

Land Value Taxation: Administrative Feasibility – Retrospect and Prospect

I have been puzzling over the Program Cochairman's choice of a subject for my remarks. Eleven years ago Professor Lynn asked me to speak at a TRED conference, and he gave me this topic: "Property Taxation: Policy Potential and Probabilities." Now I am to talk about the administration of land value taxation—"retrospect and prospect." In emphasizing the future in both instances, does Professor Lynn think I have an exceptionally clear crystal ball? Or does he think that the role of the soothsayer is especially suited to one who is old enough to make predictions without fear that they will expire before he does?

Administration of LVT in Retrospect

Land value taxation looks more attractive to me in retrospect than in prospect, whether I view it from a policy standpoint or from an administrative standpoint. In a manner similar to a reformed drunk whose advocacy of abstinence delights the WCTU, I delighted my friends who championed LVT a decade or so ago when I remarked extemporaneously (but with no subsequent regrets) that future generations would probably wish our own generation had followed the advice of Henry George, just as we might well wish that George's contemporaries had done so. The longer the delay, the more difficult it becomes to reap the benefits of cap-

turing rent surpluses because vested interests in these surpluses grow more valuable day by day. Furthermore, the owners of most of these surpluses have plausible claims to indemnification because they have acquired them to some extent out of earned incomes. In addition, the longer the delay, the more difficult it becomes to separate the "original and indestructible powers of the soil" from the improvements made by a succession of owners who have drained, irrigated, leveled, excavated, contoured, fertilized, and otherwise altered the land.¹

Approaches

From an administrative standpoint, retrospect is not as clearly superior to prospect but is nevertheless a rather pleasant view.

Summation Appraisals

Until quite recently, summation appraisals were widely employed by private appraisers and almost exclusively by the assessors of large jurisdictions. A summation appraisal, as economists well know, is an appraisal made by adding an improvement value to a land value, each value having been derived without specific reference to the other or to the total value of the improved property. It may surprise some younger members of the profession to learn that summation appraisals were widely employed by private appraisers a generation or two ago. This is a surmise on my part based on the fact that Frederick M. Babcock published a book in 1924 titled *The Appraisal of Real Estate* (not to be confused with his 1932 book, *The Valuation of Real Estate*, in which he extolled the income approach to value, the very antithesis of the summation approach), advocating much the same urban land valuation methods that property tax assessors in some of our larger cities had been using for years.²

What these assessors had been doing, according to an early writer, was originated by William A. Somers in St. Paul, Minnesota, in 1896 (Boyle 1908, pp. 132-33). Center lots in each block front were appraised by a committee of citizens (not all of Somers' disciples used committees), and the values of other lots were computed from these center-lot, or "street," values by using depth formulas, corner influence rules, and so on (Somers 1901). Buildings were assessed separately after fieldmen had filled

1. Anyone who is unimpressed by the theoretical desirability and administrative impossibility of making this separation should read William Vickrey's brilliant analysis, Holland (1970).

2. I last saw this book 38 years ago and no longer have access to it. It is possible but improbable that my memory of its contents is somewhat biased.

out forms containing spaces for recording 50 facts, and were valued "at so much per square foot of ground covered" (Boyle 1908, p. 133). I have found no rural counterpart to this so-called "scientific" method of valuing urban real property. One may surmise, however, that the best assessors assigned farm land to different productivity classes and valued them at prices per acre that reflected productivity and distance to markets.

Summation appraisals had fallen from favor among private appraisers by the late 1930s. Many assessors belatedly followed suit, but summation appraisals still predominate on assessment rolls (*International Assessor* 1976, p. 14). In the absence of changes in real property tax bases, however, it seems quite likely that they eventually will be supplanted in preponderance by unit appraisals. The legal requirement that land and improvement values be stated separately on the assessment rolls seems to have strong survival powers, but allocations of unit values satisfy this requirement just as well as summation appraisals do. The accuracy of these allocations is of little significance as long as both land and improvement values are taxed at the same rate and in the same proportion to market value.

Vacant land appraisals, fractional land appraisals, and allocations of unit values would be considerably easier if there were numerous vacant land sales. These appraisals would still be difficult, however, because each land parcel is unique in location and often in its combination of other value-influencing attributes. This uniqueness, when added to the infrequency of vacant land sales and ground rentals in many areas, makes land appraising one of the more difficult tasks an assessor faces.³

There are ways to lessen one of these sources of difficulty. Vacant land sales and ground rentals can be supplemented with credible allocations of improved property values that are well authenticated by sales or rentals. The best such allocations come (1) from sales of properties whose improvements are to be razed by their purchasers at relatively slight net costs and (2) from sales or rentals of properties with recently constructed improvements that have suffered none of the ravages of time and are believed to be well suited to their sites.

Vacant Land Valuation

In some cases these allocations of improved property values are even more credible evidence of land values than vacant land sales prices. Vacant land sales prices may be suspect for at least two reasons. First, if such

3. Like Donald Beach (Holland 1970, p. 91), I take exception to the belief of some LVT advocates that land valuation as a whole is easier than building valuation as a whole.

a sale occurs in an area largely improved with buildings that are old but not old enough to be ready for demolition, the price of the vacant lot is likely to be well below what appear to be reasonable allocations of sales prices or capitalized rentals of improved properties in the area. Who wants to improve a vacant lot which is surrounded by decadent improvements? (But, then, who knows how to allocate the sales price or capitalized rental of an improved property when the improvement is substantially depreciated?)

A second problem with vacant land sales is the difficulty of analyzing some sales prices. I would be the last one to renounce the use of sales prices to estimate market values. But they cannot be used blindly without jeopardizing the validity of the value conclusions. When part of the consideration in the sale contract is discharged by means other than cash or something readily convertible at face value into cash (e.g., when the seller loans the buyer part of the purchase price at less than a market rate of interest), the nominal price is not necessarily the "cash equivalent." Moreover, when the purchaser acquires less than an unencumbered fee simple estate, e.g., when the buyer assumes a mortgage (the face value of which is not necessarily the amount to be added to the price paid for the encumbered fee), the purchase price is not the full market value the assessor is usually seeking. Finally, when the purchaser is paying the seller for improvements not yet constructed—a golf course or a clubhouse, for example—the price includes property not yet in existence and hence not taxable. Vacant land sales, I suspect, are proportionately more often subject to these ailments than improved property sales.

Nonvacant Land Valuation

When vacant land values are inferred from allocations of perfectly derived unit values of improved properties, they are suspect for another reason. In theory the allocation is simple enough: just deduct from a unit value the depreciated replacement cost of the improvements. In practice, we are confronted by the inexorable fact that accrued depreciation defies accurate measurement, especially when, as is so often the case, it contains obsolescence as well as physical depreciation. It is for this reason, of course, that residually derived land values are generally considered highly reliable only when the improvements are totally depreciated or not depreciated at all.

Up to this point I have been concerned with the paucity of bare land sales prices and their proxies and with the quality of sales prices as evidence of bare land values. The other closely related obstacle the land appraiser faces is the uniqueness of each land parcel. Because of its uniqueness, a perfectly derived land value is clearly applicable only to the

parcel for which it was derived; it is not necessarily transferable to any other parcel. What are the best ways of making the comparisons by which to derive a value for an unsold (and unrented) parcel from the value of a recently sold (or rented) parcel?

The conventional approach often requires two or three steps. First, the sale price will usually need to be time-adjusted to the price that would probably have been negotiated as of the assessment date. Next, if the recently sold lot is not of standard size, shape, topography, and so on, the sale price will need to be rectified by use of a depth table, a width table, a shape rule, a corner influence rule, an alley influence rule, and so on, until an assumed sale price of a standard lot has been derived. Finally, the standard lot value must be transferred to nearby nonstandard lots by using the same tables and rules in reverse. How much confidence one can place in these tables and rules is questionable. At any rate, they are probably better than the nonstandardized, undisciplined lump-sum or piecemeal adjustments used by the skeptics — especially if the rules have been tested locally against the market rather than, as is too often the case, merely copied from practices in some other assessment jurisdiction.

However, a standard lot value is seldom good for more than a few block fronts (and sometimes not even for all of one front or for two facing fronts). One must resort to interpolation and even to that much more dangerous art, extrapolation, to fill the gaps between and beyond the lots whose values are firmly pinned on sales or rentals.

Agricultural Land Valuation

Valuation of agricultural land has a different set of problems. Aside from trees, vines, dairy barns, and poultry sheds, improvements contribute relatively little to the value of most farms. Therefore, sales prices and capitalized rentals can be allocated between land and improvements with little danger of materially distorting land values. When the land in a recently sold or rented farm is fairly homogeneous, a credible value per acre can be derived easily. This value then can be transferred to other farmland of like quality that is similarly located relative to markets and the amenities that make farming an attractive way of life.

Difficulties arise, however, when the farm that serves as a benchmark contains nonhomogeneous land. Now the farm's value must be allocated not only between land and improvements but among land areas of different quality. In much of California, and probably in all of the other agriculturally oriented states, there are soil surveys and productivity indexes that can be used to delineate areas of a nonhomogeneous farm and allocate values among the areas.

Interpolation between benchmark farm values would not be an

especially difficult process, except that farms which are seemingly alike in all respects aside from size have rather different values per acre. As a matter of elementary logic one would expect a farm that was too small to constitute a viable economic unit to have a lower price per acre than a larger farm. What seems to defy logic is the discovery by rural appraisers that large farms sell for less per acre than medium-sized farms, other things equal, even though the large farms can be divided at virtually no cost into medium-sized ones.

With three or more important variables affecting farm values—productivity, location relative to markets and amenities, and size—and no conventional rules for dealing with all of these variables, farms would seem to be a natural subject for appraisal by multiple regression analysis (MRA). It is inconceivable to me that no assessor has successfully employed this method of appraising rural land, yet I know of no such assessor. Perhaps the widespread abandonment of market value as the standard on which to tax farmland has discouraged extension of MRA to this kind of property.

Difficult as it is to appraise urban land and farmland, those parts of an assessor's responsibilities can be discharged with relative ease as compared with the appraisal of transitional land. Here the problem is mainly the prediction of timing. How soon will commercial farmland be converted into subsistence farms or rural homesites? When will rural acreage be subdivided, and how long will it take to market the subdivision lots? How rapidly will the area's population grow, and in which direction from the central city will it spread? Will the planning and zoning authorities hasten or delay the transition in a particular area? The questions are highly relevant to value, and their answers are highly elusive.

Land Valuation in Prospect

The spectacular success with which multiple regression analysis has been applied to the appraisal of residential properties has encouraged LVT advocates and has spawned a multitude of studies by academicians and property assessment contractors of its applicability to land valuation. Before taking a look at this prospect, however, let me pause briefly to mention two other less esoteric prospects.

The British Columbia Assessment Authority has designed computer programs with which to implement the conventional urban land value process. They were described by George L. Hamilton, one of the Authority's area assessors, at a colloquium that the Lincoln Institute sponsored in 1979. These programs permit the assessor to initiate or change the value ascribed to a standard lot on a block front and let the computer derive the values of all lots for which this standard is used. They also per-

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mit the assessor to initiate or choose a depth table, a width table, and other adjustments of the standard lot specifications. The system is designed to assure greater speed, accuracy, and economy in the application of conventional land assessment practices.

The second prospect I want to mention before turning to MRA has been used in the District of Columbia for about 20 years. It was described by Kenneth Back, the District's Director of Finance and Revenue, in an excellent paper prepared for the 1969 TRED conference (Holland 1970), and by its inventor, John Rackham, at the Lincoln Institute colloquium. The part of the program that is most significant for this paper is a method of dividing the value of an improved property between the land and the improvements. Having no means of testing it, I am not prepared to advocate it; I would commend it to the attention of those with research facilities.⁴

Multiple Regression Analysis

We come at last to MRA. The "exciting future" which I predicted for this appraisal method when I discussed it in 1967 has indeed been realized. But its success thus far has been largely if not entirely confined to improved residential properties. Applications to other property have been, for the most part, academic exploratory exercises. What are the prospects for application to land valuation problems?

I do not pretend to be in close touch with the assessment world any longer, and it has been many years since I was close to academia. My observations must be judged with these limitations in mind.

Paul Downing's paper at the 1969 TRED conference and the papers presented at the Lincoln Institute's recent colloquium on land valuation do not reveal a large measure of progress in the application of MRA to land valuation. Professor Downing concluded that "The predictive power of this technique is much less than was hoped for" but that "it provides a useful starting point for land value assessments" (Holland 1970,

4. The procedure employs two equations:

$$(1) \frac{\text{Total value of property at age } n}{\text{Replacement cost new of bldg. at age } n} - \frac{\text{Land ratio at age 0}}{\text{Bldg ratio at age 0}} = \text{Bldg percent good at age } n$$

$$(2) \text{Land ratio at age } n = \frac{\text{Land ratio at age 0}}{\text{Bldg ratio at age 0} \times \text{Bldg percent good at age } n - \text{Land ratio at age } n}$$

"Age" refers to age of improvements. "Land ratio" means the ratio of land value to total value, and "Bldg ratio" means the ratio of building value to total value. These ratios at age 0 (zero) are derived from sales of newly improved lots; they presumably vary from one area to another.

p. 123). David Jensen, the Calspan representative at the Lincoln Institute's colloquium, reported inconclusive results from an experiment in a small bedroom community near Boston, Massachusetts, with models that "represented the sales data reasonably well [but] failed to perform up to expectations when applied to unsold parcels of particularly improved land." Cynthia Ray, of Barton-Aschman Associates, concluded at the colloquium with the finding that "computer-generated estimates more closely approximated market values than the existing assessments . . . [but] the current assessments were the most uniform" and that "a refined modeling effort for vacant land [should] be pursued." Robert Soma, Assessor of Washoe County, Nevada, reported on successful use of MRA to appraise a largely vacant subdivision in the Lake Tahoe area. However, the program used was the one developed for improved residential properties, and it is my impression that Soma does not intend to develop regression models tailored to land valuation objectives. The most upbeat conclusion at the Lincoln Institute's colloquium was that of Jack Lessinger; this University of Washington researcher, using research tools that seem promising, is pursuing goals that will culminate with an offer to assessors and others to cooperate in implementation of his method under actual field conditions.

Two problems confront the user of MRA when deriving land values. One is the scarcity of established land values with which to construct and test regression models and implement those that pass the test. The other is the scarcity of appropriate independent variables to regress against those values.

The first of these problems is common to conventional land appraisal methods and MRA, so it has already been discussed. It was pointed out in earlier passages that actual sales and rentals of unimproved land can be supplemented with sales and rentals of properties with improvements that are either undepreciated or fully depreciated. Even with this supplementation, I think that MRA enthusiasts will often be hampered by inadequate data.

The second problem arises largely from the importance of location as a land value determinant and the difficulty of quantifying location. Quantification of location by measuring the distance or travel time from an urban site to the central business district (CBD) may have been sufficient at one time, but it is no longer enough. Accessibility to employment centers, shopping centers, amusement centers, and elsewhere is as important as accessibility to the CBD, and none of these amenities is as easily identified as the CBD. Several of the other land value determinants, such as view and the neighborhood value trend, are subjective. Some useful variables, such as income level and ethnic composition, are measurable

only at decennial intervals, since the U.S. Census is the only credible source. Only such mundane and comparatively unimportant considerations as width, depth, area, shape, corner or inside location, and availability of utilities are indisputable, objective, and current.

Most of the problem of location variables, MRA enthusiasts hope, can be eliminated or reduced to insignificant proportions by dividing the assessment district into a multitude of neighborhoods. But with each subdivision of the assessment district, the problem of the small number of land value observations becomes more acute. The smaller the neighborhoods, the less the variation in land characteristics and the less the need for MRA.

Conclusion

While land and improvements are equally taxed, MRA will be used widely to derive unit values of residential properties and to a lesser extent to derive unit values of other property use types. Most of the MRA programs will provide for allocation of unit values between land and improvements, but few honest assessors will claim that these allocations are highly accurate. Should exemption of improvements or lesser degrees of differential taxation be adopted, MRA will be used less extensively, and conventional land valuation methods will regain some of their former popularity. The imperfections of these older appraisal methods, and of MRA-developed values where they are prepared, will be tolerated because owners of most improved properties have only a vague notion of the land portions of unit values and almost no evidence with which to fortify whatever notions they have.⁵

The loss of value evidence is a sobering thought. Development of assessment ratio findings by state equalization agencies (and by the Bureau of the Census) will come to a halt. Without such findings, the deterioration of assessment levels will be encouraged and taxpayers will be deprived of their best protection against *relative* overassessment (Welch 1977, pp. 139-45). So it is essential, in my judgment, that adoption of LVT be associated with (1) repeal of all laws that make inter-jurisdictional equalization of assessments necessary or desirable and (2) enactment of laws that will assure substantial improvements in the competence of assessment personnel and the quality of their product.

5. Back (Holland 1970) has expressed the opinion that conversion of the property tax to LVT would increase appeals. Perhaps it would in the first year or two (as would a reassessment where LVT is not in use); I would expect it to have the opposite effect after a short transition period.

References

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