The Tax Reform Act of 1986: Its Impact on Pennsylvania Farmers

William Grisley and Larry C. Jenkins

The Tax Reform Act of **1986** was **studied to determine its short-run impact on Pennsylvania farmers. For the 3,059 farms** studied, **the average increase in** total **tax obligation** resulting **from the TRA** of **1986** was $446 per farm, **or a** 48 **percent increase** in federal **income** taxes actually **paid in 1984. Differences in impact were found** across **farms** categorized **by commodity** type. Egg **producers were most severely impacted, while beef cattle** producers least affected. In general, the **increase in adjusted** gross **income** was due to **the** loss **of 60 percent exclusion on capital gain income.**

The Tax Reform Act of 1986: Its Impact on Pennsylvania Farmers

The Tax Reform Act of 1986 will be phased in over a three-year period starting in 1987. The act is a major reform of the federal income tax code. Compared to the Economic Recovery Tax Act (ERTA) of 1981, the new law will produce a significant reduction in tax rates and a broadening of the income tax base. Overall, the new tax code is designed to be revenue neutral, with reductions in revenue from individual's to be offset by increases in revenue from business taxpayers.

The reform has many provisions that will affect agricultural producers. However, the overall economic effect on the agricultural sector and the tax impact on individual farm taxpayers remains uncertain. There is a general consensus that tax considerations will not be as important in determining the level of new capital investment and operating input allocation decisions as they were under the previous tax code. It is generally agreed that previous federal income tax code encouraged farm operators to increase farm size and encouraged part-time farming or tax motivated investments in agriculture (Davenport et al., and LeBlanc and Hrubovcak). Preliminary analysis has indicated that the tax impact of the new code on individual farmers may be small; generally reducing the tax obligation for crop and slaughter livestock producers while increasing the obligation for farmers that have significant annual breeding livestock sales and pre-productive expenses (Durst).

The purpose of this paper is to report on the results of an estimation of the income tax impact that the Tax Reform Act (TRA) of 1986 will have on Pennsylvania farm taxpayers in the short run. The estimated tax impact for the TRA of 1986, as fully implemented in 1988, will be compared to the actual tax impact under the ERTA of 1981 for the 1984 calendar year. The term "tax impact" is defined as the legal statutory tax obligation of the taxpayer (farmer). The obligation that an income tax places on a farm taxpayer is not necessarily identical to the concept of economic tax incidence, which is defined as the point of the "final" placement of the tax burden. Under certain circumstances, all or part of the economic burden can be shifted to consumers and/or input suppliers through adjustments in markets.

The paper has four sections and a summary and conclusion. In section one, the changes in the TRA of 1986 that will be of major concern to farmers are discussed. Section two contains a description of the area of study and section three outlines the methodology used and assumptions made in the analysis. The results are presented and discussed in section four.

The authors are, respectively, Assistant and Associate **Professor** of Agricultural Economics, The Pennsylvania State University. Seniority of authorship is not assigned. Journal Series Article No. 7735 of the Pennsylvania Agricultural Experiment Station.

Changes of Concern to Farmers

flie TRA of 1986 provides the most sweeping change j_n the Internal Revenue Code since 1954. The new jaw will affect every taxpayer, with the net effect dependent upon the status of the individual. Those taxpayers who are wage earners will generally benefit from lower tax rates. But taxpayers who report business income, such as farmers, will find that the lower rates are more than offset by a broader tax base. This broader tax base results from the loss of a number of features that previously reduced the tax burden for business taxpayers, including farmers.

Loss of the investment tax credit (ITC) will significantly affect commercial farmers in the short run. This feature of prior law provided a 10 percent credit for qualifying investment in assets used in the business. The credit was a deduction from tax and thus was significantly more valuable in reducing the tax burden than deductions for operating expense or depreciation.

The TRA of 1986 eliminates the 60 percent capital gain exclusion, effective January 1, 1987, for all capital asset sales except sales of dairy breeding animals by farmers who have a contract with USDA to terminate dairy production. Dairy farmers who have a contract to cease milk production may take the capital gain exclusion on sales of qualifying dairy breeding animals until September 1, 1987.

Loss of the capital gain exclusion is one of the most important changes in the new tax law for livestock producers. Producers who market significant numbers of cull breeding animals, particularly animals that were raised on the farm, will be most severely affected by this change. Prior law permitted an exclusion from taxation of 60 percent of the gain on sale of cull breeding animals. In most cases, "gain" is the same as sale price since under cash method accounting farm operators deduct the cost of raising replacement breeding animals and trie resulting tax "basis" is zero. The repeal of the capital gain exclusion means that farmers will now pay tax on the entire proceeds from sale of breeding animals rather than only 40 percent as under old law. For most fanners, this change will significantly increase taxable income and the amount of income tax paid.

The Accelerated Cost Recovery System (ACRS) is changed by the TRA of the 1986, The new system, referred to as the New Accelerated Cost Recovery System (NACRS), includes new classes of depreciable property, new methods of computing the depreciation deduction, a somewhat longer recovery period for most farm property, and several new "conventions" that must be observed by the taxpayer, particularly in the year new depreciable property is acquired. Two years have been added to the recovery period for most farm assets. Farm machinery and single-purpose agricultural structures will have a seven-year recovery period rather than five; light trucks will have a useful life of five years rather than three; and general purpose farm buildings will have a twenty year recovery period rather than nineteen as under ACRS. These changes will not dramatically reduce the annual depreciation deduction available. However, other features of the new law may act to substantially reduce the deduction.

Recovery deductions for all depreciable personal and real property must now be computed by observing the half-year convention in the year the property is placed in service. This means the property is treated as if placed in service at mid-year and the deduction for the first year will be reduced one-half compared to the deduction under old law. When this feature is combined with the longer life and a new method for computing the deduction (the 200 percent declining balance method for most classes of property), it means the first-year deduction is reduced to essentially a straight-line amount. Thus, in year one, the recovery deduction will be slightly less than under prior law.

The general provisions of the TRA of 1986 requires farmers to capitalize preproductive expense rather than fully deducting them annually as under prior law. Preproductive expenses are those costs incurred to support an enterprise before that enterprise begins producing income. Examples of enterprises that normally have preproductive expense are the raising of replacement breeding animals on dairy and beef farms and the development of orchards. Annual farm operating expense must be reduced by the amount of capitalized preproductive expense. The effect of this provision will be to reduce deductible farm operating expense, resulting in an increase in farm income and an accompanying increase in taxable income. The capitalized expense is recovered through annual deductions beginning in the year the enterprise begins producing income. Thus, there will be a lag of up to two years, in the case of dairy replacements, between the time preproductive expenses are capitalized and the time that a tax benefit occurs through added tax deductions.

An election is available to farmers that will permit them to continue to deduct preproductive expenses annually instead of capitalizing them. However, the election involves two penalty features. In the first, the amount deducted as pre-

productive expense must be recaptured as ordinary income at disposal of the asset generating the expense.[1] For dairy producers, this disposal will occur when a dairy animal is sold as a result of normal herd culling. The second penalty for the annual deduction of preproductive expenses is the required use of the alternative depreciation system for all depreciable assets placed in service in the year that preproductive expenses are deducted. The effect of this penalty is to substantially reduce annual depreciation deductions because the alternative depreciation system requires a longer life, use of the straight-line method, and the half-year convention. This produces a much slower rate of recovery of capital investment and greatly reduces the annual deduction for depreciation. For example, given a collection of depreciable property consisting of $19,300 in machinery, $9,500 in purchased breeding livestock, and $22,500 in general purpose farm buildings, the alternative depreciation system would yield a total first-year depreciation deduction of $2,101. Regular NACRS would produce a deduction of $5,514. The deduction under old law (ACRS) would have been $6,018. Whether fanners will opt to fully deduct or capitalize preproductive expenses remains to be determined.

Area of Study

The data used are from individual farm records collected by the Pennsylvania Farmers Assocation for calendar year 1984. These records are specifically collected for preparation of individual, partnership, and corporation federal and state income tax returns for the Association's clients. For purposes of this study, only those taxpayers that filed a Schedule F (Form 1040) with gross cash receipts of $1,000 or more were used. Farm corporation returns and returns from farm partnership were excluded. The former were excluded because only a limited number were in a sample. Farm partnerships were excluded because data in sufficient detail were not available. No other criteria were imposed in the selection of the sample studied. Therefore, the farm taxpayers studied are all sole proprietorships who operate a family owned or rented farm. More than 95 percent of the returns studied were filed as a joint return.

The form of business organization of the farms studied are typical of family farms in Pennsylvania. In the 1982 Census of Agriculture, a total of 55,535 farms were reported in the state. Approximately 90 percent of these farms were sole proprietorships Of the remainder, 8.7 percent were farm partnerships and 1.6 percent were corporations. Most farm partnerships and corporations in Pennsylvania are similar in size and operation to family farms. Exceptions would most likely occur in the egg, turkey, and broiler sectors where a few larger operations account for most of the production and farm receipts.

Methodology and Model Assumptions

Given the objectives of this study, it was necessary to calculate the farm taxpayers' federal income tax obligation under both the ERTA of 1981 and the TRA of 1986. A tax simulation model was developed to calculate Internal Revenue Service (IRS) Form 1040 and all necessary accompanying Forms and Schedules for the 1984 annual period. To insure that the Form 1040 line entries calculated were accurate, actual Form 1040 line entries for a subsample of farmers were checked for consistency. All line entries on the calculated Form 1040s were identical or close to the entries on the 1040s filed with the IRS.

In order to determine the impact of the TRA of 1986, the simulation model was modified to reflect the changes incorporated into the new tax code. A hypothetical Form 1040 and all accompanying Forms and Schedules were calculated using the same 1984 tax data and information as that used in the tax calculations under the ERTA of 1981. In initiating this part of the analysis, it was assumed that all taxpayers studied would have made the same investment, divestment, and tax management decisions under the new tax law as under the old tax law. For a short-run time period, this is not an unrealistic assumption. Normally, the relative level of prices among operating inputs, between operating and fixed inputs, and between inputs and outputs would not change significantly in the short run because of alterations in the income tax code. However, over a longer period of time, significant changes in relative prices could occur for a given change in the income tax code. A change in relative prices may result in a change in the optimal capital-labor mix and optima! farm size.

All investments made during 1984 were depreciated using the New Accelerated Cost Recovery System as specified in the TRA of 1986. The Section 179 Deduction expensing amount was doubled to a maximum of $10,000. As indicated above, preproductive expenses can be capitalized and depreciated. In the analysis undertaken, only dairy farmers were allowed to capitalize preproductive

[1] The recapture **will be** treated as a **Section** 1245 Recapture, that is, gain up to depreciation deducted is ordinary income.

expenses. Other livestock producers that raised breeding animals and fruit producers that raised trees were not allowed to capitalize preproductive ^penses because no reliable guidelines on the amount of preproductive expenses that could be incurred were available. In the calculation of preproductive expenses for dairy producers it was assumed that they would hold 0.8 heifer calves and/ or heifers for each cow and that the annual dairy herd culling rate would be 30 percent. The average operating cost of raising a heifer over a two-year period was assumed to be $635. The percentages and values were calculated using farm level financial and production data from the Pennsylvania Farmers Association's records for the 1984 annual period.

Results

A total of 3,059 family operated farms were studied. The number of farms studied and the total number of farms in the state by commodity type are shown in Table 1. The largest individual sub-samples studied by commodity type were dairy and grain and hay producers. The dairy sample comprised approximately 15 percent of total number of dairy farms in the state. Less than one percent of the state's beef feedlot and cow-calf operations were in the sample. Many of the state's 12,537 beef farms are small and probably part-time farming operations.

The change in the tax obligation due to implementation of the TRA of 1986 for all farms, categorized by principal commodity produced and whether they realized a decrease, increase, or no change in the tax obligation, is shown in Table 2. For the 3,059 farm taxpayers studied, there was an average increase in the tax obligation of $446. That is, on average, farmers in the sample group will pay $446 more in federal income tax as a result of provisions of the TRA of 1986, than they actually paid in 1984. This is an increase of 48 percent over the tax of $938 actually paid per farm taxpayer in 1984. When examined by principal type of commodity produced, the 32 egg producers had the largest absolute increase in tax obligation at $920, while the 104 beef cattle producers had no change in the tax obligation. The 2,091 dairy farm taxpayers had an average increase in their tax obligation of $532. This was a 90 percent increase over the actual tax of $588 paid in 1984. On a percentage basis, this large increase was expected because dairy farmers lost the tax benefits resulting from exclusion of 60 percent of the gain on the sale of culled dairy cows and the direct deductibility of preprod-uction expenses when raising herd replacements. Beef cow-calf, sheep, and hog farming operations also might be expected to be adversely impacted from the loss of these two tax preferences. However, in the results reported for the latter types of operations, preproductive expense was treated as ordinary operating expense because information on preproduction expense was unavailable.

Overall, the most significant tax impacts of the TRA of 1986 would occur on dairy, hog, turkey and broiler, and egg production operations due to loss of the capital gain exclusion and repeal of investment tax credit. Beef cattle, sheep, and vegetable production operations are less adversely affected. The results of further analysis will be reported below to determine why differences in tax impacts would occur.

Not all taxpayers will experience an increase in tax obligation as a result of the implementation of the TRA of 1986. Fourteen percent, or 425 of the 3,059 farms studied will realize an average decrease in their tax obligations of $724 (Table 2).

Table 1. Total Number of Farms in Pennsylvania and Number of Farms Studied by Commodity Type

Commodity Type	Number of Farms		Percent of Total in Sample
	State"	Sample	
Dairy	13,798	2,091	15.2
Grain and Hav	7,561	517	6.8
Beef cattle	12,537	104	0.8
Sheep	800	19	2.4
Hogs	2,559	95	3.7
Turkeys and Boilers	534	56	10.5
Eggs	1,020	32	3.1
Vegetables	1,159	85	7.3
Fruit	1,154	60	5.2

[a] 1982 Census of Agriculture, Part 38, Pennsylvania State and County Data, U.S. Department of Commerce, Bureau of Census.

Table 2. Change in the Tax Obligation Between the Economic Recovery Tax Act of 1981 and

Commodit	Decrease			No Tax	Increase			All Farms		
Type	Number	Amount	% Change	Obligation	Number	Amount	% Change	Number	Amount	% Change
Dairy	150	$ -554	-17	1.028	913	$1,305	159	2,091	$532	90
Grain and	154	-806	-19	178	185	1.292	8~8	517	222	12
Beef cattle	41	-755	-21	31	32	292	89	104	0	0
Sheep	7	-420	- 18	5	7	695	67	19	101	8
Hogs	14	-477	-19	48	33	1 543	116	95	466	55
Turkeys										
broilers	11	-976	-25 -20	24 15	21 10	2,270	106	56	660	42 30
Eggs	7	-1,467				3,970	87	32	920	
Vegetables	29	-672	-24	31	25	1,114	185	85	96	8
Fruit	13	-1,552	-23	28	19	2,039	77	60	309	13
All Farms	426	-724	-20	1.388	1.245	1.343	132	3.059	446	48

Decrease and increase indicates the change in the tax obligation recorded on Form 1040, line 56 under the Tax Reform Act as Compared to the Economic Recovery Tax Act of 1981.

On average, this is a 20 percent decrease in the tax obligation. Forty-five percent, or 1,388 of the farms had no tax obligation in 1984 under the ERTA of 1981 and will continue to have no tax obligation under the new tax act. A total of 1,245 (41 percent) of the farms will have an increase in tax obligation. The average increase in the obligation for this group was $1,343 per farm which was a 132 percent increase over the actual tax obligation under the ERTA of 1981. In general, the group of farm taxpayers that will realize a reduction in tax obligation had a higher tax obligation base under the ERTA of 1981 as compared to the group that will realize an increase in tax obligation—$3,620 as compared to $1,017. The finding that the new tax law will have, on average, a positive tax impact for farmers currently paying a higher amount in tax and an adverse tax impact for those currently paying a lower amount in tax may be specific to the farms studied or may be a function of widening the tax base and a decrease in marginal tax rates. This issue will be examined in more detail below for the dairy farmers studied.

Across the farms grouped by type of commodity produced, differences were found in the percentage of farms that would have negative, positive, or no change in their tax obligation and the absolute dollar value of the change. Thirty percent or more of the grain and hay, beef cattle, sheep, and vegetable farms will have a decrease in their tax obligation (Table 2), As a group, only 7 percent of dairy producers will have a decrease in their tax obligation. In value terms, fruit and egg producers had the largest decrease at approximately $1,500 per farm, while sheep and hog producers had the smallest decrease with averages in the $400-500 range. On a percentage basis, the average decrease in tax obligation across farms producing different commodities was narrow, ranging from 17 to 25 percent.

A larger percentage, 44 percent, of the dairy producers will have an increase in tax obligation han any of the other commodity groups. On average, these groups had 30 to 37 percent of the otal number of farms in the respective groups experiencing an increase in tax obligation. On a value jasis, egg producers will have the largest increase it $3,970, while sheep producers will experience he smallest increase, at $695. The commodity groups with the largest percentage increase were he vegetable and dairy producers at 185 and 159 percent, respectively. The sheep and fruit producers had the smallest percentage increase at 67 and 77 percent, respectively. Notably, a large percentage of farms will have no tax obligation under either tax code. Approximately 50 percent of the iairy, hog, egg, and fruit operations are in that category.

The effect that the TRA of 1986 will have on :he farm taxpayers studied is shown in more detail in Table 3. Note, first, the average value of gross ^ash farm receipts by commodity type groups. The 32 egg producers had the largest average gross receipts at $375,000 per farm, while the 104 beef cattle producers had the lowest at $23,200. This is in indication that many of the beef farms studied ire part-time operations, which is expected to be :he norm statewide. Average gross receipts were greater than $100,000 for 5 of the 9 commodity groups studied.

On average, only 4 of the 9 commodity groups studied had a positive farm income (Schedule F, Form 1040 (line 19)). (Farm income calculated for ;ax purposes should not be confused with net farm

Table 3. Selected Internal Revenue Service Form 1040 Line Entries for the Economic Recovery Tax Act of 1981 and the Calculated Changes Due to the Tax Reform Act of 1986. Pennsylvania Farms by Commodity Type

Selected Line Items, form 1040	Dairy	Grain and Hay	Beef Cattle	Sheep	Hogs	Turkeys and Broilers	Eggs	Vegetables	Fruit
Number of farms (returns)	2,091	517	104	19	95	56	32	85	60
Gross farm receipts ('000)	$104.7	$65.4	$23.2	$31.6	$102.1	$111.3	$375.0	$94.4	$114.2
Farm income (line 19)[a]	-453	-2,820	-7,175	-4,090	-5,426	2,023	12,000	3,204	1,325
Adjusted gross income (line 32)	8,276	15,527	16,671	15,712	10,033	14,764	20,992	14,220	17,017
Total tax (line 56)	588	1,799	1,789	1,221	837	1,568	3,057	1,136	2,297
Change due to 1986 tax law									
Capital gain or loss (line 13)	3,927	1,806	1,933	988	3,314	3,664	776	441	2,342
Farm income (line 19)	-251	15	-49	-3	/•67S	18	-448	-618	204
Adjusted gross income (line 32)	3,858	2,374	2.512	1,685	3,008	3,884	474	178	2,907
Investment tax credit (line 48)	-484	-555	-265	-340	-598	-837	-3,704	-625	-693
Total tax (line 56)	532	222	0	101	466	660	920	96	309
Depreciable investment, 1984 ('000)	15.4	11.7	7.3	6.5	14.8	16.8	35.8	15.0	20.0

[a] The line **numbers** indicated **corresponds to** the line **numbers on the Internal Revenue** Service **Form 1040 in 1984.**

income because the former is calculated on a cash basis while the latter is calculated on an accrual basis. In addition, the sale of farm capital assets is not reported on Schedule F.) Farm income was largest for the egg production group at $12,000 per farm and smallest for the beef cattle group with a negative $7,175 per farm. The 2,091 dairy farms averaged a taxable farm income of a negative $453. The change in farm income due to the TRA of 1986 was positive for 3 groups and negative for the remaining 6. In general, the overall effect on farm income was minimal. This was expected because the gain in farm income due to the reduction in the amount of depreciation taken on new investment was offset by an increase in Section 179 Deduction expensing, which increased from $5,000 to $10,000 under the TRA of 1986. New depreciable investment in 1984 is shown on the bottom line of Table 3. On average, only the beef cattle and sheep producers did not make sufficient investment in depreciable capital stock in 1984 to take the maximum Section 179 Deduction of $10,000. Twenty-seven percent, or 821 of the 3,059 farms studied actually took all or part of the Section 179 Deduction in 1984. These were the only farms allowed to take the larger Section 179 deduction in the analysis of the new tax law being reported here. In actual practice, however, more farmers may elect to take all or part of the Section 179 Deduction under the new tax law given that the ITC provision no longer applies. Farm income on the dairy operations was also affected by the capitalization of preproductive expenses.

Adjusted gross income (AGI) (Form 1040, line 32) was, on average, positive over all farm commodity groups, ranging from a low of $8,276 on dairy farms to a high of almost $21,000 for egg producers. The difference between the AGI and farm income reported can be due to a number of income sources and adjustments to this income. The major sources of income were wages and salaries and capital gain income reported on Schedule D, Form 1040. The major adjustments to income were individual retirement account payments and the allowable two-earner deduction of up to $3,000.

The change in AGI due to the TRA of 1986 was, on average, positive for all farm commodity groups, ranging from a low of $178 for the 85 vegetable growers to a high of $3,884 for the 56 turkey and broiler producers. The average increase in AGI for the 2,091 dairy producers was $3,858. Across all commodity groups, the change in AGI was almost exclusively due to the increase in capital gain income. The increase in capital gain income was due to the loss of the 60 percent exclusion on this income. Notably, the increase in capital gain income was largest for dairy producers at almost $4,000 per farm.

As noted above, the ITC allowed under the ERTA of 1981 was not allowed under the new tax law.

The average value of ITCs lost per farm for each commodity group is shown at the bottom of Table 3. The value of ITCs actually taken in 1984, and which will be lost under the new law, ranged from a low of $265 on beef cattle farms to a high of $3,704 for egg producers. In most cases, the average amount of ITCs lost exceeded the increase in the tax obligation due as a result of the new tax law. The only exception was for the dairy production group which had a higher increase in tax obligation as compared to the decrease in ITCs.

Because of the size and importance of the dairy sector to the State, the impact that the TRA of 1986 will have on it will be examined in more detail. The tax returns from dairy producers are categorized by level of AGI actually realized in 1984 and are reported in Table 4. Twenty-one percent, or 432 of the 2,091 farms studied had an AGI of less than zero while only 2 percent had an AGI of greater than $40,000. The largest group, those with AGI between 0 and $10,000, comprised 35 percent of the farms studied. With the exception of the negative AGI group, gross farm receipts increased for increases in AGI. Farm income was negative on average for farms with an AGI less than $10,000 and positive at higher AGIs. The change in farm income due to the TRA of 1986 did not significantly differ across the AGI groups. The exception was the less than zero group. The increase in AGI due to the new tax law was almost exclusively due to the 60 percent increase in capital gain income. The increase in capital gain income was over $10,000 per farm for the 51 farms with an AGI exceeding $40,000. As expected, this group will also lose the

Table 4. Selected Internal Revenue Service Form 1040 Line Entries for the Economic Recovery Tax Act of 1981 and Calculated Changes Due to Tax Reform Act of 1986 by Adjusted Gross Income, Pennsylvania Dairy Farms

	Adjusted Gross Income in 1984 (line 32)[a]					
Selected Line Items, Form 1040	Less than Zero	Zero to $10,000	$10,000 to 20,000	$20,000 to 30,000	$30,000 to 40,000	More than $40,000
Number of returns (farms)	432	735	572	226	74	51
Gross farm receipts TOGO)	$123.6	$89.5	$97.2	$111.8	$145.1	$155.8
Farm income (line 19)	- 17,933	- 18	4,836	9,121	15,526	16,781
Adjusted gross income (line 32)	-13,243	5,297	14,573	23,630	34,417	57,295
Total tax (line 56)	0	15	303	1,131	3,362	10,582
Change due to 1986 tax law						
Capital gains or loss (line 13)	3,907	2,881	3,808	4,596	8,522	10,836
Farm income (line 19)	-985	-164	21	219	-484	-94
Adjusted gross income (line 32)	3,031	2,806	4,051	5,156	8,459	11,450
Investment tax credit (line 48)	0	-63	-650	- 1 ,227	- 2,200	-3,001
Total tax (line 56)	29	150	771	1,344	1,934	1,969
Percentage change from 1981 to 1986	tax codes					
Adjusted gross income (%)	22	53	28	22	25	20
Total tax (%)	0	1000	254	119	58	19
Ratio of change in total tax to change in adjusted gross income	0	.05	.19	.26	.23	.17
Effective average tax rate (%)[b]						
Economic Recovery Tax Act, 1981	0.03	0.2	1.6	3.9	7.8	15.4
Tax Recovery Act, 1986	0.6	2.0	5.8	8.6	12.4	18.3

[a] The line numbers indicated corresponds to the line numbers on the Internal Revenue Service Form 1040 in 1984.
[b] Calculated as the total obligation under each tax act and divided by adjusted gross income as calculated under the Tax Reform Act of 1986 rules.

ingest amount of ITCs. The increase in tax obligation due to the new tax law ranged from a low of $29 per farm for the less than zero AGI group to almost $2,000 per farm for the greater than $40,000 AGI group.

As noted in an earlier section, the TRA of 1986 is designed to increase individual taxpayers' tax base while not reducing marginal tax rates as compared to the ERTA of 1981. Whether or not individual taxpayers will be financially better off in terms of their tax obligation under the new tax law will depend upon the relationship between the simultaneous widening of the tax base and the reduction of the marginal tax rates. The extent to which the tax base will be widened will depend upon the particular tax related circumstances of individual taxpayers. To measure the change in the tax base we use the AGIs calculated under both tax laws. The change in percentage terms for each of the 1984 AGI group levels is reported at the bottom of Table 4. The average percentage increase in the tax base was largest for those farms that realized an AGI in the 0 to $10,000 range in 1984. An increase of 53 percent was found for this group. For higher level AGI groups the percentage change in the tax base was in the 20 to 28 percent range. The average percentage change for those farms having a negative AGI in 1984 was also in the 20 percent range. The overall implication is that the new tax law will increase the tax base for all farms, but the percentage increase will be larger for those farms with a smaller starting base as compared to farms with a larger starting base.

Whether or not an increase in an individual taxpayer's tax base will result in an increase in tax obligation will depend upon whether the taxpayer can deduct itemized deductions exceeding the standard deduction of $5,000 (joint return), the number of personal exemptions claimed, the absolute level of the tax base, and the structure of the tax brackets. The percentage change in the tax obligation from the ERTA of 1981 to the TRA of 1986 by AGI groups is shown in Table 4. The largest percentage change occurred in the 0 to $10,000 AGI group at 1000 percent. At higher AGI groups the percentage change decreased rapidly, reaching a level of 19 percent for the largest AGI group.

The overall implication of these results is that low income taxpayers, as measured by AGI, will experience a higher percentage increase in their tax obligation under the new tax law as compared to taxpayers with higher incomes. As noted, the increase in tax obligation will be due to the simultaneous change of the tax base and tax rate structure. Because the effective tax rate structure is determined on an after credit basis, the loss of ITCs will also impact on the tax obligation. A question of interest is whether the change in the tax base or the change in the tax rate structure (after accounting for ITCs) is primarily responsible for the increase in the tax obligation under the new tax law. For a partial answer to this question we calculate the ratio of the change in tax obligation to the change in tax base from the old to new tax law by AGI level groups. This ratio increased on average for AGI levels up to the $20,000 to $30,000 range and then decreased thereafter (Table 4). The implication is that the change in the tax rate structure and loss of ITCs under the new law were more responsible for the increase in tax obligation than the increase in tax base between the new and old laws for the taxpayers with AGIs up to the $20,000 to $30,000 range. At income levels above this interval, the ratio decreased on average, implying that the change in the tax base was more important in explaining the average increase in the tax obligation under the new tax law than the change in the tax rate structure and accompanying loss of ITCs. These results imply that aspects of the new law that affect the tax base and change the tax rate structure, combined with the loss of ITCs, will have varying impacts on farmers' increase in tax obligation.

Another question of interest is whether the new tax law will result, at least in the short run, in an increase in the percent of income earned that is paid in federal income taxes. To get at this measure, usually described as the "effective average tax rate/' we divide the total tax obligation under both the old and new tax laws by the level of AGI under the new tax law to obtain a ratio of taxes paid to income. The AGI under the new tax law was selected as the basis for comparison between the two laws because AGI under this law is a broader based measure of income than AGI under the old tax law. Adjusted gross income was used as a measure of income because it is the concept in tax law that is closest to what economists mean by total income (Pechman and Okner). In 1981, AGI amounted to 80 percent of personal income while taxable income was about 68 percent of AGI, or about 54 percent of personal income.

The effective average tax rates under both tax laws for the dairy producers studied are shown at the bottom of Table 4. Note, first, that on average, the effective average tax rate was lower under the ERTA of 1981 than under the TRA of 1986. This was expected, given that there was an increase in the total tax obligation under the new tax system. While not shown here, the sample average tax rate under the ERTA of 1981 was 1.6 percent and the average under the TRA of 1986 was 4.2 percent. The average of the tax rates increased for increases

in AGI implying that the effective tax rate structure under both codes was progressive. However, there is some evidence that farm taxpayers with lower incomes will be less well off in relative terms under the TRA of 1986 as compared to their counterparts with higher incomes. To see this, note that the difference between the two tax rates is diverging at income levels up to the range of $20,000 to $30,000 in AGI, but converge thereafter. This implies that, on average, the taxpayers with lower incomes are less-well off at the margin relative to their higher income counterparts under the TRA of 1986 as compared to their effective tax rates under the ERTA of 1981. However, it should be reiterated that, on average, the absolute value of the increase in tax obligation for the low income taxpayers was small when compared to the obligation of higher income taxpayers.

Summary and Conclusions

This study reports the results of an investigation of the short-run income tax impact that the Tax Reform Act of 1986 will have on Pennsylvania farm taxpayers. Using 1984 farm level data, farmers' tax obligations are calculated under the Economic Recovery Tax Act of 1981 and the TRA of 1986 as it will be implemented in 1988. A total of 3,059 farm taxpayer returns were categorized by principal type of commodity produced and studied. For all farms, the average increase in tax obligation due to the TRA of 1986 is $446 per farm or an increase of 48 percent over the $938 actually paid in income taxes in 1984. Forty-one percent of the farms will have an increase in tax obligation of $1,343 per farm, while 45 percent continue to have no tax obligation and 14 percent will have a decrease in tax obligation. In absolute terms, egg, turkey and broiler, dairy, and hog producers are more severely jiffected. Beef cattle, sheep, and vegetable producers are affected less.

Provisions of the new tax bill that will most affect producers are the loss of the 60 percent exclusion on capital gain income and the loss of investment tax credit. The loss of the former provision is particularly important to livestock producers sell cull breeding animals. The loss of the i_{nv} ment credit is more important to taxpayers «/^ larger taxable incomes who can effectively use th credits. The change in farm income due to the tax law is found to be minimal across all modify type groups.

In spite of the increase in average tax liabilit a general conclusion that emerges from the analys is that a majority of the taxpayers studied will n ^{S} be adversely affected by the new law. The primary reason for this is that they will have no income ta obligation under the new law. For those farms with an increase in tax obligation, the increase is $larg_{e}$ enough to warrant initiatives in developing tax management strategies.

Dairy farms as a group will experience some broadening of the tax base and an increase in tax paid due to the Tax Reform Act of 1986. The greatest percentage increase in both tax base and tax obligation will occur on those farms with moderate adjusted gross income, that is, with AGI up to $20,000. In dollar terms, the farms with larger AGI will experience the largest increases in tax base and tax payment.

The effective tax rate will increase on Pennsylvania dairy farms when the new law is fully implemented in 1988. Lower AGI groups (Zero to $10,000 AGI) will experience an increase from .2 percent to 2.0 percent in effective tax rate. Higher AGI groups ($30,000 to $40,000 AGI) will find the effective tax rate increasing from 7.8 percent under prior law to 12.4 percent under new law.

References

Davenport, C, M. D. Boehlje andD. B. H. Martin. *The Effects of Tax Policy on American Agriculture.* Washington, D.C., E.R.S., U.S.D.A., Agric. Econ. Report No. 480, 1982.

Durst, R. *Agricultural Outlook.* Washington, D.C., E.R.S., U.S.D.A., November, 1986.

LeBlanc, M. and J. Hrubovcak. "The Effects of Tax Policy on Aggregate Agricultural Investment." *American Journal of Agricultural Economics.* 68(1986):767-777.

Pechman, J. A. and B. A. Okner. *Who Bears the Tax Burden?* Washington, D.C.: The Brookings Institution, 1974.