



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

FL

Staff paper 121

Staff Paper Series

AGRICULTURE AND THE PROPERTY TAX:
THEORETICAL ISSUES AND EMPIRICAL EVIDENCE

by

Kenneth C. Clayton and J. Walter Milon

Staff Paper 121

July



GIANNINIS FOUNDATION OF
AGRICULTURE AND ECONOMICS
MAY 16 1981

FOOD AND RESOURCE ECONOMICS DEPARTMENT

Institute of Food and Agricultural Sciences

University of Florida

Gainesville, Florida 32611

Abstract

Alternative economic theories about the incidence of agricultural property taxation are presented. The principal arguments for preferential treatment of farmland are examined in light of national and state data about the relative burden of property taxes on agricultural producers. The paper concludes with a discussion of proposed and existing agricultural property tax reform measures.

Keywords: property tax, tax burden, incidence, farmland preservation

TABLE OF CONTENTS

	<u>Page</u>
TABLE OF CONTENTS	i
LIST OF TABLES.	ii
LIST OF FIGURES	iii
Introduction.	1
Agriculture and The Property Tax.	2
Florida's Experience.	13
Some Alternatives for Property Tax Reform	34
Summary	41
Reference	43
Selected Bibliography	46

LIST OF TABLES

<u>Table</u>		<u>Page</u>
1	Total Property Taxes, Farm Property Taxes, and National Income, U.S. - Selected Years.	6
2	Ratio of Wealth To Income, Agricultural Households, 1966, and U.S. Households, 1962	8
3	Provisions of State Differential Assessment Laws, 1977.	11
4	Taxes Levied on Farm Real Estate, Florida and Selected Areas, Selected Years.	14
5	Taxes Levied on Farm Real Estate as a Percent of Net Farm Income, Florida and Selected Areas, Selected Years.	16
6	Farm Real Estate Taxes Under Use Value Assessment as a Percentage of Net Income, by Percent of Income Groups for Florida Counties, 1974-1976 . . .	18
7	Farm Real Estate Taxes Under Just Value Assessment as a Percentage of Net Income, by Percent of Income Groups For Florida Counties, 1974-1976 . . .	20
8	Property Tax Shifted To Agricultural Land if Assessed at Just Value Instead of Use Value, Florida Counties, 1976.	22
9	Relative Burden of Ad Valorem Property Taxation by Household Income Group, Florida, 1974-1975 . . .	28
10	Relative Burden of Ad Valorem Property Taxation by Net Farm Income Groups, Florida Counties.	30
11	Property Tax Burden Relative to Capital Holdings by Net Farm Income Group, Florida Counties, 1974 . . .	32

LIST OF FIGURES

<u>Figure</u>		<u>Page</u>
1	Tax Shift Per \$1000 of Agricultural Use-Value Assessment, Florida Counties, 1976	24
2	Tax Shift Per Farm, Florida Counties, 1976	25
3	Tax Shift As A Percent of Average Per Farm Net Farm Income, Florida Counties, 1976.	26

AGRICULTURE AND THE PROPERTY TAX: THEORETICAL
ISSUES AND EMPIRICAL EVIDENCE*

Kenneth C. Clayton and J. Walter Milon**

Introduction

Taxes, and in particular the property tax, are a subject that has engendered lively, sometimes passionate, debate. This paper does not attempt to settle any of the long standing issues in that debate. Rather, our intention is to provide an overview of the arguments concerning the incidence of agricultural property taxation and to examine the empirical evidence as it relates to this issue.

The first section of this paper summarizes the theoretical positions that have emerged from the debate over the equity of the property tax. These positions are assessed from a national perspective. Section two offers a look at the relative position of Florida agricultural landowners with respect to landowners in other states and provides some empirical evidence on the potential impact of eliminating the classified use valuation of agricultural land within Florida. The third section considers alternative proposals for property tax reform and farmland preservation. A selected bibliography of theoretical and empirical research on agricultural property taxation is included at the end of the paper for interested readers.

*Report prepared for Committee on Finance and Taxation, Florida House of Representatives.

**The authors are Assistant Professors, Food and Resource Economics Department, University of Florida.

Agriculture and the Property Tax

During the past decade the property tax has been both criticized and praised as a source of revenue for state and local government. Critics have argued that a tax on property is, in reality, an excise tax borne by consumers in proportion to their consumption. Since increases in income are known to lead to less than proportionate increases in consumption the property tax is said to be regressive [26]. An alternative view of the property tax contends that such a tax is actually borne by owners of capital, rather than by consumers. The property tax is thus said to be progressive since ownership of capital tends to be concentrated in the upper income groups [2].

Because these two views yield potentially divergent interpretations of the incidence of property taxation, a closer look at each is warranted. In the section which follows, the major assumptions underlying each view will be highlighted. The implications of the property tax and its incidence for agricultural landowners will be given particular attention.

The Traditionalist View

The traditionalist view holds that a tax on property is essentially an excise tax that can be shifted forward to final consumers. It takes root in the Marshallian partial equilibrium analysis of supply and demand [26]. Logically, however, this argument can be extended only to that portion of the tax that falls on buildings and improvements. For land devoid of its improvements, if assumed perfectly inelastic in supply, the imposition of a property tax simply depresses the land price by the entire amount of the tax. This, of course, leads to the equivalent of a site value tax such as that proposed by Henry George in the late 1800's.

And even though there is widespread agreement that the landowner pays the property tax on site value (i.e., the land itself), considerably less is known about the distribution of land ownership by income class and the resulting incidence of the tax imposed.

To consider the traditionalist view further, it is noted that land represents only a portion of the value of any property. Grading, fencing, buildings, and other improvements are important additions to the value of a parcel of property. Since the supply of improvements is not fixed, a property tax levied on them is not capitalized into the price of the parcel. Instead, the price of buildings and improvements is determined solely by construction and maintenance costs. A property tax on these facilities becomes a part of gross operating costs. This cost is then passed on to the final consumer of goods and services produced using those facilities. Based on annual measures of income and consumption, this portion of the property tax on improvements is regressive since income typically rises faster than expenditures on consumption.

The property tax may also be imposed on personal property such as livestock, farm machinery, or households goods. Netzer [26] argues that most of this tax is passed on to final consumers in the same manner as the tax on improvements. In the case of agriculture, however, the competitive nature of the industry is said to inhibit a pass through to final consumers so that the farm personal property tax is absorbed by landowners. For particular commodities the actual incidence of a personal property tax will depend on the structure of the markets involved.

The Revisionist View

During the past decade the traditionalist view has been challenged on theoretical grounds. A revisionist approach has emerged which emphasizes the mobility of capital resources from one sector of the economy to another. The main thesis of this latter view is that a simultaneous tax on land and improvements is borne by owners of capital because the tax will lower the rate of return to property owners. As a result, investors will shift their resources to lower tax areas. In the long run, however, this will reduce the average return to all capital throughout the economy. For agricultural producers this will be reflected in the price of agricultural land [29]. The actual distribution of the tax burden to owners of capital will depend on the ease of factor substitution, factor mobility, market area, and demand shifts due to changes in relative prices [2].

Evidence From National Data

The preceding review of the conflicting arguments concerning the incidence of property taxation serves to highlight the key issues in the debate. Although many of the assumptions used to support each argument are not empirically testable, it is important that inferences be made where possible on the incidence of the property tax.

A proper estimate of the incidence of a tax on property requires that a comparison be made of the actual tax paid by each income group. Due to disclosure problems faced by the federal Internal Revenue Service, detailed estimates of this type are not available. A measure of the relative burden on the agricultural sector can be made, however, by comparing property taxes paid as a per cent of income for different sectors of the economy. A common standard for purposes of comparison is national income (NI). It provides

a consistent measure of earnings by the factors of production. Data in Table 1 reveal some distinct trends in the agricultural sector. The percentage paid by agricultural producers of total property taxes (Column 1) has been declining steadily since 1955. This trend is due mainly to the decreasing number of farm acres in production and the increased value of other classes of property. The portion of total national income that is derived from farming (Column 2) has averaged around 3 percent since 1965 with no apparent trend. The percentage of farm generated national income that is paid in property taxes is also reported (Column 3). Although there is some variation between years, it seems most likely that this is due to fluctuation in farm sector national income. During the period 1965-75, property taxes averaged slightly over 9 percent of farm national income. Finally, the percentage of non-farm sector generated national income that is paid in property taxes is provided for purposes of comparison (Column 4). Clearly, the farm sector has consistently paid a higher percentage of its income in property taxes than has the non-farm sector (Column 3 vs. Column 4). Moreover, since the property tax is relatively income inelastic, this differential was especially pronounced during periods of weak demand for farm products (e.g., 1970).

This view of property tax incidence is somewhat incomplete, however, as it ignores the unrealized capital gains that accrue to farmowners due to land value appreciation.¹ It also neglects the distribution of taxes paid within the farm and nonfarm sectors. On this latter point, if one adopts the traditionalist view of the property tax, it is clear that the agricultural sector

¹Typically the expected appreciation of any asset is not treated as income until the gain is realized. However, investors consider expected appreciation to be a component of the anticipated return from land. Under a "permanent income" approach, the unrealized appreciation is an addition to wealth and therefore it does represent income.

Table 1.--Total Property Taxes, Farm Property Taxes, and National Income,
U.S. - Selected Years.

Year	Total Farm Property Taxes/Total Property Taxes	National Income from Farming/ National Income	Total farm property taxes/ NI - farm sector	Total nonfarm property taxes NI-non-farm sector
	----- (%) -----			
1955	10.2	4.4	7.5	3.1
1960	8.7	3.8	9.2	3.8
1965	8.0	3.2	10.1	3.8
1970	7.1	2.6	11.7	4.1
1975	6.0	3.1	8.4	4.1

Source: Agriculture and the Property Tax: A Forward Look Based on a Historical Perspective by Jerome M. Stam and Ann Gordon Sibold. Economic Research Service, U.S. Department of Agriculture. Economic Report No. 392, (November, 1977).

pays relatively more than other sectors. This conclusion follows from the historical trend of lower income for the farm population than for the non-farm population [40]. Again, personal income does not include unrealized capital gains.

Under the revisionist view, the actual incidence of the property tax will depend on both realized income and the ownership of capital assets. Available evidence suggests that there is a much higher ratio of capital ownership to income in the agricultural sector (Table 2). Moreover, this measure of wealth within the agricultural sector seems to be skewed toward the lower end of the income scale much more so than for the household sector as a whole. As a result, even under the revisionist view of property tax incidence, the agricultural sector pays a comparatively larger share of the property tax and this burden is distributed regressively within the sector.

Appropriate caveats should be noted at this point. Available data do not provide a ready cross-tabulation of income with wealth for either the agricultural or household sector. The problem, in part, stems from the difficulty of determining a consistent measure of wealth. Therefore, wealth to income ratio's such as those cited here are based on specific definitions of wealth that reflect the limits of available data. Furthermore, agricultural households in the "under \$2,500" income bracket may derive additional income from non-farm sources. Thus, the income figures may not offer a reliable standard for determining the incidence of the tax.

State Efforts to Change the Tax Burden on Agriculture

A generally accepted conclusion that emerges from the preceding evidence is that farmers' property holdings are large relative to their incomes, therefore causing the property tax to violate the "ability to pay" criterion for equitable taxation. In addition, it is argued that farmers living in rural

Table 2.--Ratio of Wealth To Income, Agricultural Households, 1966, and U.S. Households, 1962.

<u>Agricultural households, 1966</u>		<u>U.S. households, 1962</u>	
Income bracket	Ratio of net worth ^a to income	Income bracket	Ratio of net worth ^b to income
\$ 0 - 2,499	29.14	\$ 0 - 2,999	4.8
2,500 - 4,999	10.70	3,000 - 4,999	2.5
5,000 - 9,999	6.87	5,000 - 7,499	2.1
10,000 - 14,999	5.40	7,500 - 9,999	2.2
15,000 - 24,999	7.55	10,000 - 14,999	2.3
25,000 or more	8.00	15,000 - 24,999	3.5
		25,000 - 49,999	8.4
		50,000 or more	10.7

Sources: a) H.J. Aaron, Financing Schools and Property Tax Relief - A State Responsibility (January 1973) p. 32; b) T.A. Carlin and E.F. Reinsel, American Journal of Agricultural Economics, Vol. 55 (February 1973) p. 39.

areas are unable to enjoy many of the public services available through government funding. As a result, alternative methods of taxation have been implemented to reduce the agricultural tax burden.

The concern for equity has been but one of the motives for alternative taxation of agricultural land. A second consideration is the need to influence land use and the general direction of development. It is argued that agricultural land and open space provide wildlife habitats, water recharge areas, scenery and other amenity values that may not be fully capitalized in the market price of a parcel of land. The preservation of these "natural zones" or "greenbelts" is thus an accepted public objective that contributes to the general welfare.

The retention of open space and agricultural lands has been approached in two different ways. One is by direct public controls on the use of land through mandatory or voluntary zoning restrictions. The second approach uses indirect measures that provide landowners with incentives to keep their land in open space or agricultural uses but do not expressly prohibit development. The general purpose of such incentives is to increase the viability of continuing the rural use of the land and thus to reduce the attractiveness of selling to a speculator or developer.

The most common form of indirect control is the use of differential assessment for property taxation. Since Maryland's introduction of the differential assessment concept in 1956, 44 states have adopted some form of preferred treatment for agricultural land and open spaces. The variety of differential assessment programs can be categorized according to the following classifications:

- a) Preferential assessment, wherein land is assessed on the basis of its current use value¹;

¹Current use value differs from market value in that it limits the cash value of a parcel of land to the stream of earnings that could be earned in farming. Since the full value of a parcel will depend upon several other factors, the use value assessment will generally be below the market value. The procedures for determining the use value vary considerably by state.

- b) Deferred taxation, which is similar to preferential assessment, except that a sanction is imposed on the landowner if the land is converted to a non-qualifying use;
- c) Restrictive agreements, which allow a current use value assessment in exchange for the landowners covenant that the land will remain in a qualifying use during a specified period of time.

Existing state programs involving differential assessment are summarized in Table 3.

The magnitude of tax savings to individual agricultural producers under these various approaches depends on three factors: a) the difference between the fair market value and the use value of the land; b) the percentage of total land holdings eligible for preferred assessment; and c) the value of capital improvements as a percentage of total land value. For states such as Florida in which application for differential assessment depends only on the "good faith commercial use" of the property, any tax savings would be a sufficient incentive to seek preferred status. However, in other states, such as New Jersey and California where rollbacks and restrictive covenants are required, participation in an exemption program is found to vary according to characteristics of the landowner and the location of the land. For example, in New Jersey, with its high speculative land values and two-year roll-back sanction, significantly lower participation rates have been observed near major urban areas such as Philadelphia, Trenton, and New York [19]. Similarly, California, which employs restrictive agreements of ten years duration, has had little participation by landowners near major cities. [22].

These situations highlight the dominant role that local economic forces can play in determining the effectiveness of tax preference programs. Some researchers have argued, in fact, that even the total elimination of property taxes on agricultural land may not be sufficient to prevent its conversion to nonfarm uses [6,19,20,22]. If true, preferential assessment programs based on equity considerations will not be an effective means for open space preservation.

111

Source: (11)

Benefits derived from differential assessment programs do come at some cost. Special assessment practices must be established to determine the use value of agricultural land. While these procedures do present several difficult economic questions, the overall increase in administrative costs is probably relatively small.

Of perhaps greater importance is the shift of tax responsibility that occurs between recipients of differential assessment and other taxpayers. The magnitude of this shift will depend upon the proportion of land that qualifies for differential assessment and the reduction from market value to use value assessment. The greater the pressures for development of the land for non-agricultural purposes, the more likely the tax shift will be large [11]. In California, experience has shown that small, predominantly agricultural counties adjacent to major population centers experience the greatest tax shift [8].

At least four basic questions can be raised regarding the shifting of tax responsibility that occurs as a result of a differential assessment program. First, within individual counties, what magnitude of tax shift is experienced? Second, how does the size of the tax shift differ across counties? Third, how much property tax would be shifted back onto agricultural landowners in the absence of a differential assessment program? Fourth, given the equity needs of farmers and the potential for uneven tax shifts among counties, is some type of compensation scheme to local governments in order?

On this latter question, several states have legislated compensation plans to offset the impact of tax shifts on local governments. In California, for example, the state is required to reimburse counties for a portion of the tax loss. New York has made provisions for one-half

of the tax shift to be made up by the state. Alaska has provided for full reimbursement. To date, only California has actually appropriated monies for this purpose.

Agriculture and the Property Tax: Florida Experience

Florida is important as an agricultural state. In 1976, nearly \$900 million in net farm income was realized on gross sales of over \$2.5 billion. This placed Florida farmers third in the nation for realized net income per farm. Approximately three-quarters of these farm receipts were derived from crops, including nursery and greenhouse products, with the remainder coming from livestock marketings.

In addition to farm level sales of agricultural products, related supply, packing, transportation, wholesaling, retailing, and processing activities gave rise to jobs and income throughout the state. And a large proportion of the income earned in these related industries was respend in Florida generating still further economic activity.

Farm real estate, along with other types of real property in Florida, is subject to ad valorem taxation as imposed by local governments and special districts. The property tax is levied against a backdrop of often volatile farm prices and substantial urban pressures in many parts of the state. As a result, differential impacts of the farm property tax are likely to occur within Florida counties and across time periods.

A Regional and National Context

Before examining the situation within Florida it is useful to review Florida farm property taxation in a regional and national context. As indicated in Table 4, the average tax per acre on farmland in Florida amounted to \$4.89 in 1976. This was higher than the average for the

Table 4.--Taxes Levied on Farm Real Estate, Florida and Selected Areas,
Selected Years.

	Amount Per Acre					Amount per \$100 Full Value			
	1965	1970	1975	1976		1965	1970	1975	1976
					(%)				
Florida	2.25	2.98	4.78	4.89		0.78	0.84	0.69	0.67
California	5.20	8.87	10.99	11.50		1.11	1.76	1.53	1.56
Texas	0.62	0.89	1.12	1.23		0.55	0.59	0.44	0.44
Southeast	0.98	1.48	2.13	2.25		0.52	0.56	0.44	0.43
U.S.	1.53	2.27	2.92	3.17		0.98	1.08	0.78	0.74

*Southeast includes: North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, and Mississippi.

Source: Farm Real Estate Taxes, 1976. RET-17
Economic Research Service, U.S. Department of Agriculture.
December, 1977.

Southeastern states and for the entire U.S. It was lower than the farm tax levy in California and higher than that for Texas, two similar and, sometimes, competing states. Between 1965 and 1976, real estate taxes on farmland in Florida more than doubled. The rate of increase was greater than that for the U.S. and for Texas. The Florida rate was slightly less than for California and the Southeast.

Since market values and use values for agricultural land may differ between states, a standardized basis for comparison is helpful. Taxes paid per \$100 of full (market) value of farm real estate provide such a measure and are reported in Table 4. Florida's property tax has decreased over the period 1965-1976 when computed on this basis. So, too, have taxes per \$100 of value in Texas, the Southeast, and the U.S. Apparently, demand in the land market has caused land prices to rise at a relatively faster rate than taxes. Only in California have property taxes risen at an even faster rate than land values. To the extent that these data reflect increased land values, the stock of wealth of Florida farmers may have increased with no real benefit in operating or cash flow terms.

To better understand the relationship between farm real estate taxes and the farmer's operating situation, a net farm income measure may be examined. As noted in Table 5, property taxes amounted to 3 percent of farmers' net incomes in Florida in 1950, rising to 9.1 percent in 1970, and dropping off to 6.9 percent in 1976. This same pattern was evidenced in California, although the percentages involved were significantly higher. Texas experienced a steady growth in taxes relative to income over the 1950-1976 period. For the Southeast the percentage climbed slowly through 1970, declining slightly thereafter. The pattern

Table 5.--Taxes Levied on Farm Real Estate as a Percent of Net Farm Income, Florida and Selected Areas, Selected Years.

Taxes Levied as Percent of Net Farm Income						
	1950	1960	1965	1970	1975	1976
	- - -	- - -	- - -	(%) - - -	- - -	- - -
Florida	3.0	6.0	8.3	9.1	6.8	6.9
California	6.7	11.8	14.3	20.5	11.8	12.0
Texas	3.8	7.0	9.3	9.9	11.5	12.2
Southeast	2.4	3.6	4.3	5.4	5.2	5.0
U.S.	4.8	9.0	9.4	11.8	9.0	11.4

*Southeast includes: North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, and Mississippi.

Source: Farm Real Estate Taxes, 1976, RET-17.
Economic Research Service, U.S. Department of Agriculture,
December, 1977.

for the U.S. as a whole was somewhat erratic but increased generally over the period. The property tax per \$100 of full value in Florida was higher than for the Southeast and somewhat lower than in California, Texas, and the U.S.

On balance, property taxes on farm real estate in Florida have been comparatively high. Even when adjusted for land value changes, property taxes are higher than the Southeast region average. As throughout most of the U.S., the ratio of property taxes to land value has declined over time in Florida. The decline has been somewhat less in Florida than for the U.S., however. This would indicate that Florida land values have not been increasing as rapidly or, perhaps, that taxes have increased at a somewhat greater rate. In either case, the absolute tax levy per acre in Florida has been higher than the national average.

Florida Farm Property Taxation

The amount of property tax levied depends in large measure on local circumstances - - e.g., services demanded and the composition of the tax base. Similarly, the impact of the property tax on agriculture is often a local phenomenon, depending on commodity mix, weather conditions, and non-farm land development opportunities. In addition, regional or national market conditions may dictate revenues received.

The proportion of farmers' income that goes to property taxes in Florida is presented for Florida counties over the 1974-1976 period in Table 6. These data were developed using unpublished Bureau of Economic Analysis (U.S. Department of Commerce) estimates of net farm income for Florida counties and property tax information available from the Florida Department of Revenue in its annual report: Florida Ad Valorem Valuations and Tax Data [14]. For 1976, under the use value

Table 6.--Farm Real Estate Taxes Under Use Value Assessment as a Percentage of Net Income, by Percent of Income Groups for Florida Counties 1973-1976.*

Farm Real Estate Taxes Paid as Percent of Net Farm Income	Percent of Counties in Percent of Income Groups											
	1974			1975			1976			Ave		
	-	-	-	-	-	-	(%)	-	-	-	-	-
<5.0	79			70			60			69		
5.0 - 9.9	13			14			22			17		
10.0-19.9	4			10			11			9		
20.0-29.9	2			4			3			3		
30.0-39.9	2			-			2			1		
40.0-49.9	-			2			2			1		
50.0-59.9	-			-			-			-		
≥-60.0	-			-			-			-		

*Use-value assessment under Florida's Greenbelt Provision permits agricultural land to be assessed for ad valorem tax purposes at its value in agricultural use.

provision of the Green Belt Law, farmers in 60 percent of Florida's counties paid less than five percent of their net farm income in property taxes. In 22 percent of the counties farmers paid from 5 to 10 percent of their net income in real estate taxes; in 11 percent they paid from 10 to 20 percent; 3 percent they paid from 20-30 percent; in 2 percent they paid from 30-40 percent; and in 1 percent they paid from 40 to 50 percent. As may be noted in Table 6, the percentage of counties in which farmers paid less than 5 percent of their net farm income in property taxes declined from 1974 to 1976. This would indicate that property taxes in a number of Florida counties increased at a faster rate than net farm income during this period.

It was pointed out earlier that an important consideration when evaluating use value assessment is the impact that elimination of the program might have on the economic viability of farmers. The information presented in Table 7 provides some insight on this matter. This information was compiled using the same data sources as listed for Table 6. It was assumed that county expenditures would remain fixed but agricultural land would be valued at market value, not at the current use value assessment. Millage rates were then recomputed and tax levies were recalculated accordingly. Tax bills on agricultural land were expressed as percentages of net farm income, and the proportion of counties falling into the specified tax burden categories were determined. As indicated in Table 7, the percentage of counties in which less than five percent of net farm income would have been paid to property taxes declined steadily over the 1974-1976 period. Counties in the other categories increased in number.

A comparison of Tables 6 and 7 reveals that, on average, for the 1974-1976 period without use value assessment, a significantly larger

Table 7.--Farm Real Estate Taxes Under Just Value Assessment as a Percentage of Net Farm Income, by Percent of Income Groups For Florida Counties 1973-1976.*

Farm Real Estate Taxes Paid as Percent of Net Farm Income	Percent of Counties in Percent of Income Groups			
	1974	1975	1976	Ave.
	- - (%) - - - - -			
<5.0	47	31	21	32
5.0-9.9	28	37	36	34
10.0-19.9	15	20	24	20
20.0-29.9	4	6	10	7
30.0-39.9	-	-	3	1
40.0-49.9	4	4	3	4
50.0-59.9	-	-	3	1
≥-60.0	2	2	-	1

*Just-value assessment would provide for agricultural land to be assessed for ad valorem tax purposes at its fair market value. Real estate taxes under this situation were computed assuming total property tax collections in each county to be held constant. Millages were then recomputed given the increased tax base with agricultural land assessment at just value. Farm real estate taxes, finally, were based on the just-value assessments on the recomputed millage rates.

number of communities would have had farmers paying in excess of five percent of their net farm income to property taxes. With use-value assessment, farmers in less than 2 out of every 10 counties paid more than 10 percent of their net farm income in property taxes. Without use-value assessment, farmers in over 4 out of 10 counties would have paid more than 10 percent.

Of particular interest is the impact of placing the so-called "tax shift" back onto farmers. Estimates of this shift are provided in Table 8. For the year 1976, the tax shift per \$1000 of agricultural use-value assessment would have ranged from a low of \$0.25 in Gulf County to a high \$28.47 in Escambia County. The average overall shift for the state would have been \$7.22. Farmland owners in some 21 counties would have experienced tax shifts of \$10 or more per \$1000 of agricultural use value assessment. As revealed in Figure 1, this latter group of counties includes Florida's major urban or urbanizing counties. Together these counties account for over 31 percent of Florida's agricultural output.

The average tax shift per farm, referring again to Table 8, would have ranged from a low of \$28 in Santa Rosa County to a high of \$9233 in Palm Beach County. The average per farm shift statewide would have amounted to \$1287. Some 27 counties would have had per farm shifts of \$1000 or more. These counties are identified in Figure 2.

Finally, the impact of a tax shift if measured as a percent of average per farm net income is also reported in Table 8. Of those counties for which data were available, Santa Rosa County would have been least affected with only 0.3 percent of net income per farm being required to cover the tax shift back onto agriculture. Most greatly

Table 8.--Property Tax Shifted To Agricultural Land if Assessed at Just Value Instead of Use Value, Florida Counties, 1976.*

County	Tax Shift Per \$1000 Agricultural Use Value Assessment	Tax Shift Per Farm	Tax Shift as Percent of Net Income Per Farm
Alachua	\$ 15.07	\$ 738	11.1%
Baker	10.95	1438	21.5
Bay	20.45	6981	102.5
Bradford	7.30	549	9.3
Brevard	16.50	1754	14.4
Broward	12.75	3038	11.4
Calhoun	7.70	824	5.4
Charlotte	5.72	1555	68.0
Citrus	8.47	479	12.6
Clay	12.17	1998	5.4
Collier	3.93	890	0.8
Columbia	5.71	427	5.8
Dade	21.84	2301	5.5
Desoto	8.39	757	20.4
Dixie	10.26	2665	67.4
Duval	-	-	-
Escambia	28.47	1739	26.6
Flagler	5.12	1466	4.1
Franklin	-	-	-
Gadsden	9.06	778	4.4
Gilchrist	8.66	525	5.6
Glades	4.61	1699	5.4
Gulf	0.25	138	-
Hamilton	10.49	651	-
Hardee	2.80	244	1.6
Hendry	7.16	2270	1.5
Hernando	10.47	789	4.0
Highlands	2.47	555	2.8
Hillsborough	20.91	1147	7.8
Holmes	-	-	-
Indian River	1.20	243	1.4
Jackson	6.11	262	3.6
Jefferson	3.72	579	3.7
Lafayette	1.60	127	0.9
Lake	1.61	300	1.1
Lee	15.16	1089	12.5
Leon	18.61	4312	60.0
Levy	3.13	280	5.2
Liberty	1.73	228	5.1
Madison	1.77	111	20.4
Manatee	19.02	1862	6.9
Marion	3.85	366	30.2
Martin	1.98	1497	7.3
Monroe	-	-	-

Table 8
pg. 2

Nassau	5.20	797	5.1
Okaloosa	-	-	-
Okeechobee	5.13	1337	7.7
Orange	20.82	2212	6.6
Oseceola	8.02	2200	25.1
Palm Beach	6.77	9233	9.2
Pasco	9.50	1051	8.9
Pinellas	10.49	450	7.3
Polk	2.80	320	1.4
Putnam	16.23	1352	10.6
St. Johns	8.96	2233	5.0
St. Lucie	4.48	1398	5.2
Santa Rosa	0.33	28	0.3
Sarasota	12.54	2263	31.9
Seminole	19.11	924	5.7
Sumter	7.25	471	4.2
Suwanee	5.99	236	2.3
Taylor	2.99	587	18.4
Union	7.06	410	1.2
Volusia	14.41	1052	9.7
Wakulla	6.89	949	6.3
Walton	2.71	276	1.9
Washington	9.22	342	2.8
Statewide average	\$ 8.78	\$ 1287	12.9%

Figure 1. Tax Shift Per \$1000 of Agricultural Use-Value Assessment, Florida Counties, 1976.

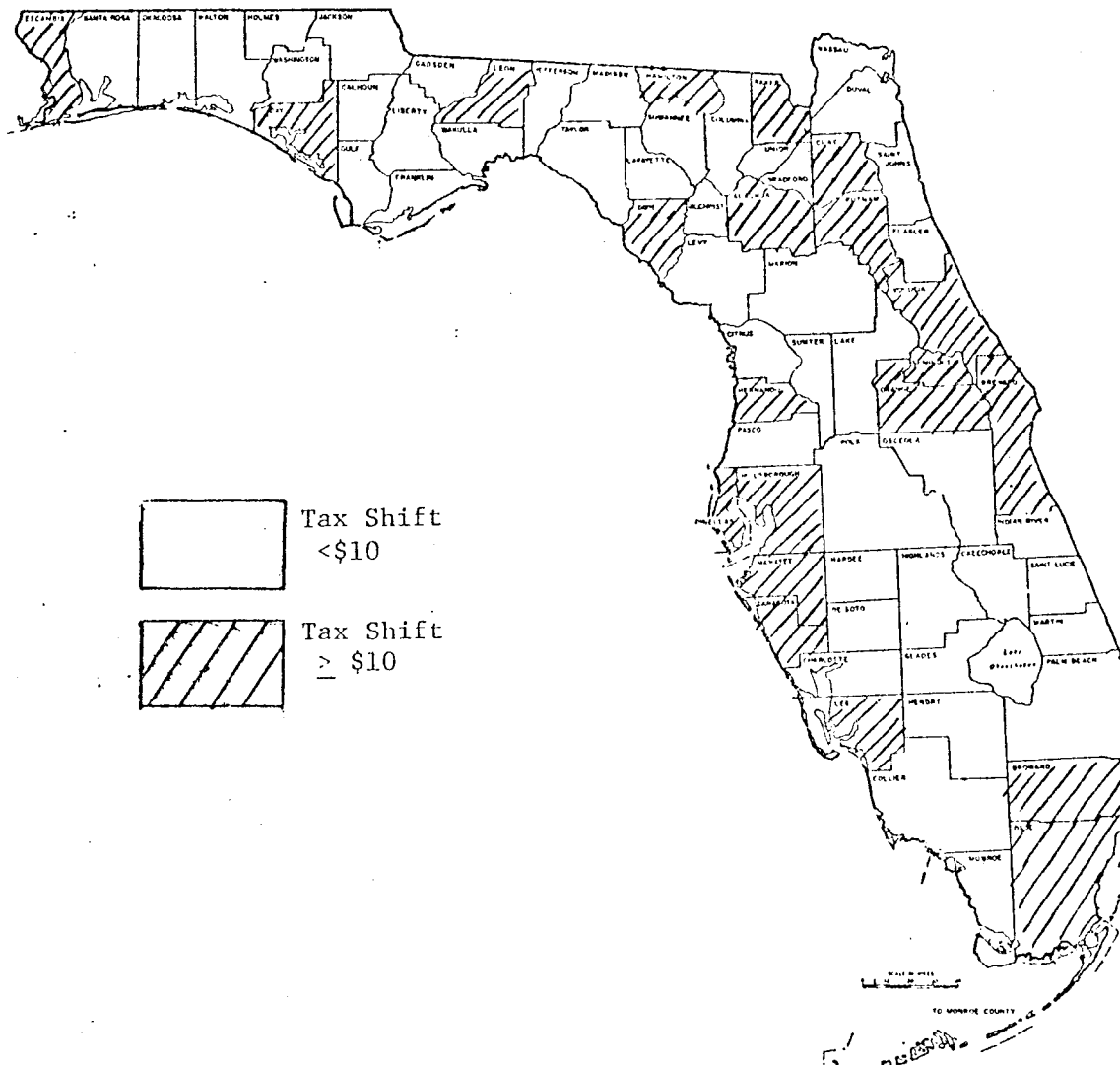


Figure 2. Tax Shift Per Farm, Florida Counties, 1976.

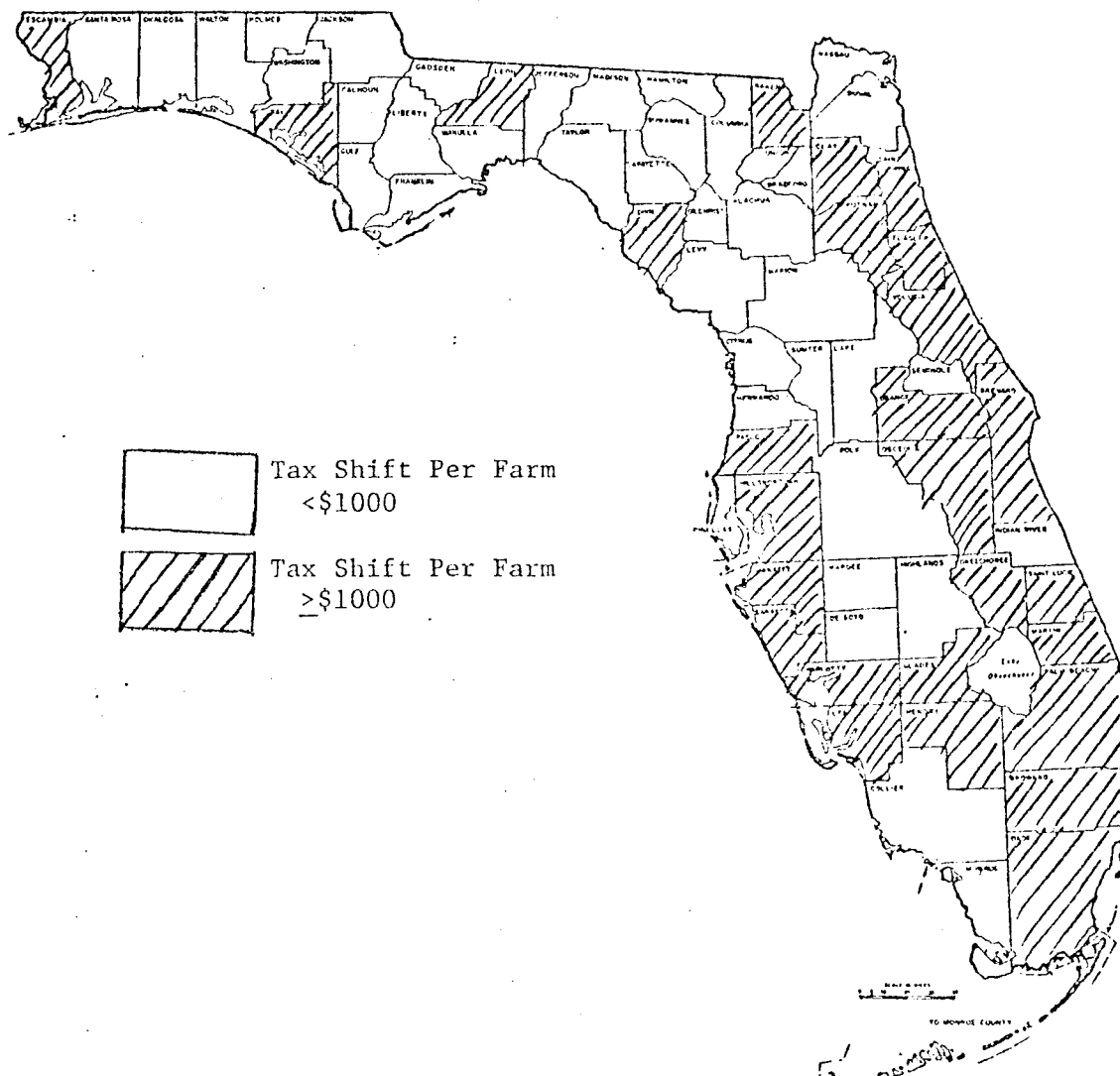
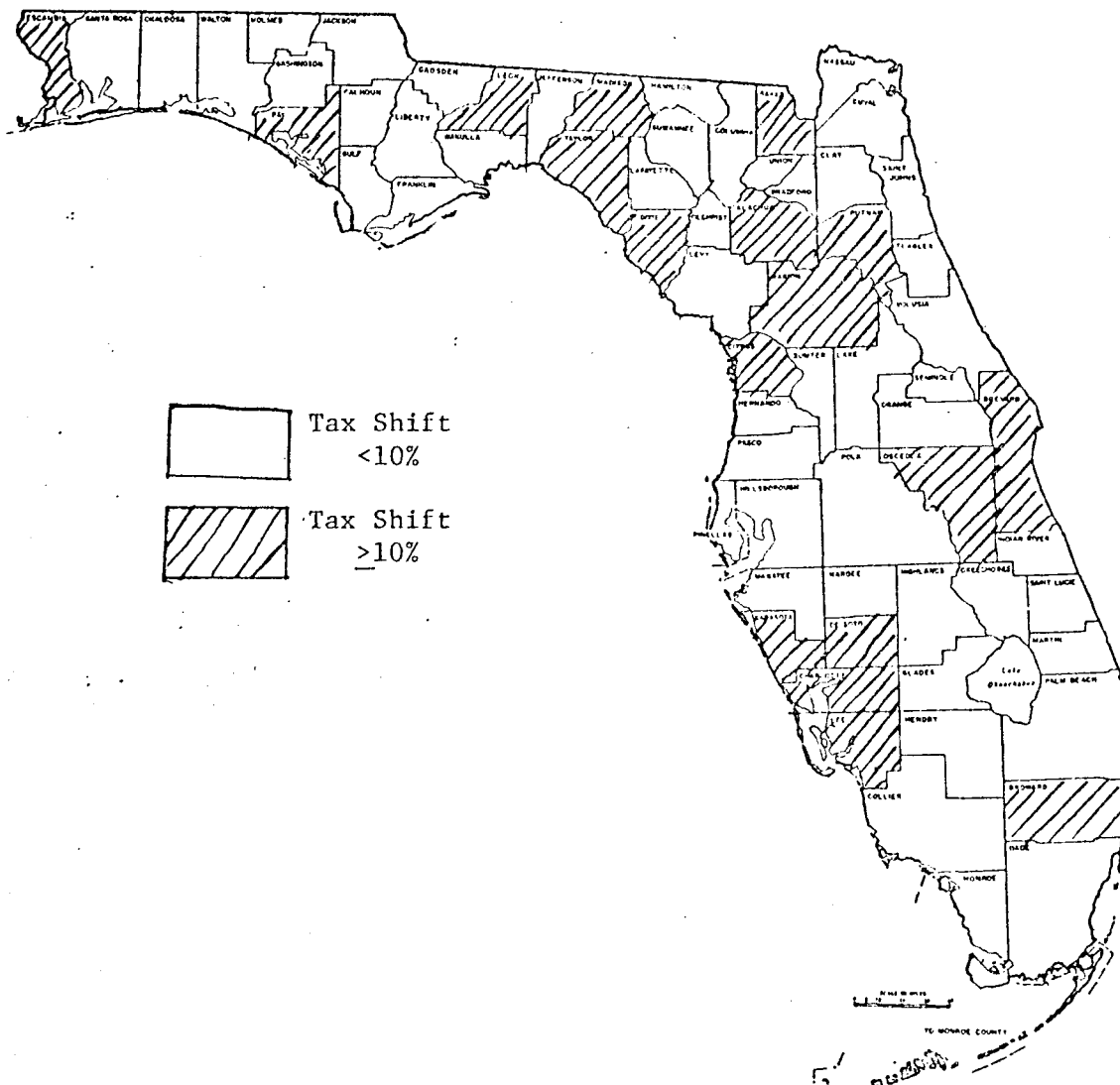


Figure 3. Tax Shift As A Percent of Average Per Farm Net Far Income, Florida Counties, 1976.



impacted would have been Bay County with over 102 percent of net income per farm earned in 1976 being offset. As indicated in Figure 3, 18 counties would have had over 10 percent of their average net income per farm diverted to property taxes.

Relative Burden of Farm Property Taxation

Data as currently available do not permit a detailed assessment of the relative real property tax burden either within or between agricultural and nonagricultural sectors. Still, some tentative comparison are possible.

A recent study by staff of the Florida House of Representatives [15] reported the property tax incidence for Florida households by income class. Utilizing data for 1974-1975, the results presented in Table 9 were obtained. Incidence--measured as taxes paid as a percent of average income per household income group--was found to be regressive. Levels of incidence ranged from 4.2 percent in the lowest income group to 2.46 percent in the \$15,000-24,999 group. The average level of incidence for households was 2.8 percent.

A somewhat similar set of calculations were made for this report for agricultural operators. Net income per farm was computed from Bureau of Economic Analysis (U.S. Department of Commerce) income data and 1974 U.S. Census of Agriculture [41] data on farm numbers by county. These figures reflect proprietor's net income per farm which is roughly comparable to household income. Given the 1974 use-value assessment of agricultural real property and county millage rates, property tax collections from agricultural property were determined. Counties were

Table 9.--Relative Burden of Ad Valorem Property Taxation by Household
Income Group, Florida, 1974-1975.*

Income Group	Property Tax Relative Burden
(\$)	(%)
<3000	4.20
3000-4999	3.83
5000-6999	3.53
7000-9999	3.28
1000-11999	2.79
12000-14999	2.67
15000-24999	2.46
<u>≥25000</u>	<u>2.67</u>
Overall	2.80

*Source: The Burden of Florida Taxes by Income Class: 1974-75, Finance
and Taxation Committee, Florida House of Representatives, June 9, 1978,
p. 49.

classified according to the household income levels in Table 9 using the computed per farm income values. The sum of income received within each of these groups was divided into the respective total property taxes paid on agricultural real property. The result was a measure of real property tax burden relative to income. These results are presented in Table 10. As can be seen, the property tax burden as calculated is highly regressive. At the lower income levels, the degree of regressivity clearly outstrips that faced by households. On the upper income end, the relative burden on agricultural property holders conforms with that reported for households. It should be noted that the net per farm incomes reported for counties in Table 10 include only earnings from agriculture. Households on farms with outside earnings are not reflected in these data. The relative burden percentages and the degree of regressivity indicated in Table 10 thus overstate the impact of the property tax in a household context. It should also be pointed out that the property tax burden on agriculture is understated by omissions of property taxes paid via consumption. That is, the farm operation purchases inputs and makes household purchases that include property taxes passed through in prices. These taxes were accounted for in the data of Table 9 but are represented in Table 10.

The preceding analysis followed the traditionalist line of argument: relative burden should be measured as it relates to income available for consumption. The revisionist view stresses the impact of property tax relative to capital holdings. This latter approach can also be examined for agriculture. Again, data are a problem but an approximation of the burden involved is possible. A crude measure of impact relative to capital holdings is obtained by dividing the value of land

Table 10.--Relative Burden of Ad Valorem Property Taxation by Net Per
Farm Income Groups, Florida Counties, 1976.

Income Group	Number of Counties in Income Group	Property Tax Relative Burden
($\$$)		(%)
≤ 3000	4	79.0
3000-4999	5	16.1
5000-6999	8	7.91
7000-9999	8	5.34
10000-11999	5	4.31
12000-14999	6	3.17
15000-24999	14	3.48
≥ 25000	14	3.30

and buildings for several different income groups into property taxes paid. For purposes of this analysis counties were grouped as in Table 10 with average county per farm net income providing the basis for classification. Total value of land and buildings for Florida counties was obtained from the 1974 U.S. Census of Agriculture [14].

Results of this analysis of property tax burden relative to capital holdings in agriculture are presented in Table 11. Farmers in those Florida counties with lower than average net per farm income apparently bear a larger burden relative to capital holdings. This, of course, is a similar pattern of regressivity as observed when burden was measured in terms of net farm income.

Farmers' Perception of the Property Tax

The actual impact of property taxation and the likely effect of a tax shift in the absence of use value assessment have been described. Of great importance, also, are farmers' perceptions of the property tax, particularly as this tax relates to their perceived ability to continue farming.

A recent survey of rural landowners in Palm Beach County provides some insight on this matter [23]. Palm Beach County's agriculture ranks first in gross sales volume in the State of Florida. Although agricultural land in the coastal portion of the county produced \$44,950,000 dollars worth of vegetables during the 1976-1977 growing season, the land is assuming an even higher value for urban uses. Palm Beach County, with one of the highest rates of residential development in the nation has become". . .the focal point of development within South Florida" [28,p.7]. This is particularly true as virtually all available land has

Table 11.--Property Tax Burden Relative to Capital Holdings by Net Farm
Income Group, Florida Counties, 1974.

Income Group	Property Tax Relative Burden
(<u>\$</u>)	(<u>%</u>)
<u><</u> 3000	1.80
3000-4999	3.20
5000-6999	0.72
7000-9999	1.05
10000-11999	0.74
12000-14999	0.85
15000-24999	0.82
<u>></u> 25000	0.73

already been developed or purchased for future use in Dade and Broward Counties [28, p. 33].

Significantly, a large proportion of the farm owner-operators surveyed (65%) indicated an intention to continue farming for at least another 10 years. Despite their expectation of development interest, these farmers did not intend to sell. In contrast, almost all of the nonfarming landowners (80%) expressed an intention to sell.

Asked to identify serious problems affecting their farm operations, the owner-operators identified rising real estate taxes (41%) as most important. Taxes were ranked ahead of labor (37%), conflict with urban neighbors (6%), vandalism (7%), and other problems.

While Palm Beach County may not be typical of all Florida, it does reflect the situation being faced in many counties. Farmers are confronted with mounting urban pressures and the opportunity to sell their land at inflated prices. Economic viability, at least in the minds of many farmers, could become a questionable proposition under these circumstances.

Some Alternatives for Property Tax Reform

David Ricardo's famous dictum that taxes should ". . .press on all equally, so as to interfere as little as possible with the natural equilibrium. . ." [36,p.7] represents the principal argument which has motivated the use of differential assessment practices to ameliorate the negative aspects of the property tax. However, it is important to realize that 'fiscal neutrality' is but one of the objectives of taxation. Taxes are also used by legislative authorities to create incentives to promote or discourage particular types of economic activity. In the case of the property tax, differential assessments have been used to provide both tax equity and incentives for socially desired land uses. .

The argument for property tax equity is based on both the level of benefits received and the ability-to-pay of particular groups of landowners. It is argued that a tax system without preferential treatment of agricultural landowners is inequitable because residents of rural areas do not receive local public services such as schools, police and fire protection in proportion to the amount of taxes paid. In addition, the farming sector has been shown to pay a larger share of its income in property taxes than the nonfarming sector. As pointed out in Table 1 (pg. 6), since 1955 the portion of national farming income paid out for property taxes has consistently been more than double the portion paid by the nonfarming sector. Without the preferential assessment laws that have come into practice since 1956, the ratio would certainly have been much higher. The second major objective of differential assessments is to establish economic incentives that encourage land use patterns conducive to the public good. It is argued that without differential assessment development pressures would increase land

*It is important to remember that this measure of ability to pay is based on current income. A measure based on wealth might lead to different conclusions about the farming sectors ability-to-pay.

values and tax liabilities thereby forcing premature conversion of farmland to urban development or temporary idleness. As a result, the loss of agricultural land could reduce the potential for food production, inhibit the attainment of economies inherent in large scale farming, and promote the elimination of open spaces with their associated aesthetic benefits by encouraging urban sprawl.

The effectiveness of differential assessment laws in meeting the objectives of tax equity and land use planning has been questioned. Critics of differential assessment of agricultural land point out that the market value of farmland and buildings increased by 101 percent nationally and 104 percent in Florida (2) between 1964 and 1974 and farm owners were exempt from any property tax on this increase in wealth. In the case of farmowners who are holding land for speculative purposes, this untaxed increment represents a windfall when the capital gain on the property is realized. However, for bonafide farmers the untaxed increment remains an unrealized capital gain that does not change the burden of the tax.

There is also little evidence to suggest that differential assessments have prevented the conversion of farmland into urban development. Nationally, total acreage in farming decreased by 6 percent between 1954 and 1974 while the decrease in Florida was 27 percent during the same period [39]. Some researchers have argued that differential assessments slow down the rate of conversion to nonfarming uses [31], but most observers find that there has been no change in conversions in the critical urban-rural fringe area [8,17,19].

In light of these criticisms of differential assessment programs, alternative legislative measures to achieve tax equity and desirable land use have been posed. Some of these measures have been

adopted by individual states during the past few years while others still remain theoretical arguments.

Equity Measures

In terms of tax equity, one problem with differential assessment is that tax benefits are extended to agricultural landowners without regard to the tax burden and the landowners ability to pay. As demonstrated in Table 6 (pg. 18), there is a great deal of variability between counties in the fraction of net income that is paid in property taxes. Similar results have been found in other states [35].

One means of circumventing this problem is a farm property tax circuit-breaker. In basic design this relief remedy is analogous to the residential circuit-breaker that has been adopted by 25 states to protect low-income families, the elderly, and other homeowners from excessive property taxes. Whenever a farmowner's property tax liability exceeds a predetermined fraction of annual income, the excess liability is regarded as a "tax overload". Relief can then take the form of a cancellation of the debt, a deferral, or a rebate from the state. As of 1975, only Michigan had enacted a special circuit-breaker for farmers [3]. The tax liability ceiling was fixed at 7 percent of income and participation requires a restrictive agreement that the land use will not change for ten years.

In addition, the farm property tax circuit-breaker avoids the difficulty of determining the use value of land. All land is assessed at fair market value, and the additional administrative costs of determining the appropriate use value are eliminated. However, there are some disadvantages. The circuit-breaker concept would favor those agricultural producers with a high ratio of taxable property to income and those located in relatively high tax districts [25]. This would create an incentive to

invest in capital improvements and taxable property as opposed to employing farm labor. Also, it has been argued that the circuit-breaker would subsidize and encourage inefficient producers [38]. Last of all, a major stumbling block is the proper definition of income upon which to base the tax liability ceiling. The use of current annual income may unnecessarily compensate high income producers in a year of less than average returns [1].

Land Use Measures

From its inception, use value assessment has been looked upon as one solution for protecting open space areas that lie in the path of suburban growth. However, as pointed out in the first section of this paper, few commentators are willing to express much optimism for the success of a use value assessment program for this purpose. As a result, several land use control provisions have been suggested as complements for existing preferred status tax programs or to replace those programs altogether.

The most explicit means of controlling land use for public purposes is through exercise of the state's power of eminent domain. A fee simple purchase and leaseback program assures prime farmland retention but ~~it is~~ an expensive technique and could be deemed unconstitutional if specific public benefits were not demonstrated [24].

A similar program is the creation of a trust. Under the community trust concept, farmland owners and the local government enter into an agreement in which a portion of the land is devoted to the trust and the remaining land can be developed. This is a voluntary agreement which permits the farmland owners to maintain ownership of the farm property while receiving preferred tax status. The community benefits from the resulting land use control and the guarantee that the trusted land will not be developed. The developable land could be sold by the farmland owner at market prices and the property

taxes on that land would rise as the developmental value increased [32].

An alternative approach for farmland preservation is through zoning. Most of the 50 states use some form of zoning regulation to control land use and density. Twenty-seven state legislatures have authorized their local jurisdictions to zone rural lands specifically for farm use. Many of the so-empowered localities have chosen to treat farming as a residual land use, however, zoning land for agriculture until another use arises. Only thirteen local jurisdictions have enacted ordinances which actually prohibit nonfarm uses. Difficulties with exclusive agricultural zoning are those which characterize zoning generally: reduction of property value due to restrictions on use; infringement of Constitutional guarantees against the taking of property without just compensation; and experience with zoning which suggests that granting of variances may erode the strength of the ordinances. On the positive side, exclusive agricultural zoning can retain large, contiguous blocks of land. It can provide the basis for lower property taxes since value in use and value in the market will be essentially the same.

The State of New York has established an agricultural districts program. These agricultural districts are formed by the voluntary actions of local farmland owners. For their agreement through a 10 year contract to keep their land in agricultural use, farmers receive from local government preferred tax status and special concessions on environmental regulations and development programs in order to maintain the integrity of the district [10]. Although well over one-third of all agricultural land in New York was included in agricultural districts in 1976, most of this land was in rural areas [4]. The districting approach has encountered more resistance and lower participation in developing and semi-suburban areas [7].

Compensable zoning is another means of using local planning ordinances to preserve farmlands and open spaces. Under this program, land owners

would be compensated for the loss of developmental value of the land that is zoned strictly agriculture. Compensation would not be paid until the landowner sells the property under the theory that only realized capital gains are relevant [33]. Although this proposal has not been implemented within the U.S., it is quite similar to the transfer of development rights (TDR) programs which have received considerable attention.

The basic premise of TDR programs is that the speculative value of a land parcel can be separated from the other factors that contribute to the market price of the land. This implies that the developmental potential reflected in the market price of the parcel is separate and distinct from the income-producing capability of the land in agricultural use. Developmental rights that are assigned to particular districts and parcels by zoning regulations can be freely transferred by private owners within the district. By this method, certain portions of a district are developed to greater densities than would normally be allowed while other portions are kept free of development. The result is development at the same overall density within the district that would have occurred without the preservation of open spaces. One such plan involving environmentally sensitive land is currently in operation in Collier County, Florida [37].

Since TDR programs for agricultural land have not been widely used, their problems and effectiveness cannot be evaluated on the basis of past experience. Principal legal problems revolve around the constitutionality of specific plans and regulation of the market for TDR's [24]. Economic problems include the presence of noncompetitive behavior toward TDR's and the redistributive consequences for TDR traders and other affected parties within the district [13]. The lack of a successful resolution of these problems has inhibited the implementation an agricultural TDR program. The considerable literature generated on this subject during the past five years indicates that the concept has captured many researchers interests.

Another concept that has captivated tax reformers is a system based on site value taxation. First popularized by Henry George in the late 1800's, site value taxation imposes a "single tax" on land values while exempting all capital improvements. It is argued that a tax of this nature would encourage more productive uses of undeveloped land and eliminate the disincentive to upgrade commercial and residential structures caused by the tax on capital improvements [26,16]. Furthermore, site value proponents claim that the tax is administratively feasible since it could be based on market sales [21].

Despite the lively debate over the merits of site value taxation during the past century (George's main treatise Progress and Poverty was first published in 1879), the tax has never been used in the United States and has had only limited application in other countries [42]. Studies which have simulated the impact of a site value tax are in general agreement that capitalization of the tax would reduce land values. Properties with low improvement/land ratios would experience greater than average land value losses while properties with more extensive capital improvements would have a less than average decline in land values [27,30]. However, there is considerable disagreement about the final incidence of a site value tax. The greater the extent to which landowners are able to pass on the current tax on improvements the less likely it is that transition to a site value tax would increase the tax burden on landowners [12]. But, the controversy over the incidence of the current property tax system discussed in the first section of this paper prevents any firm conclusion about the shiftability of the tax on improvements.

Summary

Considering the widespread disagreement about the incidence of the property tax, it is clear that a broad generalization about the impact of the property tax on agricultural producers is ill-advised. However, there is considerable national and Florida data to support the contention that the relative burden on agriculture is greater than that imposed on other groups. Due to the inelasticity of the property tax, the tax burden can impose a serious hardship during periods of low farm product prices and income. Although use value assessment has reduced the burden, there is little evidence to indicate that it has led to more equitable taxation of agricultural landowners.

Similarly, the tremendous difference between just value and use value in Florida counties indicates that there is considerable pressure on farmland owners to convert their property to other uses. While a use value assessment program may reduce some of the costs of retaining agricultural land, it provides little hope of deterring urban development in the long run. The experience of other states with economic and administrative programs for farmland and open space preservation offer some alternatives for augmenting a preferential assessment program. However, these alternatives may offer little hope of preventing conversion in the critical urban-rural fringe area. In the words of an eminent land use economist:

"Most authorities who recommend use-value assessment as a means of protecting agricultural and open space lands see it primarily as a way for buying time until other programs can be developed for this purpose. In this respect it is important that use-value assessment be visualized as only one of the several public policy tools that can be used to help direct land use along socially desirable lines. Use-value assessment can be used effectively in rural and semi-rural areas to provide tax savings inducements to owners to get them to treat their

lands in a particular manner. But over the longer run, it must be supplemented with other programs if a final goal of protecting and preserving agricultural and other lands is to be attained" [6, pg. 28].

References

1. Aaron, H. "What Do Circuit-Breaker Laws Accomplish? in Property Tax Reform edited by G.E. Peterson, Washington, D.C.: The Urban Institute (1973).
2. Aaron, H.J. Who Pays the Property Tax? A New View, Washington D.C.: The Brookings Institution (1975).
3. Advisory Commission on Intergovernmental Relations, Property Tax Circuit-Breaker: Current Status and Policy Issues, M87, Washington D.C., February, 1975.
4. Agricultural Resources Commission, State of New York, Monthly Report on the Status of Agricultural Districts, No. 44, June, 1976.
5. Almy, R. ed., Property Tax Incentives for Preservation: Use-Value Assessment and The Preservation of Farmland, Open Space and Historic Sites, Proceedings of the 1975 Property Tax Forum, International Association of Assessing Officers, Washington, D.C. (1975).
6. Barlowe, R. and T.R. Alter, Use-Value Assessment of Farm and Open Space Lands, Research Report No. 308, Michigan State University September, 1976.
7. Bryant, W.R. and H.E. Conklin, "New Farmland Preservation Programs in New York," Journal of the American Institute of Planners, Vol. 41 November, 1975.
8. Carman, H.F. and J.G. Polson "Tax Shifts Occuring as a Result of Differential Assessment of Farmland: California 1968-1969" National Tax Journal Vol. 24, No. 3, December, 1971.
9. Carmichael, D.M. "Transferable Development Rights as a Basis for Land Use Control" Florida State Law Review, Vol. 2 (1975).
10. Conklin, H.E. and W.R. Bryant, "Agricultural Districts: A Compromise Approach to Agricultural Preservation," American Journal of Agricultural Economics, Vol. 56, August, 1974.
11. Coughlin, R.E., D. Berry, and T. Plaut, "Differential Assessment of Real Property as an Incentive to Open Space Preservation and Farmland Retention". National Tax Journal, Vol. 31, No. 2 (1977).
12. Cuddington, J.T. "Estimating Impacts of a Property Tax Reform". Land Economics, Vol. 54, August, 1978.
13. Field, J. and C. Conrad, "Economic Issues, in Programs of Transferable Development Rights," Land Economics, Vol. 51 (1975).
14. Florida Department of Revenue, Florida Ad Valorem Valuations and Tax Data, 1973, 1974, 1975, 1976.

15. Florida House of Representatives, Finance and Taxation Committee, The Burden of Florida Taxes by Income Class: 1974-75, June 1978.
16. Gaffney, M., "An Agenda for Strengthening the Property Tax" in Property Tax Reform, edited by G.E. Peterson, Washington, D.C.: The Urban Institute, (1973).
17. Gustafson and Wallace, "Differential Assessment as Land Use Policy The California Case" Journal of the American Institute of Planners, Vol. 41, (1975).
18. Hady, T.F. "The Incidence of the Personal Property Tax, National Tax Journal 15, 4, December, 1962.
19. Hansen, D. and S. Schwartz, "Landowners Behavior at the Rural-Urban Fringe in Response to Preferential Property Taxation," Land Economics, Vol. 51 (1975).
20. Hansen, D. and S. Schwartz "Prime Land Preservation: The California Land Conservation Act", Journal of Soil and Water Conservation, Vol. 31 September-October, 1976.
21. Hicks, U.K. "Can Land Be Assessed for Purposes of Site Value Taxation?" in The Assessment of Land Value-A Symposium, Madison, Wisconsin: University of Wisconsin Press, (1970).
22. Keene, J.C., R.E. Coughlin, J. Farnam, E. Kelley, T. Plaut, and A.L. Strong, Untaxing Open Space, Council on Environmental Quality (Washington, D.C. 1976).
23. Krupensky, Ruth E. The Attitudes of Rural Landowners and Farmers Toward Retention of Farmland in Palm Beach County, Florida, Unpublished M.A. Thesis, Department of Urban and Regional Planning, University of Florida, 1979.
24. Lapping, M.B., R.J. Bevins: and P.V. Herbers, "Differential Assessment and Other Techniques to Preserve Missouri's Farmlands," Missouri Law Review, (1977).
25. Lockner, A.O. and H.J. Kim, "Circuit-Breakers on Farm-Property-Tax Overload: A Case Study" National Tax Journal, Vol. 26,(June, 1973).
26. Netzer, D., Economics of the Property Tax, Washington, D.C.: The Brookings Institute, (1966).
27. Neuner, E.J., D.P. Popp and F.D. Sebol, "The Impact of a Transition on Various Classes of Property in San Diego", Land Economics, Vol. 50, May, 1974.
28. Palm Beach County Planning, Zoning, and Building Department, Palm Beach County Land Use Plan, West Palm Beach, Florida, 1972.
29. Pasour, E.C. "The Capitalization of Real Property Taxes Levied on Farm Real Estate" American Journal of Agricultural Economics Vol. 57 November, 1975.

30. Pollock, R.L. and D.C. Shoup, "The Effect of Shifting the Property Tax Base from Improvement Value to Land Value: An Empirical Estimate" Land Economics, Vol. 53, February, 1977.
31. Proceedings of the Seminar on Taxation of Agricultural and Other Open Land, April 1-2, 1971; Michigan State University. Papers by S. Ishee and S. Garrison.
32. Reuter, R. "Preserving Farm Land Through Zoning and a Community Land Trust," Land Use Control Annual, Vol. 169 (1971).
33. Rose, J. "A Proposal for the Separation and Marketability of Development Rights as A Techniques to Preserve Open Space", Real Estate Law Journal, Vol. 2 (Winter, 1974).
34. Sandler, T.M. and R.B. Shelton, "Fiscal Federalism, Spillovers, and the Export of Taxes", Kyklos, Vol. 25, 4 (1972).
35. Schoeplein, R.N. and J.D. Schoeplein, "A Second Look at the Impact of Differential Assessment of Farmland and Consequent Tax Shifting: Comment", American Journal of Agricultural Economics, Vol. 54, November, 1976.
36. Shoup, Carl S., Ricardo On Taxation, Morningside Heights, N.H.: Columbia University Press (1960).
37. Spagna, N.J. "Transfer of Development Rights: The Collier County Experience", Florida Environmental and Urban Issues, Vol. 6 February, 1979.
38. Stewart, D.O. "Comparison of Property Tax Circuit-Breakers Applied to Farmers and Homeowners: Comment", Land Economics, Vol. 54 August, 1978.
39. U.S. Department of Agriculture, Agricultural Statistics: 1974, Washington, D.C.: U.S. Government Printing Office, (1975).
40. U.S. Department of Agriculture, Economic Research Service, Farm Income Statistics, SB-557, July, 1976.
41. U.S. Department of Commerce, Bureau of Census, Census of Agriculture, 1974.
42. Williams, E.T. "Site Value Taxation-How Does It Relate to Forest Land?" National Tax Journal, Vol. 27, March, 1974.

Selected Bibliography

Articles

- Barlowe, Raleigh, James G. Ahl, and Gordon Bachman, "Use-Value Assessment Legislation in the United States", Land Economics, Vol. 49, No. 1 (May 1973).
- Bendick, Marc, Jr., "Designing Circuit Breaker Property Tax Relief", National Tax Journal, Vol. 27, No. 1 (March 1974).
- Berry, R. Albert, "Presumptive Income Tax on Agricultural Land: The Case of Columbia", National Tax Journal, Vol. 25, No. 2 (June 1972).
- Black, David E., "Property Tax Incidence: The Excise-Tax Effect and Assessment Practices", National Tax Journal, Vol. 30, No. 4 (December 1977).
- Bowman, John H. and John L. Mikesell, "Uniform Assessment of Property: Returns From Institutional Remedies", National Tax Journal, Vol. 31, No. 2. (June, 1978).
- Bryant, William R. and Howard E. Conklin, "New Farmland Preservation Programs in New York", AIP Journal (November 1975).
- Buchanan, James M., "Public Finance and Public Choice", National Tax Journal, Vol. 27, No. 4 (December 1975).
- Carman, Hoy F. and Jim G. Polson, "Tax Shifts Occurring As a Result of Differential Assessment of Farmland: California, 1968-69", National Tax Journal, Vol. 24, No. 4 (December 1971).
- Ching, C.T.K. and G.E. Frick, "Effects of Use Value Assessment on Property Tax Rates", American Journal of Agricultural Economics, Vol. 52, No. 11 (1970).
- Conklin, H.E. and W.R. Bryant, "Agricultural Districts: A Compromise Approach to Agricultural Preservation", American Journal of Agricultural Economics, Vol. 56 (August 1974).
- Conklin, Howard E. and William G. Leshner, "Farm-Value Assessment as a Means for Reducing Premature and Excessive Agricultural Disinvestment in Urban Fringes", American Journal of Agricultural Economics, Vol. 59, No. 1 (February 1977).
- Coughlin, Robert E., David Berry, and Thomas Plaut, "Differential Assessment of Real Property as an Incentive to Open Space Preservation and Farmland Retention", National Tax Journal, Vol. 31, No. 2.
- Cuddington, John T., "Estimating Impacts of a Property Tax Reform", Land Economics, Vol. 54, No. 3.

- Desalve, Joseph S., "Effects of the Property Tax on Operating and Investment Decisions of Rental Property Owners", National Tax Journal, Vol. 24, No. 1 (March 1971).
- Gardner, Delworth B., "The Economics of Agricultural Land Preservation", American Journal of Agricultural Economics, Vol. 59, No. 5.(December, 1978).
- Gold, Steven D., "A Note on the Design of Property Tax Circuitbreakers", National Tax Journal, Vol. 29, No. 4 (December 1976).
- Greenberg, Joseph, "Existence of an Equilibrium with Arbitrary Tax Schemes for Financing Local Public Goods", Journal of Economic Theory, Vol. 16 (1977).
- Grieson, Ronald E., "Effects of the Property Tax on Operating and Investment Decisions of Rental Property Owners: A Note", National Tax Journal, Vol. 26, No. 1 (March 1973).
- Hady, Thomas F., "Differential Assessment of Farmland on the Rural-Urban Fringe", American Journal of Agricultural Economics, Vol. 52, No. 2 (1970).
- Hamilton, Bruce W., "The Effects of Property Taxes and Local Public Spending on Property Values: A Theoretical Comment", Journal of Political Economy.
- Hansen, David E. and S.I. Schwartz, "Landowner Behavior at the Rural-Urban Fringe in Response to Preferential Property Taxation", Land Economics (November 1975).
- Harriss, C. Lowell, "Land Value Increment Taxation: Demise of the British Betterment Levy", National Tax Journal, Vol. 25, No. 4 (December 1972).
- Klemperer, W. David, "An Economic Analysis of the Case Against Ad Valorem Property Taxation in Forestry - A Comment", National Tax Journal, Vol. 30, No. 4 (December 1977).
- Lapping, Mark B., Robert J. Bevins, and Paul V. Herbers, "Differential Assessment and Other Techniques to Preserve Missouri's Farmlands", Missouri Law Review, Vol.42,(1977).
- Lockner, Allyn O. and Han J. Kim, "Circuit-Breakers on Farm-Property-Tax Overload: A Case Study", National Tax Journal, Vol. 26, No. 2 (June 1973).
- Meyers, Harold B., "Tax-exempt Property: Another Crushing Burden for the Cities", Fortune, Vol. 79, No. 5 (1969).
- McClure, Charles E., Jr., "The 'New View' of Property Tax: A Caveat", National Tax Journal, Vol. 30, No. 1 (March 1977).

- McMillan, Melville and Richard Carlson, "The Effects of Property Taxes and Local Public Services Upon Residential Property Values in Small Wisconsin Cities", American Journal of Agricultural Economics, Vol. 59, No. 1 (February 1977).
- Netzer, Dick, "The Incidence of the Property Tax Revisited", National Tax Journal, Vol. 26, No. 4 (December 1973).
- Paglin, Morton and Michael Fogarty, "Equity and the Property Tax: A New Conceptual Focus", National Tax Journal, Vol. 25, No. 4 (December 1972).
- Pasour, E.C. and D.L. Holley, "An Economic Analysis of the Case Against Ad Valorem Property Taxation in Forestry", National Tax Journal, Vol. 29, No. 2 (June 1976).
- Perkins, George M., "The Demand for Local Public Goods: Elasticities of Demand for Own Price, Cross Prices, and Income", National Tax Journal, Vol. 30, No. 4.
- Sabella, Edward M., "Equity and the Property Tax: A Comment and an Alternative Conceptual Framework", National Tax Journal, Vol. 26, No. 4 (December 1973).
- Schwartz, S.I., David E. Hansen, and T.C. Foin, "Landowner Benefits from Use-Value Assessment Under the California Land Conservation Act", American Journal of Agricultural Economics, Vol. 58, No. 2 (May 1976).
- Shoepflein, Robert N. and Justine D., "A Second Look at the Impact of Differential Assessment of Farmland and Consequent Tax Shifting", American Journal of Agricultural Economics, Vol. 55, No. 11 (1972).
- Skouras, Athanassios, "On the Analysis of Property Tax Effects on Operating and Investment Decisions of Rental Property Owners", National Tax Journal, Vol. 26, No. 1 (March 1973).
- Snyder, J. Herbert, "A New Program for Agricultural Land Use Stabilization - The California Land Conservation Act of 1965", Land Economics, Vol. 42, No. 2 (1966a).
- Snyder, J. Herbert, "Toward Land Use Stabilization Through Contracts", Natural Resources Journal, Vol. 6, No. 7 (1966b).
- Stewart, Douglas O., "Comparison of Property Tax Circuit-Breakers Applied to Farmers and Homeowners: Comment", Land Economics, Vol. 54, No. 3 (August, 1978).
- Supalla, Raymond J., "Land Use Planning: An Institutional Overview", American Journal of Agricultural Economics, Vol. 58, No. 5.
- Welch, Ronald B., "Property Tax Developments: Modernization, Classification, Site Value Taxation", National Tax Journal, Vol. 27, No. 3 (September 1976).
- Wershow, James, S., "Ad Valorem Assessments in Florida - Whither Now?", University of Florida Law Review, Vol. 18, No. 1 (1965).

White, F.C., B.R. Miller, and C.A. Logan, "Comparison of Property Tax Circuit Breakers Applied to Farmers and Homeowners", Land Economics, Vol. 52 (August 1976).

White, Fred C. and Bill R. Miller, "Comparison of Property Tax Circuit Breakers Applied to Farmers and Homeowners: Reply", Land Economics Vol. 54, No. 3.

Williams, E.T., "Site Value Taxation - How Does It Relate to Forest Land", National Tax Journal, Vol. 27 (March 1974).

Wunderlick, Gene, "Property and the Future of Agriculture", American Journal of Agricultural Economics, Vol. 58, No. 5.

Technical Reports

Barlowe, Raleigh and Theodore R. Alter, Use-Value Assessment of Farm and Open Space Lands, Research Report 308, Development and Public Affairs, Michigan State University (September 1976).

Barrows, Richard and Monroe Rosner, Public Land and Property Taxes, Research Report R2794, University of Wisconsin-Madison, College of Agricultural and Life Sciences.

Barrows, Richard L. and Bruce A. Prenguber, Transfer of Development Rights: A Theoretical and Case Study Analysis of a New Land Use Policy, Center for Resource Policy Studies, School for Natural Resources, University of Wisconsin-Madison, Research Report R2771.

Boyce, David E., Janet Kohlhasse and Thomas Plaut, Estimating the Value of Development Easements on Agricultural Land: Methods and Empirical Analysis, Regional Science Research Institute, Philadelphia (October 1977).

Bryant, William R., The Effects of Urban Expansion on Farming in Wayne County, New York, A.E. Res. 75-28, Cornell University Agricultural Experiment Station (October 1975).

Cochran, Mark and Lawrence Libby, "Evaluation of the Michigan Farmland and Open Space Preservation Act of 1974", Michigan Farm Economics, Department of Ag. Econ., No. 411, Michigan State University Cooperative Extension Service (April 1977).

Corty, Floyd L. and Kermit J. Coulon, Jr., The Property Tax as a Source of Revenue to Finance Local Public Services in Rural Parishes in Louisiana, D.A.E. Research Report No. 488, Louisiana State University (June 1975).

Daugherty, Arthur B., Open Space Preservation: Federal Tax Policies Encouraging Donation of Conservation Easements, U.S. Department of Agriculture, Economics, Statistics, and Cooperatives Service, ESCS-32 (August 1978).

Diamond, Douglas B., Jr., Taxes, Public Services, Property Values, and the Tiebout Hypothesis, Urban Economics Report No. 161, The University of Chicago.

Drummond, H. Evan, A Property Tax Model for Oklahoma, Agricultural Experiment Station, Oklahoma State University, Research Report P-730 (December 1975)

The Eagleton Poll, New Jersey Residents and Farmland Preservation: A Survey of Citizens' Attitudes, Final report prepared for the New Jersey Department of Agriculture by Eagleton Poll, Eagleton Institute of Politics (April 1978).

Infanger, Craig, L., W. Wilson Hourigan and Johannes Van Veen, Preservation of Farmland: A Guide to Policy Issues and Alternatives, University of Kentucky, College of Agriculture.

Luke, George W., ...Actively Devoted...The First Decade of the New Jersey Farmland Assessment Act, Cook College, Rutgers--The State University of New Jersey (February 1976).

Sorensen, Donald M. and Herbert H. Stoevener, Economic Issues in Land Use Planning, Western Rural Development Center Special Report No. 3, Oregon State University, Agricultural Experiment Station.

Bulletins

Barron, James C. and James W. Thomson, Impacts of Open Space Taxation in Washington, Washington Agricultural Experiment Station, Bulletin 772, Washington State University (March 1973).

Barrows, Dick, Farmland and Open Space Taxes: What Kind of Law for Wisconsin? Department of Ag. Economics, University of Wisconsin-Extension (August 1974).

Barrows, Richard, Wisconsin's Farmland Preservation Program, University of Wisconsin-Extension, G2890 (September 1977).

Barrows, Richard L., Wisconsin's New Farmland Preservation Act: A Comparison With Other States, Economic Issues, Department of Agricultural Economics University of Wisconsin-Madison, No. 13 (September 1977).

Barrows, Richard and Richard W. Dunford, Agricultural, Urban, and Recreational Determinants of Farmland Values in Wisconsin, Research Division, College of Agricultural and Life Sciences, University of Wisconsin-Madison, Research Bulletin R2764.

Baumann, Michael and Durward Brewer, Methods in Agricultural Land Taxation University of Missouri-Columbia, Extension Division, MP 303 (September 1972).

- Bills, Nelson L., Location of Agricultural Districts Relative to Urban Places in New York, Contributed paper presented at the annual meeting of the American Agricultural Economics Association, San Diego, California, Cornell Agricultural Economics Staff Paper No. 77-22 (August 1977).
- Colette, W. Arden, Classified Use Value of Agricultural Land for Ad Valorem Taxation, IFAS, Food and Resource Economics Department, University of Florida, No. 18 (September-October 1977).
- Drummond, H. Evan, Some Thoughts on Determining Use Value of Agricultural Property in Oklahoma, Agricultural Economics Paper AE7602, Oklahoma State University (March 1976).
- Hady, Thomas F. and Ann Gordon Sibold, State Programs for the Differential Assessment of Farm and Open Space Land, Agricultural Economic Report No. 256, Economic Research Service, USDA (April 1974).
- Huie, J.M. and J.R. Gordon, How Should Indiana State and Local Government Be Financed? Purdue University, Cooperative Extension Service, EC-410 (September 1972).
- Johnson, Walter W. and William M. Carroll, "Preferential Assessment of Pennsylvania Farmland and Forest Land", Farm Economics, The Pennsylvania State University, Cooperative Extension Service.
- Marshall, J. Paxton, Use-Value Assessment in Virginia: Some Questions and Answers, V.P.I. and State University, Cooperative Extension Service (August 1974).
- Marshall, J. Paxton, Procedure for Determining Use-Value of Agricultural and Horticultural Land in Virginia With Estimated Use-Values for Certain Jurisdictions, V.P.I. and State University, Cooperative Extension Service (September 1974).
- Marshall, J. Paston and C. Steve Tsang, Determining Use-Value of Agricultural Land, V.P.I. and State University, Cooperative Extension Service, No. 270 (June 1975).
- Marshall, J. Paxton, W.L. Gibson, Jr., and Arthur J. Walrath, The Real Property Tax: Adjusting to Reality, V.P.I. and State University, Cooperative Extension Service, M.B. 152 (December 1971).
- Montana Department of Community Affairs, Differential Taxation and Agricultural Land Use, Planning Information Paper, Published by Montana Department of Community Affairs, Helena (October 1975).
- North Central Regional Extension Publication, Property Taxes... Reform, Relief, Repeal, North Central Regional Extension Publication 39.
- Papke, James A., Local Nonproperty Tax Revenue: Alternative Sources, Purdue University, Cooperative Extension Service, EC-291 (September 1964).

Small, Leslie E., Victor Kasper, Jr., and Donn A. Derr, Transfer of Development Rights Marketability, New Jersey Agricultural Experiment Station Bulletin 848 (1978).

Stam, Jerome M. and Ann G. Sibold, Agriculture and the Property Tax, U.S. Department of Agriculture, Economic Research Service, Agricultural Economic Report No. 392.

Ulrich, Martin A. and Wilbur R. Maki, Financing Public Services in West Minnesota, Station Bulletin 509, University of Minnesota, Agricultural Experiment Station (1973).

U.S. Department of Agriculture, Recommendations on Prime Lands, Prepared at the Seminar on the Retention of Prime Lands (July 1975).

USDA Committee for Rural Development, Agricultural Land Taxation Approaches of Selected States, State of Ohio, USDA Committee for Rural Development (February 1974).

Working Papers

Barlowe, Raleigh, Use-Value Assessment: In Retrospect, Michigan State University. (1977).

Bills, Nelson L., Peri-Urban Agriculture: The New York Experience, A report prepared for Organization for Economic Cooperation and Development, Paris, France, NRE Economic Research Service, No. 30 (July 1977).

Bird, Ronald and Thomas F. Hady, State and Local Taxation for Adequate Public Services, Paper presented at seminar on Land Settlement Policy and Real Property Taxation, Southern Land Economics Research Committee, Knoxville, Tennessee (October 1969).

Gustafson, Greg C., Land-Use Policy and Farmland Retention: The United States' Experience, Natural Resource Economics Division, Economic Research Service, No. 28.

Luke, George W., Summary and Recommendations of the Study Entitled "... Actively Devoted... The First Decade of New Jersey's Farmland Assessment Act", Cook College, Rutgers University, A.E. 360 (June 1976).

Mikesell, John L., The Property Tax as a Residual: Some Empirical Evidence, Prepared for presentation at the annual meeting of The Southern Economics Association, Working Papers in Public Finance and Economics, School of Public and Environmental Affairs, Indiana University, 7879-5 (November 1978).

Stam, Jerome M. and Thomad F. Hady, Alternatives to the Property Tax for Educational Finance, for presentation at a Seminar on the Crisis in Public School Finance; Resource Economics Committee of the Great Plains Agricultural Council, Lincoln, Nebraska (April 1972).

Weber, Bruce A. and John F. Savage, Modeling Local Fiscal Behavior: The Response of Oregon County Governments to Mental Health Grants, Paper presented at the meetings of the American Agricultural Economics Association (August 1-3, 1977).