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March 1980

A.E. Ext. 80-5

FARM PROPERTY VALUATION IN NEW YORK STATE

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HIGHLIGHTS

All nations, especially those that are the highly industrialized and developed, have expanded their public sectors continually for several decades. The United States is no exception. Although the massive growth in some areas of government, such as defense, has slowed, sectors oriented to economic, social, and environmental problems have expanded to take up the slack -- and more. Growth in the public sector has been most pronounced at the state and local levels, a trend that is likely to continue as more and more people become convinced that the federal bureaucracy cannot respond to their needs.

Since public goods do not pass through ordinary markets, prices cannot be used to allocate scarce resources among the competing public purposes. Committees, boards, legislatures, and other groups of representatives must decide on the kinds and the quantities of public goods that will be produced. After the mix is determined, the decision-making group must arrange for the collection of tax revenues to finance the public entity's activity.

Taxing is a difficult process, particularly in times of economic slowdown and increased demand for public services. Most people think that taxes should be collected in accordance with the benefits received from the programs the taxes are designed to support. In reality, however, it is often difficult to identify the beneficiaries of public programs. In other cases, some individuals must have access to certain public services even though they cannot afford to pay. Thus, most tax programs in the United States are related to the taxpayers' ability to pay rather than to the benefits received.

Land, sales, incomes, and wealth are the most frequently taxed items in the United States. Each tax scheme has its own set of problems, but serious questions always arise over equity. Who should pay more and who should pay less? This is a legitimate question, but one that has no objective answer. Reasonable people will continue to view the equity issue in taxation differently.

Problems that arise in the taxation of land (real property taxes) are especially severe. A particular parcel of land may have different values

depending on its use. It may be valuable as a residential site or as a shopping center. It may be worth somewhat less when used for a farm, and it may have little dollar value if it is used as a wilderness area or a game sanctuary. This problem is important because for tax purposes local officials must place a single value on land. The land can be valued at its market or sales value, its value can be ascertained by capitalizing income or rental streams coming from the land, or the value may be determined using some indicators of the land's physical quality. No one of these methods is perfect and information is not sufficiently available to make one method uniformly useful over an area as large as New York State.

Those involved in agricultural land assessment find it difficult to maintain a consistent - even if not perfect - approach to land value. This issue gained added significance with the passage of the agricultural district law early in this decade. Agricultural districts are designed to slow the transfer of land out of agriculture. They came in response to the rapid urbanization of the state that occurred in the 1950s and 1960s.

Although urbanization has slowed, the impact on farming of increased urban activity is still significant. Intensified competition for land increases the price of land and the costs of farming, as do increased tax burdens to finance a new variety of public services demanded by the new rural residents. In some areas the possibility that still more of New York's prime agricultural land will be transferred to nonfarm use is present. This adds to uncertainty and increases the reluctance of some farmers to maintain their agricultural investments.

Agricultural districts are formed by local initiative and provide a series of incentives and penalties that help slow the conversion of land to nonfarm uses. One of the incentives permits a farmer to request that the portion of land value over and above the land's value in agriculture be exempt from the local property tax. That is, the land on a farm may be worth $250,000 as a productive farm unit, but $500,000 as a potential development site. If the farmland is in an agricultural district or an agricultural commitment has been filed, the farm operator may ask that he be taxed only with respect to the $250,000 - the "agricultural use value" of the land. In return, the farmer is asked to commit the land to agri-

cultural uses for an extended period. Premature conversion to nonagricultural uses carries a penalty or "rollback" tax payment.

This potential exemption adds to the complexity of the administration of the property tax on agricultural land. The State Board of Equalization and Assessment is responsible for setting agricultural use values. These values are called "ceiling factors" and are established for each county in the state. While these ceiling factors provide the basis for the agricultural exemption, local assessors must still maintain tax rolls which reflect assessments at full market value for agricultural land. This information is needed to retain comparability with other classes of property and provide the basis for tax rollbacks in the case of premature conversion of land to nonagricultural uses.

At the present time, the Division of Equalization and Assessment (E&A) relies primarily on the market value or sales approach for determining agricultural ceiling factors. Critics of their procedures have argued that E&A has not been able to isolate effectively farmer-to-farmer sales where prices reflect only the agricultural value of land. Others have argued that even the price of land remaining in agriculture probably reflects the value of the land as an investment or as a hedge against inflation. These effects are difficult to isolate because only a small portion of the state's farmland sells in any given year.

As a result of these and other criticisms, there has been increased interest in income capitalization as an alternative approach to establishing agricultural ceiling factors. Although this approach can potentially provide valuable information for determining agricultural use values, it also suffers from some shortcomings not unlike those in a market sales approach. Implementing the alternative would require the creation and maintenance of a detailed set of farm records or other budget information representative of the several types of agriculture throughout the state. The task of deciding what proportion of the value of agricultural production was attributable to the various classes of agricultural resources would remain.

Thus, regardless of the procedures used, the determination of agricultural ceiling factors must go beyond the formal sales and income infor-

mation. Expert and careful judgement, making use of both objective and subjective information that is the foundation of all good assessment techniques, must enter the process along with political negotiation and compromise. Because of the complexities introduced by recent legislation and the agricultural exemption, E&A has been authorized to establish an "agricultural unit." This unit, consisting of several new positions, will be staffed with people with knowledge about agriculture across the state and will be responsible for administering the state responsibilities for agricultural land assessments effectively.

In summary, because of the imperfections in the market for agricultural land, no one approach to agricultural land valuation is universally thought to be the "proper" or the "best" approach. Consequently, it seems reasonable that all local assessors and state agency personnel involved in the various aspects of agricultural land valuation should attempt to use information from all available sources to ascertain agricultural values. To facilitate this complex process, additional attention and resources should be devoted to: a) systems for collection, analysis, and distribution of data related to farm sales; b) administrative changes that may ease the tasks of assessors and other officials; c) understanding and perfecting the income-capitalization approach to farm value; and d) the problems related to the parcelization of New York's agricultural land. Some efforts to do this have already been initiated by farm organizations, state agencies, and the College of Agriculture and Life Sciences at Cornell University. Increased coordination of these efforts and the establishment of a reasonable research agenda and legislative timetable is imperative.

FARM PROPERTY VALUATION IN NEW YORK STATE

by

Paul W. Barkley
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All modern societies produce two kinds of goods and services. One kind is private; the other is public. A private good is one produced by a private firm, processed in a privately owned or managed plant, sold in a privately owned commercial establishment, and consumed by a private citizen. A loaf of bread is a private good, so is an automobile, a kitchen sink, and a ride in a hot air balloon. All private goods have two distinguishing characteristics. First, they are exclusive. One person, family, or group can obtain exclusive rights to own a loaf of bread. Exclusive ownership means the owner of a good can prevent others from using the same good. When Smith owns the loaf, Jones must not interfere with how Smith uses it.

Second, private goods are bought and sold in organized markets. The exclusive rights to loaves, automobiles, and rides in hot air balloons are negotiated between buyers and sellers. When prices reach levels that are satisfactory to both buyer and seller, ownership (exclusive rights to use) transfers from one person to another. The process of transferring ownership is called marketing; the place where the decision to transfer ownership is made is called a market.

The other class of goods - public goods - is not so easy to describe or to analyze. A public good is a good or, most often, a service that can be used by many people at the same time. Its use cannot be exclusively controlled by one individual or even by a group of individuals. National defense is a common example of a public good. If the United States develops an adequate system of national defense, that system protects every-

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one, not just those living east of the Mississippi or only those who live in cities of more than 100,000 population. Flood control is another public good. When a flood control system is developed for a community or a small valley, all persons in the area are protected whether they want to be or not. One merchant or one householder or one farmer cannot elect to do without the flood control.

Other examples of "pure" public goods can be found, but most goods lie somewhere along the continuum with "pure" public goods at one extreme and "pure" private goods at the other. Soil conservation is an example of a "mixed good" lying somewhere in the middle. An individual farmer makes an individual choice to use a conservation practice. Private, exclusive rights to the increased production result from a more productive soil; but other benefits - reduced soil erosion, less silt accumulation in streams, and enhanced water quality - are enjoyed by the public.1/ They are not exclusive.

This non-exclusive nature of public or mixed goods and services causes serious problems in a market oriented economy. Because it is difficult or impossible to prevent any one individual or group from using a public good or benefitting from a public service, no one wants to pay for them. John Jones knows that national defense will be provided even if he as an individual does not help pay for it, so he may try to get it for free. Sam Smith knows that when the dam is built, the Smith house will be protected from flooding. Since Brown, White, and Thomas will also be protected by the same dam, Smith would like to pay nothing and let the others pick up the tab. Jones (national defense) and Smith (flood control) recognize the possibility of becoming "free riders." If no one wants to pay for the public goods, no market develops for them and no private firms emerge to produce such things as national defense, flood control, city beautifica-

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1/ Public roads and bridges and public parks are other examples of goods lying on this continuum. In general, these facilities can be enjoyed by many people simultaneously and Smith's use does not detract from Jones' capacity to use or enjoy the facility. When use reaches a certain intensity, however, congestion may impair everyone's use. At this point, user charges, tolls or other allocation schemes must be employed to determine which individuals will retain the rights to cross the bridge, travel the road, or visit the park.

tion, soil conservation, public parks, community colleges, street lamps, and the thousands of other goods, services, and activities that are now provided by cities, villages, counties, towns, school districts, states, and other public jurisdictions.2/

The absence of a market for the increasing variety of public goods has required a substitute for the market signals (dollar prices) that usually reflect consumer choice and direct resources from one use to another. In the United States, the various levels of government have devised ingenious ways to allocate public resources among the many public purposes. Most public choosing relies on either direct or indirect (representative) voting schemes. County legislators vote to decide if the money will go for county roads or for county parks; the town board votes to decide between street lamps and mosquito control; the school board votes on whether to fund a new art program or to purchase a new bus. In these indirect or representative forms of voting, elected officials vote to make public choices on behalf of a number of constituents who, themselves, choose the representatives. A direct voting scheme is sometimes used in public choosing. In some cases, a direct vote by the entire constituency must approve a major bond issue so a community can borrow a large sum of money.

These voting mechanisms and procedures are the basis of the constitutional democracy in the United States. At all jurisdictional levels, public decisions are made by voters who direct the expenditure of money. This was true in 1776, in 1850, and it is still true in 1980.

One major trend, however, has brought increasing confusion and concern to U.S. citizens. As time has passed, the domestic economy has become adept at producing private goods. The citizenry in general has an abun-

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2/ The farmer's investment in soil conservation is somewhat different. A decision to invest is based solely on costs relative to the increased value of the additional production that comes from the improved soil productivity. By ignoring the potential environmental benefits to the public, a choice may be made not to undertake those practices which add little to the farm's productive capacity, but have substantial benefits to society. From society's point of view, the failure of a market to reflect potential public benefits can lead to underinvestment in many worthwhile endeavors. This, many argue, is sufficient justification for direct public involvement in many activities or for public assistance or incentives to private individuals and firms.

dance of food, clothing, housing, automobiles, televisions, and knick-knacks. The general demands for these kinds of goods have been more-or-less satiated so public activity is seen as a means of enhancing the number of opportunities to do satisfying things. We as a society apparently do not want many more lawn mowers, but we do want additional public parks. We do not need additional hula-hoops; we need cleaner rivers and safer city streets. The lawn mowers and hula-hoops would have been produced by the private sector. The public parks, cleaner rivers, and safer streets must be produced by the public sector.

Regardless of whether these goods and services come through private markets or through public jurisdictions, financial resources - dollars and cents - are required to get them from producer to consumer. The gradual transition to a greater dependence on public goods and services has added to the financial needs of the public sector. The proportion of Gross National Product (GNP) spent by all levels of government stood at 12.3 percent in 1930 and had risen to 22.1 percent in 1950. In 1970, governments in the United States spent 34.2 percent of GNP on public activity; in 1977, about 36.5 percent of GNP was used in this fashion (U.S. Dept. Commerce 1979a).3/

A growing public sector is a normal phenomenon in highly successful industrial societies, but increased public budgets, in turn, require increased taxes.4/ A serious dilemma often confronts a citizen at this point. The same voter-consumer who makes conscious and well-reasoned decisions about increasing public activity is often extremely reluctant to follow through by voting for the increased public revenues (increased taxes) needed to implement the program or put the facility in place. This apparent inconsistency in voter behavior can be explained in part by a long

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3/ Figures describing the proportion of GNP that goes for public purposes vary slightly from source to source. It is safe to say that approximately one fifth of GNP is required by the federal government and approximately 15 percent is used by state and local governments. Revenue sharing and other intergovernmental transfers make it almost impossible to determine the exact size of the flow of funds between the private and the public sector or between various parts of the public sector.

4/ This is not entirely true. A public entity (town, county, school district, etc.) can borrow money and temporarily increase spending without a commensurate increase in taxation. In other cases, some services can be financed through user charges.

tradition of believing "that government is best which governs least." This dictum is as old as the republic itself and has become a part of our system of beliefs and values. While the idea made good sense in a territory that was rich in space and natural resources and in which everyone lived close to the land and to nature, it has lost some of its incisiveness in the crowded, polluted, noisome and complicated contemporary world.

The best government is no longer the one that governs least. The best government is now the one that provides the collection of public goods and services demanded by is constituents and does so efficiently and with the least possible infringement on personal freedom. Meeting these objectives requires resources. Since modern governments have dismissed conquest and slavery as means of acquiring resources, most depend on taxes.

Taxation in a Modern World

Taxes have been employed since antiquity. They have been used to amass personal treasure, to wage costly wars, to penalize civil offenders, and to give sanction to selected sets of public or private activities. For the most part, however, taxes have been used in a straightforward way to gather revenue that is then used to defray the general costs of government activity. Taxes are collected to pay for police protection, roads, flood control, national parks, and the scores of other things that governments do. They are collected to keep records on land ownership, support educational activity, and invent better machines.

Different governments have chosen to tax different things or activities, but it seems safe to say that, in the modern world, three things have been taxed by nearly all advanced nations. The three are sales (transactions), incomes (or wealth), and land (real property).5/

5/ "Incomes" and "wealth" are not the same thing. An income is a stream of earnings such as a salary, wage payments, or regular royalties from an invention. Wealth is a stock of value such as might be found in a safe deposit box filled with diamonds. A high salaried but high living executive from IBM may have high income and no wealth. A prudent investor, on the other hand, may have a cache of bonds, but no quick way to turn them into income. He is wealthy but "broke."

No tax is without controversy. The holder of wealth, understandably, would rather have taxes levied against sales or transactions. Consumers would rather have taxes related to income or wealth. The governments that levy taxes must walk a continual tightrope: gather enough tax from all possible and reasonable sources so that government expenditure can be covered, but not so much from anyone or any one group so as to engender a taxpayers' revolt. Thus, a taxing jurisdiction typically "broadens its tax base," to impose several kinds of taxes on several kinds of things. This increases the opportunity to tax and keeps most kinds of taxes low enough to avoid adverse public action. No one complains about a 5 percent tax on movie admissions; it isn't worth the bother.

It is also typical for a single individual to pay property taxes, sales taxes, and income taxes as well as a plethora of minor taxes on such things as liquor, theater admissions, cigarettes, and automobile licenses. The problem comes in deciding the proper rate at which to tax each of these items. Decisions on rates are questions of equity and are issues about which reasonable people can, and often will, disagree. "Equity" is perhaps the most difficult part of the overall question of taxation. In the case at hand, equity demands that someone decide who ought to pay and who ought not to pay taxes. There is no objective answer to this question so economists, public administrators, and judges continue to have disputes over what is "fair" and what is "equitable," and who ought to pay.

Although few people in this society would argue that agricultural land should be totally exempt from all taxes, the equity considerations in selecting the proper rate of taxation for agricultural land have probably generated as much controversy as any tax issue in contemporary history. Land of any sort - agricultural, residential, industrial, or commercial - is accepted as a suitable tax base in most western countries. This widely held preference stems from three sources. First, land is easy to see and easy to measure. A large landholder can be differentiated from a small landholder and tax bills can be adjusted accordingly. Early settlers built on this Western European tradition and devised taxing schemes related to size or value of property holdings. The large landholders were required to pay a high proportion of the costs of the fledgling government.

A second reason stems from the first. Land cannot be moved so it is a permanent source of tax revenue. If sales are taxed, potential buyers can

shop elsewhere. If an industry or its payroll is taxed, the owners of the factory may move it to the South in order to avoid the taxes. Since land cannot be relocated, it escapes these problems and becomes a reliable source of local public revenue.

The third reason for interest in land as a tax base began in France in the middle years of the eighteenth century, but did not gain momentum in this country until the time of Henry George - about 1875. George and his predecessors became preoccupied with the notion that land was a gift of nature and that no one individual should ever profit from its ownership. George reasoned that all profits accruing to this gift of nature belong to the public and should be taxed away from private owners to be used for public purposes. While few of George's followers adopted such an extreme view, the idea that land's natural productivity should not be appropriated by private individuals persisted. The same notion is responsible for the severance taxes on petroleum deposits, stumpage taxes on timber, and land taxes assessed against owners and users of land. Since agriculture is based on land, it is not surprising that the "gift of nature" argument is sometimes used to support high taxes on farmland.

There are other arguments as well. During the period of rapid westward expansion, farms were scattered and the farm population was sparse. Regardless of how sparsely settled the western areas were, the nation's legislators and public decision makers felt that roads should be built and maintained, schools should be available, and railroads should be close by. Serving the sparsely settled agricultural frontier was expensive and the farmers and the land were asked to bear a large proportion of this expense. Land taxes were a significant part of the cost of farming. While there is disagreement on the appropriate weights to apply to each of the above arguments or explanations, most would agree that each contributed to the high tax burdens faced by farmers during the developmental period in U.S. agriculture. Some observers will still say land taxes are too high; others will say too low. The argument is as old as the study of public finance itself.

Adam Smith, generally credited with being the founder of modern economics, had much to say about taxation. Although generally thought to be in favor of free markets and little governmental interference, Smith also saw the need for a public sector (government) that provided such things as

national defense, roads, bridges, honorable contracts, accurate weights and measures, and an authentic and reliable money supply. Smith believed that any taxing scheme devised to provide the needed public revenues for these purposes should also pass four tests of reasonableness:

Equitability. Equitability has dimensions on both the receiving and spending side of the public activity question. Equitability on the receiving (taxing) side means that all people who have like properties should be taxed alike. Neighbors each living in $50,000 homes should each pay the same tax. Equity on the spending side means that people paying the same taxes should have access to the same collection of public services. (Note that the rule says people should have access to like bundles of services. It does not say all people will use all the services in the same way.)

Certain. Taxpayers should know in advance all the rules and exceptions about every tax that affects them. These rules should be available to all people whether or not they have taxable property or engage in activities that are taxed.

Convenient. The tax should be paid at regular intervals and in convenient places. There should be no unusual provisions working to inconvenience the taxpayer.

Economical. The procedure of collecting the tax should not be so expensive that nothing is left over to pay for the public activities.

Passing these four tests simultaneously is especially hard. While a tax can be made certain, convenient, and economical, it is not always clear that the tax will be equitable. Being equitable begs a second question: Equitable with respect to what?

The question of equity in taxation can be addressed in two basic ways. One centers on the benefits people may receive from public taxing and spending. The other centers on the taxpayers' ability to pay. The benefit principle is by far the most appealing. It says that those who use or benefit from the public activity should pay the tax to support it. The users of highways should pay "road taxes" and families with children in school should support the schools. The benefit principle approximates a private market. Those who receive the service pay the bill. Strict adherents to the benefit principle argue that land taxes should be used to

support only those services that enhance the value of the land that is being taxed.

The problem with the benefit principle is that some who benefit from the activity do not have the ability to pay for it. The poor must have access to public education, traffic control, city parks, and national defense, but they are often unable to pay on the basis of the benefits they receive.

Even though the benefit principle cannot be adopted universally, some direct links between taxpayer and service user do exist in the the U.S. economy. Gasoline taxes, for example, are often earmarked for highway improvement and some states earmark a small percentage of the liquor taxes to support rehabilitation centers for persons suffering from alcoholism.

If taxes cannot be levied with respect to benefits received, they must be related to the taxpayers' ability to pay. Adopting the ability principle requires a conscious recognition that some people are fortunate and have more wealth (income, property, or other taxable objects) than others. These fortunate people should, therefore, be called upon to bear a high share of the cost of public activity. The ability principle involves a transfer of income (tax revenue) from rich to poor.

Although the United States has tried to tie some taxes to benefits received, its tax structure is based primarily upon the ability principle.6/ People with large incomes generally pay higher taxes than people with low incomes. The more people spend the more sales tax they pay.

Few taxes are viewed with equanimity. Controversy always arises over whether a tax is too high or too low; whether some things or people should be exempted from the tax; whether some concessions should be made for special purposes. Most policy makers associated with taxes and taxing rise above the controversy by making strict rules that set taxes at certain levels on certain things. The income tax in New York State is defined

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6/ An interesting trend toward the benefit principle may be developing in many rural areas of the United States. Some small towns caught in precarious financial positions have began to return a limited number of public functions back to the private sector or to make them available only on a fee-for-service basis. A fee-for-sevice activity is an activity that is being provided using revenues coming from a tax based wholly on the benefits principle. Those who benefit pay the bill. Not many activities can be treated in this way. Some examples include garbage collection, ambulance service, and some health-related activities.

according to an income schedule. The State sales tax is 4 percent (with some special exceptions such as food) and the estate tax is 2 percent on estates valued at no more than $50,000. These taxing rules are designed to follow Adam Smith's rules and, insofar as possible, they do.

Sources of revenue have also been divided among various taxing jurisdictions in the United States. In general, the federal government depends on income taxes and the states depend on a combination of income and sales taxes. The taxation of real property (land and assets affixed thereto) has traditionally been the major source of locally raised revenue for counties, towns, municipalities, school districts, and special districts.

In recent years, state and federal aid to local governments has risen sharply, but the property tax has remained the single most important source of revenue for local governments. Nationwide, property taxes accounted for nearly a third of all local government revenues in 1977. For New York, the percentage of slightly lower, but still more than a quarter of all local revenues were derived from the property tax (U. S. Department of Commerce, 1978).

Even though it is the most important single "local tax," the administration of the property tax carries with it a serious difficulty not encountered by taxes on such things as income and sales. The property tax is levied against the value of the property. While income or sales are relatively easy to measure, property values are extremely hard to define and measure.

Similar problems or variations of the same problem arise in conjunction with the evaluation of any land or real property, be it residential, commercial, or agricultural property. However, some argue that because of the nature of the market for agricultural land and the structure of the agricultural industry, valuing agricultural land is particularly difficult. Understanding peculiarities in the market for farmland which hinder efforts to define and measure its value is of special importance in light of the nationwide interest in preferential tax treatment for farmland. Thus, the following sections of this report are devoted to problems surrounding the determination of agricultural land values.

The Value of Agricultural Land

Philosophers, public officials, tax collectors, and other serious thinkers have always sought to define those attributes that give value to objects, experiences, and property. Oscar Wilde, the English humorist/playwright of a century ago, once described a cynic as a person who knew the price of everything and the value of nothing. In saying this, Wilde called attention to one of the almost insurmountable barriers to solving the problem of taxing land: no one knows the difference between its "price" and its "value." Even if this riddle could be solved, the equity question remains: should the tax or the assessment be related to the value in exchange (market price), the value in use, or the aesthetic value that comes from the knowledge of possession?

In theory the problem of differentiating price and value should be easy to solve. Bread has a dollar value because it is scarce, it provides sustenance, and it is good to eat. Water is perhaps more important than bread when it comes to keeping people alive but in many areas its dollar value is low. It is not scarce. In those parts of the world where water is scarce, it commands extremely high prices. Before turning to land, it is helpful to concentrate on bread and automobiles.

A freely operating market for bread allows many buyers and many sellers to interact constantly to determine the "correct" price for this common grocery item. The price of automobiles is similarly determined. Even though autos are purchased much less frequently than bread, buyers and sellers do come together in the show room to decide if $15,000 is too high and if $10,000 too low a price for a new family car.

The markets for bread and for automobiles are well behaved and are commonly described using diagrams. In figure A, buyers express willingness to purchase and open negotiations with a seller. After a certain amount of dickering, the sale is consummated. (The process can be reversed with the seller opening the negotiations. The result is the same.)

Figure B adds some sophistication to the idea of a market. The vertical axis shows the price of the object being sold. The price increases as one moves up the axis. The horizontal axis shows the quantity of goods and the quantity increases from left to right along the line. The downward sloping line is labeled "demand" and shows that if prices are very high,

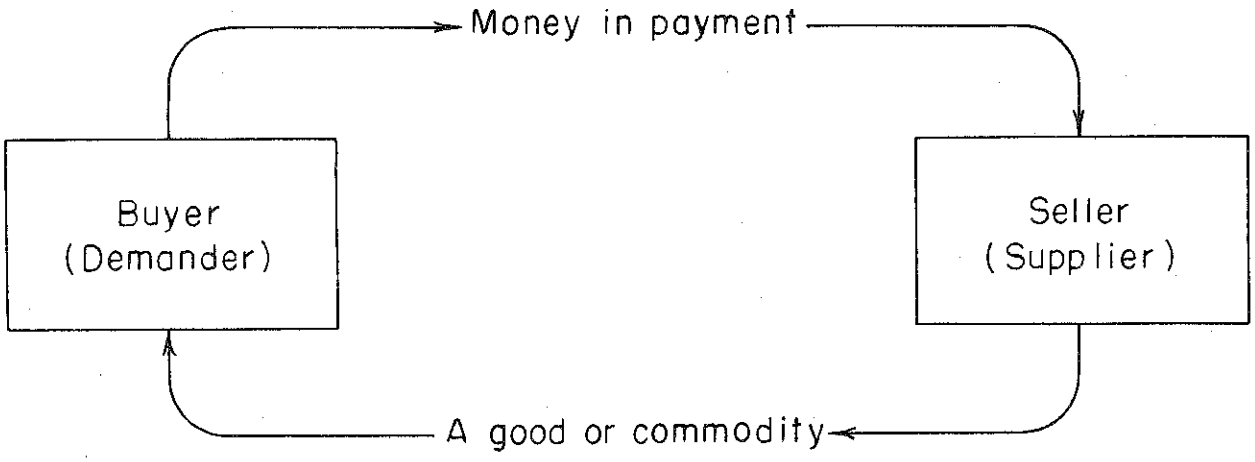

Figure A: A Market Transaction

people will want to purchase only a few units (Point A), but if prices are very low, people will want to purchase large quantities of the commodity, good, or service (Point B).

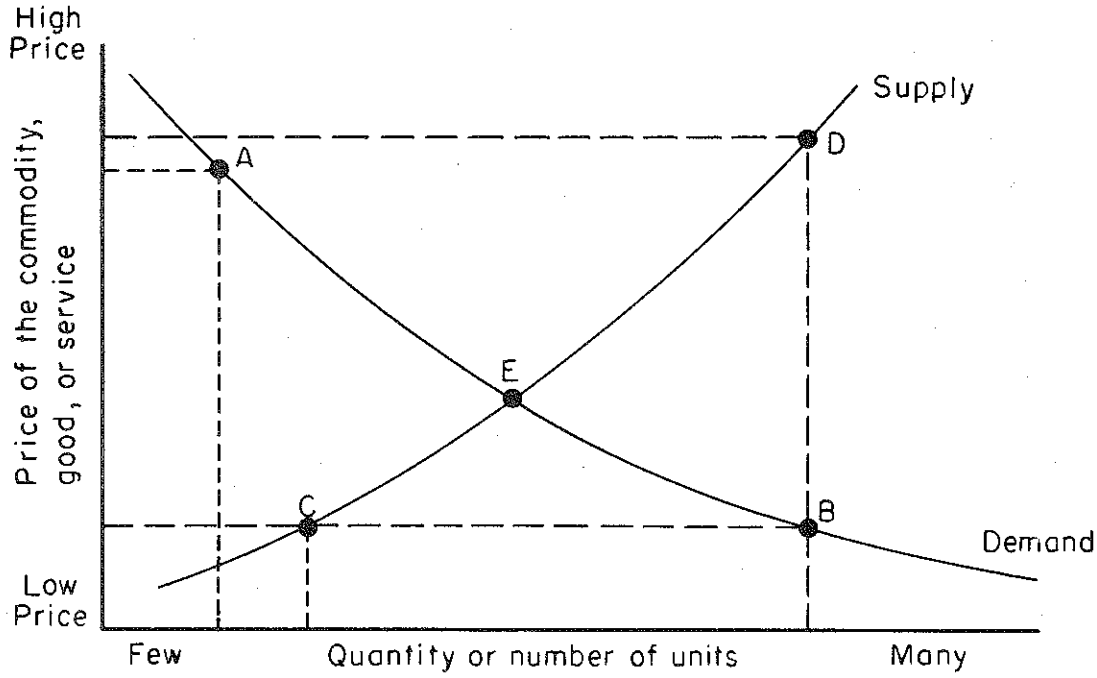

Figure B: Demand, Supply, and Equilibrium

The upward sloping line shows how sellers behave so it is labeled "supply." If the price of an item is very low, potential sellers will not find selling to be very profitable so they will wish to sell only small quantities of the good or service (Point C). If the price is high, sales will be more profitable so sellers gladly place large quantities of goods and/or services on the market (Point D). Only one point, marking one relationship between price and quantity, will satisfy both buyers and sellers. In Figure B, this point is designated "E" and shows that both the buyers and the sellers will be happy when an intermediate price is charged for an intermediate quantity of the good or service. That is, if pork producers, for example, find the price too low, they will send only a few hogs to market (Point C). But at these low prices, consumers will demand more hogs than are supplied (Point B). Buyers will bid against each other until the price is driven up. As the price rises, the quantity purchased will begin to fall gradually and the amount producers are willing to sell will begin to rise. This process will continue until the equilibrium price is reached.

Activity in the private sector of the U.S. economy is predicated on the idea that most private goods and services are traded in a fashion that is more or less like the process outlined in Figures A and B. The price that emerges is assumed to reflect the value or the worth of the object being traded. This assumption is most likely valid for those goods and services that are traded fairly often, produced by many sellers, purchased by many buyers, and are traded in markets that are free of interference by monopolies or government regulations.7/

This discussion began as a commentary on agricultural land, land values, and land assessment. The previous sections may have appeared to be related to a different subject. In a sense they were since they were concerned with the working of a free market. In another sense they were right on target since taxing and assessment are directly involved with the value of land and that value is in turn established in a market. If land were

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7/ Monopolies and governments sometimes introduce "imperfections" that prevent a market from reaching an equilibrium price. A law forbidding the sale of narcotics makes the market for narcotics an imperfect one as well as an illegal one. The price is artificially high. A monopoly may set a price artificially high thus preventing many potential buyers from obtaining its product.

traded in a perfect market like bread, canned beans, or hogs, the assessor would need only to step into the market, examine the situation related to the supply and demand for land, and come up with an accurate estimate of the land's value that was close to the market determined equilibrium price. The tax burden would then be related to this value in some equitable way and sufficient revenues would be generated to perform the desired level of public functions.

A Market Approach

The agricultural land market, however, is not this simple. Certainly the market for land follows the general rules of supply and demand. When prices are very high, sellers are willing to sell more rather than less land. When prices are excessively high, buyers refuse to buy. The market tries to adjust and tries to bring buyers and sellers together in transactions that are satisfactory to both, but the effective operation of the land market is hindered by special circumstances, peculiarities, and imperfections. Very little land changes hands each year so a vast and impersonal market cannot emerge. Much of the land that is sold goes to sons, brothers, or other relatives at prices that are below what the market would bring. Land may be held off the market just because someone wants to continue to farm or use it as a hunting preserve. Speculators pay outrageous sums for land in the hope that next year another speculator will pay an even higher price for the same property.

The tax assessor recognizes these problems and a dozen others. Assessments must be continually adjusted to account for the problems and to compensate for imperfections in the market. Most adjustments center on the following points:

1. Even if the market worked reasonably well, the small number of land transactions provide insufficient information for the assessor to gain accurate insights into differences in land quality, location, type of farming, and conditions of buildings that may be appurtenant to the land.
2. The transfer of land to relatives may be a way to provide them with income and wealth rather than a true "sale" of land. Giving an invalid uncle "ownership" of the farm, for example, may be the only way to provide him with income in his declining years. This kind of sale is not typical and cannot be used as a basis for comparison when evaluating or assessing neighboring farms.

3. Speculators, anticipating an increase in urban growth, may offer unreasonably high prices for land parcels near an urban area. While the price they offer may be reasonable for land transferred into residential use, it is an unreasonable guide to the agricultural value of the same property.
4. Neighboring farmers may have more machinery than is needed to farm their present acreage or they may need a larger feed base to sustain a profitable dairy enterprise. These potential buyers may offer premium prices for small parcels that can be added to their present farms. The prices they pay may not be representative of the per acre value of whole farm properties in the same area.
5. Absentee owners generations removed from farming may wish to sell simply to divest themselves of the chores of land (farm) management. Such a sale may be made at prices that are lower than normal and cannot be used as the basis for assessment of other properties in the area.

To summarize, the market for agricultural land, in theory, should provide an adequate basis for an assessor to assign property values that can later be used for establishing tax bills for individual land parcels. This is not so easy in practice because the market for land is subject to distortions that cause the price of one piece of property to be too high while the price of a nearby property is too low. *Because counties and other local governmental jurisdictions must continue to depend on the property tax as a major source of revenue, the assessor has two choices - either generate expertise to compensate for market imperfections, or find some substitute method to replace the market as an indicator of value.*

Alternatives for Determining the Value of Land

Other methods can be used in cases where markets cannot be relied upon to provide accurate estimates of land values. The most popular and probably the best understood of these alternatives is based on the capitalization of income. This process is described in the following paragraphs.

All productive assets - land, factories, machines, hydroelectric dams, hotels, and the like - are capable of providing a stream of income that extends into future years. In several respects, the productive assets are similar to money in the bank. The land generates rent, while money in the bank returns interest. Money earning interest in a bank or invested in a bond is often used as a standard of comparison in determining the values of other, nonmoney, kinds of assets. The process of determining value in this way is called capitalization or income capitalization.

A bond is a common kind of security or financial instrument. It is usually issued by a large corporation or by a unit of government and is a

promise to pay to its owner a fixed sum on a certain future date. A bond holder (owner) purchases the bond in order to keep money secure and earn the specified rate of interest.8/

In most cases, the value of the bond is related to the going rate of interest and to the stated earnings of the bond. If a bond yields $100 per year and the going rate of interest is 10 percent, then the bond must have the same value as a savings account that would also yield $100 per year when placed in the bank at 10 percent annual interest. The value of the savings account is $1,000 since $1,000 at 10 percent yields $100 per year. The value of the bond is also $1,000 since it too earns $100 per year. Its owner should be indifferent as to whether the interest came from a bond or from a savings account.

This argument can be extended. Under similar circumstances and in the absence of any unusual effects, any income earning asset capable of earning exactly $100 per year has a value of $1,000. A truck earning $100 profit per year is worth $1,000, a drill press earning $100 profit per year is worth $1,000, and a farm earning $100 profit in a year is worth $1,000 because in each case the $1,000 could have been put in the bank at 10 percent interest to earn the $100. This argument holds true in any pure "dollars and cents" world. It loses precision when asset owners choose to invest in trucks "because they like trucking" or when they refuse to buy bonds because "bonds don't provide a sense of power." It also loses precison where the future earning potential of the truck, drill press, or farm is uncertain. When compared to the guaranteed yield of a bond, the present values of these alternative investments will depend on the asset owner's subjective appraisal of the future.

As was mentioned above, the process of determining the relationship between the value of an asset, the interest rate and an annual return is called capitalization. The process is usually carried out using a formula: $V = a/r$, where V = the value of the asset; a = the annual net return to the asset; and r = the going rate of interest. If any two of these elements are known, the formula can be used to find the unknown third element.

8/ A common type of bond was the former U.S. government bond which sold for $18.75 and promised its owner $25 at the date of maturity about seven years after the date of purchase.

In questions related to the value of agricultural land, the objective is to determine the magnitude of V - the value of the income producing asset. This means that the values of both "a" and "r" must already be known or there must be a practical way of estimating them. Conceptually, the value of "r" can be defined quite easily. This is the annual rate of return that an asset owner would expect on all assets of similar size and similar riskiness. In an ideal world, if the expected return on $10,000 in the First National Bank is 6 percent per year, the correct value for "r" on a $10,000 deposit in Farmers' State Bank would also be 6 percent per year.

In the real world, however, the choice is not quite so easy. The difficulties arise in deciding which financial asset or other investment opportunity is subject to a similar level of risk. Some argue that the appropriate capitalization rate should reflect the rate of return on other types of farm inputs. Others argue for using the expected rate of return on other, nonfarm, real estate investments, while still others prefer to capitalize using the rate of return on corporate bonds. Agreement on this issue can be reached, but, because the capitalization rate affects the magnitude of V significantly, agricultural and other groups will have a keen interest in its selection.

Determining the value of "a" is more difficult. In this case, the net return to the land used in the farming enterprise must be estimated. This value can be estimated by budgeting methods. To illustrate, consider the following simplified farm budget:

Income		
Hogs	$ 6,000	
Dairy	32,000	
Corn	1,500	
Total	$39,500	
Expenses		
Fuel	$ 4,800	
Labor	9,000	
Seed, fertilizer, etc.	6,000	
Purchased feed	7,000	
Other variable expenses	6,200	
Total	$33,000	
	Net return	$6,500

Subtracting expenses from income yields a net return of $6,500. Capitalizing this amount at 10 percent yields a value of $65,000. That is, the assets that produced the farm's net return of $6,500 have a capitalized value of $65,000. Put another way, $65,000 invested in a venture of similar riskiness should return about $6,500 annually. If the "correct" value of "r" is 7.5 percent, the assets would be valued at $86,667 ($86,667 = $6,500/0.075).

There is little question that capitalizing the net returns to a farm is a good way to ascertain the value of the farm. However, one must not be misled by this simple example into thinking the job is easy. The $65,000 is an estimate of the value of all fixed farm assets. One must still ask: How much of the $65,000 came from (is due to) the land? How much should be attributed to the dairy barn and to farm machinery? How much came from the comparatively free labor provided by the farm operator and the operator's family? These questions have no easy answers.

The process is further complicated by the fact that the prices of agricultural inputs and products vary quite widely from year to year. Changes in prices bring changes in profits and these profits have a direct impact on the capitalized value of the farm property. The problem is particularly severe in an industry like agriculture where prices on both the factor and product sides are known to be quite volatile. A high price of hogs may mean a high net return and subsequently high agricultural land values in 1980. A low price of hogs may mean the reverse in 1981. Thus, the capitalized value of the property may change drastically even though there has been no major change in farm size, farm organization, or farm management.

Some of the weaknesses of the income-capitalization approach to farm value can be mitigated by using average data covering several years and by maintaining close records on a relatively high proportion of the farms in a given area. Once a record keeping system is in place and working, it is fairly easy to maintain and requires only infrequent review and updating.

Reviews would, of course, be needed with each structural change in the industry and with each major technological change in production methods.9/

An increasing number of states are adopting some variation of the capitalization approach to ascertaining the assessed value of agricultural land. The laws and the processes used in these states are frequently described as being based on "values in use" as opposed to market data which are called "values in exchange," "market values," or "sales values." It is not yet clear that adopting the value in use (capitalization) approach will help a state avoid the controversy that surrounds land ownership, assessment, and taxation. It is quite clear that using an approach based on value in use does not mitigate the problems associated with complementarities among parcels of land. One parcel of land may be situated between a good farmer and a poor farmer. The good farmer may be able to pay two or three times the price per acre that the poor farmer could afford for the same piece of land. How should the assessor respond? Should the use value of the land be set at its best possible use in the hands of the best possible farmer or should it be set at average use value or should it be set a marginal use value - the value the land would have if it were made available to a farmer who for some reason could not farm it effectively? There is no clear answer to this question and it will continue to plague assessors for as long as men differ in their capacity to use land for agricultural purposes.

A Variation on a Theme: Capitalizing Land Rents

Some observers believe that the problem of income capitalization can; be eased by examining land rental rates paid by farmers. Local farmers desiring additional land to farm should be willing to pay a rent nearly equal to the net return on land of a similar quality. Alternatively, a

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9/ Although often neglected, this problem will be present regardless of the method used to value farms. The cotton picker, for example, was a technological breakthrough that changed the value of land, buildings, and ag-related business in the South. Irrigation has done much the same for the West and hybrid corn had a demonstrable effect on land value in the Corn Belt. Future technological advances of equal significance are impossible to predict and when they occur, it will be nearly as difficult to isolate their impacts on agricultural land values.

landowner wishing to rent land to others might demand a rental rate equal to the net return expected if the landowner himself was personally farming the land.

Regardless of which perspective is appropriate in a given situation, rental rates appear to be an effective way to circumvent the cumbersome record keeping process otherwise required to establish net returns to land. This is conceptually correct, but, like the other methods, it breaks down in practice.

The rental market for agricultural land has always been filled with imperfections. The extent of land rentals is not known; rentals are used to provide income for absentee owners; rents are often expressed as shares of the crop and accompanied by very particular side arrangements; and agricultural land rents tend to be set by custom rather than through a calculated and calculating market. Rather than providing easy access to agricultural land values, the capitalization of land rent seems to introduce a number of very difficult problems of its own into the process of finding the correct value for land.

Quality Indexes - Soil Mapping

A fourth approach deserves mention even though it is not widely used in the United States. Agricultural land is a physical substance existing in an environment that is relatively stable over short periods of time. This being the case, land productivity, and hence land value, should be ascertainable by careful study of the physical properties of the soil - location, slope, depth, fertility, origin, friability, and the like.

Although several attempts have been made to develop assessment into a science that depends on rigid and objective measures, none has been sophisticated enough to take account of the fact that man and soil must interact to produce agricultural products. Since man is not entirely homogeneous or predictable, different people will be able to farm the same physical soil and cause it to yield different amounts. This problem dulls the use of soil capability indexes for assessment purposes.

Special problems also arise when productivity indexes are used. Men design institutions that use land for other than its productive capacity. Land (territory) is used for roads, drains, electric utility poles and dozens of other public or quasi-public purposes. A single parcel of top

grade, deep, well drained loam may be cut north to south by a county road and east to west by power lines carrying electricity to a nearby city. The assessor dealing with this property must depend on judgement and his personal knowledge, not scientific measurement, to determine the effects of roads and power lines on the value of this agricultural property even though the physical characteristics of the soil are quite well understood.

Additional information about soil quality and soil capability can be of real use to assessors who must make value determinations of land that may be of good, fair, or low quality. The step between a measure of productivity and a dollar value is, however, still an uncertain problem. It is not known whether good farmland should be worth twice as much or only half again as much as fair quality farmland. Scientific soils data alone do not appear to be the key to solving the problem of agricultural assessment.

An important point must now be made. Four approaches to the problem of agricultural value have been described. Three of them - sales information (market comparision), income capitalization, and capitalization of land rents - depend on economic information. The fourth - soil capability or soil quality indexing - uses physical rather than economic data.

Under certain, highly limiting conditions, the three economic based methods should yield close to the same results if they are applied conscientiously and if data are accurate. A farm property that sells for $250,000 should earn annual income that can be capitalized to $250,000 and it should be possible to rent the same property for an amount that can be capitalized to $250,000. The conditions under which the methods coincide include, but are not necessarily limited to, the following:

1. There must be so many farms changing hands that no one buyer or no one seller can have an appreciable effect on the market.
2. Information about availability and sales must be readily available.
3. The land must be used for its highest and best use.
4. There can be no speculation in the market.
5. The farms, farm properties, or parcels must be homogeneous.
6. The land that is being transferred must have no development potential or at most only inconsequential potential for development in non-agricultural uses.

Little, if any, agricultural land fulfills these conditions. Thus, even the economic methods of ascertaining farm values can yield inconsistent results. Farm sales data may be inflated by either speculation or values

related to developmental potential. Income capitalization will yield low values for farmland that is kept in pasture when it is capable of being used for crops.

In sum, no method is perfect and those who are called upon to place values on farm property should make use of all cross checking mechanisms that are available.

The Whole Farm Problem

Farming is more complex in 1980 than it was in 1960 or even in 1975. In earlier years - especially prior to the Great Depression of the 1930s - farms were often developed as family units or producing units that included land, a residence for the farmer, the needed outbuildings, and sometimes a second or third house for "permanent" hired help. When the farm sold, it was most often sold as a working unit with land, buildings, fences, and permanent improvements being included as part of the selling price. A rule of thumb was often used to describe farm sales: the purchaser bought the land and got the buildings at no extra cost - the farm would have cost the same had the buildings not been in place.

Early in this century the farms in the United States began to consolidate. The trend was slow at first, but gained momentum in the 1920s, 1930s, and 1940s. The consolidation movement yielded fewer but larger farms. In 1940, there were more than 150,000 farms in New York State. Average farm size stood at 112 acres. By the late 1970s, farm numbers had dropped below 50,000 and average farm size had increased to about 225 acres (Stanton, 1979).

The problem engendered by consolidation centers on the fragmentation or breaking up of farms, selling them parcel by parcel with one parcel going to one neighbor, a second parcel going to another neighbor. Should these parcels be assessed as collections of small acreages or should an attempt be made to group them into farm-size collections so assessment can be done on a whole-farm basis? Whole-farm assessment is also complicated when the individual parcels fall within separate taxing jurisdictions. Further, when a farm is broken into parcels should the value of the buildings be pro-rated among the buildingless parcels, assigned to the parcel on which

they are standing, or simply ignored? As in so many other problems relating to assessment of agricultural land in New York State, there is no easy answer. As farm consolidation continues, it is likely that the average number of parcels per farm will also increase. It seems highly unlikely that these parcels can be grouped consistently into whole farms. Assessors will still be forced to deal with parcels.

Summary of the Issues

In sum, the conventional approaches to evaluating or assessing New York State's agricultural land are not promising. They would work well in a perfect world, but the world of land transactions is filled with special cases that cause the usual methods to become imprecise. Indeed, there may be no such thing as a "perfect" land transaction. The market, the prime determiner of prices throughout most of the U.S. economy, does not work well in the land market because too few farms or parcels of farmland change hands each year. Moreover, many of those that do sell are sold with special stipulations that bias the price upwards or downwards. An "arm's length sale" is the exception rather than the rule. Income capitalization gets at the value of land in an indirect way. This method is plagued by the variability of the agricultural factor market and agricultural product market. It is difficult to use on a year-to-year basis and requires an elaborate data monitoring system. Physical (scientific) data related to the productivity of land do not provide a complete guide to land value. Land as we know it in farming is a unique combination of physical, economic, and institutional attributes. Measuring one attribute while ignoring the others will most often yield a distorted picture of value.

As if these problems were not enough, the increasing problems of parcelization and the sale of parts of farms makes the job of evaluating, assessing, or appraising a formidible task. This is unfortunate since much of the public activity performed by local jurisdictions depends on revenues coming from the taxation of agricultural land. If that land cannot be effectively and efficiently evaluated and assessed, there will be no end to the controversy over who is paying too much and who is paying too little for the public activities performed at the local level.

Some Contemporary Problems of Assessing Agricultural Land in New York State

The problems, theories, and concepts mentioned above are general in character. To varying degrees, each would apply in Arkansas, New Mexico, Georgia, Vermont, or anywhere else. They, of course, apply in New York State. New York State also has some special problems related to assessment and land valuation. Recent court decisions, the agricultural district legislation, the essentially nationwide revaluation question, and the threat of tax revolt have put pressure on all who by law or by profession must deal with placing values on agricultural land.

The remainder of this document focuses on New York State and the particular circumstances that complicate the valuation of its agricultural land. It is divided into sections dealing with the state's rural economy, the current status of agricultural district legislation, and other laws which impinge upon the general problem. It is hoped that the discussion will shed some light on the effectiveness of the current procedures for valuing agricultural land and suggest a strategy for a realistic resolution of remaining difficulties.

Trends in New York's Rural Economy

The frequent characterization of New York State as an urban and industrial giant conceals the economic and social diversity that exists among regions of the state. The spectrum ranges from the complex metropolis around the nation's largest city to the rural communities in the extreme northern part of the state; from several upstate industrial centers to picturesque farming communities in the Finger Lakes region. Wealthy residential retreats and mercurial recreation-based communities exist alongside less prosperous farming communities, all of which contrast sharply with suburban areas that are still experiencing the pressures associated with rapid development.

Despite this diversity, all regions of New York have been affected directly or indirectly by the national suburban (and ex-urban) explosion that began in the 1950s. This explosion set the stage for the challenges presently facing the local rural economies in New York.

Population trends (from the end of World War II to the present) highlight the growing significance of the state's rural economy. Although

the number of rural residents in New York began to increase in the 1920s, urban population growth in New York State outstripped rural population gains until about 1950.10/ During the decade of the 1950s, the state's population increased by 1.9 million. Nearly 85 percent of these new residents resided outside incorporated places with populations of greater than 2,500 people. The rural farm population decreased by 253,000 over the same period (Bills, 1977). Between 1960 and 1970, the rural population increased by an average of 150,000 annually while the population in the urban centers actually decreased (Bills, 1977).

The current energy crisis, high rates of inflation, and swings in the state's economy will all affect future population patterns, but population estimates available through the 1970s suggest that the above trends have not been reversed. During the first half of the decade, population growth in New York essentially stopped, or even declined slightly. Urban areas lost nearly 5 percent of their populations, while New York's rural areas were still attracting over 60,000 new inhabitants each year (U. S. Department of Commerce, 1977).

The spread of population and nonagricultural employment throughout suburban areas and into the countryside may be a reaction to the mounting problems of an urban lifestyle - congestion, pollution, lack of privacy, inadequate public services, and the increase in reported crime to name but a few. Rising incomes, increased amounts of leisure time, and improved transportation systems have enabled urban and suburban residents to enjoy the amenities of New York's rural recreational opportunities. Present residents of the small communities within reasonable commuting distance of larger employment centers have found extra employment, particularly in retail trade and services. Similarly, some of the newcomers have maintained urban employment even after relocating to the rural area. A 1970 study showed that in most of New York's rural areas, there are at least four nonfarm jobs for every one commercial farmer (Allee, et al., 1970). There is no reason to believe this relationship has changed significantly.

10/ The Bureau of the Census defines "rural residents" as people living in the open country (on farms or not on farms) and people living in incorporated or unincorporated places of less than 2,500 inhabitants.

This urban encroachment into the rural areas of the state has brought employment, improved services, and some of the other amenities of small scale urbanization. Some impacts have been much less desirable. Longtime rural residents and rural industries may now have to compete with newcomers for time, space, and tax dollars and may find it difficult to recognize the benefits stemming from population growth. In agricultural areas these concerns have led to broad-based support for legislation to preserve farmland and other open space.

The recent growth in rural population has been accompanied by large scale withdrawals of land from agricultural production. Nearly 335,000 acres per year were withdrawn from agriculture between 1959 and 1969, leaving less than one third of the state's land area actively farmed. This is in sharp contrast to the 22.6 million acres (three-fourths of the state's land area) farmed in 1900 (Bills, 1977).

The reduced importance of agriculture in some areas of the state is the result of a variety of forces, not just the press of urbanization. Structural change in commercial farming and the substitution of capital-intensive for labor-intensive technology has reduced farm employment in New York in much the same way it has throughout the nation. The old farmhouses are now occupied by rural nonfarm residents - retirees or commuters to nearby villages and cities. Much of the land previously in agricultural production is now idle and is returning to brush and forest. Because of increased production costs, farming it is no longer profitable in these areas.

Powerful forces are changing New York's agriculture, and no one can deny that rural non-farm development has contributed to the conversion of land from farm to non-farm uses. An estimated 1.8 million acres of land in New York were in urban uses in 1955. A 1970 study showed that urban land would be at 2.6 million acres in 1975, and 3.0 million acres in 1985 (Allee, et al., 1970).

In spite of these changes, New York retains vital agricultural production and processing industries. In 1974, for example, the total value of farm products sold reached nearly $1.5 billion (U. S. Department of Commerce, 1977). Farm employment in 1974 was estimated at 104,000 full-time worker equivalents. Another 92,000 people were employed directly in

the manufacturing and marketing of food products produced in New York (Call, 1977, p. 12).

Circumstances within and outside the agricultural industry put pressure on the state's limited amount of agricultural land. Those electing to move to the country or to the small towns wanted to purchase land for building sites, roads, parks, and other non-agricultural uses. Those remaining in farming were bidding against one another to buy land for farm enlargement. With demands coming from several sources, speculators, too, tried to purchase more land in anticipation of quick gains in capital value. These pressures added to the price of land and thus increased the cost of producing agricultural products. The uncertainties in the land market made farmers reluctant to invest in long term farm improvements - buildings, fences, drainage tiles, and the like.

The problems are not confined to agriculture. As more nonfarm residents move into an area, "conflicts [can] arise over such things as vandalism and smells, disrupted drainage and spray drift, traffic hazards, and water pollution" (Allee, et al., 1970, p. 7). In these situations farmers understandably become concerned about state and local government actions that might limit their options in favor of non-farm interests. At the same time the new nonfarm residents question whether or not the move to the country was all they expected it to be. They, also understandably, make efforts to protect the lifestyle they sought when they "bought into" rural New York.

These problems are exacerbated in those areas where a large influx of newcomers insists upon a different mix of public services than the one that has been available. Since many local public services are financed through property tax revenues, the change in public service demands may have serious financial implications for long-time farm and nonfarm residents of the changing area. Preparing for new residents or responding to their needs may require the expansion of some existing public facilities and the development of a new, more urban-oriented public service system, much of which must be financed out of existing local tax bases.

The extent to which increased rural populations add to the tax burdens of existing residents will vary from community to community. In some cases, additions to the local tax base may far exceed the additional costs of public services, and taxes for original residents may actually go down.

Even in these situations, however, the ratio between real property values and dollar output in farming remains high relative to other businesses because of agriculture's huge investment in land and builidngs. Thus, farm businesses may remain more vulnerable to future property tax increases than other local businesses or rural residents. The competitive nature of the markets for agricultural commodities compounds the problems because farmers are unable to shift their tax burden forward to the purchasers of farm products.

Farmers have used these arguments to contend that recent tax increases do not reflect payment for their fair share of public service received (do not fit with the benefit principle) nor do they relate to the farmers' ability to pay. Many of the existing and emerging tax controversies in the State of New York hinge on this perceived injustice.

The story and the conflict do not end here, but go on and on like the classic battle between sheepmen and farmers on the High Plains. The combatants have chosen to align themselves into groups favoring development (conversion of land from agricultural to non-agricultural uses) and those opposed to development (opposed to conversion). In many cases, long time rural residents have been joined by newcomers in an effort to prevent more land from being developed. The reasons for the alliance are many and complex. Some do not want development because they do not want to pay the (perhaps) higher taxes that this would bring. Others do not want development because, now that they have a plot of land in the country, they do not want it spoiled by someone living too close! Still others are worried about the nation's food supply and wish to keep as much land as possible in agricultural production. Regardless of reason, as more and more rural lands have been surrendered to urbanization, the amenities of the rural environment that attracted developers and new residents have one by one disappeared. After new residents have located in a rural community, many have quickly aligned themselves with agriculture and other local interests in an attempt to preserve open space and the natural environmental values it brings.

Agricultural Districts Legislation

Many state and local governments have responded to pressures on rural land resources by enacting legislation that encourages the maintenance of a viable agriculture and preserves the natural environment. In 1971, New York enacted its Agricultural Districts Law that stated:

> 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. . . . (Agriculture and Markets Law, §300).

The law provides for the formation of agricultural districts to accomplish these objectives. Forming an agricultural district is complex and is usually initiated at the local level where landowners prepare a proposal that encompasses a minimum of 500 acres.11/ The proposal may be modified by state and local agencies based on their review or in response to public hearings. Once certified by both state and local authorities, the district becomes a legal jurisdiction and is subject to all the provisions of the Agricultural Districts Law.

The major provisions of the law facilitate the preservation of agricultural land in three basic ways.12/ First, the law restricts many of the usual options open to other governments whose boundaries overlap those of the agricultural districts. The district legislation, for example, may supersede local ordinances that regulate farm structures or practices beyond the normal requirements of health and safety. Formation of an agricultural district also modifies, though it does not eliminate, the right of government to acquire farmland by eminent domain. Farmland can be taken for public purposes only after serious consideration has been given to alternative opportunities. The right of public agencies to advance funds for public facilities to encourage non-farm development is modified.

11/ Beginning in 1975, the Commissioner of Environmental Conservation has had authority to create districts of a minimum of 2,000 acres or more if the land is predominantly unique and irreplaceable agricultural lands (Conklin and Gardner, 1979).

12/ Conklin and Gardner, 1979, contains a more detailed discussion of these provisions.

While these provisions do not lead to direct financial incentives for the preservation of agricultural land, the provisions promote a more stable environment within which farms can operate. Non-farm competition for scarce rural land resources and uncertainties that may lead to a gradual disinvestment in agriculture are reduced and the process of land transference is slowed. Some increased costs of production that might be required in order to comply with local ordinances are avoided by farmers whose land is in an agricultural district.

The second provision requires state agencies to modify their administrative regulations and procedures to facilitate the preservation of agricultural land. Such regulations must, of course, be consistent with federal standards for health, safety, national defense, and the protection of environmental quality.

The third provision has the potential for providing direct financial incentives to farmers who are willing to commit their farmland to agricultural uses for an extended period of time. One provision limits the taxing power of any special governmental districts that may overlap an agricultural district. Such an overlapping district may find it difficult to impose benefit assessments or special ad valorem levies on farmland within a district. A final provision allows, but does not require, farmers to pay taxes on assessments as if the land's value were generated strictly from agricultural use. This can lead to a sizeable tax exemption for farmers in some parts of the state. Those farmers who apply for this exemption are not taxed on that part of the value of their land that is attributable to speculative or developmental purposes, but with respect to its capacity to produce agricultural commodities. This is the use-value assessment feature of the law. Land that has received this use-value tax exemption is subject to a five-year penalty payment (called a "rollback") of exempted taxes if the land is converted to a non-farm use while in an agricultural district.13/

13/ The law also provides for agricultural value assessment to farmers not in a district but who are willing to make a commitment to keep their land in agriculture for eight years. "If any land in a commitment is converted to a non-farm use while the commitment is still in effect, it is subject to a large tax penalty equal to two times the taxes determined in the year following the conversion or breach of commitment. The penalty is levied on the total acreage in the commitment" (Conklin and Gardner, 1979).

Enrollment in Agricultural Districts

As with many new programs, recognition of potential benefits of the agricultural district legislation came quite slowly. Only 19 agricultural districts encompassing 172,000 acres were formed in 1972, the first full year after the law's passage (King, 1979). By the end of 1978, however, over 5.6 million acres, had been enrolled in 388 agricultural districts (King, 1979). A substantial amount of this land is undoubtedly farmland but some districts also include sizeable acreage of brushland, woodland, and other vacant or idle land. There are also some scattered residential and commercial developments in agricultural districts.

Although farmers in agricultural districts are not required to apply for the agricultural use-value exemption, this provision is often thought to be a major tax benefit to farmers and it should provide a strong incentive for both the formation of districts and the retention of land in agriculture. Thus, the fact that in 1975, application for the agricultural exemption had been requested on only an estimated 187,000 acres (about two percent of all the land in commercial farms) is somewhat surprising (King, 1978). A 1976 study offered a partial explanation by suggesting that on average, the agricultural land in New York has been underassessed by 28 percent relative to other classes of real property (Governor's Task Force, 1976). If this estimate is accurate, then the full market value of properties currently carried on the tax rolls may in fact more nearly reflect agricultural use value than the true full market value. In this situation, the tax advantages associated with use-value assessment may be quite small.

The point to be emphasized is that the issues surrounding use-value assessment in New York are inextricably tied to problems in the administration of the property tax.

> Although for years, New York State has spent more than any other state on equalization and assessment, it has put almost all of its dollars into the equalization function and correspondingly little into assessment. The money spent on equalization has been well spent and has produced many dividends, but neglect of assessment supervision as left us with one of the worst records in the nation in terms of assessment equity. . . . (Governor's Task Force, 1976, p. 6.)

As pressures for reform in the overall administration of the property tax mount, the need for accurate estimates of the difference between use value and full market value of agricultural land will also increase.

The Hellerstein decision will be a major consideration in fueling the controversy. In that decision, the New York State Court of Appeals ruled that the New York Real Property Tax Law requires all assessments to be at full market value. Because this decision binds lower courts to uphold challenges to current assessment practices, reassessment at full value is now being done by many taxing jurisdictions in the state (Mason and Lutz, 1977). As revaluation proceeds, the agricultural district exemptions will affect farmers in two ways.14/ The exemption will initially reduce a farmer's tax liability if the agricultural use value on which taxes are levied are below the market values of the same property. It also means that the total value of taxable property carried on the local tax rolls will decline. In rural areas where agricultural property comprises a significant portion of the taxable real property, increased exemptions may require that increased tax rates be levied on properties remaining on the tax rolls (Boisvert, Bills, and Solomon, 1980) or it may mean a diminished level of locally provided public services. The net long term impact of the agricultural districts, the Hellerstein decision, and the revaluation process is not yet known.

Within this uncertain setting, local assessing officers retain the responsibility for maintaining assessment rolls on farm and nonfarm properties. The State's direct involvement in the use-value feature of the agricultural districts legislation compounds the problem. The Agricultural Districts Law directs the State Board of Equalization and Assessment to develop agricultural land "ceiling factors" which establish maximum land values for agricultural use (McCord, 1978, p. 4). The establishment of

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14/ At present, about 11 percent of the agricultural parcels in the state are in jurisdictions that have been revalued but 17 percent of the farms are included, according to reports of the New York State Board of Equalization and Assessment. Preliminary data from the farm business management records maintained by Cornell University for 1975, 1976, and 1977 indicated only a $2 per crop acre, or 13 percent, increase statewide in real property taxes paid. In counties that have been revalued for assessment purposes, however, the increases have sometimes ranged from $6 to $10 per crop acre. It appears that many farmers who have not found it worthwhile to apply for a farm exemption, may find it advantageous to do so after revaluation (Property Tax Task Force, 1979).

these ceiling factors is presently among the most controversial aspects of the Agricultural Districts Law. The process by which they are determined is complex; it requires a working knowledge of agriculture in New York, familiarity with rural land markets, and the analysis and interpretation of technical data. The nature of the complexities found in New York must be placed in context with the discussion presented earlier.15/

Before embarking on this discussion, however, it is important to point out that the Agricultural Districts Law allows for a tax exemption on some portion of the full market value of agricultural land. The law does not allow fractional assessment schemes that place a predetermined proportion of the land's value on the tax rolls. The exemption is designed to recognize that the exchange or market value of agricultural land may be higher than its value in agricultural use.

The ceiling factors provide a guide against which use-value taxes can be levied, but they also require the assessing jurisdiction to maintain a second set of books. The assessing jurisdiction must maintain records of full market value in case the rollback is invoked or in case a landowner reneges on the commitment to keep the land in farming. Full-value assessments are also needed to maintain comparability between the value of agricultural land and the values of other classes of real property.

As was mentioned earlier, both market value and income capitalization should be expected to yield similar estimates of land value in areas where no external pressures exist and where there are significant numbers of sales to make the market do its job. In areas such as New York, where urban pressure may be substantial and the number of farm real estate sales may be small, there is certainly no agreement among either practitioners or researchers as to which method is more appropriate. New Jersey and California, for example, are two states that estimate use value by capitalizing estimated future streams of net farm incomes. Iowa's use-value legislation is slightly different. It requires equal consideration

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15/ It would serve no useful purpose to react in this paper specifically to past or present ceiling factors determined by the State Board of Equalization and Assessment. Without time and the data to conduct detailed comparisons using alternative procedures, an accurate evaluation is impossible. The most that can be accomplished here is to examine some of the strengths and weaknesses of modifications to the existing procedures.

of the net earnings capacity of the land and the market value of land that is sold only for agricultural use. Earnings capacity is related to physical characteristics of the soil and may have very little to do with present farm activities on the land (Locken, 1976).

Many experts agree that all methods of use valuation must be designed specifically for local conditions. The procedures must acknowledge local institutions, they must yield consistent and accurate results, and they must be easy to administer by officials who often have had very little training.

The Division of Equalization and Assessment (E&A) had to develop procedures for establishing ceiling factors. Because of the diversity of New York agriculture and soils, E&A began by constructing a land productivity classification system. This system was developed with the assistance of the Agricultural Resources Commission, Agricultural Extension Service, county directors of real property tax services, local assessors, and farm industry representatives. It was designed to consider such factors as location, soils, terrain, and climate (McCord, 1978).

The system is based on 15 classes of agricultural land, including four classes of cropland; three classes each of orchards, vineyards, and muck; pasture; and agricultural support land.16/ Individual agricultural ceiling factors are determined for each county in which some or all or the presently delineated land classes are found. Most of the state's 57 counties (excluding the New York City counties) contain all four categories of cropland, support land, and pasture. Fewer than half of the counties contain orchards, vineyards, or muck. While this makes the job somewhat easier, the current procedures require E&A to establish no fewer than 556 separate ceiling factors each year (State Board of Equalization and Assessment, 1979).17/ Regardless of how these ceiling factors are determined, the sheer numbers of them makes the task formidable given the present availability of manpower in the office of the state agency.

16/ Four classes of woodland for each 10 forest types have also been delineated.

17/ These 556 factors do not include an additional 233 values for the seven multicounty woodland regions of the state.

Reliance on Market Sales

After consideration of the magnitude of the task and the alternative approaches, E&A elected to rely primarily on the market data approach for estimating the agricultural use values for these numerous categories of farmland. They recognized that neither the market data approach nor the income-capitalization procedures would provide accurate estimates of farmland value in every case.18/ The agency, however, had a data base in place and believed strongly that the difficulties associated with market sales approach could be overcome more easily than those associated with income capitalization.

E&A's major concern regarding the market sales approach was its belief that many farmland transactions in New York's expanding rural economy are biased upward because of the land's high potential value in non-farm uses. Evidence to support this contention was found in E&A's market survey and appraisal files used to establish ceiling factors in the Board's 1974 study.

Between 1974 and 1979, E&A's ceiling factors were based primarily on the original 1974 study. Most ceiling factors were increased by about 8 percent per year during this period to account for inflationary pressure and the increased demand for land for either agricultural use or open space programs. The simplistic 8 percent per year seemed inadequate in 1979 when a number of new external pressures began to influence the price and value of agricultural land. To determine the 1979 ceiling factors, E&A decided to update the 1974 estimates by examining in 19 counties all recent transactions of real property classified as "farm transfers" by local assessing officers. The study included all transactions consummated between 1974 and 1978, inclusive. Of the 1,317 farm sales inventoried, 725 were discarded. Most of them were judged to be either sales between family members or other "close-handed sales" or to involve a buyer anticipating a non-farm use for the land in the near future. In addition, 316 of the 1,317 sales were

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18/ The State Board of Equalization and Adjustment recognized problems similar to those mentioned. They saw three serious limitations associated with income capitalization. First, it is difficult to determine net income for owner-operator farms. Second, rental information often used as a proxy measure of income to farmland is difficult to obtain. Finally, they point out the difficulties in determining the appropriate capitalization rate (McCord, 1978, p. 5).

discarded because they were parcels that would be added to existing farms. The agency assumed that farmers would be willing to pay relatively higher prices for these add-on parcels that would assist in the utilization of excess labor and machines or in other ways complement the existing farm operations. The remaining 592 sales (which included more than 100 thousand acres) were classified as bona fide farmer-to-farmer transactions and formed the basis for the 1979 ceiling factors. Before these factors could be determined, however, E&A had to classify the land into productivity groups and partition the value of any property improvements from the total sales price.

E&A's efforts were criticized severely during public hearings which followed publication of the proposed 1979 ceiling values. The criticism centered on the Board's methods of determining which sales were actually farmer-to-farmer sales, the proportion of the total sales price attributable to property improvements and the proportion that represented agricultural productivity. Although not mentioned specifically in the hearing, some appraisal experts have argued that even if the prices are devoid of speculative influence, they probably include some additional value added by the farmer to reflect the farmer's role as a long-term investor and a personal hedge against inflation (Suter, 1974).

Two issues surround this latter criticism. The first involves the magnitude of this effect and the methods that might be used to identify the size and value of the hedging effect. The second problem is more difficult. Reasonable people will disagree as to whether or not the hedging portion of a farm sales price should or should not be exempt from property taxes in the same way that the value attributable to the land's potential use in non-farm activities is exempt from property taxes. While researchers can help resolve the first issue, the second is a matter of personal opinion and judgment that must be resolved through the political process and through interpretation of existing or future agricultural districts legislation.

A number of individuals have argued that the Agricultural Districts Law should be modified to allow for use-value exemptions on farm improvements as well as farmland. This is recommended as a partial solution to the problems associated with isolating that portion of the farm sales price that may stem from property improvements. In principle, this solution is

appealing, but such a change would be difficult to accommodate at the present time in light of other state legislation for tax exemptions on new farm construction (Section 483 of the Real Property Tax Law) and because of the burden it would place on E&A's staff.

Income Capitalization as an Alternative

Some economists at Cornell University have suggested using capitalized income approaches to estimate the use value of agricultural land. The alternative is suggested because, it is argued, too few sales exist to allow an adequate comparable sales analysis. It is also argued that tying ceiling factors directly to farm incomes in recent years is a more accurate reflection of value in agriculture because it helps avoid the difficulties of deciding what portion of a sale price is due to the land's value in agriculture and what portion comes from speculation or other sources.

The income-capitalization approach also appears to be an objective procedure. The incomes that are capitalized are measured in dollars and can be found by subtracting costs from revenues. The use of the capitalization approach, however, poses a series of problems of its own. All relate to the fact that even the simplest kind of agriculture involves complex production processes that require many durable and non-durable inputs. Markets for some of these inputs are well-defined while markets for others are not. The markets for fuel, fertilizer, and seed are well defined. The market for a new tractor, like the market for a new car, involves much haggling and is thus hard to analyze. The market for used equipment is particularly imperfect and setting a "price" or "value" on the current use of an eight year old barn is virtually impossible.

These problems, and dozens others like them, make it difficult to establish an accurate and acceptable set of costs of production on an annual basis. Questions about the size of farm and the assumed level of technology would have to be resolved, as would questions relating to the appropriate methods for estimating the individual components of costs and returns. A decision would have to be made regarding the source of data which would be used to estimate costs and returns. Should the estimates be based on costs and returns information reported by the U.S. Department of Agriculture or other agency, or would the process demand the creation and maintenance of a new data series designed for income-capitalization

purposes and specific to New York State? Regardless of how these issues are resolved, the process would be costly and require a sizable staff of agricultural experts.

The income-capitalization approach yields a volatile series of agricultural land values. Any change in the price of inputs or outputs changes the income and this, in turn, changes the capitalized value. Since the results of the procedures will be sensitive and subject to rapid change, the potential for debate would remain high. Some of the potential problems are discussed below.

In some states, for example, rental markets are well established and cash rental rates on farmland can be used as an estimate of the annual net returns to land. When available, these rental rates can be capitalized to yield an estimate of the use value of the land. Studies by Bryant, (1976), and Locken, (1976), provide convincing evidence that the rental market for farmland in New York State is not sufficiently well defined to provide information adequate for income-capitalization purposes. Many rental agreements in New York include non-cash considerations or considerations that have no relationship to the productivity or value of the land.

Imputed rents and net returns to land can be estimated from various cost and returns information published regularly by the USDA and information from farm records summarized at the College of Agricultural and Life Sciences. Neither of these data bases was, however, designed specifically for this purpose.19/

Deriving imputed rents from these data would involve assigning a value to all inputs associated with the farm business. Once these values are assigned they would be subtracted from farm receipts to give a net return to farmland. Some inputs, such as feed supplements, fuel and fertilizer are purchased by the farmer and can be valued easily and accurately. However, a great deal of judgment, not unlike the judgment involved in analyzing farm sales information, is required to fix wages for farm operators, establish rates of depreciation for machinery, and determine the value of buildings and other improvements so that the value of land can be isolated.

19/ The farm records are often used for research purposes because they are the only data available. It is well-recognized, however, that these farms may not be representative of agriculture across the state. They may constitute a poor source of information for this purpose.

These "residual" returns to land must then be allocated to various parcels, still keeping in mind that the farm may include land areas that are of different quality.

A recent study in Columbia County demonstrates the sensitivity of these use-value estimates to their underlying assumptions. Depending upon assumptions regarding payments to operator and family labor, capitalized residual value returns for average cropland ("B" cropland) ranged from fairly large negative values (-$209 per acre) to 105 percent more than the $250 ceiling factor for "B" cropland estimated by E&A in 1973. In 1976, Locken concluded that under certain reasonable assumptions his capitalized income estimates were quite consistent with E&A's ceiling factors in 1974 for this one county but because significant amounts of judgment are involved and many assumptions must be made, one cannot say conclusively that income-capitalization will yield consistently higher or lower farmland values than the value that would be determined by a perfectly functioning market for agricultural land.

The income-capitalization approach also requires that a rate of interest or a capitalization rate be selected for use in the process. (This is the process of selecting "r" for use in the $V = a/r$ formula). In theory, the rate at which the agricultural income stream should be capitalized should reflect the expected rate of inflation and a reasonable rate of return on investments of similar risk. It should be close to the rate that the farm investment would earn if the capital investment were taken from agriculture and placed in a closely related or similar income earning opportunity. As suggested earlier, it would be difficult to find a large group of economists or farm industry experts who would agree on the single capitalization rate that most accurately reflects investments of similar risk in the nonagricultural sector of New York's (or the nation's) economy. Use values determined through capitalization procedures are extremely sensitive to changes in the capitalization rates used and the political process by which these rates would be determined would likely become extremely complex.

Since agriculture is a variable industry, complete reliance on an income-capitalization method would lead to much year-to-year variability in the ceiling factors or in assessed valuation. Whereas the trend in sales prices is more gradual and predictable, the yearly income streams of

farmers fluctuate along with prices received and the costs of farm inputs. Although some of this fluctuation could be eliminated by capitalizing a moving average of agricultural incomes, the fluctuation itself would create increased uncertainty among local assessors since they would not know how many farmers would apply for the use-value exemption from year-to-year. In communities where agricultural real estate is a large fraction of all taxable real property, these fluctuations could have important implications for the local government's budget process and non-farm property tax liabilities.

This discussion of the difficulties associated with using income-capitalization techniques for determining agricultural use values is not meant to imply that use-value assessment procedures do not have potential utility in New York State. There are two ways in which income-capitalization can supplement the market information currently used by E&A. First, by combining farm record and productivity information with soil quality or land capability information, the income capitalization analysis may be extremely important in establishing the relative values of the several land productivity classes. Second, in the 19 counties on which the 1979 market survey was conducted by E&A, only 20,400 acres per year were involved in the farmer-to-farmer sales (McCord, 1978). This represents only 0.6 percent of all commercial farmland in these counties (U. S. Department of Commerce, 1976). Thus, in cases where farmer-to-farmer sales occur only infrequently it may be possible to use capitalized values to supplement market information.

In summary, because of the imperfections in the market for agricultural land, no one approach to agricultural land valuation is universally thought to be the "proper" or the "best" approach. Consequently, it seems reasonable that all local assessors and state agency personnel involved in the various aspects of agricultural land valuation should attempt to use information from all available sources to ascertain agricultural values. To facilitate this complex process, additional attention and resources should be devoted to: a) systems for collection, analysis, and distribution of data related to farm sales; b) administrative changes that may ease the tasks of assessors and other officials; c) understanding and perfecting

the income-capitalization approach to farm value; and d) the problems related to the parcelization of New York's agricultural land. Some efforts to do this have already been initiated by farm organizations, state agencies, and the College of Agriculture and Life Sciences at Cornell University. Increased coordination of these efforts and the establishment of a reasonable research agenda and legislature timetable is imperative.

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