Use-Value Assessment of Rural Lands

Time for Reform?

POLICY FOCUS REPORT LINCOLN INSTITUTE OF LAND POLICY JOHN E. ANDERSON AND RICHARD W. ENGLAND

POLICY FOCUS REPORTS

The Policy Focus Report series is published by the Lincoln Institute of Land Policy to address timely public policy issues relating to land use, land markets, and property taxation. Each report is designed to bridge the gap between theory and practice by combining research findings, case studies, and contributions from scholars in a variety of academic disciplines and from professional practitioners, local officials, and citizens in diverse communities.

ABOUT THIS REPORT

Use-value assessment (UVA) is the practice of valuing rural land in the United States based on its current use rather than its market value to reduce property taxes. This tax preference amounts to tens of billions of dollars annually.

Originally created to slow the loss of farms, ranches, and forestland caused by urbanization, the reality is that UVA is a blunt policy instrument that provides tax benefits to all eligible landowners with very little impact on the number of acres being developed. UVA undermines the integrity of the property tax system as a mechanism to fund local public goods and services. Eligibility requirements are often lax, withdrawal penalties are mild or nonexistent, and assessment methods are subject to biased manipulation. Fundamentally, UVA programs are not fulfilling their intended purposes.

This report describes the history and features of state UVA programs, explains the theoretical underpinnings of land valuation, and surveys empirical studies of UVA implementation and impacts. It also identifies weaknesses of UVA programs and makes recommendations to reform these programs so they provide valuable environmental services to society.

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Front Cover:
Top: Plant Bowen generating station in Georgia seen from neighboring fields. *Alan Cressler/Creative Commons.*
Bottom: Housing development encroaches on cow fields in Bartow County, Georgia. *Alan Cressler/Creative Commons.*

Back Cover:
Vegetables at a farmers market in Virginia. *USDA/Creative Commons.*

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Executive Summary

Farms and neighboring homes are taxed at different values in Maryland. *© Alex S. MacLean.*

Use-value assessment (UVA) is the practice of valuing rural land based on its current use, rather than on its market value for property tax purposes, which may be substantially higher. This tax preference amounts to tens of billions of dollars annually and provides substantial property tax reductions for rural landowners in the United States. This form of preferential tax treatment was created in response to concerns about the loss of farms, ranches, and forestland resulting from the growth of metropolitan regions.

Use-value assessment is a blunt policy instrument that provides tax benefits to all eligible rural landowners, with very little impact on the number of acres being developed. Instead, strategic purchases of development rights or outright public acquisition of rural parcels would be more effective public policy tools to influence land use patterns. For these and other reasons, it is time to rethink the fundamental rationale for UVA.

This report describes the history and features of state UVA programs, explains the theoretical underpinnings of land valuation, and surveys empirical studies of UVA implementation and impacts. The report also presents the weaknesses in the programs and suggests a set of policy recommendations that address these challenges.

Criticisms of UVA programs identified in this report include the following:

- Enrollment of inappropriate properties in UVA programs is common, such as the problem of "fake farmers," whose property is commonly said to be "too large to mow, but too small to grow."
- State methods of UVA estimation, including use-value income measurement and discount rates, are often inaccurate, arbitrary, or biased.
- There are inadequate penalties for development in most state UVA statutes.
- UVA programs have not fulfilled their original purposes and have provided tax benefits broadly to all rural landowners with only marginal and temporary effects on land supply at a high cost to other taxpayers.

A sprawling farm in Farmstead, Pennsylvania, qualifies for use-value assessment if the land is used to produce an agricultural commodity. *© A. Tonelli/Creative Commons.*

The following recommendations address these four criticisms:

1. **Design eligibility rules to ensure that only parcels serving UVA statutory goals can participate.**

- Strengthen enrollment and reporting requirements to avoid the problem of "fake farmers."
  - Require agricultural landowners to submit Schedules E and F from their federal income tax returns to report rental income or farm use of the land.
  - Establish minimum acreage or net income requirements for agricultural land enrollment.
- Require landowners to document land use annually and report any changes in zoning, subdivision, or improvements to the property.

2. **Ensure that state guidelines for assessors provide accurate UVA estimation methods.**

- Base agricultural UVA computations on accurate estimates of net income (appropriate commodity prices and costs of production) and interest rates.
- Estimate use-value based on the actual current use of properties rather than on a hypothetical prototype property's earning potential.
- Factor in all forms of income related to a property's use (net income generated plus any crop insurance payments, agricultural subsidies, set-aside payments, and other forms of income).
- Use appropriate discount rates to capitalize the income stream reflecting the opportunity cost of capital and the effective property tax rate.
  - Avoid inflated, arbitrary, or statutorily set capitalization rates that do not reflect the opportunity cost of capital.
  - Preclude setting capitalization rate floors or ceilings in statute.
  - Confirm that the time frame used for the capitalization rate matches the moving averages used to measure the net income stream generated by the property.
  - Ensure that both the high and low incomes are omitted if an Olympic average is used to measure the net income stream, instead of biasing the computation by omitting only the high income.

3. **Create appropriate penalty provisions for land removed from rural or agricultural use.**

- Require a long-term contract for land enrolled in UVA programs, with penalty provisions for early withdrawal.
- Adopt a development penalty.
- Implement a payback requirement with interest or a land use change fee to be applied to land removed from the UVA program.

4. **Restructure UVA programs to reduce tax inequities and provide valuable benefits to society as a whole.**

- Minimize the tax burden shift associated with UVA and improve the fairness and efficiency of the programs.
- Reorient programs to reduce negative externalities and to provide public goods associated with rural land.
- Base tax preferences on the value of ecosystem services provided by land parcels, rather than on the simple fact that the land is rural or agricultural.
  - Limit tax preferences to only critical rural land that generates significant public goods and services.
  - Target tax preferences strategically to reduce tax inequities.

Implementing these recommendations will help make UVA programs more effective and fair.

CHAPTER 1

Introduction and Background

The former Sweetwater Hotel in Bedford is now a complex of condominiums. © *Panospin Studios.*

A short drive north of Boston, the town of Bedford sits to the immediate west of New Hampshire's largest city—Manchester. Bedford has grown in population during recent decades, and it is now an affluent community that is close to jobs, hospitals, interstate highways, and a regional airport. Schools have enjoyed increasingly positive evaluations. These attributes have attracted home builders and affluent households to Bedford for a number of decades.

Much of Bedford's rural landscape has been developed for a variety of purposes. Yet, if you were to search today for undeveloped land on which to build a new subdivision, you would make a startling discovery. Although vacant parcels are still available, their assessments for tax purposes vary tremendously from property to property. One large tract that is zoned residential and located near the Everett Turnpike is assessed at $7,865 per acre. Another sizable parcel close to the turnpike with frontage on a cul-de-sac is assessed at $10,047 per acre. In the very same neighborhood, however, is an even larger tract of vacant land that the town assessor values at a mere $127 per acre for tax purposes. Looking more closely at the landscape in Bedford, one finds nearly 200 undeveloped parcels covering more than 13 percent of the town's land area that are assessed at an average of $155 per acre—far below market value.

How can there be such dramatic differences in the assessment of land values within the same community and even within the same neighborhood? This happens because nearly all states across the United States permit, and even require, local assessors to value some parcels of undeveloped land far below their fair market values for the purpose of levying local property taxes. This method, often called use-value assessment (UVA), is perfectly legal and represents a major policy shift in local taxation during the last 50 years or more.

The Intended Purposes of Use-Value Assessment

A cornfield at the edge of a fast-growing metropolitan area has value that is based on its ability to produce corn, but its market value may be much higher due to its development potential as a commercial center or residential subdivision. Assessing the land in its current use and ignoring its higher market value gives the landowner a property tax reduction. That tax break may encourage continued agricultural land use, but urbanization pressure is likely to supersede the tax advantage and eventually result in the development of the parcel. The tax reduction makes the land value rise, conferring a wealth gain to the landowner when the policy is introduced. This practice is widespread across the United States and provides substantial tax cuts to property owners who benefit from this form of preferential tax treatment.

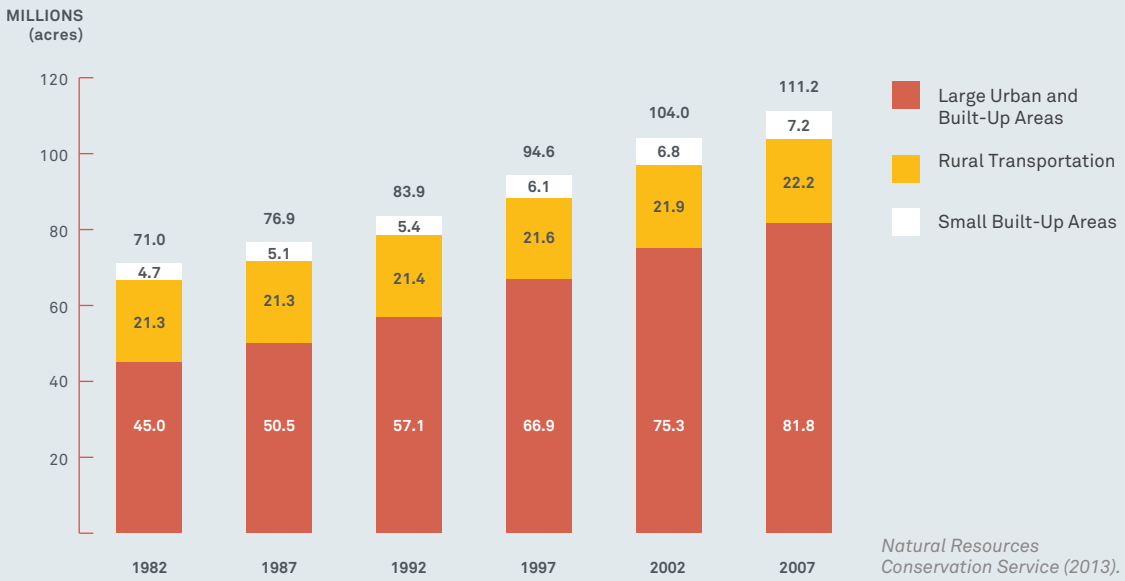
A cornfield at the edge of a fast-growing metropolitan area has value that is based on its ability to produce corn, but its market value may be much higher due to its development potential as a commercial center or residential subdivision.

Most often, the stated intent of the policy is to preserve the family farm, protect open space, or slow urban sprawl, but in practice the policy subsidizes what are known as "fake farmers" who enjoy low property tax bills by portraying their land as farmed, but whose parcels do not generate a level of agricultural or horticultural sales to justify UVA.

The Role of Use-Value Assessment in State and Local Tax Systems

Use-value assessment deserves to be carefully analyzed because taxation of real property has always been and still remains a key pillar of our federal political system. In 2013, the U.S. Census Bureau (2015) reported that the revenues of state and local governments in the United States totaled $2,193 billion and $1,709 billion, respectively. During recent decades, local governments have come to depend on federal and state governments for intergovernmental transfers or grants, which totaled $540 billion in 2013. However, local jurisdictions still have to raise much of their

Figure 1
Developed Land, 1982–2007



Natural Resources Conservation Service (2013).

funds through their own tax systems to pay for public schools, police and fire protection, and other local services. During 2013, tax revenues of local governments, including municipalities, counties, and school districts, equaled $608 billion. Of this total, $442 billion came from local property taxation. During recent times, property taxes have been the source of roughly one-third of state and local government tax revenue in the United States (Barnett and Vidal 2013). Elected officials and citizens cannot afford to ignore the continued importance of the property tax in this country and the significant modification of that tax represented by use-value assessment of undeveloped land.

As discussed in greater detail in chapter 2, UVA programs have been adopted across the nation in part because of concerns about the loss of rural land resulting from the continued growth of metropolitan regions. From Atlanta to Kansas City to Seattle, cities and their suburbs have displaced more than 40 million acres of rural land during recent decades, as shown in figure 1. Data reported by the Natural Resources Conservation Service (2013) indicate that during the quarter century after 1982, the developed areas in Arizona, Florida, and Georgia roughly doubled. Even slowly growing states such as Illinois, Massachusetts, and New York developed substantial amounts of rural land during the same period, as shown in table 1. From 1982 to 2007, the developed area of the entire United States grew from 3.76 percent of its total land area to 5.8 percent, an increase of more than two percentage points (Natural Resources Conservation Service 2013). Even with the striking growth of urbanized areas in the United States, it is notable that rural areas account for 94 percent of the land area of the country. Consequently, the methods of taxation applied to rural lands are importantto examine.

This growing urbanization of the American landscape has prompted state and local governments to adopt a number of public policies in addition to UVA to regulate the conversion of rural land to developed uses. These policies include agricultural zoning, development impact fees, urban growth boundaries, and conservation easements. Among these various policy tools

Subdivided homes in Tarrant County, Texas, face a backyard of farmland. © *Alan Cressler/Creative Commons.*

Table 1

Growth of Developed Land Area in Selected States, 1982–2007

	Developed Area in 1982 (millions of acres)	Percent Change in Developed Area, 1982–2007
Arizona	1.02	97.1
California	4.08	51.2
Florida	2.77	99.0
Georgia	2.23	108.3
Illinois	2.62	29.0
Massachusetts	1.09	58.0
New York	2.81	35.1
Texas	5.07	67.9

Natural Resources Conservation Service (2013).

used to address urbanization pressures, UVA is the primary tax mechanism used by state and local governments.

Most citizens and many tax professionals do not yet appreciate the pervasive role that use-value assessment plays in our country's system of state and local taxation. The importance of UVA programs is illustrated in table 2. Over 61 percent of Ohio's total land area is enrolled in its Current Agricultural Use Value (CAUV) Program, for example. Some of the nation's most valuable farmland is in California, where the owners of more than fifteen million acres presently enjoy reduced property taxes under the state's Williamson Act Program. Use-value assessment is even a major piece of property taxation in tiny New

Hampshire, where nearly three million acres (most of it forested) have been enrolled in the state's Current Use Program.

Tax preferences of this magnitude have major implications for the revenue-generating capacities of municipal governments and public school districts (Bowman, Cordes, and Metcalf 2009). Consider Ohio as an example. In the Buckeye state, numerous owners in both urban and rural counties enjoy major reductions in their property tax bills because of the CAUV Program.

Table 3 shows that the differences between use-value assessments and market-value assessments in Ohio are the greatest in the urban counties containing Cleveland (Cuyahoga County), Columbus (Franklin County), and Cincinnati (Hamilton County). Not only are the differences the greatest in those counties, but the ratio of use-value to market values is the lowest in those counties. In Franklin County, for example, valuing UVA parcels at their current market value would result in assessments averaging more than $3,000 per acre. But enrollment in the CAUV Program reduces those assessments below market value by an average greater than $2,500 per acre. This implies both a substantial loss of property tax revenue going to local governments and increased financial pressure on those localities to raise the tax rates that they levy on assessed property values to pay for local public services.

As shown in table 3, the reduction in assessed value per acre is significantly lower in the three largely rural

Table 2
Extent of Use-Value Assessment Programs in Selected States

	Total Land Area (millions of acres)	Land in UVA Program (millions of acres)	UVA Land as Percentage of Total Land Area
California (2008)	101.0	15.69	15.5
New Hampshire (2010)	5.74	2.95	51.4
Ohio (2009)	26.21	16.13	61.5

California Department of Conservation (2010); New Hampshire Department of Revenue Administration (2010); and Ohio Department of Taxation (2009).

Table 3
Current Ohio Agricultural Use-Value Program in Selected Counties, 2009

	Number of Parcels	Average Parcel Size (acres)	Average Use-Value per Acre ($)	Average Market Value per Acre ($)	Average Use-Value per Acre as a Percent of Average Market Value (%)
Cuyahoga	189	12.3	1,064	5,924	18.0
Franklin	1,700	42.7	472	3,007	15.7
Hamilton	1,255	22.7	655	4,355	15.0
Darke	7,488	46.1	233	1,295	18.0
Hardin	5,351	51.7	196	759	25.8
Seneca	6,321	49.5	202	983	20.1

Ohio Department of Taxation, table PD-32.

This farm in Virginia is used for dual purposes: growing soy and grazing cattle. © *USDA, Lance Cheung/Creative Commons.*

counties of Darke, Hardin, and Seneca. However, an assessment reduction on CAUV parcels of $600 to $1,000 per acre still has a negative fiscal impact on local governments in counties with thousands of enrolled agricultural parcels.

Perhaps this tax preference for farmland could be justified if it actually worked to "save the family farm." However, one is struck by the small average size of CAUV parcels in urban and rural counties alike. Because the average farm size in Ohio is 185 acres, it is likely that many of these parcels are not commercially viable farms, but instead are valuable pieces of developable real estate whose owners enjoy substantial property tax breaks because of the CAUV Program (U.S. Department of Agriculture 2007).

The Unintended Consequences of Use-Value Assessment

Despite their stated purpose of preserving rural lands from urban development, UVA programs have had several unintended negative consequences. One result is the erosion of the legal and constitutional principle of uniformity of taxation, an issue that will be addressed in chapter 2. Another result is the shifting of the local tax burden to other property owners, perhaps in a regressive manner. According to the Texas Comptroller of Public Accounts, use-value appraisal of farm, ranch, and forested lands reduces the property tax base in Texas by more than $2.9 billion, a whopping sum even in the Lone Star State. The resulting shift in the property tax burden to other property owners costs low- and middle-income households hundreds of dollars annually (Combs 2013). Chapters 3 and 4 will discuss this issue of tax incidence and other policy questions.

Although UVA programs operate largely outside of public view, they do occasionally generate political controversy and even legislative action. Concern about the "fake farmers" who enjoy low property tax bills has been a simmering issue in New Jersey for two decades. The 1964 Farmland Assessment Act allowed landowners with as few as five acres and who sold $500 or more of farm or horticultural products during each of the previous two years to lower their land assessments to as little as $27 per acre. Christie Whitman came under fire during her tenure as New Jersey's governor for reducing property taxes on her

two estates by selling firewood to relatives and friends. Former state senator Ellen Karcher also attracted criticism for saving tens of thousands of dollars in annual property taxes by selling a few Christmas trees each year. Such criticisms are at the heart of the cynicism inherent in the common description of these properties as "too large to mow, and too small to grow."

It is likely that many parcels are not commercially viable farms, but instead are valuable pieces of developable real estate whose owners enjoy substantial property tax breaks.

Examples such as these prompted a bipartisan effort in the New Jersey legislature to reform the state's farmland assessment program to prevent participation by those who are not truly farmers. Senate Bill 589, which passed by a unanimous vote of 39–0 in June 2012, proposed raising the annual revenue threshold from farming activity to $1,000 and called for a review of that sales threshold every three years by the State Farmland Evaluation Committee. The bill also proposed a $5,000 fine for fraudulent participation in the UVA program. Governor Chris Christie signed these provisions into law in April 2013. (Recent trends in certified organic and community-supported agriculture, two types of farming that make use of relatively small land areas and generate low levels of revenue, could complicate efforts to identify "true farmer" thresholds.) Chapter 5 surveys criticisms of UVA as it has been practiced for 50 years and offers several reforms of UVA programs that governors and legislators might consider.

A Texas farmer digs furrows to bury irrigation lines between rows of pecan trees that may have greater market value than other crops. © *USDA/Creative Commons.*

CHAPTER 2

History, Design, and Features

Tract housing overtakes agricultural land in Glendale, Arizona. © *Alex S. MacLean.*

The adoption of UVA programs in the United States was driven principally by two factors: rapid urbanization and rising land values relative to farm income, as well as additional factors related to tax assessment practice. This chapter tells the story of the diffusion of UVA programs across the country. The expansion of U.S. metropolitan regions after World War II resulted in the development of tens of millions of acres of farm, ranch, forest, and other rural lands.

Berry and Plaut (1978) estimated that between 1959 and 1969 an annual average of 902,000 acres in the United States had been converted from rural to urban uses. More recently, Alig, Pantinga, Ahn, and Kline (2003) estimated that the developed area in the nation more than doubled between 1960 and 1997, from 25.5 to 65.5 million acres. An influential report issued jointly by the U.S. Department of Agriculture and the Council on Environmental Quality (1981) noted the "major transition" in land use under way at that time.

The most recent and reliable data on land use change in the United States come from USDA's Natural Resources Conservation Service (2013). In table 1 of its *2007 National Resources Inventory*, cropland acreage in the contiguous 48 states fell by 14.90 percent from 1982 to 2007. During that same period, the extent of pastureland in those states dropped by 9.38 percent. From 1982 to 2007, the amount of developed land in the United States increased by 56.78 percent, to more than 111 million acres.

However, the percentage figures provided in the previous chapter indicate that even with striking growth of urbanization in the United States, rural areas still account for 94 percent of the total land area. Regardless of the precise extent to which land has been developed in the United States since 1945, the acreage converted from rural use during that period has been substantial. This expansion of metropolitan regions into the countryside helped to launch a political movement from the 1960s through the 1980s that favored preferential assessment of rural land. In his major study of use-value farmland assessment for the International Association of Assessing Officers, Gloudemans argued that this movement was motivated by "two major concerns: (1) concern for the economic viability of the farmer; and (2) concern over land use and the environment" (1974, 10).

The first concern was that farmers on the metropolitan fringe faced growing property tax burdens for two reasons. One is that newly arriving households and businesses demanded higher levels of municipal services. The other reason is that farmland prices and land value assessments escalated because of the increasing development potential of rural parcels. A study by Blase and Staub (1971) supports Gloudemans' general point that farmers faced escalating property tax bills during the post–World War II era. In their study of seven counties in the metro Kansas City region during the early 1960s, the authors found a higher level and more rapid growth of property tax per acre in the more suburban and urban counties in the region. They also found that "the proportion of gross farm income absorbed by the property tax was approximately four times greater in the urban counties than the average for the entire study area" (1971, 173). Hence, support for preferential assessment of rural land was framed as a measure to protect family farmers and ranchers from financial pressure and even ruin.

Gloudeman's second concern was the fear that growth of metropolitan regions would destroy wetland and forest ecosystems, eliminate wildlife habitats and scenic vistas, or otherwise degrade environmental values: "Environmentalists . . . contend that these remaining [rural] lands . . . will be swept away in the tide of urban sprawl unless afforded some protection" (1974, 12). This second argument for preferential assessment of rural lands presupposes that private land ownership and a competitive land market will fail to preserve enough rural land to benefit society at large (Gardner 1977). Is the preferential assessment of certain categories of rural land for purposes of property taxation the appropriate form of public intervention to preserve environmental assets? This question is addressed in the remainder of this report.

Enactment of Use-Value Assessment Programs

During the 1960s and 1970s, dozens of state governments enacted use-value assessment programs for specific categories of rural land. This nationwide wave of state tax reform began in Maryland in 1957, as outlined in England (2012). That starting point can be explained, at least in part, by two empirical facts. One is that large swaths of Maryland farmland were converted to suburban uses immediately after World War II. In 1957, for example, William Levitt, the New York home builder, purchased a 2,226-acre farm dating to colonial times in order to construct six thousand suburban homes near the nation's capital (United Press 1957; Forstall 1995). From 1940 to 1960, the populations of Montgomery and Prince George's counties quadrupled, whereas the population of Baltimore County more than tripled (U.S. Census Bureau 2011).

A 330 percent increase in the ratio of farmland prices to net farm income in Maryland from 1950 to 1971 was associated with this rapid suburbanization of Washington, DC, and Baltimore City (Gloudemans 1974). This pair of facts helps us to understand the 1957 action taken by the Maryland legislature that was intended to protect the state's remaining farmland from development.

The rapid spread of UVA programs to other states, however, cannot be understood simply by looking at state population growth and farm income data from that era. Brigham (1980) offers a fascinating historical sketch of how the local property tax was administered in many states before 1957. He points out that local assessors frequently gave de facto tax preferences to farmers (and homeowners) despite state constitutional provisions requiring uniformity and equality of taxation. These assessment practices were

Corn production might yield the greatest return for this family-owned farm in Virginia. © *USDA/Creative Commons.*

intended to provide property tax relief to "deserving citizens," but resulted in dramatic differences in assessment ratios (assessed value divided by market value) among taxable properties within the same jurisdiction.

After World War II, the expansion of state aid programs required the use of numerical formulas to distribute state grants to counties, cities, towns, and school districts. Property wealth per resident or pupil often played a major role in those state aid formulas. Thus, pressure mounted at the state level for uniform assessment practices within and among localities in order to ensure an equitable distribution of state grants. The subsequent elimination of de facto tax preferences at the local level of government resulted in higher property tax bills for many rural landowners and fueled efforts to gain de jure tax preferences for agricultural and forest properties. Hence, efforts to launch use-value assessment programs were often political reactions to recent trends in both real estate markets and state and local intergovernmental relations.

Despite these two national trends of suburbanization and rural land price growth, the introduction of use-value assessment of rural land faced a serious legal obstacle in a number of states. As Coe (2009) has pointed out, uniformity is perhaps the most common principle of taxation embodied in state constitutional law. In general, the principle of uniformity requires that tax laws be applied in an identical manner to all similarly situated taxpayers. Thirty-nine states have an explicit uniformity provision in their constitutions. Anderson and England (2014) list these states in appendix 2.1. The spirit of uniform taxation is well-expressed in the West Virginia Constitution:

> Subject to the exceptions in this section contained, taxation shall be equal and uniform throughout the state, and all property, both real and personal, shall be taxed in proportion to its value to be ascertained as directed by law. No one species of property from which a tax may be collected shall be taxed higher than any other species of property of equal value. (Article 10–1)

Preferential assessment of rural land violates this uniformity principle, so a number of states had to amend their state constitutions before they could enact and implement use-value assessment programs. Enactment of UVA statutes was sufficient in other states—Nebraska, for example—because of constitutional provisions allowing differential taxation of different property classes. In such cases, uniformity applies within each class, but not across classes of property.

A recent study of UVA policy diffusion across the United States reports that models of collective action do a good job of explaining the spread of UVA policies (Anderson, Giertz, and Shimul 2015). While urbanization and the divergence between market value and use-value of rural land at the urban fringe are important factors, two additional factors are relevant: changes in average farm size and agriculture's share of state income. States in which the average farm size increased more rapidly were quicker to adopt UVA. This is consistent with agricultural political interests becoming more concentrated and thereby reducing the cost of collective action to influence public policy. States in which the share of state income derived from agriculture declined more rapidly also quickly adopted UVA, which is consistent with models of collective action. As political groups become smaller, the burden from subsidizing them falls.

Of course, the politics of adopting use-value assessment varied across states throughout the decades. The following sections describe the political history of UVA adoption in four states—California, Hawaii, Texas, and Wisconsin.

CALIFORNIA

California was one of the early adopters of current-use assessment of rural land. Schwartz, Hansen, and Foin (1975) explain how the legislature passed the California Land Conservation Act (CLCA) in 1965, commonly known as the Williamson Act. The stated goals of this statute were to preserve agricultural lands in order to ensure adequate food supply, to discourage premature conversion of land to urban uses, and to preserve agricultural land for its open-space amenity value. The Williamson Act enables counties and cities to designate agricultural preserves and then offer preferential property taxation based on agricultural use-value in return for a contract barring land development for a minimum of 10 years. After the first decade of the contract, there is an automatic extension every year unless the owner or the county files a notice of contract nonrenewal. If such a notice is filed, the property's assessment ratio rises incrementally until the contract finally terminates after nine years. An immediate termination of a Williamson contract is also possible, but only if permitted by the city or county government and if the owner pays a penalty equal to 12.5 percent of market value.

In the beginning of 2009, half of the state's farmland and almost 30 percent of its privately owned acreage was enrolled in the the Willamson Act Program. As of 2010, all but four of California's counties participated in the program.

In the beginning of 2009, half of the state's farmland and almost 30 percent of its privately owned acreage was enrolled in the Williamson Act Program. As of 2010, all but four of California's counties participated in the program. A program of this magnitude has significant effects on both rural land markets and local government budgets in the Golden State.

The 1972 Open Space Subvention Act modifies the impact of the Williamson Act on local government budgets by providing state grants to partially replace forgone local property tax revenues. From 1972 through 2008, those subvention payments from Sacramento to the cities and counties totaled $839 million and were financed in large measure by growing state income tax revenue. Subvention payments were suspended during 2009, however, because of the state's mammoth budget deficit.

HAWAII

In 1961, the newly admitted state of Hawaii passed its comprehensive Land Use Law. This act created a nine-member Land Use Commission (LUC) that was empowered to categorize all land in the state into four districts: urban, rural, agricultural, and conservation. The LUC was also responsible for establishing and adjusting the boundaries of those districts. County governments, the LUC, and the State Board of Land and Natural Resources share jurisdiction over land uses across the islands. According to Mark, Yamauchi, and Okimoto, this "represents the most comprehensive statewide land use control system in the United States" (1982, 95).

The motivating force behind passage of the Hawaii Land Use Law was the desire to retain prime farmlands in agricultural use in the face of rapid urbanization and growth of tourism. Hence, the act required the state's Department of Taxation to assess farmland according to its current-use value (even if the acreage fell outside the boundary of an agricultural district). For historical reasons, ownership of agricultural land is highly concentrated in Hawaii, and sales of working agricultural properties are rare. Assessment of rural lands has had to rely on income-capitalization methods and on lease-rental data as proxies for farm income.

Texas housing stands on former agricultural land.
© Alan Cressler/Creative Commons.

TEXAS

Implementation of current-use assessment has been a protracted legal process in Texas. The constitutional amendment of 1966 was restrictive in several respects. For example, it provided that only farms and ranchland owned by a "natural person" qualified for a property tax preference. That is, farms and ranches owned by corporations or partnerships and all timberland regardless of ownership did not qualify for lower property taxes. A dozen years later, a second amendment to the Texas Constitution enlarged the potential for use-value assessment in the state. Implementation, however, awaited passage of HB1060 in May, 1979.

At the end of the 1970s, forested and "ecological laboratory" lands became qualifying uses. The 1978 amendment increased eligibility to include qualifying land owned by corporations, partnerships, and other legal entities except if nonresident aliens or foreign governments held a majority interest. The later amendment increased the rollback tax period from three to five years, but cut the interest rate applied to back taxes from 12 to 7 percent when a land parcel no longer qualified for use-value assessment. The second amendment also required that the income capitalization method be used to estimate use-values of qualifying properties.

WISCONSIN

From 1848 until 1974, the state constitution in Wisconsin required uniform taxation of all property. That changed with the 1974 amendment to the uniformity clause that allowed nonuniform taxation of agricultural and other undeveloped land. Not until 1993, however, did the legislature direct the Department of Revenue (DOR) to study the implementation of use-value assessment of farmland. One possible reason for this late interest in UVA adoption is that Wisconsin farmers had already enjoyed a circuit breaker form of tax relief tied to the state income tax.

In 1995, Wisconsin Act 27 phased in use-value assessment over a period of 10 years. The assessed

New residential development can be clearly seen from this farm in Wisconsin. © *Alan Cressler/Creative Commons.*

value of agricultural land was frozen at its 1995 levels during 1996 and 1997. Then, the assessed value of farmland was reduced from its 1995 levels by 10 percent annually through 2007. This act also created the Farmland Advisory Council to advise DOR on use-value assessment methods and to recommend a penalty for conversion of agricultural land to other uses.

The pace of property tax reform in Wisconsin accelerated in 1999. Act 9 established a conversion penalty equal to the difference between taxes owed under market valuation and taxes paid under agricultural use valuation for the two years prior to land conversion. An emergency rule issued by the DOR suspended the phase-in process and implemented complete use-value assessment effective January 1, 2000.

In 2001, Act 109 changed the land conversion penalty to an amount per acre specific to each county. This amount was 5–10 percent of the difference between a county's average market price of farmland and the average use-value of an agricultural acre in that county. In 2002, the Wisconsin Supreme Court upheld early implementation of use-value assessment. During the following year, Act 33 redefined classes of taxable property to include agricultural forestland to be assessed at 50 percent of market value.

Characteristics of Use-Value Assessment Programs

It is important to look at the similarities and differences among state programs in order to learn how UVA has been implemented and whether it is effective in reaching its policy objectives.

THE APPLICATION PROCESS

One important feature of the program design is how easy it is for rural landowners to file the paperwork to enroll their properties. The application requirements are relatively simple in most states. Of the 18 state or county jurisdictions surveyed, nearly all require sub-

mission of an application form no longer than two pages. However, some states also require supporting documents such as federal tax returns, detailed property maps, or forest management plans. New York stands out as a state requiring a fairly long application (five pages, to be exact) for use-value assessment of agricultural land.

This simplicity of the application process in most jurisdictions has certainly encouraged enrollment in UVA programs, especially by owners of smaller rural properties that qualify for inclusion. In the states that impose a development penalty when rural land no longer qualifies for UVA, a main purpose of the application form is to inform owners of the financial consequences of future land development before they enroll in program. In some states—Nebraska, for example—the application form is very terse and does not require evidence to verify that newly enrolled properties actually meet state criteria for enrollment. Verification is up to the local property tax assessor.

ELIGIBILITY REQUIREMENTS

The eligibility criteria that qualify some rural properties but not others for enrollment in UVA programs are of greater importance than the length of the application form. A common qualifying requirement is that a parcel meets or exceeds a certain minimum size. It is striking to see how small these acreage minimums are

Farms can provide ecosystem services in addition to their products. © *USDA/Creative Commons.*

in most states. As table 4 shows, parcels as small as three acres qualify for UVA in states such as Louisiana and Maryland. In Idaho, Maine, Massachusetts, North Carolina, and Rhode Island, farm properties as small as five acres are eligible.

In an era when many commercial farms occupy hundreds or even thousands of acres, some might doubt that properties this small are really farms. However, with the growth of organic farming and sustainable community agriculture in recent years, small farms using labor-intensive methods have begun to reappear alongside large-acreage farms that rely heavily on machinery and chemical inputs. Increasing the minimum farm size as a requirement for UVA eligibility could impose a competitive disadvantage on a new generation of "small farmers." However, it is reasonable to require these small farms to generate a substantial amount of revenue from producing and selling farm products. It is unlikely that parcels so small can be commercially viable sources of crops, livestock, or timber. Montana appears to be exceptional in requiring a sizable acreage to enroll a farm or ranch for preferential tax assessment.

Another common eligibility requirement for agricultural UVA is that an owner must document or at least attest that the property has generated a minimum amount of gross income or sales revenues from agricultural activities during recent years. As table 5 demonstrates, this commercial agriculture minimum is quite modest in most states. Hence, many owners of parcels that qualify for agricultural UVA are not full-time farmers who rely on farming for their livelihood. These owners are sometimes referred to as "hobby farmers" or "gentleman farmers" in popular parlance.

How does a county assessor know whether a property is being actively used for agricultural or horticultural purposes? If an owner-applicant were required to submit a copy of the most recent Schedule F (Profit or Loss from Farming) that he or she has filed with the Internal Revenue Service, there would be objective evidence for the assessor to consider. Schedule F requires the federal taxpayer to submit detailed information about farm sales and subsidies, production and interest costs, and depreciation of farm assets. The farmer who files a Schedule F is subject to an IRS audit, and, if inaccurate information has been declared, the federal government can impose penalties and fines on the taxpayer. Requiring attachment of a Schedule F form to a UVA application is a low-cost method that a state or county agency can use to ensure that an applicant is indeed actively engaged in farming. One limitation of this approach, however, is that requiring Schedule F would exclude many

Table 4
Use-Value Assessment Acreage Minimums, Selected States

	Agricultural Land	Timberland
3 acres	Louisiana, Maryland	Louisiana
5 acres	Idaho, Maine, Massachusetts, North Carolina, Rhode Island	Idaho, Maryland
7 acres	New York	
10 acres	Delaware, Kentucky, Minnesota, New Hampshire, Ohio, Pennsylvania	Delaware, Kentucky, Massachusetts, New Hampshire, Pennsylvania, West Virginia
15 acres	Tennessee	Montana, Tennessee
20 acres	Nevada, South Dakota, Washington	Minnesota, North Carolina
25 acres	Vermont	
160 acres	Montana	

Anderson and England (2014).

Table 5

Farm Income or Sales Requirements for UVA Enrollment, Selected States

ALASKA	Owner or lessee derives at least 10 percent of annual gross income from farming.
DELAWARE	Gross sales of agricultural or forestry products of at least $1,000 per year during the two preceding years.
KAUAI COUNTY, HAWAII	Filing of IRS Schedule F from previous year documenting profit or loss from farming.
MAINE	Gross farm income of at least $2,000 per year during one of two preceding years.
MARYLAND	Average gross farm income of at least $2,500 if under 20 acres.
MASSACHUSETTS	At least $500 of annual sales receipts from farming activity.
MONTANA	Over half of owner's Montana gross income derives from agriculture and minimum of $1,500.
NEW JERSEY	Gross annual sales of $1,000 for first five acres plus average of $5 per acre for each acre over the first five.
NEW YORK	Annual gross farm sales of $10,000 or more during preceding two years.
NORTH CAROLINA	Average gross farm income of at least $1,000 during preceding three years.
OHIO	Average gross income of at least $2,500.
OREGON	Gross income of at least $3,000 if 30 or more acres. Smaller income amounts if smaller parcels of farmland.
PENNSYLVANIA	At least $2,000 of gross farm income during the previous three years.
RHODE ISLAND	At least $2,500 of gross farm income during one of last two years.
SOUTH DAKOTA	At least one-third of total family gross income from farming.
TENNESSEE	Gross income from farm sales, farm rent, or federal farm support payments averaging $1,500 per year over three-year period.
TEXAS	Agriculture as primary occupation of owner and primary source of income.

Anderson and England (2014).

owners who rent their land to tenant farmers, not engaging in direct agricultural production. Renting farmland is a passive activity, the income from which is reported on IRS Schedule E. Hence, states may want to require both schedules.

A persistent problem with UVA programs has been that some owners enroll their rural parcels and enjoy the tax benefits of doing so even though they fully intend to develop their acreages in the near future. This lack of a long-term commitment to rural uses of a land parcel can be detected in numerous ways. The owner, for example, may have earned negligible revenues and net income from selling agricultural commodities or forest products during recent years. The owner might also have requested a change in zoning that would permit commercial, industrial, or residential uses of the parcel or filed subdivision plans with local planning officials. Even if site preparation and construction have not yet begun on a "farm" or other rural parcels, the absence of significant income from its undeveloped use or actions taken to prepare for physical development of the parcel should raise serious concerns about the intentions of the owner.

Table 6
States with No UVA Development Penalty

Arizona	Mississippi
Arkansas	Missouri
Colorado (agricultural land)	Montana
Florida	Nebraska
Idaho (agricultural land)	New Mexico
Illinois (farm and forestland)	North Dakota
Indiana (agricultural land)	Oklahoma
Iowa	South Dakota
Kansas	West Virginia
Kentucky	Wyoming
Louisiana	

Anderson and England (2014).

To eliminate some "fake farmers" from the UVA eligibility rolls, state law in Arizona directs local assessors to disqualify rural parcels if any of the following conditions exist:

- There is a pending application for rezoning that permits nonagricultural uses.
- A subdivision plat has been recorded, especially if the land is divided into lots of one acre or less.
- Survey stakes or roads have been recently installed, suggesting nonagricultural development.
- Utility services not required for agricultural use are in place.

This approach to verifying UVA eligibility is probably more costly to a local administration than simply inspecting the owner's federal tax return. However, detecting these recent actions by a landowner is a way to disqualify rural properties that are about to be developed.

Still another reason to suspect that some parcels enrolled in UVA programs are ineligible for preferential assessment is that enrollment in some states relies on self-reporting of eligibility by property owners. The absence of supporting documentation filed by applicants or auditing by local officials suggests that some UVA parcels are likely ineligible for tax preferences under current statutes and administrative regulations.

In a few states, a parcel that previously qualified for UVA can lose its eligibility prior to an actual physical change in land use if there is evidence that the property will or might be developed in the near future. In Arizona, an undeveloped property is no longer eligible for preferential assessment if there has been an application to rezone the parcel for urban use, a recording of a subdivision plat, or a recent installation of survey stakes or utility services. In Indiana, rezoning of an enrolled property or its subdivision disqualifies the land for continued use-value assessment. In Nebraska, rural land that lies within the boundaries of any sanitary improvement district or a city is ineligible unless subject to a conservation easement. In North Dakota, a complex set of criteria can disqualify farmland parcels platted after 1981.

What happens if the owner of a rural parcel enjoys lower property taxes for a number of years because of UVA enrollment, but then develops the parcel for a residential, commercial, or industrial use? Since the property no longer qualifies for preferential assessment, its assessed value will increase substantially, and the owner will owe significantly higher property taxes on the parcel's land value in years to come. But will the landowner bear any additional financial consequences for converting his or her property from a qualifying rural use to a developed use? Will the owner face a development penalty after benefiting from years of reduced property taxes because of UVA enrollment?

The answers to these questions depend on the specific UVA statute and administrative rules in each state. As shown in table 6, 21 states do not levy a development penalty on some or all parcels that have been enrolled in a UVA program.

Pennsylvania farms must have a gross income of at least $2,000 during the previous three years to be eligible for use-value assessment enrollment. © *Jim, the photographer/Creative Commons.*

In the remaining states with UVA programs, landowners are subject to development penalties when their properties no longer qualify for preferential assessment. These states have adopted a variant of either a rollback tax or a conveyance tax to recapture some of the property taxes forgone during the years of program enrollment and to discourage parcel development. Rollback taxes typically recover several years of property tax savings or property taxes deferred because of use-value assessment. In some states, those deferred property taxes are subject to interest charges as well.

Some states levy penalties on properties withdrawn from UVA programs, but those penalties might have little impact on the timing of development. In other cases, the penalties are designed to have a significant impact on when land is converted to urban uses. As shown in table 7, Alabama, Minnesota, Illinois, Ohio, Texas, and Tennessee collect only three years of deferred (rollback) taxes. This penalty is so modest that it is unlikely to stop a farmer or rancher from selling her or his land when a commercial developer or home builder makes an offer.

Other states, however, have enacted UVA development penalties that influence landowners to keep their properties enrolled for longer periods of time. Delaware, Idaho, and Indiana collect up to 10 years of deferred taxes when properties lose their eligibility for use-value assessment. Rhode Island and Vermont are prime examples of states with well-designed deterrents to rural land development. In the Ocean State, the penalty is 10 percent of market value during the first 6 years of UVA enrollment, falling slowly to zero after 16 years. Although this penalty design

Table 7
States with UVA Rollback Penalties

ALABAMA 3 years of deferred taxes	MASSACHUSETTS 5 years of deferred taxes plus 5 percent interest	SOUTH CAROLINA Deferred taxes for current and 5 previous years
ALASKA 7 years of deferred taxes plus 8 percent interest	MINNESOTA 3 years of deferred taxes	TENNESSEE 3 years of deferred taxes for agricultural and forest parcels; 5 years for open-space parcels
COLORADO 7 years of deferred taxes for conservation easement land	NEVADA Deferred taxes for current and 6 previous years	TEXAS 3 years of deferred taxes plus interest for farmland; 5 years for open-space land
DELAWARE 10 years of deferred taxes	NEW JERSEY Deferred taxes for current and 2 previous years	UTAH Maximum of 5 years of deferred taxes
GEORGIA Deferred taxes plus interest with years declining with period of enrollment	NEW YORK 5x taxes saved in most recent year plus 6 percent interest	VIRGINIA 5 years of deferred taxes plus interest, with local option to modify penalty
IDAHO Up to 10 years of deferred taxes for forestland	NORTH CAROLINA Deferred taxes for current and 3 previous years plus interest	WASHINGTON 7 years of deferred taxes plus interest plus additional 20 percent of that total
ILLINOIS 3 years of deferred taxes plus 5 percent interest for open-space land	OHIO Deferred taxes for 3 previous years	WISCONSIN Complicated rollback described in appendix 2.3
INDIANA Up to 10 years of deferred taxes plus 10 percent interest on forestland	OREGON Deferred taxes for 5 or 10 years	
MAINE 5 years of deferred interest plus interest on agricultural land	PENNSYLVANIA 7 years of deferred taxes plus 6 percent interest	

Anderson and England (2014).

cannot prevent eventual development of agricultural or forested land in Rhode Island, it does encourage an owner to defer development for a decade or more. In Vermont, the owner pays a penalty equal to 20 percent of market value if a property has been enrolled for less than a decade. After 10 years, the tax rate falls to 10 percent of market value. Once again, the penalty encourages longer-term UVA enrollment.

Conveyance taxes are used by some states. They apply a tax rate to the market value of the land parcel during the year when it no longer qualifies for preferential assessment. In some states this tax rate varies inversely with the number of years that a parcel has been enrolled in the UVA program. Massachusetts is unusual in that it has both rollback and conveyance tax provisions in its UVA statutes.

Table 7 summarizes the penalty provisions in the states with rollback taxes. Note that states vary significantly in the number of years of deferred taxes that the owner of a disqualified parcel owes to the state or local government. The deterrent to land development is presumably stronger in the states

that collect more years of deferred taxes if development occurs. Table 8 summarizes the penalty provisions in states with conveyance taxes. Note that these states are clustered along the East Coast or West Coast, not in the agricultural heartland of the nation.

Beginning in Maryland in the 1950s, UVA programs spread across the United States during the last half of the twentieth century. Nearly all states now offer use-value assessment to some or all of the owners of agricultural land. A substantial number also offer preferential assessment to owners of timberland. UVA eligibility of rural parcels for conservation, open space, or recreational purposes is less common. Anderson and England (2014, appendix 2.3) provide a detailed review of the characteristics of state programs, relevant state UVA statutes, eligibility requirements, methods of assessment, and development penalties. As the following chapters show, the diversity of state UVA programs generates important evidence about how these programs perform and how they might be improved.

Table 8
States with UVA Conveyance Penalties

CALIFORNIA 12.5 percent of market value of land parcel with local option for higher percentage	NEW HAMPSHIRE 10 percent of market value of land parcel
CONNECTICUT 10 percent of market value of land parcel within one year of classification with tax rate falling to zero after 10 years	RHODE ISLAND 10 percent of market value of land parcel if 6 or fewer years of classification with tax rate falling to zero after 15 years
MARYLAND Tax rate of 3 to 5 percent of sales price for agricultural land with rate based on parcel size and condition	VERMONT 10 percent of market value if classification for more than 10 years; 20 percent if 10 or fewer years

Excess power from methane produced at this Pennsylvania farm is sold to the local power grid, allowing the community to benefit from a green energy source. © *USDA/Creative Commons.*

CHAPTER 3

What Makes Land Valuable?

Housing encroaches on an abandoned farm and cornfield in Maryland, where use-value assessment began.
© USDA, Bob Nichola/Creative Commons.

It is important to consider the underlying theory of land value determination to understand the taxation of rural and agricultural lands. This chapter first discusses land use and land value fundamentals, and then addresses the particular application of use-value assessment methods of valuation. Additionally, some of the greatest economic impacts of UVA are discussed: impacts on land use conversion, distribution of the tax burden, and capitalization effects.

Theory of Land Value Determinants

LAND USE AND VALUE FUNDAMENTALS

What determines land values within and beyond metropolitan regions? Fundamentally, land value is determined by the parcel's location and potential uses. This is true for agricultural, rural, and urban land. Land near an urban area where there are competing uses, such as commercial or residential uses or even the potential for such future uses, will have a market value far above its value in current agricultural use. Land located in a purely rural area far from urbanization pressures has the same market value as it would if it were agricultural land.

Land value (V) is typically estimated by using the perpetuity formula $V = A/(r+\tau)$, where A is an estimate of the annual net income generated by the land; r is the discount rate reflecting the opportunity cost of capital; and τ is the effective property tax rate that is included to account for the capitalization of the tax into the land price. UVA assessors use the income capitalization method suggested by this equation. This requires accurate measures of the net income and the discount rate, including the property tax rate. Box 1 gives the International Association of Assessing Officers (IAAO) standard for implementing the income capitalization approach in estimating use-value.

PROPERTY TAXES AND WAYS TO REDUCE THE TAX BURDEN

There are multiple ways the effective property tax rate can be reduced for a particular class of properties. The first and most direct method is to implement a classified property tax system in which each type of property can be taxed at its own rate. A second and more indirect way is to assess certain properties at lower levels. This section explains how both tax rates and assessments influence the effective tax rate.

Box 1

IAAO Standard on UVA

Assessors generally use an income capitalization approach to assess agricultural use-value following the International Association of Assessing Officers (IAAO 2008) standards, which specify that the income approach should be used for agricultural land assessment. IAAO Standard 4.6.5 directs assessors as follows:

> If adequate sales data are available and agricultural property is to be appraised at market value, the sales comparison approach would be preferred. However, nearly every state or province provides for use-value assessment (and usually appraisal), which significantly understates the market value for agricultural property, so the sales comparison approach is usually not applicable. Because of this limitation, *it is imperative to obtain good income data and to use the income approach for agricultural land.* Land rents are often available, sometimes permitting the development and application of overall capitalization rates. This method, of course, also entails the estimation of normal land rents for unrented parcels. When agricultural parcels include improvements, the cost approach or sales comparison models that provide separate building values may be used to determine their value. (IAAO 2008, 11, emphasis added)

In practice, the procedure is to estimate net income generated by agricultural land over a specified period of time and to capitalize that income stream into use-value by using an appropriate discount rate.

Atlanta development may eventually overtake this soybean field in Georgia. © *Alan Cressler/Creative Commons.*

The tax liability T for any property is the product of the nominal tax rate t^n, which is the rate employed by the tax collector and the assessed value AV of the property: $T = t^n AV$. The assessed value, in turn, is related to market value MV via the assessment ratio α, where $\alpha = AV/MV$. The lower the assessed value relative to market value, the lower the assessment ratio. To the extent that UVA results in assessed values lower than market values, it reduces the assessment ratio.

Combining these two relationships gives the tax liability as the product of the nominal tax rate, the assessment ratio, and the market value: $T = t^n \alpha MV$. The effective tax rate t^e is then seen as the product of the nominal tax rate and the assessment ratio $t^e = \alpha t^n$, so the tax liability is ultimately the product of the effective tax rate and the market value $T = t^e MV$. Hence, we see that the effective tax rate can be altered either by a change in the nominal tax rate or by a change in the assessment ratio. In this way it is apparent that UVA ultimately reduces the effective tax.

UVA deviates from the traditional wisdom on the best way to value property for the purpose of taxation to achieve the policy goals of retarding development and preserving open space. Market values are usually considered to be best for use in property taxation, both for efficiency and equity effects. Box 2 explains the difference between using market values and use-values to tax property.

Of course, UVA is not the only way to reduce tax burdens. If state or local governments want to address equity concerns, property tax relief measures other than UVA should be considered. Classification of the property tax system is one option, with a whole class of property given a preferential tax rate. This form of tax relief is a blunt policy instrument, however, because it provides tax relief to the entire class of

property. A property tax circuit breaker can be considered as an alternative, with relief provided to owners whose property tax is high relative to their income. Bowman, Kenyon, Langley, and Paquin (2009) address the use and application of circuit-breaker mechanisms to provide property tax relief.

CALCULATING USE-VALUE

The factors needed to estimate agricultural use-value are given in equation $V = A/(r+\tau)$, which indicates that we need an estimate of the annual net agricultural income A and an appropriately selected capitalization rate plus property tax rate: $r + \tau$. The choice of both numerator and denominator involves potential problems and complications. As Bunnell (1996) puts it, at this point an idea that is simple in principle becomes complicated in practice. Box 1 provides the guidance given to assessors by the International Association of Assessing Officers (IAAO) to implement UVA.

Several basic issues must be addressed. First, the very definition of agricultural or rural land use must be articulated. Our review of state UVA statutes reveals great variation in the definitions used (Anderson and England 2014, appendix 2.3). If the intent of the UVA legislation is to assist farmers and ranchers, then the definition of eligible land would be restricted to land actually in commercial agricultural production for crops or cattle, for example. Swampland, forestland, or idle farmland would not be included under the eligibility criteria. However, some states specifically apply UVA to forestland or open space.

One way to objectively identify land as being used in agriculture is to require that the land be zoned agricultural. Yet, there is no zoning in many rural areas. Even in rural areas with zoning, some UVA statutes do not require that land be zoned agricultural in order to receive UVA tax treatment. Bunnell (1996) indicates that some states, such as Wisconsin, do not have any specific zoning requirement for UVA eligibility. In such a case, agricultural land could qualify for UVA despite being zoned for commercial development

Box 2

Base Value on Current Use or Highest and Best Use?

Property tax assessment practice based on market value principles begins with the assumption of what assessors call "highest and best use" of the property. The assessor is charged with ignoring the current use of the property and making an assumption about the use that would generate the largest possible net revenue. Barlowe's definition of highest and best use in his classic text on land economics is that "land resources are at their highest and best use when they are used in such a manner as to provide the optimum return to their operators or to society (1978, 16)."

In practice, assessors can readily see a parcel's current use, but they must speculate whether it is actually the highest and best use of the parcel. In some cases, it is easy to see that it is not. Consider, for example, a flat, paved parking lot in the center of a high-rise downtown area. It is quite likely that the highest and best use of the parking lot land would be a developed commercial use instead. Yet, in other cases it may be quite difficult to ascertain whether the highest and best use differs from the current use. In those cases, assessors may be implicitly biased in favor of accepting the current use as the highest and best use. That bias may be appropriate given the uncertainty facing the assessor.

The current market value of an undeveloped parcel of land may be well established and objective, but may have nothing to do with the current use of the land. Subjectivity arises when the market value is unknown and the assessor attempts to establish value without specific evidence to determine whether the current use is the highest and best use of the land. A known market value, however, based on the highest legitimate bid for the property, reflects the highest and best use.

and despite plans for development having been submitted and approved by the local planning commission.

Eligibility requirements have an impact on how UVA is computed. In the case cited here, where no zoning requirement is included in the statute, a broader estimate of value may be appropriate. Another example of eligibility requirements affecting the computation of UVA is if the statute does not require a minimum parcel size. In that case, small parcels may qualify for UVA, even when those parcels may actually be residential acres in rural areas or urban parcels with small gardens in a city.

Some state UVA statutes do not include improvements in the value definition. In those states, structures such as farmhouses, silos, and barns are assessed separately. Separate assessment of the structures may not be a simple matter because farmhouses, outbuildings, and other structures may be difficult to assess using a market comparison approach if few comparables (e.g., farmhouses sold separately from farmland) are available. Furthermore, it may be that the barns, silos, and other farm structures are economically obsolete and effectively worthless in their current ability to produce agricultural income. Still, they may retain aesthetic value for some buyers. It is also possible that the structures are so depreciated that they actually have negative value, in which case the property would have higher value if these structures were removed.

The problem of disentangling the value of the marginal product of structures is a fundamental and classic problem in land value assessment. There are two fundamental entities to be estimated in determining use-value: the net revenue stream and an appropriate interest rate used to capitalize income into property value. The next two sections discuss each of these key factors.

ESTIMATING NET INCOME

The first number required to compute agricultural use-value is an estimate of the net income stream generated by agricultural land. Most states require the use of some form of the value equation $V = A/(r+\tau)$ to estimate use-value, so the first consideration is how to estimate the numerator of that equation. The simplest version of this equation is a plain perpetuity formula, assuming that a constant amount of net income is generated each year, forever. In that case, an estimate of the representative annual net income generated by the land is needed. Net income is gross income generated via agricultural production minus the cost of inputs used in that production. This measure of net income should be a broad measure, including all of the sources of net income that are attributable to the agricultural or rural use of the land and other real property. A narrow measure of net income that might be reported on IRS Form 1040 Schedule F understates the full income earned and thereby underestimates the use-value of the property.

States often specify assessment methods that use estimates of agricultural productivity for various commonly planted crops as the starting point to estimate gross revenue. For example, in Iowa, land parcels are rated by the corn suitability index, reflecting the major crop produced in the state. With an assumed productivity per acre of land (perhaps adjusted for soil quality, topography, and other conditions) and commodity price data, an estimate of total revenue can be computed. Assumed costs of production can then be netted out to obtain an estimate of net income per acre. Rather than use a single year's data as representative, however, many states require that a moving average of several years of income and cost data be used to estimate a representative net income in the value equation. Several detailed examples of the way states estimate net income are included in chapter 4.

Assessors sometimes begin their estimations of net income by using the annual rent for use of the land because rental data are often readily available for agricultural land. While that number may be more available than other income data, it may not be appropriately representative. The assessor must include all agricultural land parcels, whether they are rented to tenant farmers or farmed by the owners. Rented parcels may differ from parcels used by the owners for agricultural production. It may be that landowners are reluctant to rent out prime agricultural land to tenant operators whose land-stewardship practices may differ from those of the owners, which would result in only inferior quality land being rented. Or it may be that rented land is less likely to be irrigated and therefore will be less productive. Despite this potential difficulty, assessors often use rental incomes as their starting point for all parcels. Gross rents are then adjusted by deducting estimates of the cost of inputs.

Another complication in using rental income is that the mere presence of a differential method of taxation has an economic impact on the land use. The problem is that land rents may differ systematically in areas where use-value assessment is permitted.

CHOOSING A DISCOUNT RATE

Estimation of use-value requires the choice of an appropriate discount rate to use in the denominator of the value expression. Ultimately, the discount rate should reflect the opportunity cost of capital. While that sounds like an easy task, it is not. Economists decompose the discount rate into five components: a riskless rate, an inflation premium, a default risk

A housing development in New Jersey replaced rural land. *© Rebecca Wilson/Creative Commons.*

Before and after commercial and industrial development on previously agricultural land in Burlington, Vermont. Left: Photo simulation of U.S. Route 7 corridor, circa 1937. Right: Actual view in 1995 after 50 years of development. © *Alex S. MacLean and Julie Campoli.*

premium, a liquidity premium, and a maturity risk premium. Anderson (2012) discusses how these components are measured, sometimes incorrectly, in the discount rate used by each state to estimate use-value.

Proper choice of the discount rate is critical for accurate use-value assessment. If an artificially high discount rate is chosen, the use-value estimate will be biased downward. A review of commonly used methods for choosing discount rates reported by Anderson (2012) indicates that states often use high discount rates. Chapter 4 presents case studies that highlight the choice of discount rate, among other critical estimation issues.

Theory of Economic Impacts of Use-Value Assessment

IMPACTS ON LAND USE CONVERSION

As discussed, one of the motivations for enacting UVA was to delay conversion of rural land to developed uses, thereby temporarily preserving open space and prime agricultural land. Whether and to what extent such delay might occur has been the subject of a number of studies. Preferential tax treatment of land may have an impact on both the timing of eventual development and the capital intensity of that development. Skouras (1978) and Anderson (1986) have explored the theoretical possibilities. A well-known result in public finance is that if the property tax is unrelated to current land use, the tax has no effect on the timing of development or its capital intensity and is therefore neutral (Tideman 1982). If, however, the property tax simply reflects current land use, ignoring other potential uses, it may not have a neutral effect. Anderson (1993) provides analysis of the potential impacts of UVA on land use, land value, timing, and capital intensity of development. He shows that under certain circumstances there can be impacts on both the timing of development—with UVA delaying development—and on the capital intensity of land development. Of course, there are also direct impacts on the tax burden and land values.

IMPACTS ON THE TAX BURDEN

Use-value assessment reduces tax liability for owners of eligible land parcels and thereby creates a tax expenditure (an expenditure made by the local government via the tax system rather than via direct outlay). In effect, state and local governments are spending

money on preserving open space or prime agricultural land, providing general assistance to farmland owners or whomever the UVA program benefits. The size of that tax expenditure can be substantial in areas in which the difference between market value and use-value is large. Large tax expenditures occur near the periphery of urban areas.

For example, Anderson and Griffing (2000b) found that the tax expenditure associated with use-value assessment is quite substantial in the metro areas of Lincoln and Omaha, Nebraska (box 3). Their estimates indicate that the tax expenditure for land parcels given UVA tax treatment is approximately 36 percent of total revenue that otherwise would have been

Box 3

Case Study: Omaha and Lincoln, Nebraska

In order to illustrate the impact of use-value assessment, consider the case studies provided in Anderson and Griffing (2000a, 2000b). They estimated the difference between market value and use-value for agricultural land surrounding the two largest urban areas in Nebraska. They found that the difference between market value and use-value declines with distance from the center of Lincoln for a sample of land parcels in Lancaster County and from the center of Omaha for a sample of parcels in the southwesterly direction from Omaha in Sarpy County.

Moving out from the center of Lincoln, the difference between market value and use-value declines from $988 per acre at 3 miles (the minimum distance in the sample) to $89 per acre at 24 miles. The mean ratio of use-value to market value around Lincoln was about 0.64, indicating that use-value assessment reduced taxable value by about 36 percent. The estimated gradient of 0.115 indicates that the spatial rate of decay in the difference between market value and use-value with respect to distance is 11.5 percent. That means for each additional mile farther from the city center, the difference in values is reduced by 11.5 percent.

For Omaha, the difference in value declines from $6,386 per acre at 6 miles (the minimum distance in the sample) to $1,024 at 24 miles. The mean ratio of use-value to market value around Omaha was about 0.25, indicating that use-value assessment reduced taxable value by about 75 percent. The estimated gradient of 0.093 indicates that the spatial rate of decay in the difference between market value and use-value with respect to distance is 9.3 percent. That means for each additional mile farther from the city center, the difference in values is reduced by 9.3 percent.

Land values surrounding city centers like Omaha, Nebraska, decline as distance from the city increases. © *Raymond Bucko, SJ/Creative Commons.*

collected on those parcels in Lancaster County, Nebraska, and 75 percent of what would have been collected in Sarpy County, Nebraska.

The value of the tax savings due to UVA may well be overshadowed by the potential gain from selling rural land on the metropolitan fringe to a developer. Furthermore, the preferential tax treatment for UVA land causes property tax rates to be higher for all other property owners. UVA causes a tax shift from agricultural landowners to residential, commercial, and industrial landowners. Therein lurks a substantial social cost of UVA programs and a potential source of political tension.

IMPACTS OF TAX PREFERENCE CAPITALIZATION ON LAND VALUES

UVA reduces the tax liability on a parcel of land while the services provided by the local government are presumed to remain constant, so that the lower tax liability is capitalized into a higher land value. Looking once again at the equation $V = A/(r+\tau)$, a lower effective tax rate (τ) in the denominator increases the value of the land (V).

When UVA legislation was passed and became effective, the value of land increased by the capitalized value of the future stream of reduced taxes. That conferred a wealth increase on the landowner at the time of UVA adoption. Subsequent sales of the land occur with knowledge of the UVA tax regime and anticipation (appropriate or not) of its continuation. Hence, subsequent buyers are unaffected. UVA has no further impact on land values after the first sale subsequent to UVA adoption.

Any change to either expand or scale back the UVA program will confer windfall gains or losses on current landowners, making such changes politically difficult to achieve. Proposals to scale back a UVA program will be met with resistance by current landowners who would suffer capital losses. On the other hand, policy makers who are contemplating the adoption or expansion of a UVA program will find support from current landowners who would benefit from a gain in land value.

Anderson (1993) modeled the capitalization effects of preferential tax treatment of agricultural land (via circuit breakers) and identified the factors determining the size of the initial effect. He found that, for a given farm, income stream, and potential development income stream, the capitalization effect is larger: (1) the greater the effective property tax rate; (2) the lower the discount rate; and (3) the more generous the preferential tax mechanism (circuit breaker income threshold).

This chapter provides a basis for understanding land value determination and offers a framework for analyzing the impacts of UVA. It also presents a simple computational approach that is used in estimating use-value to illustrate the fundamental factors required in determining use-value for tax purposes. In order to determine the capitalized value of the income stream, UVA is computed using estimates of the net income flow generated by the land parcel and the opportunity cost of capital captured by the discount rate. UVA can dramatically reduce assessed values and thereby build and maintain political support for the policy. The mechanics of use-value estimation presented here form the basis for evaluating the practices employed by assessors in chapter 4.

CHAPTER 4

Empirical Studies of UVA Implementation and Impacts

Net income from farm produce is capitalized into land value. © *Robert Couse-Baker/Creative Commons.*

This chapter considers the practices that states use to calculate use-value of rural and agricultural land. The implementation and impacts of these programs involve enrollment criteria, preservation of small family farms and rural landscapes, a shift in the property tax burden and equity issues, and property tax administration. The data needed to estimate agricultural use-value were identified in the value equation in chapter 3: $V = A/(r+\tau)$. This requires both an estimate of the annual net income A from agricultural use of a land parcel and an appropriate capitalization rate $(r + \tau)$, including the property tax rate.

State Practices

States confront the averaging issue in various ways. While the perpetuity formula assumes that annual net income *A* is repeated every year, forever, in reality the income stream may fluctuate from year to year. The discount rate and property tax rate may also fluctuate over time. Consequently, states generally provide guidance to assessors to smooth the income data, the discount rate, and the property tax rate through methods of averaging.

Capitalization rates employed by the states with UVA programs vary widely. Iowa has a fixed rate of 7 percent, but Colorado uses a statutory rate of 13 percent. Louisiana requires assessors to calculate a rate based on several factors and compare that calculated rate to 12 percent, then use the higher of the two rates. Similarly, Mississippi requires that an assessor's calculated rate be at least 10 percent, while Wisconsin requires that it be at least 11 percent. States often require capitalization rates that are biased upward in order to reduce assessed values. Box 4 presents Virginia's approach to computing use-values for various types of rural lands.

Enrollment in Use-Value Assessment Programs

Is this policy effective in enrolling the intended types of land when UVA is implemented? Studies of landowner enrollment have focused primarily on California's Williamson Act (CLCA) program. One of the earliest studies of the decision to voluntarily enroll in a use-value assessment program was conducted by Hansen and Schwartz (1975), who investigated enrollments in three geographic areas. They reported that

> with few exceptions, CLCA parcels in all three areas are located away from development activity. . . . Much smaller average parcel size and acreage per owner for nonenrolled parcels were observed in each study area. . . . This result could be attributed to the greater development potential of these parcels, since parcel sizes were smaller closer to developing areas. (345–346)

Another study of note is Carman (1977), who offers a more comprehensive view of landowner participation in California's Williamson Act program. Carman concludes that

> the rate and level of acceptance of the [Williamson] Act is inversely related to the expected opportunity to convert agricultural land to urban uses at a profit. . . . [Surprisingly,] counties with the largest per-acre tax reductions tended, other things being equal, to have lower rates and levels of acceptance of use-value assessment. It is likely that landowners in those counties view nonagricultural development as offering significant opportunities for realizing capital gains. (285–286)

These studies give reason to question whether UVA programs actually enroll the intended lands.

Preservation of Small Family Farms

As noted in chapter 2, a goal of UVA advocates has always been to preserve the small family farm. Has UVA of agricultural land contributed to the survival of family farms during recent decades? This question has not been studied extensively, but the available evidence is weak, at best, as an argument in favor of UVA adoption and retention.

According to a survey of farmers reported by the Council on Environmental Quality (1976), a host of considerations enter into the decision of a farm owner to sell his property and leave the land. Although an individual farmer's decision is not the focus of UVA concerns, the aggregate effect of large numbers of farmers exiting agriculture is. The after-tax returns

Box 4

Case Study: Virginia's Approach to Implementing a UVA Program

Virginia provides preferential treatment of agricultural land, farmland, open space, forestland, and timberland through current-use valuation. Agricultural land is defined as "real estate devoted to the bona fide production of plants and animals useful to man" (Va. Code Ann. 58.1–3230). An agricultural parcel must be at least five acres to qualify for use-value assessment. The land is then valued on the basis of its productive earning ability, typically using an income capitalization approach. The Virginia procedure is well documented and prototypical, so this case is considered in detail.

The Virginia assessment procedure begins by developing a composite or typical farm for each jurisdiction, which may be a city or a county. Census of Agriculture data are the basis for delineating county summaries of the number of farms and acreage under production. For each crop produced, a total number of acres deployed for that purpose is developed. Dividing the total acreage devoted to each crop by the total number of farms in the county results in a ratio that is used to determine what crops will be included in the development of the composite farm. If the ratio is at least 1.00—indicating that on average at least one acre per farm is used to produce a particular crop—that crop is included in the construction of the composite farm.

For example, Bruce and Groover (2007) describe the composite farm for Prince Edward County. That county had 395 farms covering 1,430 acres in corn production. The ratio of land devoted to corn production per farm in the county yields 3.6202 (1,430/395), which is rounded up to the nearest integer: 4. Hence, corn production is included in the composite farm for Prince Edward County with 4 acres allocated to that crop. The Prince Edward County composite farm has a total of 39 acres, with the remaining 35 acres allocated to alfalfa, hay, wheat, and barley using similar computations.

The next step in developing the use-value assessment is to compute budgets for each crop grown on the composite farm. Virginia Farm Management crop budgets and input cost data are used to compute the annual net income per acre for each crop. Annual crop yields are determined and annual net income budgets are computed. The annual net income figures are then averaged using a seven-year Olympic moving average. The highest and lowest annual net income figures during the past seven years are omitted when computing the mean return. The Olympic averaging process used in Virginia also truncates the data at zero in case of negative returns.

To determine the productive capacity of the land, Virginia uses a detailed land classification scheme. Land in each class is assigned a Virginia Land Capability Class Index, with index values ranging from a low of 0.10 for Class VIII land to a high of 1.50 for Class I land. The reference class of land is Class III. Other classes of land are judged to be more or less productive by reference to Class III land.

Finally, the Virginia process calculates a single estimate of the net return for the crops grown on the county-specific composite farm by taking a weighted average of the crop net returns and the composite farm crop acreages. The outcome of that computation is called the estimated net return. That net income value is then capitalized.

The capitalization rate used in Virginia is the sum of an interest rate and property tax rate, with an additional risk factor included for lands with a risk of flooding.

For each use of land there might be an alternative with a greater market value. © *Alan Cressler/Creative Commons.*

from agricultural production certainly play a role and, hence, preferential assessment could affect the decisions of some farmers. However, the age of the owner and whether he plans to bequeath the farm to a relative or sell the property to fund his retirement are other considerations. Finally, a farmer on the metropolitan fringe might sell, not because of rising property taxes, but because of worsening traffic on rural roads, growing air pollution from urban sources, and neighbors' complaints about farm odors. One implication of this early survey is that detecting the impact of preferential assessment on the survival of small farmers requires a high degree of sophistication in the estimation process. The studies reviewed in Anderson and England (2014) indicate that the capacity of UVA programs to preserve family farms is limited.

A limited capacity of UVA programs to keep small farmers in operation would help to explain why farms in the United States are now frequently owned by families with higher levels of income and net worth. According to Park et al. (2011), "Median farm household income increased by 3.7 percent in 2010 to $54,162. . . . Bolstered by higher farm asset values, the balance sheet of farm households improved in 2010, with median net worth increasing by 6.5 percent to $576,745" (1). Policy makers need to ask whether or not wealthy taxpayers with high incomes deserve substantial tax breaks for owning rural land.

Preservation of Rural Landscapes

A question closely related to the preservation of small family farms is whether use-value assessment has actually helped to preserve rural land that generates environmental amenities and ecosystem services. Based on the review of studies in Anderson and

England (2014), there is mixed evidence on the effectiveness of UVA programs. Some UVA programs appear to have slowed the rate of land conversion from rural to developed uses. However, UVA programs cannot permanently prevent land development. At best, they postpone the dates when private landowners choose to develop their properties.

Shifts of the Property Tax Burden and Equity Issues

Empirical research shows that use-value assessment of rural land has slowed the rate of development of rural land in some states. But how expensive has this land conservation policy been for taxpayers, and who has borne this program cost?

In its 1976 report on preferential assessment of farms and open space, the president's Council on Environmental Quality candidly noted that these state programs result in tax expenditures of significant magnitude that redistribute income among taxpayers:

> All differential assessment laws . . . [entail] "tax expenditures," by means of which the tax bills of some taxpayers are reduced. . . . In most cases, the cost of this reduction is spread over all the other taxpayers. . . . The effect of a tax expenditure is precisely the same as if the taxpayers who receive the benefit were to pay taxes at the same rate as other, nonpreferred taxpayers, and then were to receive a simultaneous grant . . . in the amount of the tax benefit. . . . Tax expenditures for the federal government must be estimated in the annual budget. . . . [R]eal property tax systems are riddled with tax expenditures of significant [but hidden] magnitude. (1976, 6–8)

After surveying various studies of tax shifting and tax expenditures associated with UVA programs, what can one conclude about the equity of these programs? The answer depends on the normative principle of taxation that one accepts. If one believes that the total net worth of a taxpayer should be the object of taxation, then one might oppose sharp cuts in taxation on valuable holdings of rural land. On the other hand, if one accepts the benefit principle of taxation, then preferential assessment of rural land could be justified since "rural landowners may consume fewer [local] services per dollar value of land owned than residential or commercial landowners in the same taxing area" (Morris 1998, 145). However, whether rural landowners do indeed receive fewer services per dollar of land owned is an empirical question that has not been carefully studied.

UVA programs cannot permanently prevent land development. At best, they postpone the dates when private landowners choose to develop their properties.

Impacts of Use-Value Assessment on Property Tax Administration

There are a few studies suggesting that state adoption of UVA programs has had broader impacts on the property tax system as a whole. For example, Bowman and Mikesell (1988) found that the counties participating in Virginia's UVA program have lower coefficient of dispersion (COD) values. That is, there is greater assessment uniformity within property classifications in the presence of a formalized program of preferential assessment. Hence, the UVA program implicitly trades off a reduction in the mean rate of taxation for a reduction in the variance in assessments.

This chapter surveyed the existing empirical evidence on methods of implementing use-value assessment and its various impacts. State governments have adopted diverse methods to measure the use-value

Land use is shifting around the country, much like the encroachment of housing on this farm in Wisconsin. *© Alan Cressler/Creative Commons.*

of eligible rural properties. Changes in use-value measurement practices are recommended in the next chapter because in some cases the measurement techniques are not grounded in economic and assessment theory.

Evidence on the impacts of UVA programs leads to the following set of conclusions. First, enactment of UVA statutes has not halted a long-term decline in small-scale family farming in the United States, as some of its supporters had hoped. Second, there is some evidence that UVA programs have moderated, but not halted, the expansion of metropolitan regions into the countryside. Third, the capacity of UVA programs to delay development of rural land parcels may be temporary at best and can be expensive. Fourth, assessment of rural properties below market value entails a substantial loss of potential property tax revenue and sometimes results in a regressive shift of property tax burden to other properties that are not eligible for UVA enrollment.

CHAPTER 5

Recommendations

In 1957, Maryland instituted use-value assessment to protect farmland from development. *© Jeff Weese/Creative Commons.*

Elected officials, journalists, and economists have lodged numerous criticisms against the UVA approach to land conservation since its inception. This final chapter proposes several policy reforms to address these criticisms and improve the effectiveness and fairness of UVA programs. The focus of criticisms range from eligibility to estimation methods to penalty provisions.

Criticisms and Reforms

ENROLLMENT OF INAPPROPRIATE PROPERTIES IN UVA PROGRAMS

Enrollment of rural properties with development potential in UVA programs creates a significant loss of property tax revenue for local governments. This tax loss can be justified only if the UVA statute goals of curbing development are realized when rural properties are enrolled. In most states, the legislative intent underpinning UVA programs is to provide financial relief for professional farmers and to preserve arable land, open space, and forests from urban development. However, land given preferential tax treatment often does not satisfy the policy goals of a state UVA program, such as preserving prime agricultural land or open space. The problem of "fake farmers," whose land does not provide the social benefits required to justify substantial property tax reduction, requires strengthening the eligibility requirements.

The following recommendations will remedy the problems associated with the enrollment of inappropriate properties in UVA programs.

Reform 1.
Design eligibility rules to ensure that only parcels serving UVA statutory goals can participate.

- Avoid the problem of "fake farmers" by strengthening enrollment and reporting requirements.
- Require agricultural landowners to submit Schedules E and F from their federal income tax returns, reporting rental income or farm use of the land.
- Establish minimum acreage or net income requirements for agricultural land enrollment.
- Require landowners to annually document land use and report any changes in zoning, subdivision, or improvements to the property.

INACCURATE STATE METHODS OF UVA ESTIMATION

Estimates of use-value for rural land are often based on incorrect measurements and biases that increase the tax breaks provided by UVA. Many state statutes, administrative regulations, and guidelines for assessors permit or even mandate inaccurate measurement of the net income from owning rural land. The income measurements, averaging methods, and capitalization rates often bias assessments downward. The result is that use-value assessments are lowered and tax breaks are increased.

Proper application of UVA requires the net income of a property and the capitalization rate to be measured correctly, which factors in the comprehensive measurement of the true net income earned by the property, including all forms of income related to the agricultural use of the land. Additionally, accurate measurement of the opportunity cost of capital captured in the capitalization rate is essential for proper application of the program.

The following recommendations will ensure accurate estimates of use-value that are supported by economic theory.

Reform 2.
Ensure that state guidelines for assessors provide accurate UVA estimation methods.

- Base agricultural UVA computations on accurate estimates of net income (appropriate commodity prices and costs of production) and interest rates.
- Estimate use-value based on the actual current use of properties rather than on the earnings of a hypothetical prototype property.
- Factor in all forms of income related to a property's use (net income generated plus any crop insurance payments, agricultural subsidies, set-aside payments, and other forms of income).

- Use an appropriate discount rate to capitalize the income stream reflecting the opportunity cost of capital, plus the effective property tax rate.
  - Avoid inflated, arbitrary, or statutorily set capitalization rates that do not reflect the opportunity cost of capital.
  - Do not set capitalization rate floors or ceilings in statute.
  - Confirm that the time frame used for the capitalization rate matches the moving average used to measure the net income stream generated by the property.
  - Do not compute a moving average of net incomes by omitting only the highest annual value. If an Olympic average is used to measure the net income stream, make sure that both the high and low incomes are omitted.

INADEQUATE PENALTY PROVISIONS IN UVA STATUTES

Many states have failed to design their programs in ways that encourage owners of eligible rural parcels to postpone conversion of their land to urban uses. Except in a few states such as California, private landowners are free to develop their properties at any time if they are willing to make higher property tax payments when their land value assessments increase sharply. Some owners who have enrolled their undeveloped land in UVA programs will delay development only if they face a development penalty when their land no longer qualifies for use-value assessment (England and Mohr 2003; 2006). In the absence of a development penalty, most landowners will simply pocket the tax savings from UVA enrollment and develop their land just as soon as they would have done if UVA did not exist.

One way to strengthen the development penalty feature of a UVA program is to require the landowner to commit to a lengthy enrollment period when the parcel joins the program and receives a preferential tax assessment. In both California and Georgia, for example, landowners sign a contract or covenant at the time of enrollment promising to defer development for at least a decade.

The following recommendations provide incentives for land retention in UVA programs.

Reform 3.
Design penalty provisions for land removed from rural or agricultural use.

- Require a long-term contract for land enrolled in the UVA program, with penalty provisions for early withdrawal.
- Institute a development penalty.
  - Impose a fee on land removed from the UVA program.
  - Implement a lengthy payback requirement with interest.

INEQUITABLE BURDENS AND INDISCRIMINATE APPLICATION OF UVA PROGRAMS FOR SOCIETY AS A WHOLE

UVA provides tax benefits for a broad class of property owners in exchange for a small and often temporary land supply. Large tax expenditures are required to protect or retain a limited number of acres of land on the margin. The private benefits to UVA landowners are clear and significant, but the public benefits to society in general are minimal and very costly as the tax burden is shifted to other property owners. Reform of UVA can reduce the tax shift inequities and the inefficiencies of these programs.

Land taxation is very efficient compared to other forms of taxation, such as income, sales, and excise, and generates little or no distortion in the land market and the broader economy (Dye and England 2009). Hence, state and local governments that rely on the property tax should be reluctant to move away from land valuation based on market values. State and

local governments should resist calls to reduce property taxes on land and thereby implicitly raise other property taxes or other forms of taxation. Heimlich and Anderson (2001) estimate that the total tax expenditure attributable to UVA programs in 48 states totaled $1.07 billion in 1995. Taking the present value of this annual tax subsidy at a 4 percent discount rate, they find that its long-term value exceeds $26.7 billion. In the long run, however, even this massive subsidy cannot guarantee the permanent protection of a single acre of rural land.

State and local governments should resist calls to reduce property taxes on land and thereby implicitly raise other property taxes or other forms of taxation.

The best way to rationalize UVA programs is on the basis of documented ecological benefits to society, such as reduced negative externalities (flooding, runoff, erosion, and congestion) and enhanced public goods (open-space amenities and ecosystem services, which include the purification and storage of water, prevention of flood and erosion, maintenance of habitat for pollinators, preservation of genetic diversity, and moderation of local climate). Other methods of altering land use, such as conservation easements, public acquisition, and purchase of development rights programs, should be considered for the permanent protection of rural lands.

The fairest method to implement a property tax is to consider the current market values that reflect the highest and best use of the land. Market values in urbanized areas exceed agricultural use-values, but the difference between the two values diminishes with distance from the urban fringe. In predominantly agricultural or rural areas, the difference between market value and use-value is minimal. Therefore, policy makers should not adopt UVA in predominantly rural areas and expect a substantial reduction in property taxes for rural landowners. Governments should apply UVA judiciously to situations where it is likely to have the desired effects, not in a blanket fashion to broad classes of property. Competitive markets often do a good job of allocating labor, capital, energy, and land to their most productive uses. Interference with market allocations comes at a cost in equity and efficiency.

The following recommendations will make UVA programs more rational and beneficial.

Reform 4.
Restructure UVA programs to reduce tax inequities and provide valuable benefits to society as a whole.

- Minimize the tax burden shift associated with UVA and improve the fairness and efficiency of the programs.
- Reorient programs to reduce negative externalities and provide public goods associated with rural land.
- Base tax preferences on the value of ecosystem services provided by land parcels, rather than on the simple fact that the land is rural or agricultural.
- Limit tax preferences to only critical rural land that generates significant public goods and services.

• • •

In the final analysis, we need to balance the urban and rural uses of our land. Much of the rural landscape must be preserved because of its high ecological value. Other portions of our landscape, however, need to be available for the construction of affordable housing, commercial properties, public buildings, and industrial facilities. In some cases, UVA can help to preserve undeveloped land temporarily until permanent protections are put in place. However, there is

no reason to provide property tax breaks for owners of rural properties that await development, or for rural land that will never be built upon because it is not desirable for development.

UVA undermines the integrity of the property tax system as it violates the uniformity principle of taxation and redistributes the tax burden from rural landowners to others. By moving away from market values as the basis of taxation, UVA programs create inequities in tax burdens. They also create inefficiencies in land markets as they alter land development decisions, if only temporarily. As a consequence, UVA also undercuts the foundation of financing for local public goods and services. Eligibility requirements are often lax, withdrawal penalties are mild or nonexistent, and assessment methods are subject to biased manipulation. UVA programs are not fulfilling their originally intended purposes. Fair and equitable reforms can be implemented by reconsidering the fundamental basis of use-value assessment programs and reorienting the programs to provide socially valuable services, not merely private benefits in the form lower taxes.

References and Legal Citations

Alig, Ralph J., Andrew J. Pantinga, SoEun Ahn, and Jeffrey D. Kline. 2003. *Land Use Changes Involving Forestry in the United States: 1952 to 1997, with Projections to 2050*. General Technical Report PNW-GTR-587. Portland, OR: U.S. Forest Service, Pacific Northwest Research Station.

Anderson, John E. 1986. "Property Taxes and the Timing of Urban Land Development." *Regional Science and Urban Economics* 16(4) (December): 483–492.

——. 1993. "Use-Value Property Tax Assessment: Effects on Land Development." *Land Economics* 69(3) (August): 263–269.

——. 2005. "Taxes and Fees as Forms of Land Use Regulation." *Journal of Real Estate Finance and Economics* 31(4): 413–427.

——. 2012. "Agricultural Use-Value Property Tax Assessment: Estimation and Policy Issues." *Public Budgeting & Finance* 32(4): 71–94.

Anderson, John E., and Howard C. Bunch. 1989. "Agricultural Property Tax Relief: Tax Credits, Tax Rates, and Land Values." *Land Economics* 65(1) (February): 13–22.

Anderson, John E., and Richard W. England. 2014. *Use-Value Assessment of Rural Land in the United States*. Cambridge, MA: Lincoln Institute of Land Policy.

Anderson, John E., and Marlon F. Griffing. 2000a. "Measuring Use-Value Assessment Tax Expenditures." *Assessment Journal* (January/February): 35–47.

——. 2000b. "Use-Value Assessment Tax Expenditures in Urban Areas." *Journal of Urban Economics* 48(3) (November): 443–452.

Anderson, John E., Seth H. Giertz, and Shafiun N. Shimul. 2015. "Use-Value Assessment in Property Taxation: Policy Diffusion across the United States." Working paper. Mercatus Center, George Mason University.

Barnett, Jeffrey L., and Phillip M. Vidal. 2013. "State and Local Government Finances Summary: 2011." Governments Division Briefs. Washington, DC: United States Census Bureau.

Barlowe, Raleigh. 1978. *Land Resource Economics.* 3rd ed. Englewood Cliffs, NJ: Prentice Hall.

Berry, David, and Thomas Plaut. 1978. "Retaining Agricultural Activities under Urban Pressure: A Review of Land Use Conflicts and Policies." *Policy Sciences* 9(2) (April): 153–178.

Blase, Melvin G., and William J. Staub. 1971. "Real Property Taxes in the Rural-Urban Fringe." *Land Economics* 47(2) (May): 168–174.

Bowman, John H., Daphne A. Kenyon, Adam Langley, and Bethany P. Paquin. 2009. *Property Tax Circuit Breakers: Fair and Cost-Effective Relief for Taxpayers*. Policy focus report. Cambridge, MA: Lincoln Institute of Land Policy.

Bowman, John H., Joseph Cordes, and Lori Metcalf. 2009. "Preferential Tax Treatment of Property Used for Social Purposes: Fiscal Impacts and Public Policy Implications." In *Erosion of the Property Tax Base: Trends, Causes, and Consequences*, ed. Nancy Y. Augustine, Michael E. Bell, David Brunori, and Joan M. Youngman, 269–294. Cambridge, MA: Lincoln Institute of Land Policy.

Bowman, John H., and John L. Mikesell. 1988. "Uniform Assessment of Agricultural Property for Taxation: Improvements from System Reform." *Land Economics* 64(1) (February): 28–36.

Brigham, John. 1980. "The Politics of Tax Preference." In *Property Tax Preferences for Agricultural Land*, ed. Neal A. Roberts and H. James Brown. Montclair, NJ: Allanheld, Osmun, and Co.

Bruce, Franklin A., and Gordon E. Groover. 2007. "Methods and Procedures: Determining the Use Value of Agricultural and Horticultural Land in Virginia." Blacksburg, VA: Virginia Cooperative Extension Service, Virginia Tech University.

Bunnell, Gene. 1996. "Implementing Use-Value Assessment—A Simple Idea Becomes Complicated." *Perspectives on Planning* 2(2): 1–4. Madison, WI: Department of Urban and Regional Planning, University of Wisconsin–Madison/Extension.

California Department of Conservation. *2010 Williamson Act Status Report.*

Carman, Hoy F. 1977. "California Landowners' Adoption of a Use-Value Assessment Program." *Land Economics* 53(3) (August): 275–287.

Chicoine, David L., and A. Donald Hendricks. 1985. "Evidence on Farm Use Value Assessment, Tax Shifts, and State School Aid." *American Journal of Agricultural Economics* 67(2) (May): 266–270.

Coe, Richard D. 2009. "The Legal Framework in the United States." In *Land Value Taxation: Theory, Evidence, and Practice*, ed. Richard F. Dye and Richard W. England. Cambridge, MA: Lincoln Institute of Land Policy.

Combs, Susan. 2013. *Tax Exemptions & Tax Incidence: A Report to the Governor and the 83rd Texas Legislature*. Texas Comptroller of Public Accounts. *www.window.state.tx.us/taxinfoincidence/incidence13/96-463_Tax_Incidence 2013.pdf.*

Council on Environmental Quality. 1976. *Untaxing Open Space: An Evaluation of the Effectiveness of Differential Assessment of Farms and Open Space*. Washington, DC: U.S. Government Printing Office.

Dye, Richard F. and Richard W. England. 2009. *Land Value Taxation: Theory, Evidence, and Practice*. Cambridge, MA: Lincoln Institute of Land Policy.

England, Richard W. 2002. "Current-Use Property Assessment and Land Development: A Theoretical and Empirical Review of Development Penalties." Working paper. Cambridge, MA: Lincoln Institute of Land Policy.

——. 2012. "Reconsidering Preferential Assessment of Rural Land." *Land Lines* (April): 2012: 2–7.

England, Richard W., and Robert D. Mohr. 2003. "Land Development and Current Use Assessment: A Theoretical Note." *Agricultural and Resource Economics Review* 32(1) (April): 46–52.

——. 2006. "Land Development and Current Use Assessment." In *Economics and Contemporary Land Use Policy: Development and Conservation at the Rural-Urban Fringe*, ed. S. K. Swallow and R. J. Johnston. Washington, DC: Resources for the Future Press.

Forstall, Richard L. 1995. *Maryland: Population of Counties by Decennial Census: 1900 to 1990. http://www.census.gov/population/cencounts/md190090.txt.*

Gardner, B. Delworth. 1977. "The Economics of Agricultural Land Preservation." *American Journal of Agricultural Economics* 59(5) (December): 1027–1036.

Gloudemans, Robert J. 1974. *Use-Value Farmland Assessments: Theory, Practice, and Impact*. Chicago, IL: International Association of Assessing Officers.

Hansen, David E., and S. I. Schwartz. 1975. "Landowner Behavior at the Rural-Urban Fringe in Response to Preferential Property Taxation." *Land Economics* 51(4) (November): 341–354.

——. 1977. "Income Distributional Effects of the California Land Conservation Act." *American Journal of Agricultural Economics* 59(2) (May): 294–301.

Heimlich, Ralph E., and William D. Anderson. 2001. *Development at the Urban Fringe and Beyond: Impacts on Agriculture and Rural Land.* Agricultural Economic Report No. 803. USDA Economic Research Service.

International Association of Assessing Officers. 2008. *Standard on Mass Appraisal of Real Property.* Kansas City, MO.

Ladd, Helen F. 1980. "The Considerations Underlying Preferential Tax Treatment of Open Space and Agricultural Land." In *Property Tax Preferences for Agricultural Land*, ed. Neal A. Roberts and H. James Brown. Montclair, NJ: Allanheld, Osmun and Co.

Mark, Shelley M., Hiroshi Yamauchi, and Glenn M. Okimoto. 1982. "Differential Assessment and State Land Use Controls in Hawaii." *Annals of Regional Science* 16(3) (November): 95–100.

Morris, Adele C. 1998. "Property Tax Treatment of Farmland: Does Tax Relief Delay Land Development?" In *Local Government Tax and Land Use Policies in the United States*, ed. Helen F. Ladd. Cheltenham, UK: Edward Elgar.

Natural Resources Conservation Service, U.S. Department of Agriculture. 2013. *2007 National Resources Inventory: Land Use Status and Trends.* Washington, DC: U.S. Department of Agriculture.

New Hampshire Department of Revenue Administration. *2010 Current Use Report.*

Ohio Department of Taxation. 2009. *Taxable Current Agricultural Use Value of Real Property, Taxable Value of Real Property before CAUV, and Number of CAUV Acres and Parcels by County, Calendar Year.*

Park, Timothy, Mary Ahearn, Theodore Covey, Ken Erickson, Michael Harris, Jennifer Ifft, Christoper McGath, Mitch Morehart, Stephen Vogel, Jeremy G. Weber, and Robert Williams. 2011. *Agricultural Income and Finance Outlook, 2011 Edition.* Outlook No. AIS-91. USDA Economic Research Service.

Schwartz, S. I., D. E. Hansen, and T. C. Foin. 1975. "Preferential Taxation and the Control of Urban Sprawl: An Analysis of the California Land Conservation Act." *Journal of Environmental Economics and Management* 2(2): 120–134.

Skouras, A. 1978. "The Non-Neutrality of Land Taxation." *Public Finance* 33(1–2): 113–134.

Tideman, T. Nicholas. 1982. "A Tax on Land Is Neutral." *National Tax Journal* 35(1): 109–111.

United Press. 1957. "Levitt to Build on Bel Air Farm." *New York Times*, August 28, 1957.

U.S. Census Bureau. 2011. *2011 Population Estimates, County Totals. https://www.census.gov/popest/data/historical/2010s/vintage_2011/county.html.*

——. 2015. 2013 *State and Local Government Finance*. *http://www.census.gov/govs/local.*

U.S. Department of Agriculture. 2007. *Census of Agriculture* (1)1: State Level Data.

U.S. Department of Agriculture and President's Council on Environmental Quality. 1981. *Executive Summary of Final Report/National Agricultural Lands Study.* Washington, DC: U.S. Government Printing Office.

U. S. Environmental Protection Agency. 2014. *Final Ecosystem Goods and Services Classification System Report. http://www.epa.gov/nheerl/articles/2014/ecosystem_report.html.*

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Use-Value Assessment of Rural Lands

Time for Reform?

Use-value assessment (UVA) is the practice of valuing rural land according to its current use rather than its market value to reduce property taxes for rural land owners in the United States. This tax preference amounts to tens of billions of dollars annually.

Originally created to slow the loss of farms, ranches, and forestland caused by urbanization, the reality is that UVA is a blunt policy instrument that provides tax benefits to all eligible landowners, with very little impact on the number of acres being developed. UVA undermines the integrity of the property tax system as a mechanism to fund local public goods and services. Eligibility requirements are often lax, withdrawal penalties are mild or nonexistent, and assessment methods are subject to biased manipulation. Fundamentally, UVA programs are not fulfilling their intended purposes.

This report describes the history and design features of state UVA programs, explains the theoretical underpinnings of land valuation, and surveys empirical studies of UVA implementation and impacts.

It also identifies the weaknesses of UVA programs and proposes the following set of policy reforms to make the programs more effective and fair:

- **Design eligibility rules to ensure that only parcels serving UVA statutory goals can participate.**
- **Adopt state guidelines for assessors that provide accurate UVA estimation methods.**
- **Create appropriate penalty provisions for land removed from rural or agricultural use.**
- **Restructure UVA programs to reduce tax inequities and provide valuable benefits to society as a whole.**

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