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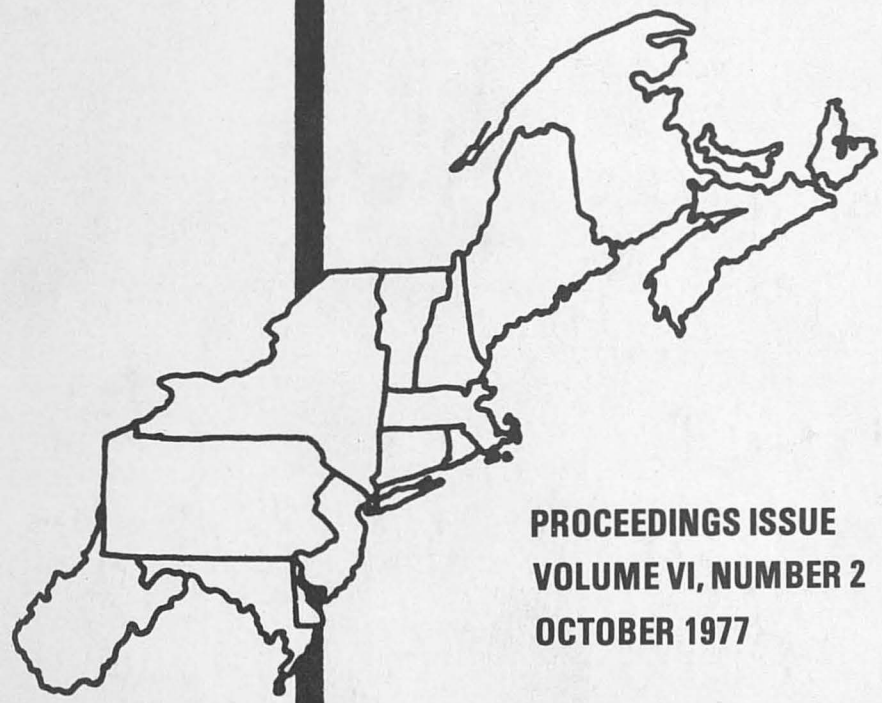
ESTIMATING THE EXTENT TO WHICH THE EXISTING
PROPERTY TAX STRUCTURE IN PENNSYLVANIA, ASIDE FROM PREFERENTIAL
ASSESSMENT, SUBSIDIZES THE AGRICULTURAL SECTOR

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There is widespread use at this time of various tax incentives
(1, 3, 5, 7, 8, 16) to stimulate property owners to maintain agriculture
or open space on their land. The success of such programs will depend
to a great extent upon the monetary incentives that they provide to
property owners. The existence of preferential treatment in the taxing
system prior to the implementation of preferential farmland assessment
legislation has been proven by several authors (2, 4, 12). Such de facto
preferential assessment has been noted in areas other than agricultural
land (13, 20). This type of preferential assessment may be innate to
the system that assessors use in determining the value of farmland
(17, 18), or it may be the result of a conscious effort on the part
of the assessing authorities to give preferential assessment to farm
land and open space (15). The following quotation is taken from the
Lehigh-Northampton County Joint Planning Commission Study, "Act 515 in
Lehigh County - A Follow-Up Study"1/.

> The objective agreed upon by the county commissioners, county
> assessment departments, the Monroe-Northampton Farmers Associa-
> tion, and JPC was to give qualifying property owners a sub-
> stantial assessment reduction from the new Cole-Layer and
> Trumble Co. assessments without reducing Act No. 515 assess-
> ments to the point that they were lower than the old rates.

Thus, there is every indication that de facto preferential farmland
assessment has been practiced in Pennsylvania for a number of years.
The purpose of this report is to measure the actual dollar amount of
this subsidization to the agricultural sector. A methodology for doing
this is suggested by the various sales assessment ratio studies which
are now prevalent in the literature on assessment statistics (2, 9, 10,
19, 21). To provide data on which to use this methodology we have
chosen Centre County, Pa., which has been recently reassessed with an

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1/Act 515 is the first preferential farmland assessment legislation
enacted in Pennsylvania. This report was issued by the Joint Planning
Commission of Lehigh-Northampton Counties, BEA Airport, Lehigh Valley,
Pa., 18103, September 1975, p. 13.

automated evaluation system, so that the estimated assessments in the county are now quite reliable. Similar data are also available for most counties of Pennsylvania.

Since the millage rate may be represented as the tax per $1,000 of the _assessed_ value of property, then the tax per $1,000 of the _true market_ value will be the millage rate multiplied by the ratio of the assessed value to the true market value.

Thus for a given _class_ of property in a given taxing jurisdiction the average tax per dollar invested in real property may be estimated by the following formula:

$$t_j = \left(\frac{\sum_i A_{ij}}{\sum_i M_{ij}} \right) \times r \tag{1}$$

where: t_j = the average tax per $1,000 market value of properties in class j,

A_{ij} = the assessed value of property i, in class j,

M_{ij} = the market value of property i, in class j,

r = the millage rate.

The ratio in parentheses in the above formula must be estimated since the market values of all properties are not known. However, estimates of these ratios may be made from data obtained from actual sales where such sales are known to be made by willing sellers to willing buyers. Such estimates are made by the State Tax Equalization Board (STEB) every year for each class of property in every taxing jurisdiction in the Commonwealth of Pennsylvania. When a large number of sales occur every year, these sales are assumed to approximate a random sample of all properties on the tax rolls. However, if for some class of properties in some taxing jurisdiction few sales occur, it is the responsibility of the STEB to employ appraisers to estimate the market values of a representative sample of properties of that class in that jurisdiction.

The so-called "STEB" ratios were used in the research here reported. For purposes of the analysis the following notation will be used:

$$(STEB)_j = \sum_i A_{ij} / \sum_i M_{ij} \text{ for all } j. \tag{2}$$

Thus the formula (1) will be represented as:

$$t_j = (STEB)_j \, r \, .$$

From the definition of t_j it is apparent that taxes are uniform on all classes of property within a taxing jurisdiction if, and only if, t_j is as constant for all classes of property within that taxing jurisdiction. By the same token, if t_j is not uniform then some classes of properties have a tax advantage over others. This tax advantage may be considered a subsidy, since tax relief to one class of properties must be balanced by an extra burden of taxes paid on other classes of properties, so that the services of government paid for by real estate revenues may be maintained.

Significant differences in the various assessment levels of properties have been determined by several investigators [2, 4, 12]. All these studies indicate that commercial properties are over-valued relative to residential properties, and that lots and farm land are under-valued relative to residential properties. Thus, for purposes of this study, there are four classes of property: residential properties, lots, commerical and industrial properties, farms and land. The STEB ratio is used to equalize the market value on each of the various total assessments for the class of properties within an assessing jurisdiction. This total market value is then divided by the equalized ratio, which is the sum of all the assessments divided by the sum of all market values for the jurisdiction. To this equalized assessment is applied the current millage rate the same as it is applied to the regular assessment, and the computations are made on the basis of the difference between the two taxes. These are total taxes for the assessing jurisdiction, which may be a county, a school district, or a municipality in Pennsylvania.

In Table 1 the average county tax per $1,000 market value in agriculture is compared with the average tax per $1,000 market value for all properties of all classes for a sample of counties in Pennsylvania. It is apparent from this comparison that there has been substantial tax subsidization of agricultural property in these counties.

Table 2 shows for a sample of counties the total amount of county tax subsidy to agricultural properties in 1973, and expresses this as the average relief per dollar county tax paid on agricultural property. In this sample the relief varies from 17¢ to 91¢ for each dollar paid. The tax relief or subsidy on agricultural property must be balanced by an additonal burden on all other properties. The table shows that this burden varies from 0.5¢ to 9.6¢ per dollar of county tax paid on all other types of properties in these counties.

For any county the subsidy varies from year to year as the millage changes and when there is a general reassessment of real estate. Table 3 shows the figures for years 1973, 1974, and 1975 for county C (Table 2). In this county reassessments began in 1974 and were completed in 1975.

Table 1
County Tax Per $1,000 Market Value of Agricultural Property
and of All Real Estate in Selected Counties of Pennsylvania, Year 1973

| | Tax Per $1,000 Market Value | |
County	Agricultural Properties	All Real Estate
A	$1.56	$2.98
B	2.24	2.83
C	1.24	2.18
D	3.97	6.28
E	1.65	2.41
F	1.47	1.72

Table 2
County Tax Subsidies to All Agricultural Properties
in Selected Counties of Pennsylvania in 1973

| | | | Subsidy | |
County	Millage	Amount $	Benefit to Farm Owners Per Dollar Tax on Farms	Cost to Non-Farm Owners Per Dollar Tax Paid on Non-Farm Properties
A	11.0	106,006	91.0¢	4.8¢
B	12.0	378,140	83.2¢	7.5¢
C	12.5	101,438	74.9¢	6.8¢
D	15.5	370,213	58.3¢	0.5¢
E	19.0	30,064	31.7¢	9.6¢
F	9.0	46,253	17.0¢	2.9¢

Table 3
Estimated Total Property Tax Subsidies to Agricultural Properties
in a Selected County[1] in Pennsylvania for Years 1973, 1974, 1975

	1973	1974[2]	1975[2]
Amount of Subsidy (all real estate taxes)	$393,147	$451,159	$498,769
Benefit to Farm Owners Per Dollar Tax on Farm	52.2¢	66.3¢	56.9¢
Cost to Non-Farm Owners Per Dollar Tax Paid on Non-Farm Properties	3.8¢	4.3¢	4.2¢

[1]The selected county is county C in Table 4.

[2]All real estate in the county was reassessed during the two year
period 1974 and 1975.

Within any county there are differences from one minor civil
division to another in the amount of subsidization of agricultural
properties through the tax structure. This variation is due to three
factors: (a) different millage rates, (b) different (STEB) ratios,
and (c) differences in the relative importance of agricultural property
in the tax base.

Table 4 shows the considerable variation, among a sample of minor
civil divisions of the same county, in the amount and relative importance
of the subsidy to agricultural properties. These data demonstrate that
as agricultural property provides an increasingly important part of the
tax base the subsidy per $ tax paid on agricultural property decreases,
but the burden on other types of property increases.

The purpose of this research is to show government officials and
the public what the various preferential farmland assessment acts are
costing them, and who in the municipalities, counties, or school
districts are bearing this burden. It shows that in a community with
a small proportion of the tax base in agriculture it is possible to
shift a large amount of the property tax from agriculture to other
property owners, but in communities where the proportion of the tax
base in agriculture is large, this shift is necessarily small. Collec-
tively, it would appear from Tables 3 and 4 that de facto preferential
assessment will work quite well when such large savings as 66¢ on the
dollar of taxes paid by agriculture can be subsidized from other sectors
of the economy at a cost to these other sectors of only 4¢ out of their
tax dollar. However, in predominantly rural municipalities, the amount
of the subsidy will drop considerably while the cost to the rest of the
people will rise.

Table 4
Estimated Total Property Tax Subsidies in Some[1] Minor
Civil Divisions of a Selected County[2] for Year 1975[3]

| | | Subsidy | | |
Minor Civil Division	Proportion of Tax Base in Agriculture %	Amount $	Benefit to Farm Owners Per Dollar Tax on Farms	Cost to Non-Farm Owners Per Dollar Tax Paid on Non-Farm Properties
A	0.03	664	95.5¢	0.02¢
B	13.2	770	80.8¢	6.4¢
C	33.7	27,288	62.0¢	16.3¢
D	44.9	31,238	51.0¢	21.6¢
E	58.6	12,643	38.4¢	28.2¢
F	64.1	8,486	32.9¢	30.7¢
G	76.0	5,704	22.2¢	36.5¢
Total for All MCD's in County C	18.2	498,769	56.9¢	4.2¢

[1]There are 36 minor civil divisions in the county.

[2]The county selected is county C in Table 2.

[3]Preferential farmland assessment not available to county C until 1976.

An implication of this study is that where there is considerable de facto preferential assessment of agricultural property, farmers will have little incentive to avail themselves of legislative provisions for preferential assessment unless a general reassessment without de facto preferential treatment is instituted.

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