IMPACT OF NEW PROCEDURES FOR ESTIMATING AGRICULTURAL USE VALUES IN NEW YORK

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ABSTRACT

This paper examines the implications of New York's new procedures for determining agricultural values for use-value assessment purposes. It has been argued that use values based on comparable sales, regardless of efforts to confine the data to farm-to-farm sales, still contained some speculative influences, which in turn, inflated use-value estimates in an urban state like New York. Interestingly, this paper shows that the Legislature's remedy -- use-value estimates based on capitalized net returns to land -- is likely to bring with it rather substantial increases in use values estimated for much of the State's cropland base.

INTRODUCTION

As part of the Agricultural Districts Law, instituted a decade ago, some farmland owners in New York State are afforded an opportunity to reduce their property tax bills through use-value assessment (L. 1971, c. 479). The reduction is in the form of an exemption from tax levies on that portion of the value of land over and above its value in agricultural use, as determined by the New York State Board of Equalization and Assessment (E & A).

Between 1971 and 1979, E & A was given considerable flexibility in selecting the procedures for setting use values; the agency relied almost exclusively on the comparable sales approach in which sales of land for nonfarm uses were to be ignored (McCord). These procedures have always been controversial. Many have argued that, even after careful sorting, urban influences remain in the sale price of farm real estate. They further argue that these high use values are at odds with the Legislature's intent to use property tax exemptions to encourage the continuation of farming. This controversy peaked in 1979 when E & A proposed use values that would average, across all counties of the State, 50 percent above those of the previous year (State Board of Equalization and Assessment).

As a result of this criticism and lobbying by farm organizations, E & A decided to phase these increases in over several years. Before this "phase-in" was completed, the legislature also responded and amended the law significantly. Under these amendments, E & A was directed to cooperate with other agencies in the development of a new approach to estimating farmland use value. To be implemented for the 1981 tax year, the new approach is tied to the capitalization of net annual returns to farmland. The annual net returns are based upon enterprise budgets reflecting approporiate rotations and soil productivity as measured by total digestible nutrient (TDN) production, on each of about 1200 individual soil mapping units found in New York (Dunne and Lynk).

The purpose of this paper is to examine the implications of these legislatively mandated changes in use-value assessment for property tax burdens in New York. It is a unique opportunity to compare the actual application of two standard approaches to farmland use values, which in theory are logically equivalent, but may yield quite different results in practice (Locken, Bills and Boisvert, and Dunne, 1981a). Throughout the analysis, emphasis is placed on the implications of the two approaches for property tax exemptions on farmland and the implied financial incentives provided landowners for maintaining their land in agricultural uses.

PROCEDURES AND SOURCES OF DATA

Because the new procedures for estimating use values are based on the productivity of individual soils, a comparison of the two methodologies can only be accomplished by examining an array of soils actually used for crops by New York farmers. To keep the analysis within manageable proportions, the discussion is focused on two counties, Cortland and Monroe. Cortland is nonmetropolitan by Census definition, and contained about 600 farms (as of 1978) and is among the state's leading dairy counties (U.S. Dept. of Commerce). Monroe is metropolitan, and contains the city of Rochester, but farm products valued at $32.4 million were produced on nearly 800 farms in 1978.

The study is further confined to valuing mineral soils and to total cropland as estimated in the 1978 preliminary Census of Agriculture.[1] In 1978, total cropland accounted for an estimated 52 percent and 82 percent of total land in farms in Cortland and Monroe counties, respectively (U.S. Dept. of Commerce).

The amended law requires the capitalization of net returns to land classified into 10 soil groups. These capitalized returns have already been calculated by E & A. Therefore, estimating the use values of total cropland in these two counties is a relatively straightforward process. First, total cropland in each county is distributed among the numerous soil mapping units and aggregated into the 10 soil productivity groups. Second, 1981 use values are estimated by multiplying acreages in each group by the appropriate

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[1] The amended New York law prescribes use values for woodland and for muck soils while the unamended version applicable through 1980 required separate use-value estimates for muck soils, trees, vines, permanent pasture, and support land. Confusion caused by these definitional changes was minimized by concentrating on the sub-class of farmland mineral soils.

capitalized-income figures. Finally, a correspondence between soil classifications used in 1980 and in 1981 is derived so that the 1980 use values can be estimated on a comparable basis.

While both Cortland and Monroe counties have modern published soil surveys, counts of acreage by soil mapping unit reflect the total land area in the county. The surveys contain no cropland estimates. To overcome this problem, unpublished data developed by USDA-ESS are incorporated into the study. The USDA data distribute crop production by soil mapping unit based on unpublished point sample data from the 1967 Conservation Needs Inventory. The percentage distributions of cropland in 1967 by soil mapping unit for each county are applied to the corresponding aggregate "total cropland" reported in the Preliminary Report of the 1978 Census of Agriculture. By necessity this procedure assumes that the distribution of cropland across soils has remained constant over the 12-year period.

Once this allocation is complete, cropland is, in turn, assigned to one of 10 mineral soil groups. Each soil mapping unit is given an index value which reflects judgments about a soil's capacity to produce TDN. Soils falling into the first eight soil groups are judged to be usable for crop production. The TDN index values are based on yield estimates for corn silage and hay, in appropriate rotations. They range from under 25 for soil group 8 to between 90-100 for soil group 1 (100 = 4.54 tons/TDN/yr.) Index values for all groups are given in Table 1.

The distribution of cropland among these 10 groups is also reported in Table 1. In 1978, there were nearly 120,000 acres of cropland in Monroe County and just over 90,000 acres in Cortland County. When the 1981 soils index is applied, it is clear that in metropolitan Monroe County, soils used for crops are of generally higher quality than those cropped in nonmetropolitan Cortland County.[2] Over 79 percent of the cropland (94,000 acres) in Monroe County fall into groups 1-4 while only 36,000 acres (or 39 percent) of Cortland's cropland are in these top four groups (Figure 1).

By applying the yield interpretations and rotations for corn and hay used in the 1981 soil groups to the yields specified under the New York

[2] This relationship is consistent with Otte's findings at the national level. Metropolitan development in the United States has occurred on or near soils that have relatively high agricultural productivity.

Table 1: Estimated Cropland in Cortland and Monroe Counties by Soil Groups, 1978

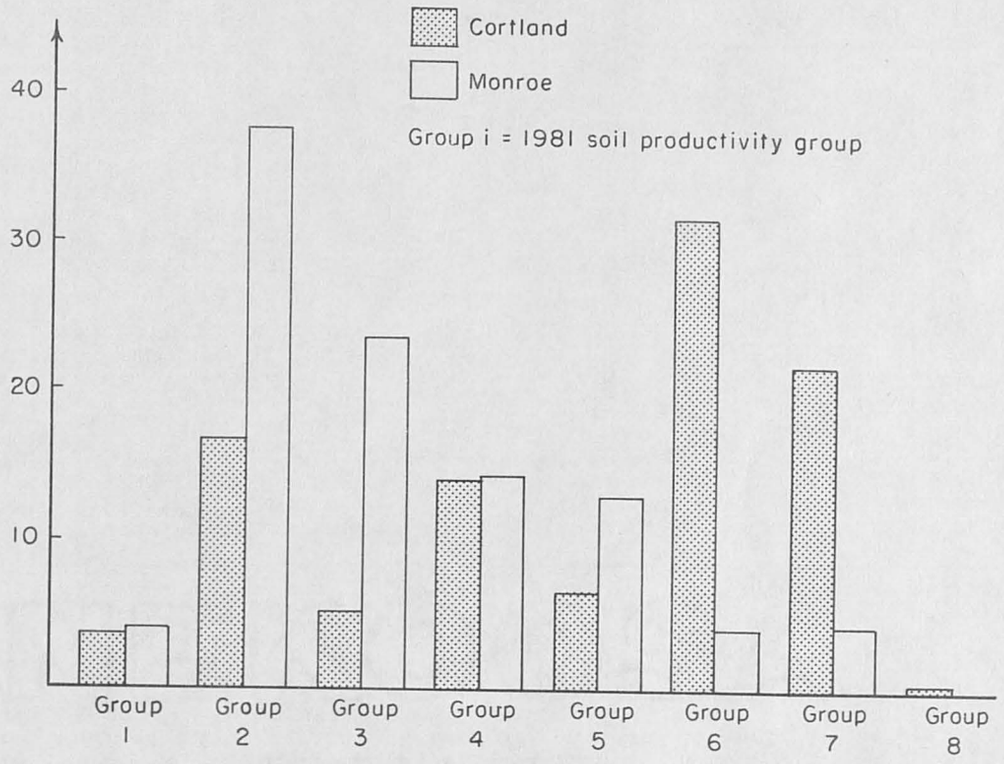
1981 Soil Group[a]	Acres Cortland	Acres Monroe	1980 Land Class[b]	Acres Cortland	Acres Monroe
Group 1 (90 - 100)	3,333	4,728	Class A	18,619	49,473
Group 2 (80 - 89)	15,286	44,745	> 100 bu. > 3.5 tons		
Group 3 (70 - 79)	4,583	27,943	Class B	17,431	44,851
Group 4 (60 - 69)	12,848	16,908	15 tons 2-3.5 tons		
Group 5 (50 - 59)	6,039	15,456	Class C	45,364	22,635
Group 6 (40 - 49)	29,271	4,747	< 15 tons < 2 tons		
Group 7 (25 - 35)	20,108	4,863	Class P	10,900	2,431
Group 8 (< 24)	846	0	pasture		
Total	92,314	119,390		92,314	119,390

Source: Cropland totals are estimates of total cropland from the preliminary 1978 Census of Agriculture. The distribution by 1981 soil group was based on unpublished data on cropland by soil mapping unit obtained from the 1967 Conservation Needs Inventory.

[a] These soil groups were developed by W. Shaw Reid, Cornell University, to be used in New York State's use-value assessment program. All soil mapping units are classified by a TDN productivity index (given in parentheses, where 100 = 4.54 tons of TDN per acre). Corn and hay yields for the indexes are from SCS's Form 5 yields. Detailed information on the mapping units in each group are as yet unpublished.

[b] Land classes used for agricultural value assessment in New York prior to 1981. The numbers below the class are corn (grain or silage) and hay yields associated with each class. To facilitate comparisons, these yields were converted to TDN, and after assigning a rotation, a correspondence between the two systems was obtained: class A = groups 1 and 2; class B = groups 3 and 4; class C = groups 5 and 6, plus 1/2 group 7; class P = 1/2 group 7, plus group 8.

FIGURE 1. DISTRIBUTION OF CROPLAND IN CORTLAND AND MONROE COUNTIES BY SOIL GROUP



Source: Derived from table 1.

law for 1980, one can also distribute cropland into 1980 land classes (A, B, C and P). This second distribution, also given in Table 1, sets the stage for the comparison of cropland use value based on comparable sales (1980) and capitalized net income (1981).

Based on cost and returns data for commonly grown New York crops (corn and hay), E & A has determined net returns for mineral soils in each of the first eight soil groups (see Dunne and Lynk for detailed calculations). These net returns, averaged for the period 1975-79 and capitalized at 8.81 percent as prescribed by law, resulted in proposed use values that ranged from $50 per acre (soil group 8) to $860 per acre for high-lime soils with a TDN index between 90 and 100 (Table 2). Final values were promulgated by E & A in which the use values for soils in groups 5 through 8 were significantly different from the proposed values. With the exception of high-lime soils in group 5, the values were raised significantly. These final values delineate the possibilities confronting owners of farmland who choose to apply for a farmland use-value assessment in 1981. Local assessing officers must incorporate these values into a computation of use value for each tax parcel.[3] Any difference between total use value and the full value (assessed value divided by the equalization rate) of the parcel is exempt from levies made by all taxing jurisdictions.[4]

[3] A determination of acreage by soil group is made for each tax parcel at the local Soil and Water Conservation District office.

[4] Only a fraction of all farmland owners can qualify for an exemption in New York due to relatively harsh eligibility requirements spelled out in the New York law. To qualify, an owner must own 10 or more acres with average annual gross sales of $10,000 or more. Using only these eligibility requirements, it has been estimated that 75 percent of commercial farmland would be eligible (Boisvert, Bills and Solomon). Under the 1981 amendments, landlords can circumvent the sales requirement if they own 10 or more acres and have a 5-year written lease with a tenant who meets the $10,000 gross sales requirement. This will increase the total amount of eligible farmland.

Table 2: Use Values of Cropland in New York

1981 Soil Groups[b]		1981 Statewide[a] Use Value/Acre Proposed[c]	Final[d]	1980 Land Class[e]	1980 County Use Value/Acre Cortland	Monroe
Group 1	H	860	860			
	L	730	730	Class A	395	425
Group 2	H	710	710			
	L	590	590			
Group 3	H	540	540			
	L	420	420	Class B	260	285
Group 4	H	320	320			
	L	200	200			
Group 5	H	210	180			
	L	80	160	Class C	145	165
Group 6	H	60	150			
	L	50	130			
Group 7		50	110			
				Class P	85	85
Group 8		50	80			

Source: Dunne, 1981b; Dunne and Lynk; State Board of Equalization and Assessment.

[a] For mineral soil groups, except those on Long Island. These figures are based primarily on 1975-79 average returns for appropriate rotations of corn silage and hay, capitalized at 8.81 percent.

[b] To set values, the first six soil groups are split between high lime (H) and low lime (L) to account for the cost of lime application. See Table 1 for details.

[c] Values proposed January 9, 1981, prior to public hearings.

[d] Final values, adjusted by the State Board of Equalization and Assessment on the basis of public hearings and other information (see Dunne, 1981b).

[e] Land classes used prior to 1981. See Table 1 for details.

RESULTS

The 1980-81 contrasts in use value per acre are striking (Table 2). The 1980 values -- based on comparable sales and developed for each of New York's 56 agricultural counties -- are uniformly higher in the metropolitan county (Monroe) than in nonmetropolitan Cortland County. Since soils in any one class are presumed to have similar yields from commonly grown crops, the differences for 1980 perhaps reinforce the argument that urban speculative influences were not completely eliminated with use-value estimates based on comparable sales. However, one can quickly push this argument too far because numerous factors besides productivity and urban pressure affect the sale prices of farmland (Barkley and Boisvert).

The newly instituted capitalization approach establishes one set of values for all upstate counties. In moving to these new values, both the proposed and final values remain the same for the first four soil groups, and the per acre use values of better cropland increase markedly for both the metro and non-metro counties (Table 2). The $860 per acre value for high-lime, group 1 soils represents more than a 100 percent increase in the value of high quality farmland in Monroe County. Substantial increases are also found for soils of moderate quality -- soil groups 3 and 4. Values for 1981 range between $200-$540 per acre vs. 1980 values of $265-$285 per acre in these two counties.

By combining information on use value per acre with the estimated distribution of cropland by soil type, one can obtain a more complete comparison of the value in use of all cropland in 1980 with 1981 use values in each county (Tables 3 and 4). In the non-metro county (Cortland), value in use for all cropland increased from $19.4 million to $23.5 million or by 21 percent. On a per acre basis, average use value increased

Table 3: 1980 Estimated Use Value of Cropland, Cortland and Monroe Counties

1980 Land Class[a]	Cortland		Monroe	
	Thousand Dollars[b]	Percent of Total[c]	Thousand Dollars[b]	Percent of Total[c]
Class A	7,355	38	21,026	56
Class B	4,532	23	12,783	34
Class C	6,578	34	3,735	10
Class P	927	5	207	1
Total	19,391 (210)[d]	100	37,750 (316)[d]	100

Source: Calculated from data in Tables 1 and 2.

[a] See Table 1 for definitions.

[b] Rounded to thousands.

[c] Percentages calculated from unrounded numbers and rounded to nearest percent. Therefore, detail may not add.

[d] Per acre value, in dollars.

Table 4: 1981 Estimated Use Value of Cropland, Cortland and Monroe Counties

1981 Soil Group[a]	1981 Proposed				1981 Final			
	Cortland		Monroe		Cortland		Monroe	
	Thousand Dollars[b]	Percent of Total[c]	Thousand Dollars[b]	Percent of Total[c]	Thousand Dollars[b]	Percent of Total[c]	Thousand Dollars[b]	Percent of Total[c]
Group 1	2,530	13	3,491	7	2,530	11	3,491	7
Group 2	9,432	48	30,097	57	9,432	40	30,097	57
Group 3	1,925	10	12,511	24	1,925	8	12,511	23
Group 4	2,570	13	3,496	7	2,570	11	3,496	7
Group 5	499	3	2,383	5	969	4	2,649	5
Group 6	1,468	8	255	d	3,814	16	384	1
Group 7	1,005	5	243	d	2,212	9	535	1
Group 8	42	d	0	0	68	d	0	0
Total	19,471 (211)[e]	100	52,476 (440)[e]	100	23,520 (255)[e]	100	53,163 (445)[e]	100

Source: Calculated from Tables 1 and 2.

[a] See Table 1 for definitions.

[b] Rounded to thousands.

[c] Percentages calculated from unrounded numbers and rounded to nearest percent. Therefore, detail may not add.

[d] Less than 0.5 percent.

[e] Per acre value, in dollars.

from $210 to $255 under the newly implemented procedures.

Increases in total use value were even larger in the metro county (Monroe), partially because of the high quality cropland found there. Use value of cropland for 1981 amounted to $53.2 million or $445 per acre on the average. Values based on the comparable sales approach in 1980, on the other hand, totaled $37.8 million or $316 per acre. The newly devised procedures for estimating cropland use values, therefore, increase value in use by 41 percent in this metro county.

The difference in the implications of the 1981 procedures for these two counties is explained by the distribution of farmland by soil productivity group and adjustments in the proposed use values made by the State agency. Under the proposed system use values were relatively low for poor land. The proposed average use value in Cortland, the county with relatively lower land quality, was almost identical to the 1980 value. E & A's adjustments in moving from the proposed to the final values explain virtually all the increase in this county. Quite the opposite is true in Monroe County. The increase in use value between 1980 and 1981 was due almost entirely to the impact of the capitalization approach upon the use value of high quality land. Only 21 percent of all cropland in Monroe County is in soil groups 5 through 8. Adjustments made by the State agency in moving from the proposed to the final values had little effect on average use value.

DISCUSSION

Movement to the capitalization approach stemmed from increasingly shrill criticism of determinations based on comparable sales. It was argued that comparable sales, regardless of the effort made to confine the data set to farm-to-farm sales, tended to admit some speculative influences into the analysis. In turn, use-value estimates in an urban state like New York were likely to be inflated. Interestingly, this paper shows that the Legislature's remedy -- use-value estimates based on capitalized net returns to land -- is likely to bring with it rather substantial increases in use values estimated for much of the State's cropland base. Since the differences between these values and full values are used to compute tax exemptions, the new procedures could lead to a significant reduction in opportunities for agricultural exemptions. This outcome was certainly unexpected by those who viewed capitalized net farm income as a preferred means of granting farmland owners a lower property tax bill.

Because land quality varies among taxing jurisdictions and across farms, these case results suggest that intra-class shifts in tax burdens on agricultural land are likely as a result of income capitalization. Relative to the sales approach, larger tax burdens are now borne by the owners of high quality land. In 1980, 56 percent of total use value in Monroe County was attributed to soils with a TDN index of 80 or more (soil groups 1 and 2); 64 percent of total use value falls on these high quality soils in 1981. The corresponding increase for soil groups 1 and 2 was from 38 percent to 51 percent in nonmetropolitan Cortland County. From a policy perspective, one could argue that this intra-class shift is at odds with the State's objective of encouraging the retention of productive land in agriculture. This argument is reinforced by the fact that often good farmland is found in metropolitan settings.

In summary, these considerations would seem to present a challenge to those who endorse use-value assessment as a way to maintain high quality land near urban centers in agricultural use. However, the changes in use-value assessment procedures are too recent to draw definitive policy conclusions. Additional analysis, based on more complete information of soil quality, participation rates in the program and knowledge of individual farm situations will be an integral part of the program's continuing evaluation.

REFERENCES

Barkley, Paul W. and Richard N. Boisvert. Farm Property Valuation in New York State, A.E. Ext. 80-5, Department of Agricultural Economics, Cornell University, March 1980.

Boisvert, Richard N., Nelson L. Bills and Robert Solomon. Evaluation of Farmland Use-Value Assessment in New York, Staff Paper No. 80-2, Department of Agricultural Economics, Cornell University, January 1980.

Dunne, James F. "Estimating the Use Value of Agricultural Land for Farm Assessments in New York State.: Unpublished Ph.D. Thesis, Cornell University, 1981(a).

Dunne, James F. Establishment of Final 1981 Use Values for Agricultural Value Assessments in New York, New York State Board of Equalization and Assessment, Albany, NY, Apr. 1981(b)

Dunne, James F. and Christine L. Lynk. Report on the Proposed 1981 Farmland Use Values for Agricultural Value Assessments in New York, New York State Board of Equalization and Assessment, Albany, NY, January 1981.

Locken, Gordon S., Nelson L. Bills and Richard N. Boisvert. "Estimating Agricultural Use Values in New York State," Land Economics, 54 (February 1978): 50-63.

McCord, Thomas J. A Report on the Proposed 1979 Agricultural Ceiling Values, New York State Board of Equalization and Assessment, Albany, NY, 1978.

New York State Board of Equalization and Assessment. Report on Final Agricultural Ceiling Values for 1979, Albany, NY, April 1979.

Otte, Robert C. Farming in the City's Shadow -- Utilization of Land and Changes in Farm Output in Standard Metropolitan Statistical Areas, 1960-70, USDA-ERS, Agr. Econ. Rep. No. 250, February 1974.

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U.S. Dept. of Commerce, Bureau of the Census. 1978 Census of Agriculture Preliminary Report, New York, AC78-P-36, Washington, DC, June, 1980.