, 1972, Vol. II, Taxable Property Values and Assessment-Sales Price Ratios, Part 1, Taxable and Other Property Values*, Table 8,

gives the percentage distribution of *assessed* property value among use categories for different localities. Some types of property are typically underassessed relative to others: therefore we assume that the *actual* proportion of a locality's total property value in a given use is inversely proportional to the assessment-sales ratio for that use. We use the nationwide assessment-sales ratios given in *Census of Governments, 1972, Vol. II, Taxable Property Values and Assessment-Sales Price Ratios, Part 2, Assessment-Sales Ratios and Tax Rates*, Table F, to adjust the assessed value distributions.

8. We roughly estimate the effective tax rates for the various localities from the effective rates for cities within each locality. See *Census of Governments, 1972, Vol. II, Taxable Property Values and Assessment-Sales Price Ratios, Part 2, Assessment-Sales Ratios and Tax Rates*, pp. 17-18.

9. The interest rate for capitalizing rents that increase at a rate  $y$  per year is equal to  $r - y$ , where  $r$  is the rate that would apply if rents were constant. If land rents are expected to increase, land values reflect primarily future rather than present rents and it is more difficult to satisfy the adequacy inequality—*i.e.* the value of  $i$  is relatively low.

10. Manvel's land value/property value estimates for each use category are derived from the median values of 12 urban places that report land and property values separately. Manvel adjusts these figures upward somewhat to compensate for relative underassessment of land value. The interquartile range of values of the 12 areas suggests that it is possible for the  $C_B/C_L$  shown in Table I for a particular place to be inaccurate by as much as 25 percent.

11. Manuel Gottlieb, "Land Value Inflation and Taxation: A Critique of the Douglas Report," *Quarterly Review of Economics and Business*, Summer 1971, pp. 27-39, is highly critical of Manvel's upward adjustments of the median values (see Note 10). If Manvel's adjustments are in fact unwarranted, the  $C_B/C_L$ 's in Table I would be reduced by about 15 percent.

12. Gradual implementation of a differential tax rate system would minimize the loss suffered by present landowners. Since land values, capital values, and revenue requirements can be expected to increase over time, one way to accomplish this is to tax land value *increases* at a particularly high rate. It also would permit the development of more adequate statistics, enabling tax authorities to adjust the system to the realities of the situation if the level of true land values were higher or lower than present data indicate.

### *Another Application for Interdisciplinary Studies*

A GRADUATE, INTERDISCIPLINARY PROGRAM in Museum Studies will be introduced during 1978 at New York University to provide students with the necessary historical, ethical and professional background to pursue careers in this rapidly growing field.

The Program is designed to train a select group of students—about 20 a semester—who are earning their master's or doctoral degrees, or who already hold such degrees. Upon successful completion of the 24-credit program, of which eight may be counted toward a graduate degree, students will be awarded a New York State Professional Certificate in Museum Studies. Included in their training will be one semester of intensive internship at one of the more than 70 museums in the New York area. Flora S. Kaplan, professor of anthropology, is director of the program.