How Use-Value Assessment Affects Real Property Tax Rates and Liabilities in Virginia

By Edward Van Eenoo and R. David Lamie

Abstract

Use-value assessment of certain classifications of land is a common source of property tax relief for real property owners. When the difference between use-value and fair market assessment is large, localities with use-value ordinances may lose a significant portion of their real property tax base. In order to maintain sufficient revenues these localities often find it necessary to increase their real property tax rates. This paper analyzes the impact of use-value assessment on real property tax rates and liabilities for the 65 Virginia counties that have adopted use-value ordinances.

I. Introduction

Laws allowing agricultural, horticultural, forest, and/or open space land to be assessed for the purposes of taxation at the land's value in use (use value) as opposed to its fair market value[1] have become ubiquitous across the United States. Every state, with the exception of Michigan, has adopted some type of use-value assessment program (Sindt).[2] In most states, the use value of qualified land is approximated by the capitalization of either net incomes or cash rents. This procedure often results in a use value that is much lower than fair market value, in which case owners of qualified land enrolled in a use-value assessment program receive substantial tax reductions.

Supporters of use-value assessment believe that this tax relief is needed to slow sprawl development and to encourage a balanced local economy. Furthermore, they argue that use-value assessment increases tax equity since eligible land generally requires fewer public services such as police and fire protection.[3] However, the use-value assessment of qualified land can significantly decrease a participating locality's real property tax base, causing a need for increased real property tax rates (and potentially other tax rates) in order for localities to maintain their existing levels of tax revenues and services.[4] This, in conjunction with the fact that most research has found use-value assessment ineffective at slowing the conversion of qualified land to more intensive uses, helps explain why owners of non-qualified land often criticize use-value assessment programs (Dunford).

Edward Van Eenoo is a Principal Analyst with the Office of Budget and Analysis, Chula Vista, California. His M.S. degree is in Applied Economics from Virginia Tech. He served as principal investigator for Virginia's Use-Value Assessment program from 1997 - 2000. Current work includes fiscal impact modeling of new development and indirect cost allocation within local government. Email: eeenoo@ci.chula-vista.ca.us.

David Lamie received a Ph.D. in Agricultural Economics from Clemson University and is currently an Assistant Professor in the Department of Agricultural and Applied Economics at Virginia Tech.

In Section II, it is shown that the size of the increase in the real property tax rate required to maintain revenue neutrality under use-value assessment is dependent upon the specific provisions of the use-value program, sources of local revenues other than real property, and various non-local revenue sources. It is argued that the inability to significantly adjust the level of these alternative revenue sources makes it difficult for local governments to find an appropriate balance between tax relief for owners of eligible land and increases in the real property tax rate. This is especially true in localities that have few revenue options available to them beyond real property taxes.

In Section III, the increase in the 1996 real property tax rate required to make use-value assessment revenue neutral is estimated for the 65 Virginia counties that have adopted use-value ordinances. It is shown that the estimated increases in real property tax rates required to make use-value assessment revenue neutral in these counties vary from below 1 percent to nearly 50 percent. Since the level of support for use-value assessment is likely correlated with the size of the real property tax rate increase, it is important for local governing bodies to understand the determinants and implications of the rate increase prior to adopting new use-value ordinances and in their efforts to uphold existing ordinances.

A large increase in the real property tax rate due to use-value assessment can affect the equity of the local tax system in two ways; both of which detract from the intended purposes of the policy. First, owners of non-qualified land will face a larger real property tax burden. If this shift in tax burden is large enough, it may undermine the political viability of the program. How large this shift would have to be to instigate a rescission of the use-value program is a reflection of the perceived value of the public benefits of preserving land in non-intensive uses and the perceived effectiveness of use-value taxation to preserve land in such uses.

Second, the net tax benefits realized by owners of qualified land are somewhat (and often times substantially) mitigated by an increase in the real property tax rate, which may undermine the stated program objectives of preserving qualified land and slowing sprawl development. This occurs largely because use-value assessment in Virginia does not extend to capital improvements made to the land. Instead, capital improvements are generally assessed at their fair market value. Therefore, when real property tax rates increase substantially, the possibility exists that owners of qualified land with significant capital improvements may actually face a higher total tax bill following the adoption of use-value assessment. At the very least, the combination of an increased tax rate and variations in the value of capital improvements made to qualified land parcels will lead to variations in the distribution of benefits across owners of land enrolled in use-value assessment.

In Section IV, the relative change in real property tax burdens for owners of qualified (and participating) land is analyzed for two Virginia counties with divergent demographic characteristics. It is shown that relative tax reductions vary dramatically among owners of qualified land with the largest percentage reductions going to qualified land parcels with the fewest capital improvements.

II. The Effect of Use-Value Assessment on the Real Property Tax Rate

The amount of total tax revenue *(TR)* collected in a locality can be expressed as a function of the locality's real property tax base at market value assessment *(B)* and real property tax rate *(τ)*, revenue collected from other local sources *(L)*, revenue received from state sources *(S)*, and revenue received from federal sources *(F)*. Mathematically, the total tax revenue collected under fair market assessment is given by

$$TR^f = \tau B + L^f + S^f + F^f \qquad (1.1)$$

where the superscript *f* refers to the fair market assessment of all property.

The equation for calculating total tax revenues collected under use-value assessment is complicated by several factors. First, under use-value assessment, the locality's real property tax base is implicitly reduced. Let *D* represent this reduction in real property tax base. Second, localities often collect a penalty tax *(P)* when previously participating land parcels are developed.[5] Third, the level of revenue received from other local, state, and federal sources may change with changes in the real property tax base. For instance, states could choose to compensate localities for lost tax revenues due to use value assessment. Finally, when adjustments in *L*, *S*, *F*, and *P* are insufficient to offset lost tax revenue, the adoption of use-value assessment requires that a locality increase its real property tax rate to maintain a constant level of services. Let $\alpha \geq 1$ represent the increase in the real property tax rate required to maintain a constant level of services. The total property tax revenue collected with use-value assessment in place can then be expressed as

$$TR^u = \alpha\tau (B - D) + P + L^u + S^u + F^u \qquad (1.2)$$

where the superscript u refers to the use-value assessment of qualified land and fair market assessment of non-qualified property.

From the local government perspective, it is usually desirable for revenues under fair market assessment to equal revenues under use-value assessment so that sufficient revenue is available to maintain a constant level of services under either method of assessment.[6] Setting equation (1.1) and (1.2) equal and simplifying implies that α can be expressed as

$$\alpha = \frac{\tau B - P + L^{*} + S^{*} + F^{*}}{\tau (B - D)} \qquad (1.3)$$

where $L^* = Lf - Lu$, $S^* = Sf - Su$, and $F^* = Ff - Fu$. The increase in the real property tax rate required to maintain revenue neutrality under use-value assessment is a function of the real property tax rate under fair market assessment, the real property tax base under fair market assessment, the portion of the real property assessed value deferred under use-value assessment, the penalties collected from land removed from use-value assessment, and the difference between other sources of revenue under fair market and use-value assessments *(L*, S*, and F*).*

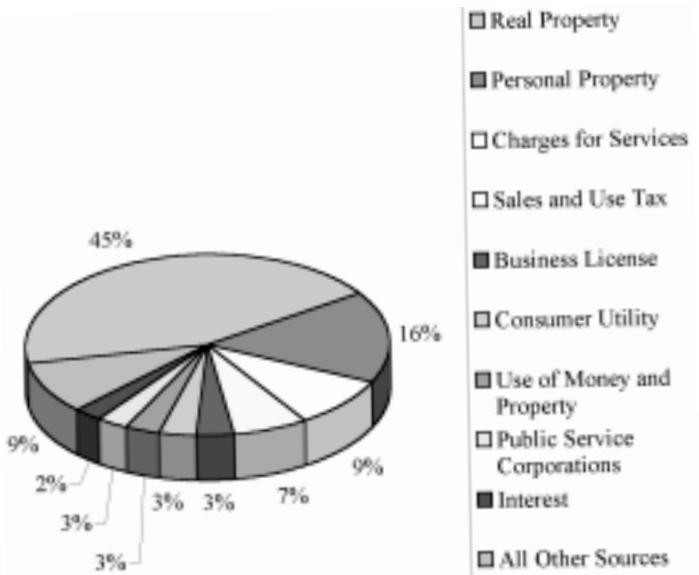
Of interest to localities contemplating the adoption of use-value assessment is the amount each of these factors can be adjusted to minimize the increase in real property tax rates required to make the adoption of use-value assessment revenue neutral. The real property tax base and tax rate under fair market assessment are historical artifacts of the decision to adopt use-value taxation. Therefore, localities wishing to reduce the level of the real property tax rate increase required to make use-value assessment revenue neutral have a restricted set of choices determined by the conclusions drawn from (1.3).

a) An increase (decrease) in the deferment level *(D)*, *ceteris paribus*, will result in a higher (lower) real property tax rate increase,
b) An increase (decrease) in the level of penalties collected *(P)*, *ceteris paribus*, will result in a lower (higher) real property tax rate increase, and
c) An increase (decrease) in the difference between other sources of revenue under fair market and use-value assessments *(L*, S*, or F*)*, *ceteris paribus*, will result in a higher (lower) real property tax rate increase.

As one might expect, reductions in the real property tax base, fewer penalty collections, and fewer alternative revenue sources result in higher real property tax rates under use-value assessment. But how much control can localities exercise over these factors in order to find an appropriate balance between tax relief for owners of eligible land and increases in real property tax rates?

In Virginia, other significant sources of locally generated revenue come from taxes on personal property, public service corporations, and machinery and tools as well as local sales taxes, consumer utility

Figure 1. Aggregate Sources of Local Government Revenues in Virginia.



Source: Comparative Report of Local Government Revenues and Expenditures, Year Ended June 30. 1996.

taxes, and motor vehicle taxes.[7] Although real property tax revenues represent the single largest source of revenue, the sum of the other revenue sources is substantial. Real property tax revenues represent 45 percent of total locally generated revenues followed by personal property tax revenues (16 percent), charges for services (9 percent), and local sales and use tax revenues (7 percent) (Figure 1). Since these non-real-property sources of revenue combined represent 55 percent of total locally generated revenues, they hold potential to offset the tax revenues lost upon adoption of use-value assessment. However, the consequences of drawing on these revenue sources are similar to consequences arising from increasing the real property tax rate. Owners of qualified land will receive tax benefits in the form of lower real property taxes while all other constituents will bear this burden. Therefore, it was assumed that localities would not increase other sources of local revenue to offset those revenues lost to use-value assessment implying that $L^* = 0$.

The influence that use-value assessment has on the level of state aid received by participating localities varies by state. States may choose to compensate localities for revenue lost due to the adoption of use-value assessment. Such state transfers can help correct positive externalities arising from the use-value assessment of qualified land parcels (e,g, cleaner water supplies, wildlife habitat). Although no direct provision exists in Virginia for the state to compensate localities for revenues lost under use-value assessment, use-value assessment indirectly increase state aid to localities. The statewide school-aid formula provides greater state support as a locality's property tax base decreases relative to the state property tax base (McDowell, Elias, and Driscoll). However, it is unlikely this additional revenue would significantly offset the revenue lost due to use value assessment because revenues from real property taxes are much larger that revenues from state school aid. For simplicity, it was assumed that the level of state aid does not change upon the adoption of use-value assessment (i.e., $S^* = 0$). An even stronger case can be made for assuming that federal sources of funds are unaffected by a locality's adoption of use value taxation (*thus*, $F^* = 0$).

The amount of assessed real property value deferred under use-value assessment and the level of penalties collected on land removed from use-value assessment can be adjusted depending upon the specific provisions of the state's enabling legislation and how a locality chooses to administer the program locally. The *Code of Virginia* limits the penalty for withdrawing a land parcel from use-value assessment to the deferred taxes from the past five years plus interest. Property taxes that have been deferred for more than 5-years are essentially forgiven and represent a tax subsidy to owners of qualified land. In Virginia, the actual amount of penalties and interest collected on land removed from use-value assessment is generally quite low. Data reported in the *1996 Comparative Report of Local Government Revenues and Expenditures* indicated that total penalty and interest payments collected on land removed from use-value assessment represented less than 1 percent of overall local county revenues. Thus, it was assumed that $P = 0$.

Localities in Virginia are given considerable flexibility in determining the assessed use value of parcels of qualified land and can therefore influence the size of the tax deferment. Virginia has established the State Land Evaluation and Advisory Committee (SLEAC) to advise localities on the assessed values of qualified land tracts. However, localities are not required to use the SLEAC estimates *directly*. They may, at their discretion, adjust the values recommended by the SLEAC based upon their knowledge of local conditions. A locality wishing to reduce the property tax rate increase required to make use-value assessment revenue neutral may choose to increase the assessed use value of participating land. However, many localities are under substantial political pressures from farm groups to keep the use-value assessments of qualified lands low. Thus, the ability of localities to affect the property tax rate through adjustments in use value assessment levels is a product of the local political economy.

Current use-value legislation and local conditions in Virginia leave little room for localities to control the increase in their real property tax rate required to make use-value assessment revenue neutral. The only alternative to increasing real property tax rates is to reduce services. The maintained hypothesis in this analysis is that localities choose to maintain public services at fair market value assessment levels by increasing real property tax rates to compensate for revenues lost upon implementation of use-value assessment.

III. Inter-Regional Inequities Caused by Use-Value Assessment

For the reasons stated above, it was assumed that $P = L^* = S^* = F^* = 0$. Under these assumptions, (1.3) reduces to

$$\alpha = \frac{B}{(B - D)} \quad . \qquad (1.4)$$

If actual penalty collections are positive and actual revenues from local, state, and federal sources decrease under use-value assessment then (1.4) represents an upper bound on the true real property tax rate required to make use-value assessment revenue neutral. If actual penalty collections are negligible and actual revenues

from local, state, and federal sources are greater under use-value assessment, then (1.4) represents a lower bound on the true real property tax rate required to make use-value assessment revenue neutral. Given these caveats, the expected change in real property tax rates required to make use-value assessment revenue neutral is a function of two variables:

a) The size of a locality's real property tax base under fair market assessment (B), and
b) The amount of a locality's real property tax base deferred under use-value assessment (D).

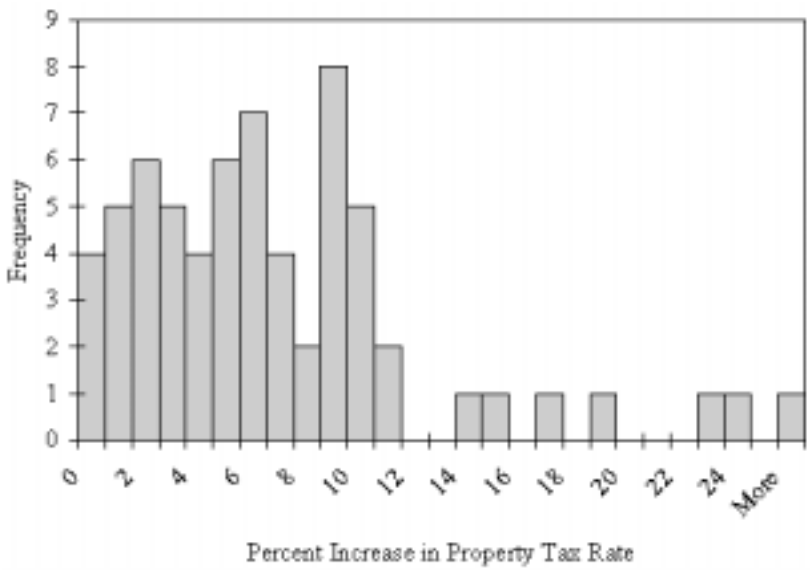
When a locality has a very large real property tax base relative to the total value deferred, then α will be near one, implying that the percentage increase in the property tax rate necessary to maintain revenue neutrality under use-value assessment is near zero. This situation generally arises under two different sets of circumstances. First, when qualified (and participating) land represents a small portion of the total real property tax base (i.e., in a highly developed urban county). Second, when the difference between the fair market assessment and use-value assessment of qualified land is very small (i.e. in rural counties with little development potential). In either of these situations, the increase in the real property tax rate due to use-value assessment is expected to be quite small.

As the size of a locality's real property tax base decreases relative to the total value deferred, the increase in the real property tax rate becomes larger. This leads to large real property tax rate increases in localities with relatively small real property tax bases and large differences between fair market value and use-value assessment of qualified land, a situation common among rural localities near urban areas. The size of the real property tax rate increase needed to maintain revenue neutrality under use-value assessment is of particular interest to owners of non-qualified land, local governments, and to a lesser extent, owners of qualified land.

The Virginia Department of Taxation collects data on the real property tax bases and the portion that is deferred under use-value assessment for counties participating in use-value assessment. These data were used to calculate the estimated percentage change in the real property tax rate required to make use-value assessment revenue neutral. A frequency distribution for these data is shown in Figure 2. The percentage increase in the 1996 real property tax rates required to maintain revenue neutrality ranged from 0.11 percent in Fairfax County (a highly developed urban county) to 48.2 percent in Rappahannock County (a mostly rural county located near highly urbanized areas). The median increase was 6.52 percent.

The frequency distribution (figure 2) shows that the increase in real property tax rates required to make use-value assessment revenue neutral varies dramatically across localities. Of particular interest are the three counties on the far right where the required property tax rate increase is very high. These are Fauquier, Clarke, and Rappahannock, which required real

Figure 2. Distribution of Estimated Real Property Tax Rate Increases Under Use-Value Assessment.



Source: Virginia Department of Taxation Annual Report, Fiscal Year 1997.

property tax rate increases of 23, 24, and 48 percent, respectively. These largely rural counties are all located near the Washington D.C. metropolitan area (see Figure 3). Predominantly rural counties facing significant development pressures from neighboring or nearby urban counties can experience a substantial decline in their real property tax base under use-value assessment. This situation should not be surprising since a large portion of their land qualifies for use-value assessment and the difference between the use value and market value assessments of qualified land is relatively large. Notice that Fairfax County, located in close proximity to these three more rural counties, has the smallest real property tax rate increase (0.11 percent). Again, this should not be surprising as there are very few qualifying parcels in this highly urbanized county and, consequently, the amount of tax base deferred by use value taxation is relatively small in comparison to the total tax base

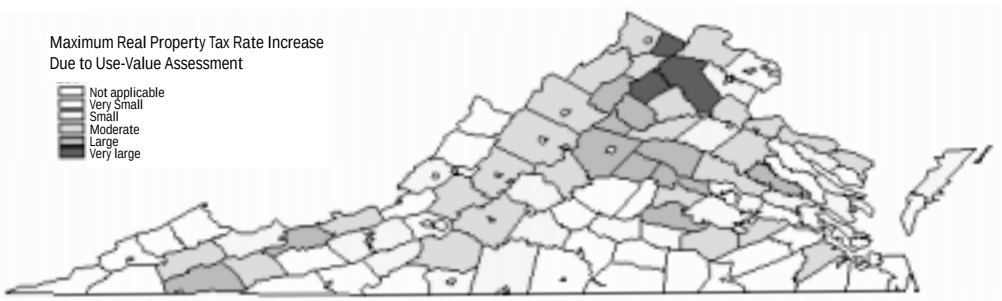
The analysis indicated that the real property tax base of Fairfax is roughly 92 times that of Rappahannock while the portion of the real property tax base deferred in Fairfax is slightly less than one-third of that deferred in Rappahannock.[8] *Given the large inter-county differences in the tax rate increases required to make use-value assessment revenue neutral, a more equitable arrangement might be possible. If the residents of Fairfax derive benefits from the Rappahannock land preserved from development under use-value assessment, perhaps they should bear some of the costs associated with the Rappahannock use-value program.*

The percentage change in real property tax rates required to make use-value assessment revenue neutral in other regions of the state are quite consistent with expectations. Most urban counties with large real property tax bases such as Prince William, Chesterfield, and Henrico required relatively minor changes in their real property tax rates (2.17, 0.99, and 0.5 percent respectively). One exception is Loudon County, a rapidly developing county adjacent to Fairfax County that required a 7.85 percent increase in its real property tax rate. This anomaly is easily explained by the fact that, although Loudon has a large real property tax base, it is less than 15 percent that of Fairfax while the amount being deferred under use-value assessment is roughly equal to that of Fairfax.

The majority of rural counties located in close proximity to densely populated urban areas were estimated to require relatively large increases in their real property tax rates. For instance, Page, Madison, and Goochland counties required real property tax rate increases of 14.58, 19.55, and 11.45 percent, respectively. With few exceptions, rural counties that are not being affected by development pressures from neighboring urban counties required relatively low real property tax rate increases. Some exceptions include Bland, Washington, and Russell counties at 17.1, 10.9, and 9.2 percent respectively.

What should be learned from this analysis is that the estimated increase in real property tax rates required to make use-value assessment revenue neutral varies dramatically between localities and is primarily determined by the size of a locality's real property tax base, the value of land that qualifies for use-value assessment, and the difference between the use value and the market value of qualified land. Furthermore, it must be recognized that the benefits (e.g. cleaner water sources, more wildlife habitat) arising from land preserved under use-value assessment likely accrue to both residents and non-residents of the county in which the land is located. Given this, it seems sensible to likewise distribute the costs of preserving land under use-value assessment across a larger region than an individual locality. Since benefits such as clean water are public goods, this redistribution of costs can likely only be accomplished at the state or multi-government level via some type of revenue transfer or cost-sharing arrangement.

Figure 3. Estimated Increase in the Real Property Tax Rate due to Use-Value Assessment.



Source: Virginia Department of Taxation Annual Report, Fiscal Year 1997.

IV. Intra-Regional Inequities Caused by Use-Value Assessment

In the previous section, it was shown that maintaining revenue neutrality under use-value assessment often requires an increase in the real-property tax rate and the magnitude of this increase varies across localities. Increases in the real property tax rate imply an increase in the costs borne by non-participating taxpayers. But, owners of qualified land also pay higher property tax rates on their land assessed at use value as well as on all other taxable real property that they own. How the benefits of use-value assessment are distributed among individual owners of qualified land within a locality varies according to their real property holdings. In this section the effect of increased real property tax rates on real property tax burdens for individual owners of qualified land is examined for two counties with very different demographic characteristics.

Fairfax County, located adjacent to Washington, D.C. in the highly populated, extreme northeastern corner of the state, is Virginia's most densely populated and highly developed county. The 1996 real property tax base of Fairfax was approximately 71 billion dollars and approximately 80 million dollars of that was deferred under use-value assessment. Montgomery County is a relatively rural community located in the southwest portion of the state. Montgomery's 1996 real property tax base was approximately 2.2 billion dollars with approximately 47 million dollars deferred under use-value assessment.

Data from Montgomery County and Fairfax County Commissioners of Revenue were acquired to analyze how the tax reductions realized under use-value assessment were distributed across individual owners of qualified land. The ratio of real property tax paid under use-value assessment *(UVT)* to the amount that would have been paid under fair market value assessment *(MVT)* was derived for each individual, providing a measure of the relative tax benefits accrued by owners of qualified land. Let b equal the fair market value of the participating land parcel and d equal the portion of b deferred under use-value assessment. Then MVT and UVT can be expressed as

$$MVT = \tau b \tag{1.5}$$

$$UVT = \alpha\tau(b - d) \tag{1.6}$$

where, as previously, τ is the real property tax rate under fair market value assessment and α represents the increase in the real property tax rate required to make use-value assessment revenue neutral. The ratio of UVT to MVT (λ) is given by

$$\lambda = UVT : MVT = \frac{\alpha(b-d)}{b} \tag{1.7}$$

Consider a property with a $100,000 fair market value assessment *(b)* and a $60,000 use-value assessment *(b - d)*. If there were no change in the real property tax rate following the adoption of use-value assessment (i.e. $\alpha = 1$) then λ = *$60,000 / $100,000 = 0.6 = UVT:MVT.* The real property tax paid on this parcel under use-value assessment would be only 60 percent of that paid under fair market value assessment. However, in Montgomery County, the increase in the real property tax rate required to make use-value assessment revenue neutral $(\alpha = 1.0218)$ slightly diminishes the benefits received by this landowner. The real property tax paid in Montgomery County for this parcel would be 61.3 percent $(\lambda = 1.0218 * 0.6 = 0.613)$ of that paid under market value assessment . In Rappahannock

Table 1. The Ten Lowest Use-Value Tax Burden (UVT) to Market Value Tax Burden (MVT) Ratios in Montgomery County.

Market Improved Value	Market Total Valu (TV)	IV:TV	UVT:MVT
0	123,400	0	0.06
0	251,800	0	0.06
0	152,500	0	0.08
0	76,400	0	0.09
0	100,800	0	0.1
0	61,800	0	0.12
300	599,000	0	0.13
0	75,200	0	0.13
0	116,800	0	0.14
500	120,900	0	0.15

Source: 1996 Montgomery County Land Book.

Table 2. The Ten Highest Use-Value Tax Burden (UVT) to Market Value Tax Burden (MVT) Ratios in Montgomery County.

Market Improved Value	Market Total Value (TV ($)	IV:TV	UVT:MVT
87,700	120,200	0.73	0.91
901,300	1,248,200	0.72	0.91
131,000	177,900	0.74	0.91
86,400	112,400	0.77	0.92
122,700	151,100	0.81	0.92
109,400	139,100	0.79	0.93
77,900	96,400	0.81	0.93
79,800	94,700	0.84	0.93
97,300	150,400	0.65	0.93
103,500	137,000	0.76	0.95

Source: 1996 Montgomery County Land Book.

County ($\alpha = 1.48$), $\lambda = 1.48 * 0.6 = 0.888$, implying the real property tax paid in Rappahannock County for this parcel is 88.8 percent of that paid under market value assessment. These examples highlight how the relative tax benefit derived by owners of qualified land under use-value assessment depends crucially on the size of the property tax rate increase required to make use-value assessment revenue neutral. If the tax rate increase were large enough, it is theoretically conceivable that the tax benefit could totally evaporate.

In Montgomery County, the ratio of use-value tax to market value tax ranged from *0.059* to *0.932* with a median of *0.5645*. In words, the landowner benefiting the most from use-value assessment paid slightly less than 6 percent, and the landowner benefiting the least from use-value assessment paid approximately 93 percent of the amount that would have been paid under fair market value assessment. This range across landowners is largely attributable to the value of capital improvements that have been made to the participating land parcel. Tables 2 and 3 list the ratio of capital improvement value *(IV)* to total property value *(TV)* for the participating land parcels in Montgomery County with the ten lowest and ten highest use-value tax to fair market value tax ratios, respectively. There is a clear trend in the relationship between the two ratios. In general, under use-value assessment the relative tax benefits realized by owners of qualified land decline as the relative value of capital improvements made to the land increase. This relationship exists largely because only qualified *land* is eligible for use-value assessment in Virginia. Capital improvements are assessed at their fair market value.

The results were similar in Fairfax County although the range of use-value tax to fair market value tax ratios was reduced to *0.0025* to *0.5554* with a median of *0.193*. The landowner benefiting the least from use-value assessment paid approximately 56 percent the amount that would have been paid under market value assessment while the landowner benefiting the most paid less than 1 percent of the fair market value tax. Tables 4 and 5 list the ratio of capital improvement value to total property value for the participating land parcels in Fairfax County with the ten lowest and ten highest use-value tax to market value tax ratios, respectively. Again, there is a clear trend in the relationship between the two ratios.

The natural question at this stage is whether the broad range in relative tax benefits realized under use-value assessment is equitable. The answer depends upon the objectives of the enabling legislation. If the goal of the program is simply to preserve agricultural, horticultural, forest, and/or open space *land* then it seems appropriate for the least developed (fewer capital improvements) land to receive the largest tax benefit and for the benefits of use-value assessment not to extend to capital improvements made to the land. However, the majority of land enrolled in use-value assessment is agricultural land and farmers increasingly find it necessary to make capital improvements to stay competitive.

If the goal of the program is to preserve *farms* then the decline in relative tax benefits with increases in capital improvements may be counterproductive. In addition to use-value assessment for agricultural land, maintaining small farm viability may necessitate extending tax reductions to include capital improvements that are essential to agricultural production (e.g. as in New York state). At the core of this issue is whether contemporary farming practices consistently deliver attributes that are more socially desirable than the next best alternative use for the land. If the nature of the capital improvements is to produce undesirable attributes (e.g. dust, offensive odors, noise) and the next best alternative is socially preferable, then

Table 3. The Ten Lowest Use-Value Tax Burden (UVT) to Market Value Tax Burden (MVT) Ratios in Fairfax County.

Market Improved Value	Market Total Value (TV)	IV:TV	UVT:MVT
0	1,233,580	0	0
0	1,712,275	0	0.02
500	749,750	0	0.02
153,000	14,275,770	0.01	0.05
77,150	4,002,400	0.02	0.05
0	393,915	0	0.07
34,585	2,609,695	0.01	0.08
213,000	6,979,315	0.03	0.08
33,225	3,281,410	0.01	0.1
80,750	2,396,750	0.03	0.1

Source: 1996 Fairfax County Land Book.

Table 4. The Ten Highest Use-Value Tax Burden (UVT) to Market Value Tax Burden (MVT) Ratios in Fairfax County.

Market Improved Value	Market Total Value (TV)	IV:TV	UVT:MVT
228,000	1,270,400	0.18	0.34
188,215	792,215	0.24	0.35
259,470	906,435	0.29	0.35
349,675	1,623,220	0.22	0.35
118,115	431,355	0.27	0.37
229,480	1,353,060	0.17	0.4
168,255	632,405	0.27	0.43
246,950	743,835	0.33	0.46
329,345	961,345	0.34	0.54
53,000	256,980	0.21	0.56

Source: 1996 Fairfax County Land Book.

the current treatment of capital improvements may be good policy. Right-to-farm legislation in many states addresses the rights of farmland owners and their neighbors in this context.

Variation in the ratio of use-value to fair market value tax revenues is not limited to individual land parcels within a county. The distribution also varies significantly between counties. Figures 4 and 5 clearly show that the distribution in Montgomery County is much different from the distribution in Fairfax County. It is clear from these figures that, on average, the relative tax benefits realized by owners of qualified land are greater in Fairfax County. This should not be surprising since (1.7) implies

a) An increase (decrease) in the size of the real property tax rate required to make use-value assessment revenue neutral *(α), ceteris paribus*, will result in a higher (lower) use-value tax to market value tax ratio, and
b) An increase (decrease) in the assessed use value of the parcel *(b - d)* relative to the assessed market value of the parcel *(b), ceteris paribus*, will result in a higher (lower) use-value tax to market value tax ratio.

Both factors contribute to owners of qualified land receiving greater relative tax reductions in Fairfax County. As shown earlier, the size of the tax rate increase required to make use-value assessment revenue neutral is considerably lower for Fairfax County than it is for Montgomery County (*0.11* percent versus *2.18* percent). More importantly, due to much greater development pressures in Fairfax County, the difference between assessed use value and assessed market value is much greater than in Montgomery County. In this instance, the differences in the distribution of relative tax benefits are likely consistent with the goal of preserving land in non-intensive uses. In Fairfax County the development pressures on the few remaining land parcels qualifying for use-value assessment are much higher than in Montgomery County. Therefore, it may be sensible for owners of qualified land in Fairfax to receive greater incentives to maintain their land in non-intensive uses.

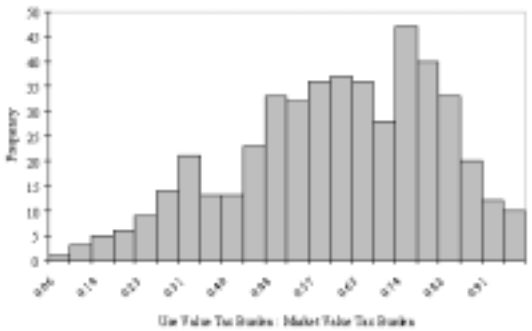
V. Conclusion

In every state except Michigan, use-value assessment is an important tool for maintaining agricultural, horticultural, forest, and/or open space lands in non-intensive uses. Under use-value assessment the owners of qualified land can realize substantial real property tax reductions, which, in theory, mitigate the incentives for development. In this paper, the effects that use-value assessment had on real property tax rates and liabilities were analyzed for 65 Virginia counties.

The estimated increases in the real property tax rates required to make use-value assessment revenue neutral in these counties varied from less than 1 percent to nearly 50 percent with the highest increases occurring in rural communities in close proximity to densely populated urban areas. The smallest rate increases occurred in urban counties where qualified land comprises a small portion of the real property tax base and in rural counties located far away from urban areas where there is little difference between use values and fair market values of real property.

The increase in real property tax rates required to make use-value assessment revenue neutral provides a measure of the costs incurred by non-participating tax payers since a higher tax rate implies higher tax burdens. Since many of the benefits associated with maintaining land in a non-intensive use (i.e. water quality, recreation, and aesthetic appeal) are public goods, it was argued that a more equitable distribution of the costs of use

Figure 4. The Ratio of Use-Value Tax Burden to Market Value Tax Burden in Montgomery County.



Source: 1996 Montgomery County Land Book.

Figure 5. The Ratio of Use-Value Tax Burden to Market Value Tax Burden in Fairfax County.

Source: 1996 Fairfax County Land Book.

value assessment might be appropriate. This could be accomplished through state-aid to localities that experience large reductions in their real property tax base following the adoption of use-value assessment or through multi-locality revenue and cost sharing arrangements.

In addition to inter-county inequities, use-value assessment may cause intra-county inequities. It was shown that the relative tax benefits accruing to owners of qualified land could vary substantially with the largest benefits going to those parcels with the fewest capital improvements. This is not problematic if the goal of the program is simply to maintain qualified land in non-intensive uses. However, if the goal of the program is to preserve *farms*, then recognition of the changing nature of on-farm production may be in order. In order to remain profitable, most farm operators find it necessary to increase their investment in capital improvements. With the importance of capital improvements increasing relative to land as a crucial input into farm operations, programs that ease the burden of land ownership have a reduced effect on farm viability. Thus, if the objective of use value taxation is to increase the probability that *farm operations* remain viable, it may be necessary to allow for a reduced assessment of capital improvements. Homestead exemptions as well as exemptions on farm-related capital improvements would serve this purpose.

An interesting extension of this research would be to examine the distribution of relative tax benefits for counties that were estimated to require very large increases in their real property tax rates in order to make use-value assessment revenue neutral (e.g. Fauquier, Clarke and Rappahannock). Since use-value assessment in Virginia only applies to the land and not to the structures found on the land, it is quite easy to imagine a case where an owner of qualified land may actually face a higher real property tax burden following the adoption of use-value assessment. This would be a remarkable finding considering use-value assessment is intended to offer tax relief to owners of qualified land.

Endnotes

[1] Fair market value is defined by the International Association of Assessing Officials as " the most probable price…that a property would bring if exposed for sale in the open market in an arm's length transaction between a willing seller and buyer, both of whom are knowledgeable concerning all the uses of which it is adapted and for which it is capable of being used." (International Association of Assessing Officers)

[2] Although Michigan law does not allow for the use-value assessment of land, it does allow qualified land to be enrolled in a "circuit breaker" program. Under this program, any property tax exceeding seven percent of household income can be credited against the landowner's state income tax liability.

[3] The American Farmland Trust has championed many studies using the "cost of community services" methodology that invariably produces such results.

[4] The assumption that localities will attempt to hold revenues constant under use-value assessment is maintained throughout this paper. It is possible that localities could compensate for lost revenues by reducing services but whether the costs associated with use-value assessment are measured in terms of higher tax rates or fewer public services is irrelevant to the present analysis.

[5] The penalty for withdrawing land from use-value assessment can be a direct monetary fine, a roll-back tax, a conveyance tax, or any combination of these.

[6] This is certainly true in the short run. In the long run, if use-value assessment permanently delays the development of qualified land then it may not be necessary for TR^f to equal TR^v because land that remains undeveloped due to use-value assessment generally requires fewer services than if it had been developed. However, several studies have shown that use-value assessment only serves to temporarily delay development of qualified land [see Anderson (1993), and Tavernier and Li (1995)]. If this is true, then TR^v will lag TR^f in the short run and equal TR^f in the long run. Therefore, it is maintained throughout this paper that localities desire to maintain revenue neutrality under use-value assessment.

[7] There are also a number of relatively minor revenue sources available to localities such as parking tickets, library fines, and various registration fees.

[8] Data available upon request.

References

Anderson, J.E. "Use-Value Property Tax Assessment: Effects on Land Development." *Land Economics* 69(3), August, 1993: 105 - 110.

Commonwealth of Virginia. *Comparative Report of Local Government Revenues and Expenditures: Year Ended June 30, 1996.* Auditor of Public Accounts, Richmond, 1997.

Dunford, Richard W. "A Survey of Property Tax Relief Programs for the Retention of Agricultural and Open Space." *Gonzaga Law Review* 15(1980): 675-99.

International Association of Assessing Officers. *Property Appraisal and Assessment Administration.* Chicago: International Association of Assessing Officers (1990).

McDowell, G., Elias, C., and Driscoll, P. *Paying for Schooling in Virginia: A Citizen's Guide to School Finance.* Virginia Cooperative Extension, Publication 448-206 / REAP R007, 1992.

Tavernier, E.M., and Li, F. "Effectiveness of Use-value Assessment in Preserving Farmland: A Search-theoretic Approach." *Journal of Agricultural and Applied Economics* 27(2), December 1995: 105 - 110.

Sindt, J.B. "The Impact of Use-Value Assessment of Agricultural Property on Tax Burdens and Uniformity in Indiana." Masters Thesis: Purdue University, 1997.

Virginia Department of Taxation. *Annual Report Fiscal Year 1997.* Office of Fiscal Research, Richmond, 1998.