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AGRICULTURAL DISTRICTS AND USE-VALUE ASSESSMENT:
THE NEW YORK EXPERIENCE IN FARMLAND RETENTION

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Agricultural Districts and Use-Value Assessment:
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Population growth since World War II, combined with structural adjustments in production agriculture, has led to the adoption and continual refinement of institutional arrangements for sustaining a viable land base for farming in urbanizing regions. During the past three decades, all states have enacted legislation to retain land in agricultural production. These initiatives range from right-to-farm laws that protect farmers from certain legal actions against normally accepted farming practices, to zoning for agricultural purposes and the creation of agricultural districts. Nearly all states provide for property tax relief through agricultural value assessments or circuit breakers for income taxes. Some state and local governments have instituted programs for the purchase or transfer of farmland development rights.

New York State's major initiative in farmland retention began in 1971 when the Legislature passed a law authorizing the formation of agricultural districts and providing for a property tax exemption for the State's farmland through use valuation. Today, nearly eight million acres (one-quarter of New York's total land area) are within an agricultural district; during the 1984 tax year, the owners of 26,800 farm tax parcels (New York has about 42,000 farms and nearly 105,000 farm tax parcels) enjoyed a partial exemption from property taxes via use valuation of farmland [15].

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The purpose of this paper is to analyze New York's efforts to promote farmland retention through agricultural districts and use valuation of the State's farmland. We begin with a summary of the events leading up to the legislation and an outline of the law's major provisions. The analysis continues with discussions of trends in district formation around the State, the extent of the use-value exemption and the implications of major changes in the methods adopted for determining use values. This is followed by a presentation of results from some regression models designed to identify the economic, social and physical factors that affect landowners' decisions to place their farmland in an agricultural district or apply for a farmland use-value exemption.

These analyses set the stage for developing the broader policy issues surrounding efforts to intervene in owners' decisions on the use of their farmland. The policy implications for New York are most evident, but the analysis may also have implications for policy initiatives in other states as well. This may be particularly true for the 13 other states that combine property tax relief with other provisions for creating agricultural districts, even though the specific details of their programs may differ somewhat from New York's [12].

Background

Initiatives that led to the State's current policy for farmland protection began during the 1960s. Legislative efforts developed on two fronts. The first evolved around a growing interest in comprehensive statewide planning and land use controls, while the second dealt specifically with protection of farmland.

The New York Constitution delegates responsibilities for regulating the use of land through the police power to local government. However, the

Legislature's creation of the New York State Office of Planning and Coordination (OPC) in 1966 reflected the substantial interest at that time for planning at the state level [5]. OPC made recommendations for a restructuring of planning and land use control measures within the State [13]. The principal recommendations were to elevate planning functions from local to higher units of government and to transfer the responsibility for developing plans and controls from locally elected officials and lay people to professionals employed at the state level [5].

A cornerstone of the OPC proposal dealt with the control of land use in geographic areas identified as areas of "critical State concern" [5,6]. The proposal called for state involvement with land use planning and land use control in these areas. Local governments would have been charged initially with developing "critical area" plans in accordance with standards set by a seven member board to be appointed at the state level [5]. The board would then have intervened directly in the planning if local governments did not comply. Roughly 75 percent of the State's land area -- including farming areas -- was defined to be of "critical" concern.

OPC's proposal was not well received by the public at large and the bill that embodied it never came to a vote in the New York State Legislature. Some observers contend that the proposal's poor reception stemmed from a long tradition of strong local government and the widely held belief that any governmental control over land use should remain with local jurisdictions [6].

Parallel to the efforts of the OPC, initiatives also evolved that dealt solely with protection of the State's farmland. In both 1965 and 1966, bills that would have amended the New York State property tax code and granted farmland owners preferential tax treatment through use-value

assessments were passed by the New York State Legislature. In each case, however, the Governor vetoed the legislation, but he responded to the specific problems of agriculture by appointing a Commission on the Preservation of Agricultural Land.

One of the Commission's major activities was the promotion of legislation that would grant farm owners a five-year property tax exemption on land improvements used for the commercial production of farm commodities. The Commission argued that such legislation would stimulate investment in farms but would confine the property tax benefits to bona fide commercial farmers [5]. In 1978, this law was extended and the length of the exemption was increased from five to 10 years. By 1983, there were about 12,000 exemptions on farmland improvements statewide, with an exempt value of \$315 million [15].

The Commission also was instrumental in developing and refining the concept of an agricultural district. The concept was to facilitate farming on land within a district by restricting some of the usual options of local governments, requiring that state agencies recognize the importance of agriculture in their regulations and procedures, and providing for use-value farmland assessment for property tax purposes. The creation of districts was viewed as a compromise, but also as a politically feasible approach to farmland retention in New York [6].

The Agricultural District Law

The Agricultural District Law was enacted in 1971. The law is designed to encourage the continuance of a commercial farm industry in the face of urban pressure and increased demand for land for nonfarm uses. The law specifies that:

It is the declared policy of the State to conserve and protect and to encourage the development and improvement of agricultural lands... . It is also the declared policy of the State to conserve and protect agricultural lands as valued natural and ecological resources which provide needed open spaces... . [14 (§300)].

Of particular concern to the Legislature is the continuation of agriculture on productive soils near the numerous scattered urban-related developments in wide belts around urban areas. The objectives of the law are promoted through its six major provisions, which apply to land in all agricultural districts:

1. Local jurisdictions of government are constrained from regulating farm structures or practices by ordinance. Any new regulations must bear a direct relationship to the public health and safety.
2. State agencies must modify regulations and procedures to encourage commercial farming, consistent with promotion of public health and safety.
3. The right of public agencies to acquire land through eminent domain is modified if actively farmed land is involved. Reviews are required at the state level. If the review shows that public acquisition would have unreasonable effects on viable farmland, public hearings and reports conducive to a wide dissemination of the findings must be made.
4. The right of public agencies to provide funds for public facilities that would encourage nonfarm development is modified.
5. The power of public agencies to tax farmland for sewer, water, and nonfarm drainage is restricted.
6. Owners of 10 or more acres with an average of \$10,000 or more in yearly gross farm sales for the preceding two years may make an annual application for a use-value assessment of farmland. If any land so assessed is converted to a nonfarm use, a rollback of taxes must be paid (the rollback is limited to 5 years).

A final provision under the Agricultural District Law makes use-value assessment available to some individuals owning farmland that is not inside a district. The size and gross sales requirements are the same as for land in districts, but the commitment is for eight years (renewed annually).

Conversion to a nonfarm use involves a monetary penalty along with a roll-back of previously exempted taxes.

In combination, the provisions of the law are generally thought to be an integrated package which, on balance, will encourage the continuance of agriculture near cities [6]. Some provisions offer commercial farmers protection from public regulations that might be overly restrictive on farming practices while others offer relief from property tax assessments that exceed the value of land in farm use. Eminent domain proceedings involving farmland are to be widely discussed and carried out only after alternatives having less impact on agriculture have been explored. Finally, the remaining provisions are oriented toward discouraging, but not prohibiting, residential, commercial and industrial development within district boundaries.

Creating an Agricultural District

The New York law describes in detail the procedures to be used to create an agricultural district. The procedures require active participation of state agencies, local units of government and the public at large.

The impetus for creating a district stems from a petition by landowners to the county legislative body. Owners forwarding the proposal must own 500 acres or 10 percent of the land in the proposed district, whichever is greater. The proposal is referred to the county planning board and a county agricultural advisory committee. The Committee is appointed by the county legislature and consists of four active farmers, four agribusinessmen, the chairman of the county soil and water conservation district's board of directors, and a member of the county legislative body. These groups then report to the county legislature, public hearings are held, and the proposal ultimately is forwarded to the New York Department of Agriculture and Markets for certification. Other state agencies are consulted

before the Commissioner's certification is returned to the county legislature. The county legislature then takes final action to ratify the proposal and create the district.

The Commissioner of Agriculture and Markets also has authority to create districts of 2,000 or more acres to encompass "unique and irreplaceable agricultural lands." The Commissioner must first consult with local people and the Advisory Council on Agriculture, which is attached to the Department of Agriculture and Markets. To date, no efforts to create a district have been made at the state level.

The creation process is complex; six months or more often elapse before a district proposal is ultimately ratified by the county legislature. The lengthy process, however, helps to ensure substantial interaction among landowners, planners, legislators and representatives of state agencies. Some observers contend that such interaction has also increased local public awareness of the agricultural district program and the importance of agriculture in the community [6].

While the law is specific with respect to minimum district size, landowners and county legislatures received no specific advice on district configuration. The law merely requires that county legislatures and state agencies take measures to ensure that an agricultural district consists predominantly of viable agricultural land and that the district would not be inconsistent with state and local comprehensive plans, policies and objectives. One purpose of a written report prepared on each proposal by the Department of Agriculture and Markets is to establish to the satisfaction of state agencies that the proposed area predominantly consists of viable agricultural land. Viable agricultural land is defined as:

... land highly suitable for agricultural production and which will continue to be economically feasible for such use if

real estate taxes, farm use restrictions, and speculative activities are limited to levels approximating those in commercial agricultural areas not influenced by the proximity of urban and related nonagricultural development [14 (§301)].

In judging viability, the law requires that:

... any relevant agricultural viability maps prepared by the Commissioner of Agriculture and Markets shall be considered, as well as soil, climate, topography, other natural factors, markets for farm products, the extent and nature of farm improvements, the present status of farming, anticipated trends in agricultural economic conditions and technology, and other such factors as may be relevant [14 (§303)].

As a practical matter, however, physical features and patterns of land use in virtually all of New York preclude the delineation of a district that is comprised solely of viable farmland. The average New York farm contains 218 acres, with 135 acres used for crop production [22]. The remainder -- woodland, waste land and the like -- has only incidental use for the production of livestock or crops. Yet, whole farm units may be included in a district. Similarly, farms in New York are generally commingled with idle or forest land and land in residential, commercial or other nonfarm uses. Some of this land is often made part of a district.

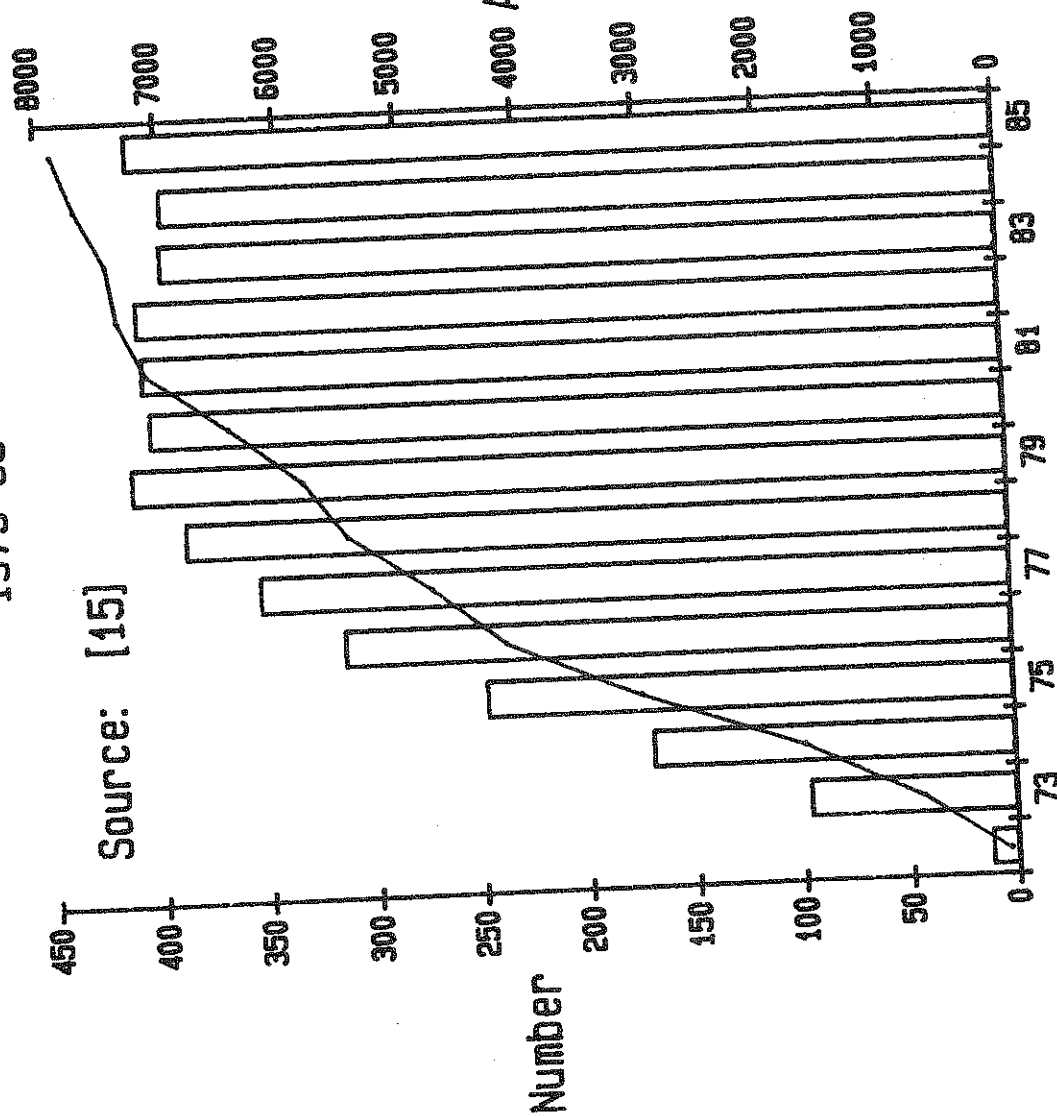
Patterns of Program Implementation

Although enthusiasm for the agricultural district program was immediate, the program has always been voluntary and, as in the case with most governmental programs, participation started gradually. An important distinction also must be made between enrollment in districts and participation in use-value assessment. As we demonstrate later, it is likely that the motivation for participating in these two major features of the program is influenced by different socio-economic circumstances.

Enrollment in Districts

Thirteen districts encompassing about 72,000 acres were formed during 1972, the first full year of the program (Figure 1). During the second

Figure 1. Agricultural districts in New York, 1973-85



year there was more than a seven-fold increase in districts, accompanied by a ten-fold increase in "districted" acreage. During the subsequent six years, enrollment increases were less dramatic, but still substantial. By the end of 1978 (the point at which the districts formed in the initial year came under an eight-year review), nearly 5.5 million acres were enrolled in 386 agricultural districts. Between 1973 and 1978, annual growth rates in the numbers of districts and area in districts averaged 29 percent and 45 percent, respectively.

Since 1978, districted area has continued to increase at an annual average rate of 5 percent. As a result of new district formation and net additions to established districts during the 8-year review process, districts now encompass over 7.8 million acres statewide, or 25 percent of the State's total land area. In contrast, the number of districts has remained almost constant, fluctuating up and down between a high of 410 and a low of 393. Although many new districts were formed during this period, the small change in the total number is explained primarily by actions taken to streamline the administration of the program and to consolidate existing districts that were contiguous or nearly so.

Although New York is an urban state by most conventional measures, some very abrupt urban-rural contrasts are found there. Today, 32 of New York's 62 counties are in Standard Metropolitan Statistical Areas (SMSA); 17 of these contain the New York City central city and the upstate central cities of Albany, Binghamton, Buffalo, Elmira, Niagara Falls, Poughkeepsie, Rochester, Schenectady-Troy, and Utica-Rome. New York's non-SMSA counties often contain smaller cities, but few are immediately influenced by large urban population concentrations.

Regardless, local efforts to create agricultural districts in rural portions of New York have been roughly proportionate to those in urban areas. To highlight such trends, we designated SMSA counties with a central city as urban counties; those SMSA counties adjacent to a central city as fringe; and non-SMSA counties as rural. Each county group clearly shared in efforts to create agricultural districts from 1972 to 1985 (figure 2). Today, the districted area in each county group is approximately proportional to both its total area and the area currently used by farmers for crops and livestock pasture (figure 3).

Use-Value Assessment

The principal direct financial benefit to landowners under the New York law is the property tax reduction from the agricultural value exemption provided for farmland. As in other parts of the country, many people argue that these exemptions must be available in some areas if farm businesses are to remain viable in the face of appreciating land values because of development pressure. Others argue that taxation on the basis of use value is justified as a matter of equity.

In contrast with efforts to create districts, however, participation in New York's use-value assessment program has evolved at a slower pace. In 1977, it was estimated that only 4,000 tax parcels received use-value exemptions [9]. By 1980, the number had increased to about 10,000, but this still represented only about one-tenth of all New York farm tax parcels. According to the New York State Division of Equalization and Assessment (E&A), 26,801 parcels received agricultural value assessments statewide in 1984, resulting in a reduction of \$687.1 million in their taxable value.

Figure 2. Cumulative distribution of land in agricultural districts for New York, 1972-83

Source: [15]

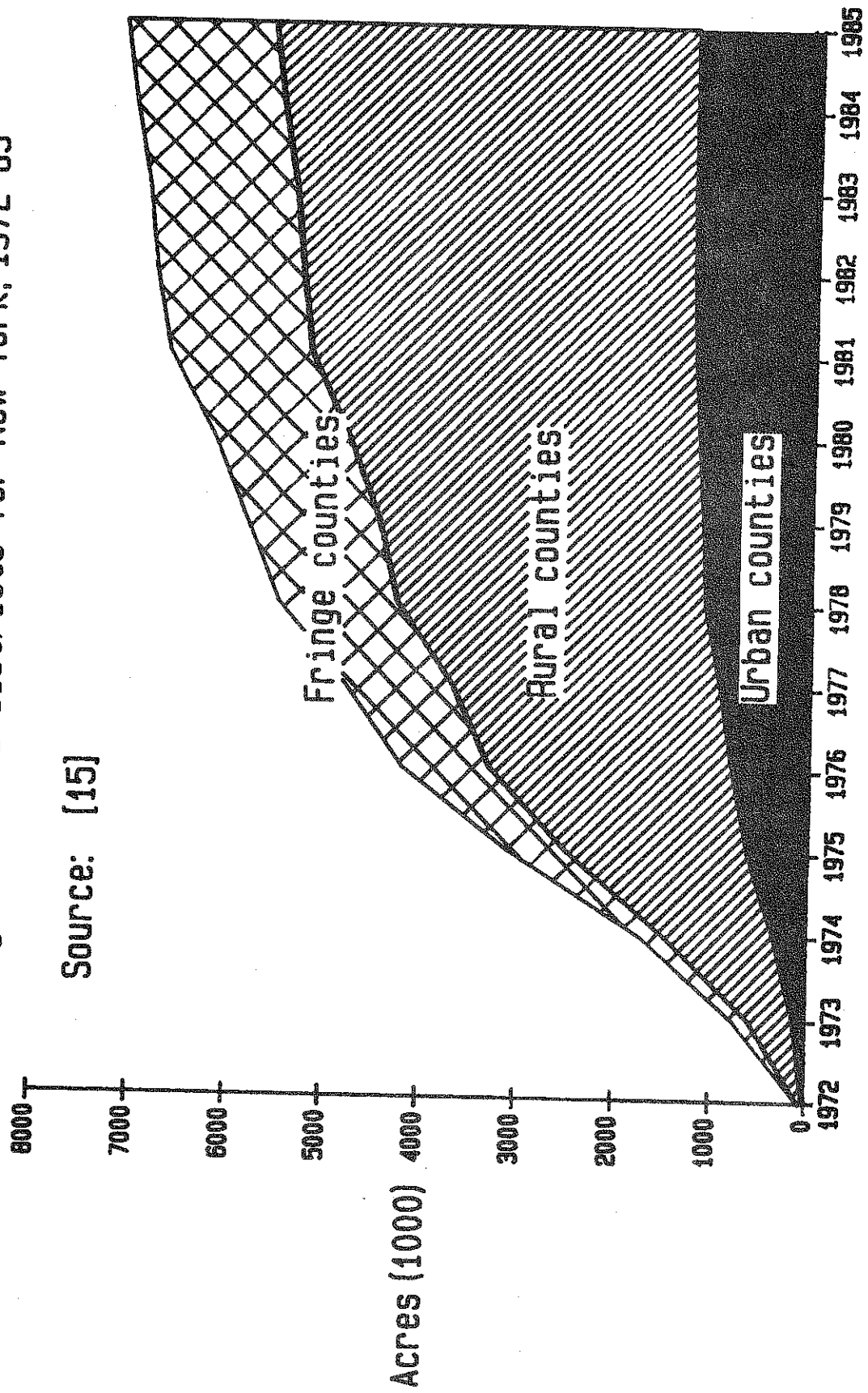
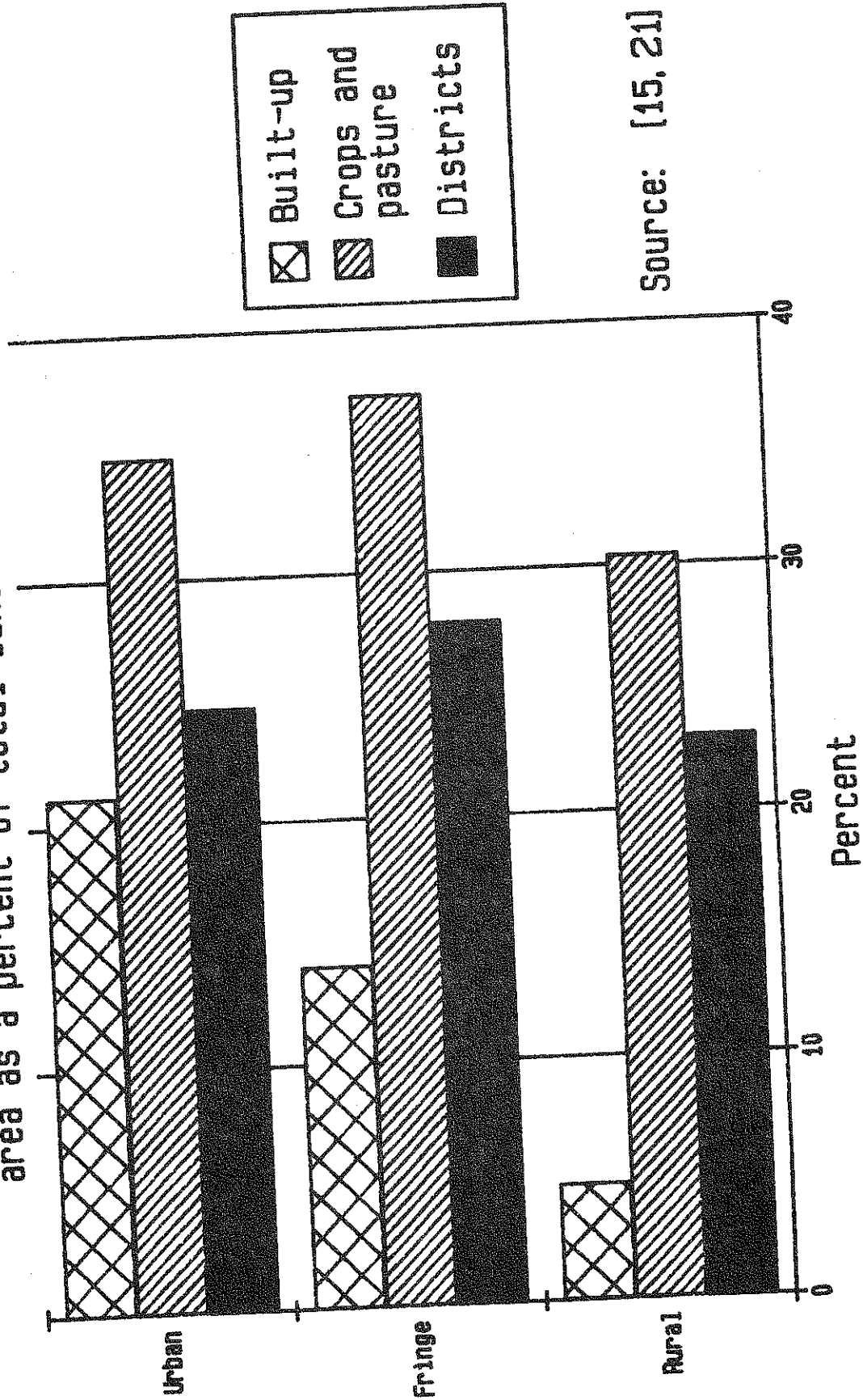


Figure 3. Farmland, districted, and built-up area as a percent of total land area



Source: [15, 21]

Although the data are sketchy, they illustrate two important characteristics of New York's use-value assessment program: (1) limited participation in the program during the early years and (2) the potential for large fluctuations in exemptions received from year to year. Low participation rates in the early years are explained largely by institutional factors related to eligibility requirements and administrative procedures of local assessing jurisdictions. The eligibility requirements in New York are among the most stringent in the Nation; according to a study conducted at Cornell, they limit the potential application of use-value assessment to about three-quarters of New York's commercially farmed land [3]. In addition, during the first few years of the program, many farmland owners meeting the eligibility requirements may have had little or no financial incentive to apply for the use-value assessment. This stemmed from the State's long history of fractional assessment and the inequities among property classes because of a failure to update property assessment rolls on a systematic basis. According to a study by the State Division of Budget [20], a statewide revaluation of property to full value would have implied a net 28 percent property tax increase for farmland during the mid-1970s. Stated differently, problems in property tax administration had led to de facto exemptions on farmland because much of the State's farmland was being carried on the assessment rolls at a fraction of its full value, with this fraction often well below that of other types of property.

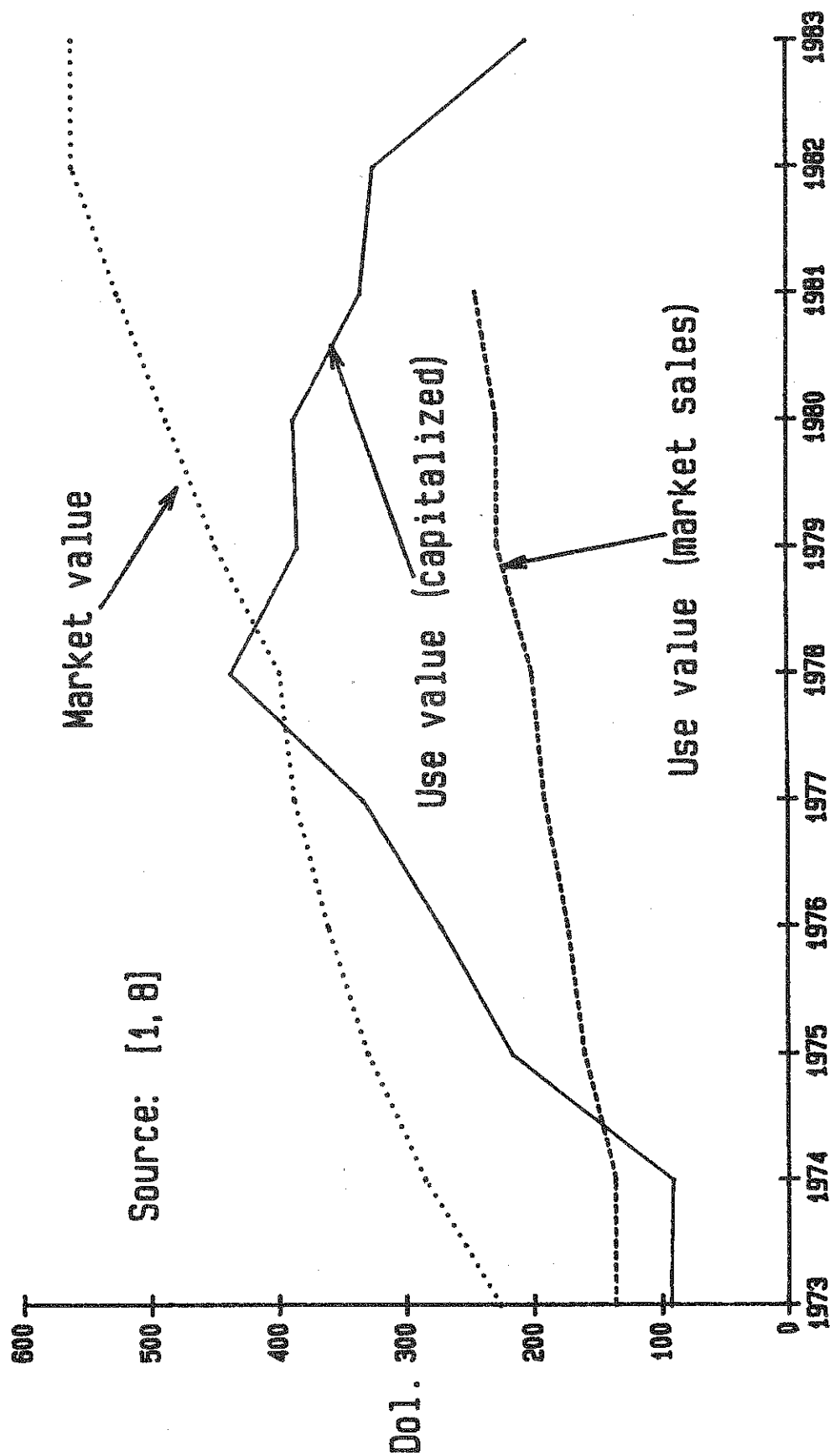
Since the mid-1970s, the situation has changed substantially, largely because of a ruling by the New York State Court of Appeals in the Hellerstein Case. This decision reaffirmed that the New York Real Property Tax Law required all assessments to be at full value, and was responsible for many reassessments in the late 1970s and early 1980s. Although in 1981

the Legislature required only that property tax matters and the full value standard was replaced with the requirement that all property be assessed at a "uniform percentage of value", local jurisdictions continue to revalue property at its full value because it is an effective way to meet the uniformity standard.

Widespread revaluation, however, increased the agricultural community's interest in use-value assessment as well. Many believed that the ceiling values (i.e., use values) being determined each year by E&A would be used by local assessors as the basis for revaluation, and farmers began to question the procedures used to set values, which at the time were based on market sales of agricultural land. The debate over use-value estimates, which continues today, is undoubtedly the most controversial aspect of the Agricultural District Law. Dissatisfaction with values based on market sales and appraisals led to legislation that required agricultural values be based on a soil productivity index and the capitalized returns to land derived from a set of economic profiles. The changes have been in effect since 1981.

The magnitude of property tax reductions under alternate use-value exemptions cannot be estimated for New York farmland from available data. However, we have simulated the per acre use values under alternate computational techniques [2]. Between 1973 and 1981, average use-values across all land classes calculated with market sales data ranged from \$91 to \$244 per acre (figure 4). Changes in these values essentially paralleled the annual increases in farmland market value estimates reported by the USDA's Economic Research Service. In sharp contrast, average use values calculated by capitalizing net returns to farmland range from a low of \$91 in 1974 to a high of \$478 in 1978. By 1983, capitalized use values had

Figure 4. Alternate estimates of per acre farm real estate value in New York, selected years, 1973-83



plummeted to slightly more than \$200. This happened in response to short-term fluctuations in agricultural product prices and input costs and changes in the particular interest rate that the law requires be used in the capitalization formula. Similarly, the robust increases in income-based estimates are largely explained by favorable farm commodity prices in the early 1970s [2].

Year-to-year variability in use-value estimates and concomitant volatility in the size of the use-value exemption has precipitated renewed concern -- both outside and inside the farm community -- over administration of the Agricultural District Law. In local jurisdictions where farm property is a significant proportion of the total tax roll, increasingly large exemptions for farmland in the 1980s have eroded the property tax base and generated higher tax rates for towns and school districts and other units of local government. These higher tax rates apply to the remaining taxable property -- farm and nonfarm alike -- thus reducing the apparent benefits afforded by use-value assessment. The situation is exacerbated by uncertainty about the number and size of farm exemptions from year to year. For some local units of government, the property tax is no longer the stable, predictable source of revenue it once was. To counter the concerns of both farmers and local governments, E&A froze per acre use-value ceilings at the 1985 level for the 1986 tax year. The freeze is being carried over to the 1987 tax year so that E&A can evaluate the results of new studies on their capitalization procedures.

Factors Affecting Participation

We have shown the growth over time in the number of districts, land in districts and use-value exemptions, and have mentioned some factors affecting these developments. To understand these factors more completely

and to focus more carefully on policy issues, it is important to analyze systematically a landowner's decision to participate in the New York program. Enrollment of land in an agricultural district and applications for a reduction in the local property tax constitute two separate choices for farmland owners.

A Framework for Analysis

Recently, economists have begun to examine decisions to participate in government programs with the help of so-called "binary choice" models [1, 4, 10]. The models are often written in mathematical terms, but the underlying premise is that the decision to participate is made by comparing one's anticipated level of well being with and without participation in the program. A key feature of these models is that individuals are assumed to evaluate not only the monetary benefits and costs of participation, but also the less tangible benefits and costs. This implies there is a subjective component to the participation decision because it is difficult to compare some of the intangible benefits and costs with those that can be measured in dollars.

The two decisions that confront farmland owners under the New York law can be examined separately because it is possible to participate in the use-value exemption aspect of the program (UVE) without having the land in an agricultural district (AD), and vice versa. The decision to participate in UVE, however, may be influenced by the AD decision primarily because penalties for conversion of land to nonagricultural uses are less severe if land to which the exemption applies is in an agricultural district, as discussed later.

The short-term benefit of participation in UVE is a reduction in local property taxes. This benefit is affected by urban pressure and

increased demand for land for nonagricultural purposes, which raises on land values, and by how much the local government relies on the property tax. In addition, how the property tax is administered at the local level may directly affect the tax benefits of UVE. As discussed above, many jurisdictions have been operating with outdated tax rolls, where agricultural land is underassessed relative to other classes of property. As a local jurisdiction undergoes property revaluation, the assessed value of agricultural land may rise disproportionately to that on other classes of property, thus increasing the value of the exemption [3].

The costs of participation in UVE are less tangible: either forgone opportunities to convert the land to nonagricultural land uses, or future tax rollbacks and penalties because of premature conversion to nonagricultural uses. It is difficult to know how individuals evaluate these considerations, but as the urban pressure intensifies, it becomes more likely that a given piece of property could be sold to nonfarm interests, which raises the opportunity cost of keeping land in agricultural uses.

Several factors could contribute to a farmland owner's decision to place land in an agricultural district, but to a large extent the benefits of doing so are hard to measure. One purpose of the program is to insulate agricultural operations from government regulation and other actions in localities where agricultural and nonagricultural interests conflict. To the extent that such government actions would increase the cost of farming, placing the land in a district may be important to the continuation of farming. How an individual landowner might weigh these potential future benefits is unclear, but participation in agricultural districts could be expected to be directly related to the rate of nonagricultural growth and development in an area.

Other factors are likely to affect participation. Landowners situated on the very best agricultural land should be more likely to join agricultural districts to preserve the long-term potential for agriculture. In marginal farming areas, there may be little incentive to commit land to agricultural uses for an extended period. This tendency could be reflected in a relation between participation and land quality, productivity, profitability or scale of operation. Finally, the socio-economic characteristics of the farmers may be important. Age, for example, certainly is related to how long an individual plans to remain in farming, but it also could affect one's attitude toward participation in any government programs.

The Data and Model Specifications

Conceptually, it is possible to identify the importance of these numerous factors in the two participation decisions by constructing statistical regression models relating the choices to empirical measures or proxies for the factors. Ideally, one would use individual farm-level data to make direct application of the binary choice models. Unfortunately, data on participation in New York are available only at the county level, thus limiting the application of the qualitative choice models to predicting the probability of a given choice for groups of farmers by county. This is equivalent to an analysis of individual farm data that has been aggregated into county groups.

Lee and Boisvert [10] used this aggregate approach to examine the milk diversion program, where the dependent variable was the proportion of farmers participating. In this study, the available data show the proportion of cropland in agricultural districts and the proportion of agricultural tax parcels receiving the use-value exemption. Obviously, farmers

own more than one acre and often have their land divided into more than one tax parcel; on an individual basis, they can participate at different levels. In the aggregate, the results should remain unaffected if, for each county, one treats the decision to place each acre in a district or to request a use-value exemption on each parcel as binary choices made by one of the many farmers in a county.

Following this line of reasoning, the dependent variable related to participation in agricultural districts is the proportion of cropland in districts in 1982 (CLD82). Another alternative would have been to examine the proportion of farmland in districts but one could legitimately argue that concentrating on cropland in districts is of greater interest to policy makers. About 38 percent of all New York farmland is not used for crop production [22].

There are two alternative measures of involvement in use-value assessment. The first is the proportion of all agricultural tax parcels receiving an exemption (EXPAR), while the second is the proportion of the full value of agricultural property that is removed from the tax rolls by the exemption (EXVAL). The first measure reflects most directly the participation decision. The proportion of the value that is exempt is indirectly related to participation and is of interest to local governments, particularly those in rural areas where agricultural property is an important component of the total property tax base. These two variables, however, could certainly be related to one another in the sense that the size of the exemption may influence the decision to participate.

A number of alternative model specifications were estimated to relate the factors discussed above to the probability of program participation. In addition to specifying different combinations of explanatory variables,

linear probability regression models, as well as their logit and probit transformations (where the probability of participation is assumed to be distributed according to a cumulative logistic or normal distribution, respectively), were also estimated. These latter transformations correct for problems in the error structure inherent in the linear probability model because the dependent variable ranges only between zero and unity. For these latter transformations and for groups (e.g., counties) composed of a large number of individual observations, Pindyck and Rubinfeld [19], p. 290) show that the estimated parameters are unbiased and consistent.

The county-level data on these three dependent variables and the several independent variables came from a variety of sources. They are listed in Tables 1 and 2, along with the estimated equations. In six of New York's 52 upstate counties, there were no use-value exemptions, thus they could not be in the logit and probit models. Thus, some analysis is limited to the remaining 46. Preliminary analysis with the linear model, however, suggested the results were largely unaffected by the omission. Three counties contain little or no agriculture, and the other three are in sparsely populated Northern New York.

Empirical Results

As with most studies of this kind, a number of alternative specifications of the models were studied initially. Different measures of the important socio-economic variables were specified and only the results of the final specifications are reported. In most cases, coefficients on the variables were insensitive to the inclusion or exclusion of other explanatory variables. Furthermore, there was little difference among the performances of the linear model and the logit and probit transformations. The two exceptions were that the probit models performed better for explaining

the proportion of tax parcels exempt, while the logit results were better for the models on the proportion of value exempt. While the probit and logit transformations may be theoretically more appealing, selected results of the linear probability models are reported as a base of comparison.

The empirical results are promising. Over 45 percent of the variation in the dependent variable was explained in most models; with few exceptions, the coefficients on the explanatory variables have the expected sign and the t-ratios are high, many of them over two. Only a small number of variables were important in explaining participation.

In explaining participation in agricultural districts, the important variables are related to farm size and productivity (table 1). Two dummy variables representing USDA farm budget production regions are important. Across the three models, a 10-acre increase in cropland per farm would increase the proportion of cropland in districts from between 0.0068 (0.68 percent) to 0.0095 (0.95 percent). Productivity increases, as measured in \$10 of farm sales per acre, would increase the proportion of cropland in districts by from 0.0035 (0.35 percent) to 0.0047 (0.47 percent). On the basis of the low t-ratios associated with the estimated coefficients, neither the overall county tax rate in these models, nor any of the other variables reflecting urban pressure or fiscal capacity in other model specifications studied, was important in explaining the proportion of cropland in districts.

The results from the equations explaining participation in use-value assessment are in stark contrast to those for district participation (table 2). One important difference is methodological, in that the proportion of cropland in agricultural districts was included as a variable in explaining participation in use-value assessment. When the actual observations were

Table 1. Regression Models for Participation in New York's Agricultural Districts Program, 1982

Independent Variables ^a	Dependent Variable: CLD82 ^a					
	Linear ^b		Logit ^b		Probit ^b	
	coef.	t-ratio	coef.	t-ratio	coef.	t-ratio
Intercept	-0.020	-0.145	-2.606 [-0.152] ^c	-3.607	-1.645 [-0.158]	-3.930
AVCPA82	0.068	2.071	0.375 [0.094]	2.211	0.244 [0.095]	2.435
VASAPA82	0.350	2.206	1.691 [0.423]	2.154	1.180 [0.472]	2.415
TAXRT81	0.003	0.759	0.019 [0.005]	0.870	0.011 [0.004]	0.829
FED2	0.097	2.115	0.464 [0.116]	2.100	0.277 [0.111]	1.946
FED4	0.141	3.738	0.611 [0.153]	3.380	0.376 [0.150]	3.191
R ²		0.495		0.460		0.486

^aThe variables are defined as follows (county observations for 51 of New York's upstate counties): CLD82 = proportion of 1982 cropland in agricultural districts (unpublished data from New York State Department of Agriculture and Markets); AVCPA82 = 1982 cropland (100 acres) per farm with sales > \$2,500 [22]; VASAPA82 = 1982 value of sales (\$1,000) per acre, for farms with sales > \$2,500 [22]; TAXRT81 = taxes collected for all purposes/\$1,000 full value of real property, the latest year for which tax data were available [18]; FED2 and FED4 = dummy variables for two of five agricultural regions defined by the USDA for generating farm budgets [7].

^bThe three models are the linear probability model, a logit transformation and a probit transformation on the dependent variable. Models are estimated with generalized least squares to correct for the heteroscedastic nature of the errors.

^cNumbers in brackets are the approximate linear probability equivalent coefficients as described by Madalla [11 (p. 23)].

Table 2. Regression Models for Participation in New York's Use-Value Assessment Program, 1982

Independent Variables ^a	Dependent Variable: EXPAR ^a						Dependent Variable: EXVAL ^a							
	Linear ^b			Probit ^b			Linear ^b			Logit ^b				
	coef.	t-ratio	coef.	t-ratio	coef.	t-ratio	coef.	t-ratio	coef.	t-ratio	coef.	t-ratio		
Intercept	0.761	1.067	-0.450	-2.482	-0.880 [0.148] ^c	-0.230	-2.071 [-0.329]	-0.488	0.356	0.914	-4.338 [0.584]	-0.486	-10.998 [-2.250]	-5.157
AVCPA82	-0.092	-1.873			-0.356 [-0.142]	-1.174			-0.056	-1.988	-0.657 [-0.164]	-1.1060		
FAVAGE82	-0.020	-1.536			-0.051 [-0.020]	-0.750	-0.045 [-0.018]	-0.553	-0.008	-1.143	-0.109 [-0.027]	-0.667		
POPCG80	0.007	2.590	0.008	3.055	0.029 [0.011]	1.810	0.021 [0.009]	1.211	0.003	2.057	0.063 [0.016]	1.991 [0.019]	0.076 [0.019]	2.404
TAXRT81	0.009	1.356	0.014	2.239	0.015 [0.006]	0.425	0.053 [0.021]	1.360	0.003	1.075	0.107 [0.027]	1.555	0.144 [0.036]	2.169
EQRATE	0.177	2.915	0.218	3.232	1.311 [0.525]	3.512	1.386 [0.555]	2.936	0.050	1.319	1.733 [0.433]	2.463	1.819 [0.455]	2.464
LRA5	0.301	3.536	0.308	3.384	0.876 [0.350]	1.538	1.087 [0.435]	1.648	0.164	4.134	2.012 [0.503]	3.490	2.083 [0.521]	3.416
SMSANC	0.032	0.765			-0.136 [-0.054]	-0.430	0.052 [0.021]	0.151	0.018	0.641	0.454 [0.114]	0.735	0.398 [0.099]	0.602
CLD82	0.428	2.543	0.079 ^d	0.290	3.720 [1.488]	3.664	1.359 ^d [0.544]	0.809	0.151	1.767	5.828 [1.457]	2.932	2.674 ^d [0.668]	9.937
R ²	0.645		0.609		0.601		0.457		0.580		0.654		0.605	

^aThese variables are county observations for the 46 New York upstate counties with at least one exempt parcel for use-value purposes in 1982. EXPAR = 1982 proportion of agricultural tax parcels partially exempt under use-value assessment; EXVAL = 1982 proportion of value of land and buildings on farms with sales > \$10,000 that is exempt from property taxes [16, 17]; FAVAGE82 = average age of farm operators, farm with sales > \$2,500; POPCG80 = % population change 1970-80 [23]; EQRATE = assessed value of real property/full value of real property [16, 17]; LRA5 = dummy variable for land resource area 144 as defined by the Soil Conservation Service [7]. SMSANC = SMSA counties excluding those containing the SMSA central city. Other variables are from table 1.

^bSee footnote b, table 1.

^cSee footnote c, table 1.

^dPredicted CLD82, from table 1.

used in the model, the coefficients were positive as expected and the t-ratios were robust. However, if one views the two participation decisions recursively by incorporating the predicted value of CLD82 in the equations for EXPAR and EXVAL, the model's performance deteriorates markedly. This probably reflects the fact that only about 50 percent of the variation of CLD82 is explained by the models in table 1.

The important factors in both measures of participation in UVE are related to development pressure and fiscal capacity. In counties where population grew more rapidly during the 1970-80 period, participation in the use-value assessment program as measured by EXPAR, increased by between 0.7 percent to 1.1 percent for a one percent age point increase in the rate of population change. Depending on the model, the increase was from 0.3 percent to 1.9 percent for EXVAL. The SMSANC variable was included to test the hypothesis that interest in use-value assessment might be higher in those SMSA counties adjacent to counties with central cities that are growing but still have important agricultural sectors. These are the fringe counties mentioned above, and while this variable was not important on its own, when omitted, the t-ratio on other variables dropped.

The equalization rate was also a "significant" factor in participation, lending support to the hypothesis that taxing jurisdictions going through revaluation could expect increased numbers of exemptions. In most of the model specifications, the overall tax rate per \$1,000 of full value has an important effect on both the proportion of parcels exempt and exempt value. All else equal, this appears to confirm the hypothesis that farmers do consider the magnitude of the short-term monetary benefits in committing their land to agricultural uses for some period of time.

The effects of agricultural productivity and farm size on participation are less clear. The dummy variable LRA5 is associated with the Hudson Valley between Albany and metropolitan New York City and could reflect urban pressure about as much as differential land productivity. However, it is important to note that productivity measures do not contribute to an explanation of participation in use-value assessment. One reason is that these factors could be reflected indirectly through the inclusion of the variable CLD82. (This implication would be more conclusive if more of the variation in CLD82 had been explained by the models in table 1, so that the predicted CLD82 would have performed better in these models.) Furthermore, there is no evidence which suggests that assessed values of agricultural land in New York are tailored to differentials in land productivity. Our results can be interpreted to mean that all else equal, the incentive to participate in UVE may be no higher in counties with good land compared with counties with marginal farmland.

The coefficients on the two remaining variables in the equations are not particularly stable across the specifications. The negative effect of farmers' age is consistent with a priori expectations, although some might think that participation in use-value assessment ought to be directly (rather than inversely) related to farm size. Certainly the case for a positive relationship is not as strong here as it is in the case of participation in agricultural districts. The instability of the results may be due to having CLD82 as an explanatory variable as well.

Policy Discussion

New York has 15 years of experience with farmland policy based on agricultural districts and reduced property taxes through use-value farmland assessment. Agricultural districts are oriented toward facilitating

the retention of land in a farm use rather than "preserving" New York's farmland base. The district program is voluntary and almost completely dependent upon local initiative, and does not directly restrict owners' land use decisions. This approach has proved to be in close harmony with the political and economic realities of rural land use within the State. If performance is measured in simple acreage terms, the New York law has been an unqualified success. Fully one-fifth of the State's total land base is dedicated to agriculture in that it is within an agricultural district. Much of this land has successfully emerged from a mandatory eight-year review by a county legislative body, and will fall under the purview of the Agricultural District Law for years to come. Additional efforts to create districts can be expected in the future as well.

In contrast, the law's provisions for direct financial assistance to farmland owners via use-value farmland assessment have proven to be far more controversial. Throughout the 1970s, institutional factors related to eligibility requirements and the State's long history of fractional assessment worked together to constrict applications for a use-value exemption. More recently, increasingly large exemptions, combined with year-to-year variability in their value because of legislated changes in computational technique, have tended to increase participation and destabilize the tax base in some rural taxing jurisdictions.

We have analyzed some of the factors that influence the decision to participate in the New York program to help evaluate use-value assessment and agricultural districts as a means of retaining farmland. The analysis strongly suggests that such programs are consistent with an objective of protecting the highest quality farmland, in that enrollment in districts is positively related to farm size and land productivity. These factors,

therefore, also explain indirectly the attractiveness of use-value assessment, although it is apparent that short-term monetary gains associated with the use-value exemption (which is directly related to property tax rates and equalization rates) are important considerations in applying for use-value exemptions. Thus, as local governments become more dependent on the property tax, public officials can look forward to some additional erosion of the tax base via tax preferences for agricultural land. This is also true for taxing jurisdictions that are revaluing to correct known tax inequities across property classes in many outdated tax rolls.

Continued efforts to fine-tune administration of New York's use-value assessment program can be expected. These efforts may dampen the debate over property tax relief for farmland, but at the same time, they divert the attention of policymakers from the larger issues that surround the agricultural district approach. The law is comprehensive and encompasses a wide range of factors, such as eminent domain proceedings and restrictive ordinances that clearly condition the overall environment for farming. Also, the process for creating a district is comprehensive and greatly increases the visibility of farming in the local community, both as a business and as a land use. This strengthens prospects for the continuation of agriculture in urbanizing situations, but probably also helps foster the illusion that the problems urban expansion poses for the State's agricultural land base have been solved.

On the contrary, public land use policy can be usefully characterized as a progression or sequence of programs tailored to ever-evolving social needs. In this perspective, New York may need a complementary, but more focused, effort to protect farmland in the years ahead. The target should be geographic situations where growth and development pose a threat to the

continuance of farming on New York's best farmland, regardless of the inducements offered by an agricultural district.

References

1. Boisvert, R.N. and N.L. Bills. 1986. A Model to Explain Participation in New York's Agricultural Districts and Use-Value Assessment Program. Staff Paper No. 86-8, Department of Agricultural Economics, Cornell University, Ithaca, New York.
2. Boisvert, R.N. and N.L. Bills. 1984. "Variability of New York's Agricultural Use Values and Its Implications for Policy." Northeastern Journal of Agricultural and Resource Economics 13:254-263.
3. Boisvert, R.N., N.L. Bills, and R. Solomon. 1980. "Evaluation of Farmland Use-Value Assessment in New York." Journal of the Northeastern Agricultural Economics Council 9:17-22.
4. Chambers, R.G., and W.E. Foster. 1983. "Participation in the Farmer-Owned Reserve Program: A Discrete Choice Model." American Journal of Agricultural Economics 65:120-24.
5. Conklin, H.E. 1973. Recent Changes in Government Mechanisms for Modifying Rural Land Use Decisions in New York State. Paper presented at the annual meeting of the Northeast Regional Resource Economics Committee, Boston, Massachusetts.
6. Conklin, Howard E., and William R. Bryant. 1974. "Agricultural Districts: A Compromise Approach to Agricultural Preservation." American Journal of Agricultural Economics 56:607-613.
7. Giardina, D. and P. Dyke. 1979. County Identification Codes and Cross Reference Tables. Working Paper #67, Economics Statistics and Cooperatives Service, U.S. Department of Agriculture, Washington, D.C.
8. Jones, John and Charles H. Barnard. 1985. Farm Real Estate: Historical Series Data, 1950-85. Statistical Bulletin Number 738,

Economic Research Service, U.S. Department of Agriculture,
Washington, D.C.

9. King, W.H. 1978. Utilization of Agricultural Exemptions in New York State on 1975 and 1976 Assessment Rolls (Including 1977 Supplement). Staff Paper No. 78-2, Department of Agricultural Economics, Cornell University, Ithaca, New York.
10. Lee, D. and R.N. Boisvert. 1985. "Factors Affecting Participation in the Milk Diversion Program in the U.S. and New York." Northeastern Journal of Agricultural and Resource Economics 14:193-202.
11. Maddala, G.S. 1983. Limited-Dependent and Qualitative Variables in Econometrics. Cambridge University Press, Cambridge, Massachusetts.
12. NASDA Research Foundation Farmland Project. 1986. "Agricultural Districting Legislation Passes in North Carolina." Farmland Notes 5:1-2.
13. New York. 1970. Senate Bill 9028.
14. New York Agriculture and Markets Law. Article 25AA (McKinney).
15. New York State Board of Equalization and Assessment. 1986. Private communications. Albany, New York.
16. New York State Board of Equalization and Assessment. 1984. Agricultural Use Assessment Impact Study for 1982. Albany, New York.
17. New York State Board of Equalization and Assessment. 1984. Exemptions from Real Property Taxation in New York State: County, City and Town Assessment Rolls Completed in 1982. Volumes I & II, Albany, New York.

18. New York State Office of the State Comptroller. Bureau of Municipal Research and Statistics. 1983. Special Report on Municipal Affairs: 1981. Albany, New York.
19. Pindyck, R., and D. Rubinfeld. 1981. Econometric Models and Economic Forecasts. 2nd edition, McGraw-Hill, New York.
20. State Division of the Budget. 1976. Educational Finance and the New York State Real Property Tax. Albany, New York.
21. U.S. Department of Agriculture. Soil Conservation Service. No date. 1982 National Resources Inventory. Washington, D.C.
22. U.S. Department of Commerce. Bureau of the Census. 1984. 1982 Census of Agriculture. AC82-A-32, Vol. 1, Geographic Area Series, Part 32, New York State and County Data. Government Printing Office, Washington, D.C.
23. U.S. Department of Commerce. Bureau of the Census. 1982. 1980 Characteristics of the Population: New York. Vol. 1, Part 34, Government Printing Office, Washington, D.C.