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.*

USDA's Economic Research Service has provided this report for historical research purposes.

Current reports are available in
AgEcon Search
(http://ageconsearch.umn.edu)
and on https://www.ers.usda.gov.

United States Department of Agriculture
Economic Research Service
https://www.ers.usda.gov

A
93.44
AGES
880913

United States
Department of
Agriculture

Economic
Research
Service

**Agriculture and
Rural Economy
Division**

Estimating the Effects of Tax Reform on Farm Sole Proprietorships

Clifford V. Rossi

WAITE MEMORIAL BOOK COLLECTION
DEPARTMENT OF AGRICULTURAL AND APPLIED ECONOMICS
232 CLASSROOM OFFICE BLDG.
1994 BUFORD AVENUE, UNIVERSITY OF MINNESOTA
ST. PAUL, MINNESOTA 55108

ESTIMATING THE EFFECTS OF TAX REFORM ON FARM SOLE PROPRIETORSHIPS, by Clifford V. Rossi, Agriculture and Rural Economy Division, Economic Research Service, U.S. Department of Agriculture. Staff Report No. AGES880913.

630.72
E36
R678

ABSTRACT

The effects of the Tax Reform Act of 1986 on farm sole proprietorships are examined in a tax accounting simulation model of over 15,000 farm tax returns. Tax liability for sole proprietorships is estimated to decline by 4.5 percent under tax reform. All farm types with the exception of the dairy sector experience net tax reductions under the new tax law. Taxpayers with high levels of farm business receipts will likely pay more in taxes under fully implemented tax reform. In general, lower marginal tax rates and generous expensing provisions will offset the repeal of the investment tax credit and capital gains preference. Taxpayers with high off-farm incomes receive little benefit from the new law.

Keywords: Tax reform, sole proprietorships, tax analysis, public finance.

ACKNOWLEDGMENTS

The author gratefully acknowledges Ron Durst, Stephen Hiemstra, Ed Reinsel, and Don Lerman for their review and advice and Deano Hagerman for his help with the tables. Any errors in this manuscript are the sole responsibility of the author.

* *
* This report was reproduced for limited distribution to the research *
* community outside the U.S. Department of Agriculture. *
* *

WAITE MEMORIAL BOOK COLLECTION
DEPARTMENT OF AGRICULTURAL AND APPLIED ECONOMICS
232 CLASSROOM OFFICE BLDG.
1994 BUFORD AVENUE, UNIVERSITY OF MINNESOTA
ST. PAUL, MINNESOTA 55108

1301 New York Avenue, NW.
Washington, DC 20005-4788

December 1988

CONTENTS

	Page
SUMMARY	iv
INTRODUCTION	1
WHY TAX POLICY IS IMPORTANT TO AGRICULTURE	1
DESCRIPTION OF THE DATA	2
THE AGRICULTURAL TAX SIMULATION MODEL	3
INITIAL HYPOTHESES	5
ANALYSIS OF TAX LIABILITY UNDER TAX REFORM	5
COMPARING TAX LIABILITY BY FARM ENTERPRISE	8
COMPARING TAX LIABILITY BY TAXABLE INCOME	11
TAX EFFECTS BY AMOUNT OF OFF-FARM INCOME	11
TAX LIABILITY BY LEVEL OF FARM BUSINESS RECEIPTS	13
TAX DISTRIBUTION UNDER TAX REFORM	16
SENSITIVITY OF TAX LIABILITY TO CHANGES IN INCOME	16
CONCLUSIONS	17
REFERENCES	19

SUMMARY

The effects of the Tax Reform Act of 1986 (TRA) on farm sole proprietors are estimated to be slightly different from their tax liability under the former law. Taxes are estimated to decline by 4.5 percent from pre-tax reform levels. The reductions in tax liability under tax reform are mostly attributable to lower marginal tax rates, greater depreciation and expensing deductions, and increased personal exemptions. In general, these tax provisions offset increases in tax burdens due to the repeal of the investment tax credit and capital gains provisions.

In terms of net winners and losers from tax reform, taxpayers engaged in field crop and general livestock operations benefit more from the new tax laws than other farm groups. In fact, all sectors, with the exception of dairy, experience net reductions in tax liability under tax reform. Farm enterprises with relatively high capital intensities are burdened more by the loss of preferences for capital investment than other farm operations.

Tax reform appears to improve the progressivity of the tax structure, as witnessed by average tax rates that increase with income. Taxpayers with high levels of farm receipts pay more in taxes under the 1986 law, and those with taxable incomes above $500,000 experience the smallest decline in taxes.

Estimating the Effects of Tax Reform on Farm Sole Proprietorships

Clifford V. Rossi

INTRODUCTION

Agriculture has historically received favorable tax treatment under such tax provisions as capital gains, income averaging, the investment tax credit (ITC), and liberal depreciation and expensing rules. With the enactment of the Tax Reform Act of 1986 (TRA), the impact on farm tax liabilities from the new tax legislation will continue to merit attention from policymakers.

This report provides a comparative assessment of tax liability under pre-TRA and fully implemented TRA provisions for farm sole proprietorships. 1/ A tax accounting model, using data from over 15,000 farm sole proprietorship 1982 Federal tax returns, modifies tax schedules to reflect differences between pre- and post-tax reform rules for the most significant provisions affecting farm taxpayers. As a means of examining the incidence and distributional effects of tax reform, tax liability is estimated for various taxpayer groups. In particular, estimates of tax liability are compared by type of farm enterprise, off-farm income, taxable income, and farm business receipts. Moreover, each provision's effect on tax liability is determined for each taxpayer class.

WHY TAX POLICY IS IMPORTANT TO AGRICULTURE

Distortions in the allocation of resources among economic groups affect general economic efficiency and equity. These distortions are attributed to incentives and disincentives from the tax code. The agricultural sector is also vulnerable to the consequences of tax laws on production, industry structure, and individual equity.

Preferential tax treatment of a factor of production reduces the aftertax costs of an input to the producer relative to other inputs not enjoying that special tax status. Accordingly, a rational producer would opt to substitute more of an inexpensive input into production activities. Recent empirical studies have confirmed this behavior. For example, LeBlanc and Hrubovcak 2/ found that the ITC was substantially responsible for an increase in agricultural capital investment. Taxes can also affect production more directly. For example, a change in the taxation of beef

---

1/ Farm sole proprietorships are defined as self-employed individuals filing a Schedule F Federal tax form. Note that the definition of sole proprietor does not imply that the taxpayer is a farm operator as defined by the U.S. Department of Agriculture.

2/ Complete citations are listed in the References at the end of this report.

breeding stock could affect the supply of such animals in the production cycle.

Tax policies can affect the structure and composition of agriculture, both in terms of commodities produced and the size of farm enterprise. Economic theory maintains that inputs migrate from production activities with the lowest aftertax marginal value product to those with the highest until an equilibrium level has been achieved. Removal of special tax preferences for capital investment, for example, could shift resources from capital-intensive industries to labor-intensive operations.

Tax policy has been cited as a contributing factor in the growth in commercial feedlot size over the last two decades (Reimund and others). Substantial capital outlays required for such operations were facilitated by nonfarm investment encouraged by tax laws that permitted deferral of income from taxation.

Because of differences in income levels, policies that tax incomes at the same rate are perceived as unfair because the utility from each additional increment of income declines as real needs are satisfied. Tax burdens and the ability to pay are concepts used to evaluate the incidence and equity of tax laws for individual taxpayers. The degree to which changes in tax policy result in a more progressive tax structure characterized by average tax rates that increase with income is considered in this analysis.

The tax laws have spawned a particularly contentious issue: namely, tax shelters and tax-motivated investment. Taxpayers in high-income brackets usually have greater tax incentives for diverting investment to agricultural activities to reduce income tax liabilities. Cattle feeding is perhaps the most well-known example of tax-motivated farming. The incentives that encourage such investment artificially distort the returns to that sector relative to other sectors and reduce economic efficiency (Rossi). To the extent permitted by the data, these issues are examined here.

DESCRIPTION OF THE DATA

The tax simulation model uses a unique database that was acquired from the Internal Revenue Service (IRS). The database sampled over 15,000 taxpayers reporting farm income for the 1982 tax year. Each record contains the reported entries for the tax schedules filed by the taxpayers. The data are fairly comprehensive in their coverage of pre-TRA tax law. The IRS developed weighting factors that converted sample records to their representative share of the taxpayer population. The results were generated from the sample and weighted by the IRS factors to arrive at aggregate tax liability estimates. 3/

To gain some perspective on income taxes paid by the farm sector, some basic statistics from the 1982 data are useful to highlight. The IRS claims that approximately 2.7 million farm sole proprietorships filed tax returns in 1982. About 2.2 million reported tax liabilities that in aggregate measured $11.4 billion. A fairly high number of returns claimed farm losses.

3/ For additional information on the creation of these weights, see Sole Proprietorship Returns-1982, Statistics of Income, Internal Revenue Service.

Reinsel, for instance, noted that 65 percent of U.S. farm proprietors showed farm losses. Reported net farm income totaled $8 billion, while losses amounted to $18 billion. The data also indicated that taxpayers with substantial amounts of off-farm income reported farm losses. For example, 85 percent of individuals with off-farm income of $50,000 or more averaged nearly $25,000 in losses. It is difficult to determine how much of those losses can be attributed to tax policy or are sustained as economic losses. Reinsel estimates that the tax losses are substantial.

THE AGRICULTURAL TAX SIMULATION MODEL

An agricultural tax simulation model estimates Federal income tax liability for taxpayers reporting farm income and losses. A problem associated with analyzing tax effects is that impacts occur incrementally over time. It took several years for TRA to be phased in. This analysis, however, reflects the fully implemented version of the TRA. The estimates obtained were derived from a static 1-year partial equilibrium analysis. Intertemporal impacts from tax reform were not accounted for; thus, the analysis may slightly underestimate the effect of the changes in tax laws. Because of model limitations, the estimates of tax liability derived in the model should be interpreted cautiously.

This analysis is complicated by the available data. Tax rules in 1982 differed slightly from the 1986 provisions used to represent the pre-TRA provisions. Changes incorporated into the model included marginal tax rate schedules that in general were lower in 1986, a doubling in the percentage allowed for deduction by working married couples in 1986, and modifications to income averaging provisions. No attempt was made to modify 1982 values to reflect 1986 conditions, other than the tax changes already discussed. Therefore, tax liability estimates have greater significance in relative terms than actual dollar magnitudes. 4/

The model is composed of two distinct parts. The first part computes tax liability under pre-TRA conditions. Part two computes tax liability under TRA conditions. While the model reflects the most relevant provisions in the tax laws, certain simplifications of those provisions were necessary as a result of data limitations. Moreover, some provisions of less significance to farm proprietors were excluded from the analysis. 5/

Table 1 presents a comparison of pre- and post-TRA provisions. While most of the changes in tax provisions are straightforward, some changes require additional explanation as to their treatment in the program.

Some simplifying assumptions regarding depreciation and expensing were necessary because of data restrictions. I assumed that a farm proprietor under TRA would claim immediate deductions up to $10,000 of investment, and

---

4/ Dollar amounts of tax liability are reported in 1982 dollars.

5/ The alternative minimum tax (AMT), for example, was excluded from the analysis. Even though TRA strengthened the AMT, the elimination of the capital gains preference should have minimized the impact of changes in the AMT on farm sole proprietors. Changes in passive loss restrictions and cash accounting rules were excluded because of difficulty in identifying the data important to tax liability.

Table 1--Summary of tax changes considered in the simulation model

Tax provision	Pre-TRA	TRA
Marginal tax rates	14 brackets 11 percent bottom rate 14 percent over $4,530 25 percent over $22,880 33 percent over $24,310 50 percent over $171,580	2 brackets 15% bottom rate 28% percent over $29,750
Personal exemption	$1,080	$2,000
Income averaging	Allowed if income is $3,000 more than 140 percent of prior 3-year average income.	Repealed
Investment tax Credit	Rate of 6 or 10 percent for most types of depreciable farm capital.	Repealed
Depreciation	Most farm assets--5 years, 150 percent declining balance method. No indexing.	Auto, light trucks, and most livestock--5 years. Most farm equipment--7 years, 200 percent declining balance method. No indexing.
Expensing	Up to $5,000, increasing to 10,000 in 1990.	Up to $10,000.
Capital gains	Exclusion--60 percent. Top tax rate 20 percent	Repeal of exclusion. Top tax rate 28 percent.
Land clearing costs	Immediate deduction for expenses.	Repealed except for USDA or comparable authority approved plans.
Health insurance costs	Not deductible by the self-employed.	25 percent of deductible.
Spousal deduction	10 percent of lesser of earned income of lower earning spouse of $30,000.	Repealed.
Itemized deductions	Personal property taxes, State and local income taxes, real property taxes, and general sales taxes, home and personal property debt interest.	Repeal deductions for State and local taxes, and interest on personal property debt.
Charitable contributions	Contribution for nonitemizers allowed.	Repealed.
Standard deductions:	Joint and surviving spouse, $3,670 Heads of household, $2,480 Single, $2,480 Married filing separate, $1,835	$5,000 $4,400 $3,000 $2,500
Phase-out of 15 percent rate and personal exemption	No provision.	Phase-out benefit of 15 percent rate and personal exemption beginning at-- $71,900 for joint returns and surviving spouses, $61,650 for heads of households, $35,950 for married filing separately, $43,150 for individuals.

whatever remained after the expensing deduction would be depreciated under the new accelerated cost recovery system (NACRS). The model concentrated on property that could be depreciated over 3- and 5-year periods under the old accelerated cost recovery system (ACRS) since most farm assets were depreciated over no more than 5 years.

Capital losses were not incorporated into the analysis because their impact would have been very small for farm proprietors. The TRA eliminated the provision that allowed a 50-percent deduction of capital losses. Capital losses for 1982 totaled $132 million, compared with $5.36 billion in capital gains.

For this analysis, I assumed that farm proprietors deducted $250 in medical insurance expenses. That figure represents a best estimate of such expenses for farm proprietors.

Each provision's effect on tax liability was examined in isolation from other provisions. The procedure for computing provision impacts required holding the TRA provisions constant while changing one rule to the pre-TRA scenario and reestimating tax liability. The difference in tax represented the effect of the provision examined. The effect of changes in marginal tax rates worked differently. For this change in tax law, pre-TRA provisions were all held constant while the new tax rates were incorporated into the old law. That scenario was then rerun, and the difference in tax liability from that procedure and pre-TRA tax liability with the pre-TRA rates represented the amount of change in tax liability attributed to the new rate structure.

INITIAL HYPOTHESES

A few hypotheses regarding the likely effect of tax reform on farm taxpayers were formulated. Before proceeding with the analysis, it is instructive to consider the most important hypotheses as a basis for evaluating the results of the simulation.

First, I hypothesized that tax reform is likely to lower tax liability for taxpayers in general given the substantial reductions in marginal tax rates, the increase in the personal exemption, and more generous expensing provisions. Second, the loss of certain tax deductions and credits (such as the ITC and capital gains) should cause capital-intensive operations to suffer more under TRA than less capital-intensive activities. Third, tax reform should have substantial redistributive effects on taxpayers reporting farm income, given the repeal of several key tax preference items that serve to benefit high-income groups more than taxpayers with lower incomes. The analysis that follows can neither prove nor disprove with certainty these hypotheses; however, it can provide evidence to support or dispute them.

ANALYSIS OF TAX LIABILITY UNDER TAX REFORM

Despite many changes in the tax provisions accompanying tax reform, TRA reduced tax liability only 4.5 percent from pre-TRA levels for proprietors reporting income or losses. For instance, average tax liability declined under TRA to $3,378 from $3,538 under pre-TRA law. Average tax rates

declined slightly from 15.2 percent before tax reform to 14.5 percent under TRA.

In sharp contrast to the mediocrity of tax changes for all farm proprietors, the number of farm proprietors paying taxes increased by almost 21 percent after tax reform. The average tax bill for those taxpayers was $4,561 before tax reform, and $3,608 after TRA went into effect. Note that the average tax liability estimates for all farm proprietors are much lower because farms reporting losses are included in this group. The substantial losses acknowledged earlier pull down the overall average tax liability estimates. To understand how tax reform differs from pre-TRA provisions, attention must be focused on the effects of changes in individual provisions.

Changes in tax provisions under tax reform were grouped according to their contribution toward reducing or increasing tax liability (figs. 1 and 2). Much lower marginal tax rates under tax reform contribute to just over half of all reductions in tax liability. Doubling the personal exemption is the second largest factor reducing tax liability under TRA, because taxpayers claimed an average of three personal exemptions on their tax returns.

Changes in depreciation and expensing provisions represent the third largest reduction in tax liability under TRA. Doubling the level of expensing contributes most to this reduction. The more liberal expensing rule results in the expensing of 33 percent of all farm investment. Moreover, 90 percent of all farms may expense their total investment and are not burdened by the complexities of tax depreciation (Durst).

Modifications to the standard deduction, medical insurance deductions, and self-employment taxes account for a much smaller share of tax reductions than those identified above. While 65 percent of all taxpayers took the standard deduction, the increase in the amount of their deduction due to TRA accounted for only 5 percent of all tax reductions.

Changes in base income used to compute the self-employment tax are slight under TRA and subsequently have a minor effect on that provision. The deduction for medical expenses is of slight consequence to taxpayers. Of course, for individual taxpayers with serious medical problems, the deduction could be significant.

The TRA provisions eliminated the "farmer's friend," long-term capital gains preference and resulted in a 50-percent increase in tax liabilities. By no means is this result a revelation because 34 percent of all returns previously had claimed the capital gains exclusion for an average amount of $8,520.

Thirty-seven percent of all returns claimed the ITC for an average savings of $1,080 per return. Total ITC deductions accounted for over $1 billion. Not surprisingly, the repeal of the investment tax credit accounts for almost a third of the additions to tax liability. Moreover, since over $3 billion in accumulated tax credits were held in 1983 by farm sole proprietorships, limitations on ITC carryovers also become a factor increasing tax liability.

The remaining provisions account for almost a fifth of the increases in tax bills. The provision with the greatest effect in this group is the income-

Figure 1
Tax reductions, percent of tax liability

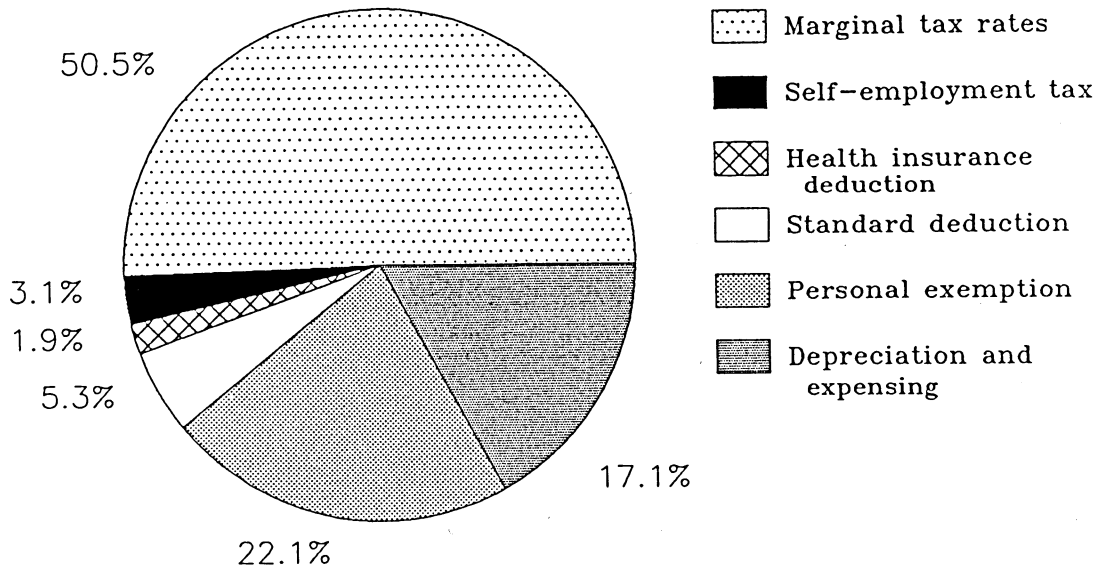
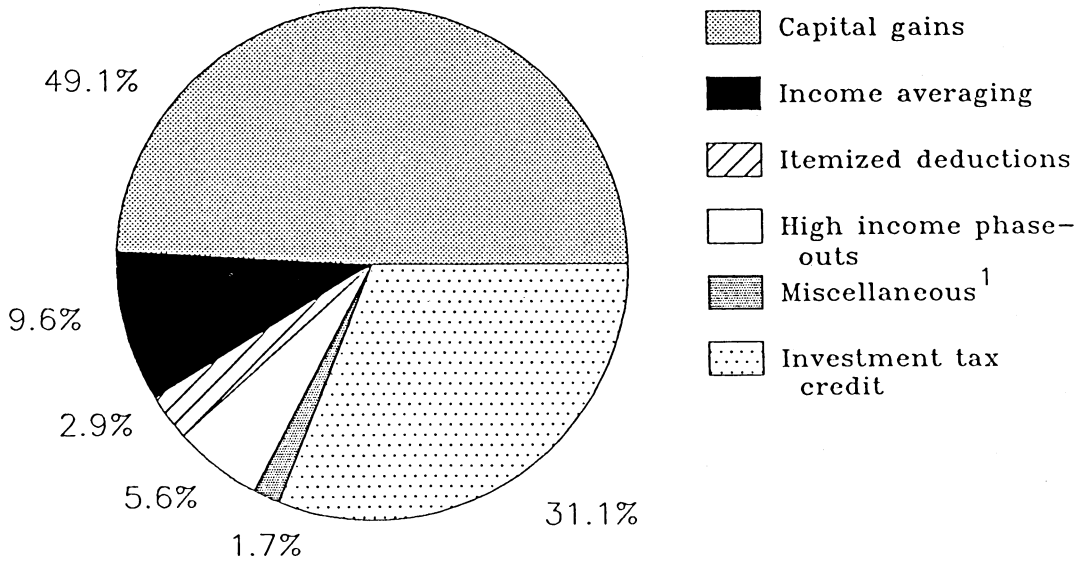


Figure 2
Tax increases, percent of tax liability



1/ Includes spousal deduction, charitable contribution, and land clearing deduction.

averaging rule. Eleven percent of all taxpayers used income averaging before tax reform for an average savings of $810. Modifications to income-averaging provisions after 1982 tightened eligibility standards, hence, the percentage of proprietorships taking advantage of the provision was lower under the pre-TRA scenario. Its elimination under TRA law has some noticeable impact on tax liability.

While 27 percent of all returns claimed the spousal deduction for an average tax savings of $360, its repeal under TRA has a negligible effect relative to changes in capital gains and the ITC. Repeal of land clearing expense deductions and the charitable contribution deduction for nonitemizers have an almost imperceptible effect on increasing tax burdens.

The special TRA provisions that phase-out the 15-percent tax rate and personal exemption for certain high-income taxpayers affect only 3 percent of all taxpayers. Those adjustments in the TRA, however, contribute to over 5 percent of the increase in overall tax liability. Finally, restrictions on itemized deductions have a limited effect on tax liability.

COMPARING TAX LIABILITY BY FARM ENTERPRISE

Table 2 presents information regarding average tax rates and tax liability under pre-TRA and TRA provisions for each class of farm enterprise. With the exception of the dairy industry, tax rates decline for all sectors, though the change is small. The dairy sector, however, represents an anomaly in the analysis. Part of the increase in taxes for the dairy sector can be attributed to the relatively low taxable income of this enterprise. Among all farm groups, dairy had the lowest average taxable income, $12,206 versus an average of $23,368 for all taxpayers.

Table 2--Tax liability and tax rates by farm enterprise

Farm type	Pre-TRA impacts			TRA impacts		
	Tax liability	Distribution	Tax rate 1/	Tax liability	Distribution	Tax rate 1/
	Billion dollars	- - Percent - -		Billion dollars	- - Percent - -	
Field crops	4.60	48.3	15.8	4.30	47.3	14.8
Fruits, nuts, and vegetables	.74	7.8	16.1	.72	7.9	15.7
Beef	2.62	27.5	15.1	2.50	27.5	14.4
Hogs, sheep, and chickens	.45	4.7	11.0	.44	4.8	10.9
Dairy	.28	2.9	12.9	.34	3.7	15.5
General livestock	.83	8.8	14.8	.79	8.8	14.0
Total	9.52	100.0	15.2	9.09	100.0	14.5

1/ Overall average effective tax rate.

Table 3--Change in tax liability by individual provision for various enterprises

Provision	Field crops		Beef		Fruits, nuts, and vegetables		Dairy		Hogs, sheep, and chickens		General livestock	
	Billion dollars	Percent	Billion dollars	Percent	Billion dollars	Percent	Billion dollars	Percent	Billion dollars	Percent	Billion dollars	Percent
Reductions in tax liability:												
Marginal tax rates	0.915	51.5	0.577	53.4	0.173	60.9	0.023	15.5	0.036	18.2	0.213	62.3
Depreciation and expensing	.306	17.2	.155	14.3	.040	14.1	.061	41.2	.060	30.3	.036	10.5
Personal exemptions	.390	21.9	.229	21.2	.051	18.0	.039	26.4	.072	36.9	.063	18.4
Standard deductions	.091	5.1	.058	5.3	.009	3.2	.012	8.1	.020	10.1	.012	3.5
Health insurance	.033	1.9	.019	1.8	.004	1.4	.003	2.0	.006	3.0	.006	1.8
Self-employment taxes	.043	2.4	.043	4.0	.007	2.4	.010	6.8	.003	1.5	.012	3.5
Total	1.778	100.0	1.081	100.0	.284	100.0	.148	100.0	.198	100.0	.342	100.0
Additions to tax liability:												
Spousal deductions	.021	1.4	.013	1.3	.004	1.5	<.001	-	.003	1.6	.004	1.4
Income averaging	.138	9.4	.093	9.6	.016	6.0	.034	16.5	.023	11.9	.023	7.8
Capital gains	.682	49.1	.531	55.0	.146	54.9	.085	41.5	.056	29.0	.169	57.1
Land clearing	.004	.3	.003	.3	.001	.4	.001	.5	.001	.5	.001	.3
Itemized deductions	.050	3.4	.020	2.1	.010	3.8	.003	1.5	.005	2.6	.012	4.1
Charitable contributions	.001	-	.001	.1	<.001	-	<.001	-	<.001	-	<.001	-
High income phase-outs	.090	6.1	.057	5.9	.015	5.6	.004	2.0	.004	2.1	.019	6.3
Investment tax credit	.487	33.1	.248	25.7	.074	27.8	.078	38.0	.101	52.3	.068	23.0
Total	1.473	NA	.966	NA	.266	NA	.205	NA	.193	NA	.296	NA
Total reductions, less additions	.305	NA	.115	NA	.018	NA	-.057	NA	.005	NA	.046	NA

- = Negligible
NA = Not applicable

Marginal tax rates for the dairy sector contribute significantly less toward tax reductions than other farm types (table 3). Low taxable income and, in particular, low off-farm income retarded the potential for large tax savings from TRA due to much lower tax rates for taxpayers with dairy operations.

The sector with the highest average tax rate (fruit, nuts, and vegetables) averaged taxable income of $32,038. Lower marginal tax rates accounted for about 61 percent of reductions in tax liability under TRA for that group.

While marginal tax rates appear to contribute most to tax reductions with the exception of the dairy, hog, sheep, and chicken sectors, personal exemptions and depreciation and expensing deductions contribute to substantial reductions in taxes in these sectors. Note that the percentage contribution to lower taxes for the dairy sector from the increase in the personal exemption is lower than that of changes in depreciation and expensing. This result is just the reverse for all other sectors. According to a report by Morehart and Prescott, the importance of changes in expensing and depreciation reflects the above-average capital investment made in this sector.

The dairy, hog, sheep, and chicken sectors are affected more by the repeal of the ITC than other sectors on a percentage basis. Again, this result is attributed to relatively high capital investment in the two sectors. In contrast, investment tax credits are of less importance to general livestock farms than other farm enterprises.

Table 4--Comparison of tax liability by income

Taxable income	Pre-TRA impacts			TRA impacts			
	Tax liability 1/		Tax rate 2/	Tax liability 1/		Tax rate 2/	Percentage change in tax rate
	Billion dollars	-- Percent --		Billion dollars	--	Percent	--
Percent							
<$15,000	0.72	7.6	9.2	0.60	0.6	8.7	-5.4
$15,000-$30,000	1.94	20.4	9.7	1.82	20.0	8.9	-8.2
$30,001-$45,000	1.50	15.8	13.1	1.40	15.4	11.7	-11.3
$45,001-$60,000	.79	8.2	16.0	.77	8.4	15.4	-3.8
$60,001-$500,000	3.16	33.2	22.2	3.12	34.4	21.2	-4.1
>$500,000	1.41	14.8	25.7	1.38	15.2	24.8	-3.5
Total	9.52	100.0	15.2	9.09	100.0	14.5	NA

NA = Not applicable.
1/ Percentage of distribution attributed to each provision.
2/ Denotes overall average effective tax rate.

COMPARING TAX LIABILITY BY TAXABLE INCOME

One way to examine the distributional effects of tax policies is to compare changes in tax laws across various income classes. Table 4 shows the distribution in taxes paid under pre- and post-TRA plans.

Taxpayers with taxable incomes above $60,000 make up about 3.4 percent of the proprietor population; however, they paid 48 percent of all pre-TRA tax liability. Tax reform does not have much of an effect on changing the share of tax burdens for the highest income classes.

Tax liability for all income classes declines with tax reform. Note that average tax rates rise with income under pre-TRA law indicating progressivity in the tax structure. This pattern continues under TRA; however, rates for all classes fall slightly. Taxpayers with incomes between $15,000 and $45,000 experience the largest percentage reductions in rates from tax reform. One reason that taxpayers in the lowest income class benefit less than those in other classes is because changes in marginal tax rates under TRA do not appreciably affect tax liability at that income level. As incomes rise, the loss of certain tax preferences becomes a critical determinant in the size of the tax decrease.

At higher levels of income, the rate reductions from TRA exert a major influence on reducing tax liability (table 5). The importance of marginal tax rates in reducing tax liability increases with income. Marginal tax rate reductions for high income taxpayers overwhelm the reductions from other TRA provisions, while the opposite is true for low-income taxpayers.

Differences in the importance of TRA provisions adding to tax burdens by income class can be observed in table 5. For taxpayers with more than $500,000 in taxable income, the repeal of the capital gains provision accounts for over 85 percent of tax increases from TRA. By comparison, the loss of the capital gains preference represents about 24 percent of tax increases for taxpayers with incomes between $15,000 and $30,000. The repeal of capital gains also distorts the importance of the ITC for taxpayers with high incomes. Note also that the provisions phasing out the 15-percent rate and personal exemption for certain high-income taxpayers have the largest impact on taxpayers with incomes between $60,000 and $500,000. However, at the highest incomes, these modifications are overwhelmed by the size of other tax preference items, such as capital gains.

TAX EFFECTS BY AMOUNT OF OFF-FARM INCOME

The effect of TRA on tax-motivated farming activities undertaken by nonagricultural taxpayers is addressed to the extent possible with the available data. By examining tax liability stratified by off-farm income, some interesting observations about the effect of tax reform on these activities can be reviewed.

Three classes of off-farm income were examined in this analysis. Over half of tax liability is borne by taxpayers with less than $10,000 in off-farm income. Tax reform has the largest effect on this group, causing a decline in aggregate tax liability of 7 percent. In contrast, taxes decline about 3

Table 5--Tax liability by individual provision for various classes of taxable income

Provision	<$15,000		$15,000-$30,000		$30,000-$45,000		$45,001-$60,000		$60,001-$500,000		>$500,000	
	Billion dollars	Percent	Billion dollars	Percent	Billion dollars	Percent	Billion dollars	Percent	Billion dollars	Percent	Billion dollars	Percent
Reductions in tax liability:												
Marginal tax rates	0.051	8.4	0.026	3.6	0.202	38.8	0.132	51.4	0.909	83.6	0.617	97.7
Depreciation and expensing	.195	32.1	.221	30.4	.115	22.1	.048	18.7	.076	7.1	.003	.5
Personal exemptions	.230	37.8	.321	44.1	.149	28.7	.057	22.2	.084	7.7	.004	.6
Standard deductions	.067	11.0	.088	12.1	.027	5.2	.009	3.5	.007	.6	.004	.6
Health insurance	.018	3.0	.027	3.7	.013	2.5	.005	1.9	.007	.6	.001	.2
Self-employment taxes	.047	7.7	.045	6.1	.014	2.7	.006	2.3	.004	.4	.002	.4
Total	.608	100.0	.728	100.0	.520	100.0	.257	100.0	1.087	100.0	.631	100.0
Additions to tax liability:												
Spousal deductions	.003	.6	.019	3.1	.015	3.5	.005	2.2	.003	0.3	<.001	-
Income averaging	.097	19.8	.103	16.9		18.0	.025	10.8	.023	2.2	.003	.5
Capital gains	.192	39.1	.144	23.6	.131	31.0	.100	43.0	.594	56.7	.508	85.2
Land clearing	.004	.8	.003	.5	.002	.5	.001	.4	.001	0.1	<.001	-
Itemized deductions	.019	3.9	.029	4.8	.029	6.9	.017	7.3	.006	0.6	<.001	-
Charitable contributions	.001	.2	.001	.2	<.001	-	<.001	-	<.001	-	<.001	-
High income phase-outs	.006	1.2	.002	.3	.004	1.0	.005	2.2	.160	15.2	.012	2.0
Investment tax credit	.169	34.4	.308	50.6	.166	39.2	.079	34.1	.261	24.9	.073	12.3
Total	.491	100.0	.609	100.0	.423	NA	.232	NA	1.048	NA	.596	NA
Total reductions, less additions	.117	NA	.119	NA	.097	NA	.025	NA	.039	NA	.035	NA

- = Negligible
NA = Not applicable

percent from pre-TRA levels for the highest level, while there is virtually no change for the middle group.

Table 6 highlights the contribution of each tax provision to tax liability for various classes of off-farm income. The most important result is the marked difference between taxpayers with more than $50,000 in off-farm income and those with less than that amount. In particular, marginal tax rate reductions account for almost 90 percent of tax reductions for taxpayers with the highest level of off-farm income. This result supports the contention that taxpayers with high levels of off-farm income remained in high tax brackets despite the benefit of special tax preferences. Marginal tax rate reductions for taxpayers with less than $50,000 in off-farm income represent a little less than a third of tax reductions attributed to TRA. If taxpayers with more than $50,000 in off-farm income characterize nonfarm investors, the reductions in taxes from tax reform support the contention that this group did not benefit as much from pre-TRA provisions as had been hypothesized.

There is a notable difference between classes of off-farm income regarding TRA provisions that increase tax liability. The most significant difference is in the contribution of capital gains and the ITC. For those with the most off-farm income, the contribution of the repeal of capital gains is nearly twice as large as for each of the other two groups. Taxpayers with high incomes were able to benefit more from the capital gains provisions under pre-TRA law than their lower income counterparts because of the greater disparity between tax rates on capital gains and ordinary income. The importance of the ITC is much larger for taxpayers with the lowest amounts of off-farm income. The loss of the capital gains provision to taxpayers with high off-farm income is a major one that is offset by substantial rate reductions. Note that the special high-income phase-outs of the 15-percent tax rate and personal exemption are of some consequence to taxpayers with the highest off-farm incomes. Tax reform, it would appear, while eliminating special tax benefits for would-be nonfarm investors, bestows significant tax reductions to these investors through reductions in marginal tax rates.

TAX LIABILITY BY LEVEL OF FARM BUSINESS RECEIPTS

One way of focusing more on the incidence of tax reform on farm taxpayers is to compare tax burdens for taxpayers classified by their size of farm business receipts (figs. 3 and 4) 6/. Figure 3 shows that 62 percent of tax liability was attributed to taxpayers with less than $15,000 in farm business receipts under pre-TRA conditions. This group enjoys the largest reduction in tax liability (9.2 percent) of all groups. Taxpayers representing the smallest share of total tax burden (those with more than $500,000 in farm receipts) are greatly affected by tax reform as their aggregate tax liability rises 32 percent under TRA. In fact, taxpayers with receipts over $60,000 experience overall tax increases from TRA. This classification scheme supports the proposition that tax reform redistributes tax burdens from the highest classes of farm business receipts to the

---

6/ The percentage of tax liability for each class of farm business receipts roughly compares with the percentage of taxpayers in each group.

Table 6--Change in tax liability by individual provision for various levels of off-farm income

Provisions	<$10,000		$10,001-$50,000		>$50,000	
	Billion dollars	Percent	Billion dollars	Percent	Billion dollars	Percent
Reductions in tax liability:						
Marginal tax rates	0.500	27.2	0.143	26.3	1.294	89.4
Depreciation and expensing	.478	26.0	.124	22.8	.056	3.9
Personal exemptions	.613	33.3	.159	29.3	.073	5.0
Standard deductions	.158	8.5	.040	7.4	.004	.3
Health insurance	.052	2.8	.014	2.6	.005	.4
Self-employment taxes	.040	2.2	.063	11.6	.015	1.0
Total	1.841	100.0	.543	100.0	1.449	100.0
Additions to tax liability:						
Spousal deductions	.033	2.2	.007	1.3	.005	.4
Income averaging	.235	15.6	.090	16.5	.002	.2
Capital gains	.470	31.1	.241	44.3	.958	71.2
Land clearing	.007	.5	.002	.4	.002	.1
Itemized deductions	.056	3.7	.016	2.9	.028	2.1
Charitable contributions	.002	.2	<.001	(-)	<.001	(-)
High-income phase-outs	.052	3.4	.012	2.2	.125	9.2
Investment tax credit	.654	43.3	.176	32.4	.226	16.8
Total	1.509	100.0	.544	100.0	1.346	100.0
Additions in tax liability, less reductions	.332	NA	-.001	NA	.101	NA

NA = Not applicable.

Figure 3
Pre-Tax Reform Act provisions: distribution of taxes by farm business receipts

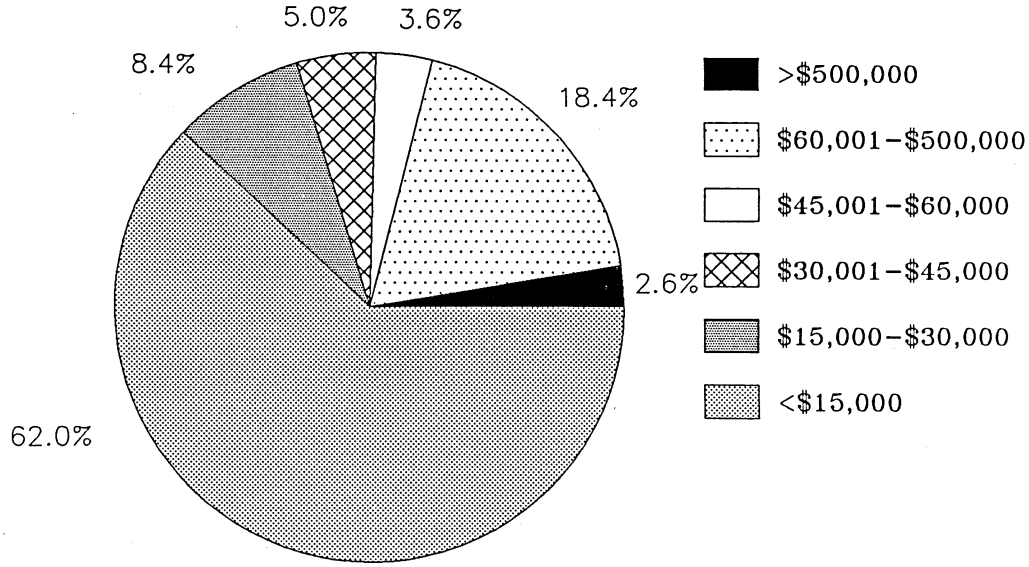
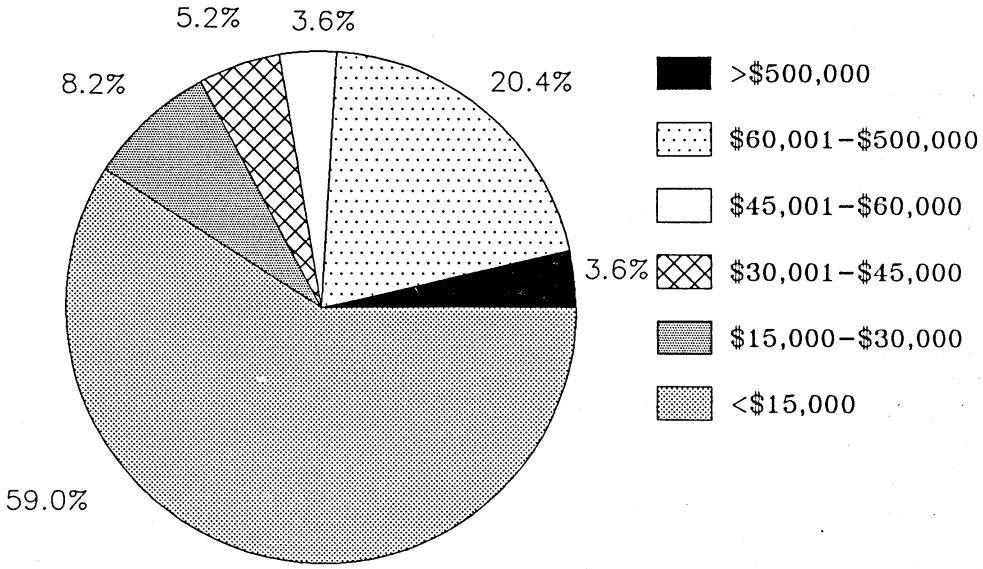


Figure 4
Pre-Tax Reform Act provisions: distribution of taxes by farm business receipts



lowest. However, comparing figure 3 with figure 4 indicates that those movements were slight.

TAX DISTRIBUTION UNDER TAX REFORM

Over 13 percent of taxpayers received an extra $1,000 or more under tax reform provisions than under pre-TRA law (table 7). Taxpayers in this group averaged reductions over $4,000, representing about a 28-percent decline. About 31 percent of all taxpayers experienced tax reductions up to $500 per return. Furthermore, almost 59 percent of all taxpayers had some level of tax reduction due to TRA.

While tax reform reduced tax liability for most taxpayers, a significant number paid more in taxes under TRA than before. Those who paid more taxes were a small proportion of all taxpayers, however. About 6 percent of taxpayers were required to pay more than $1,000 more in taxes. The average tax increase for that group was $8,983. That represents about a 90-percent increase on average.

SENSITIVITY OF TAX LIABILITY TO CHANGES IN INCOME

Farm incomes are subject to fluctuation according to changes in weather, economic conditions, and other factors. As a way of examining the effects of large shifts in income on tax liability before and after tax reform, I

Table 7--Distribution of farm proprietors by change in tax liability

Item	Taxpayers	Share of distribution	Average tax liability: TRA law	Average tax liability: Pre-TRA law	Average change in tax liability
	Number	Percent	Dollars	Dollars	Dollars
Returns with increases:					
$0-$100	411,310	15.3	345	320	25
$101-$500	466,507	17.3	685	474	211
$501-$1,000	71,882	2.7	2,485	1,771	714
>$1,000	167,146	6.2	17,148	8,983	8,165
Total	1,116,845	41.5			
Returns with decreases:					
$0-$100	146,936	5.5	821	865	-44
$101-$500	681,223	25.3	1,254	1,553	-299
$501-$1,000	391,334	14.5	2,147	2,844	-697
>$1,000	355,384	13.2	10,611	14,758	-4,147
Total	1,574,877	58.5			

performed a sensitivity analysis that imposed a 25-percent increase and decrease on farm net income.

A 25-percent increase in farm net income resulted in a 10.9-percent increase in pre-TRA tax liability and an 8.3-percent increase in TRA tax liability. A potentially greater increase in tax liability is mitigated by two factors; 1) the importance of off-farm income as a share of the taxable income base, and 2) high farm losses for tax year 1982. TRA provisions resulting in overall lower tax liability than pre-TRA law explain the difference in the change in tax liability between the two tax scenarios noted above. These scenarios indicate that taxpayers are better insulated from tax increases associated with rises in income with TRA than before the new law. By contrast, a 25-percent decrease in farm incomes contributed to an 8.7-percent decline in pre-TRA tax liability and a 7.7-percent decline in TRA tax liability.

CONCLUSIONS

The most important result from the analysis is that tax reform reduces tax liability for most taxpayers reporting farm income although more proprietors report tax liability under TRA than under pre-TRA law. The reductions in tax liabilities are most likely attributed to lower marginal tax rates, greater depreciation and expensing deductions, and increased personal exemptions. These tax provisions offset increases in tax burdens due to the repeal of the ITC and capital gains. The percentage contributions of each provision to increasing or decreasing tax liability differed greatly by the taxpayer's level of taxable income, farm receipts, and off-farm income.

In terms of net winners and losers from tax reform, taxpayers engaged in field crop and general livestock operations benefit more from the new tax laws than other farm groups. All sectors, with the exception of the dairy sector experience net reductions in tax liability under tax reform. That the dairy sector suffers under tax reform was shown to be attributed to limited rate reductions because of low taxable incomes that consequently cannot offset the loss of the capital gains preference and ITC. Farm enterprises with relatively high capital intensities are burdened more by the loss of certain preferences for capital investment than other farm operations. There is also some evidence that more generous expensing and depreciation provisions are of greater consequence to capital-intensive operations than other farm types. However, the loss of the ITC appears to overwhelm the benefit from changes in expensing and depreciation provisions.

Tax reform continues the pattern of progressivity in the tax structure as witnessed by average tax rates that increase with income. TRA tends to reduce tax burdens for taxpayers with low and moderate levels of income. Taxpayers with high levels of farm receipts paid more in taxes. Those taxpayers with taxable incomes above $500,000 experienced the smallest decline in taxes among income groups.

The simulation revealed that taxpayers with high off-farm incomes received little benefit from TRA. Although most of their tax reductions were attributed to rate relief, these taxpayers were subject to high pre-TRA tax rates.

The results from this analysis represent the only comprehensive assessment of tax liability in the agricultural sector and, hence, enhance our understanding of tax policy effects in that sector. If history is any indicator of future activity in tax policy, the Tax Reform Act of 1986 will undergo refinement or overhaul in the years ahead with accompanying effects on agriculture. The research presented in this report provides a valuable contribution to better assessing the impact of Federal income tax policy now and as changes to TRA are initiated.

REFERENCES

Boehlje, M.D., and H. Carman (1982). "Tax Policy: Implications for Producers and the Agricultural Sector," American Journal of Agricultural Economics, Vol. 64, pp. 1030-1038.

Davenport, C., M.D. Boehlje, and D.B.H. Martin (1982). The Effects of Tax Policy on American Agriculture, AER-480, U.S. Dept. Agr., Econ. Res. Serv.

Durst, R.L. (1985). "Agricultural Tax Policy: Tax Reform," staff analysis, U.S. Dept. Agr., Econ. Res. Serv.

Durst, R.L., and R.A. Jeremias (1986). "Evaluating Tax Reform: An Examination of Farm Tax Expenditures," unpublished, U.S. Dept. Agr., Econ. Res. Serv.

Hanson, G.D., and V.R. Eidman (1985). "Agricultural Income Tax Expenditures-A Microeconomic Analysis," American Journal of Agricultural Economics, Vol. 67, pp.271-278.

Hanson, G.D., and V.R. Eidman (1986). "Evidence of the Stability of Income Tax Expenditures to Farmers," Agricultural Finance Review, Vol. 46, pp. 69-83.

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

Morehart, M.J., and R. Prescott (1986). Farm Operating and Financial Characteristics, January 1985, U.S. Dept. Agr., Econ. Res. Serv. Staff Report No. AGES860521.

Reimund, D.A., J.R. Martin, and C.V. Moore (1981). Structural Change in Agriculture, The Experience for Broilers, Fed Cattle, and Processing Vegetables, TB-1648, U.S. Dept. Agr., Econ. Stat. Serv.

Reinsel, E. (1986). "Federal Farm Income Taxes - Is Treasury the Loser?" presented paper at the American Agricultural Economics Association Annual Meeting.

Reinsel, E., and T. Browning (1970). "Federal Income Tax Payments from the Farm Sector," Agricultural Finance Review, Vol. 31., pp. 35-48.

Rossi, C.V. (1987). "Cattle Feeding Investments: The Impact of the Tax Reform Act of 1986," Agricultural Finance Review, Vol. 47, pp. 62-71.

U.S. Department of Agriculture, Economic Research Service (1986). "The New Tax Law and Its Effects on Farmers," reprint from Agricultural Outlook, November.

U.S. Department of the Treasury, Internal Revenue Service (1982). Statistics of Income...Sole Proprietorship Returns.

☆U.S. Government Printing Office : 1988 - 241-793/80292