The Distributional Impact of 1981 and 1982 Federal Income Tax Legislation: Which Farmers Benefit?

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Simulation was used to analyze the distribution of benefits from the 1981 and 1982 federal income tax legislation for farm types that exhibit various tax characteristics. The results indicate that distributional effects are largely attributable to the reduced progressivity of the tax rate schedule. The largest farms benefited relative to the smaller farms of all farm types. Intensive livestock farms and producers of perennial crops experience additional benefits relative to other farm types primarily because of the large reduction in useful life for tax purposes of specialized livestock facilities, orchards, and vineyards.

Almost all farmers could benefit from the Economic Recovery Tax Act of 1981 (ERTA), but not all farmers could benefit equally. Differences in benefits depended on the farm enterprise mix, and the type and quantity of assets used in production. For example, the impact of accelerated depreciation on farm income and growth was likely to differ between an intensive hog operation with large amounts of depreciable property and a cattle ranch with relatively little depreciable property. Other differences depended on the farmer's total income. Tax rates were cut in all tax brackets, but the reduction in tax liabilities was greatest for the higher income taxpayers. The Tax Equity and Fiscal Responsibility Act (TEFRA) of 1982, modified some ERTA provisions, but did not alter the basic thrust of the legislation.

This study quantifies the distribution of benefits from the 1981 and 1982 income tax reform among farmers by farm size and major enterprise. The benefits of the tax reform came primarily through reduced tax liabilities, which create higher after-tax income and permit greater farm business growth. The distribution of tax reform benefits is important for reasons of fairness and because previous research has shown that one force driving structural change in U.S. agriculture is the income tax system (Davenport, Boehlje and Martin). Did the 1981 and 1982 legislation benefit farmers proportionately to their incomes? Did it alter the incentives for structural change?

The distribution of ERTA and TEFRA benefits remains important, even though subsequent legislation has modified some provisions, because the primary goals of the reform—lower personal tax rates and a less progressive rate structure—are still part of the code, and because further reform of U.S. tax laws focused on these same goals is being implemented in the Tax Reform Act of 1986 (TRA). This analysis uses the fully phased-in ERTA and TEFRA legislation as an example of the consequences of this type of tax reform for income and wealth distribution among farmers. Implications for structural change under the 1986 legislation are also considered.

Important income tax changes for farmers in ERTA and TEFRA were: the reduction in personal and corporate income tax rates, the streamlining of depreciation calculations via Accelerated Cost Recovery System (ACRS), and changes in the investment tax credit to match ACRS categories and require basis deductions. Marginal income tax rates were reduced by 21 to 29 percent for all taxpayers, with the largest absolute and percentage reduction in the top-most tax bracket. In the top tax bracket the tax rate was reduced by 20 percentage points from 70 to 50 percent, a 29 percent reduction, while in the lowest tax bracket the reduction was 3 percentage points, from 14 to 11 percent, a 21 percent reduction.

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The depreciation changes in ERTA and TEFRA were intended to reduce the bookkeeping burden of calculating depreciation deductions and to accelerate the realization of depreciation deductions, thereby stimulating investment. Under ERTA, almost all farm depreciable property fell into 3 useful life classes: a 3-year class for light trucks, the farm share of autos and breeding swine; a 15-year class for general purpose farm buildings and a 5-year class for almost everything else. The 5-year class included some items that were formerly depreciated over much longer periods, for example, special purpose livestock and horticultural structures or perennial crops, such as vineyards and orchards.

The methodology used in this analysis is a simulation model. Simulation permits a detailed treatment of accounting and tax rules, and it allows the researcher to observe the effects of tax reform in a controlled environment. With a simulation model it is possible to partially disentangle the effects of tax reform from other factors such as inflation and subsequent legislation. Four farm enterprise types, illustrative of basic farm tax situations, were considered: a cash grain farm, a farrow-to-finish hog operation, a beef raising farm, and a vineyard. The farm business was simulated before tax reform and with the ERTA and TEFRA fully phased-in. Only sole proprietorship results are reported here. The ERTA and TEFRA tax impacts on farm businesses organized as corporations were considered by Lowenberg-DeBoer and Boehlje.

The next section of the paper reviews previous research on ERTA and TEFRA. The third section outlines the methodology and illustrative farm characteristics. The fourth section presents the simulation results, and a fifth section presents the summary and conclusions. A more detailed discussion of the methodology used can be found in Lowenberg-DeBoer and Boehlje. The details of the ERTA and TEFRA tax changes have been documented elsewhere (see for instance, Boehlje and Carman, or Harl) and will not be repeated here.

Previous Research

Research on the 1981 and 1982 legislation indicates that at least some farmers may experience large tax savings, that higher income farmers benefit more than lower income farmers and that the legislation provides economic incentives to expand the size of farming operations. Using whole farm simulation, Richardson and Nixon, and Nixon and Richardson showed that ERTA had the potential to substantially increase the after-tax farm income on Texas cotton and rice farms, and that the legislation provides incentives to increase equipment investments because it permits rapid depreciation deductions. In a simulation study of a typical Texas High Plains cotton and sorghum farm, Richardson, Nixon, and Smith show that ERTA had a greater impact on the net present value of farm income than the incremental changes in the 1981 federal farm bill. Batte simulated the impact of the 1981, 1982, and 1983 tax changes on Illinois cash grain farms. He found that ERTA effectively reduced the progressivity of the tax structure and increased incentives to expand the size of farming operations. Durst and Jeremias reported that effective tax rates on farm capital were lowered substantially by ERTA, especially for confinement livestock structures, motor vehicles, and farm equipment. Studies that include TEFRA provisions (Richardson and Nixon, 1984; Batte, and Durst and Jeremias) showed that the 1982 legislation partially offset but did not eliminate the ERTA tax reductions for farmers. While microeconomic studies have found that ERTA increased the incentive to invest in equipment and specialized facilities, Hughes and Adair indicate that macroeconomic forces may offset that incentive as demand for capital from other sectors of the economy that were more stimulated by the legislation drives up capital prices. Richardson and Nixon (1983) suggested that risk considerations may reduce the advantage of using the ACRS rapid depreciation.

Distributional impacts from ERTA and TEFRA have been hypothesized (Boehlje and Carman, p. 1036), but not well documented. Differences in methodology make comparisons between the microeconomic simulation studies difficult. Jeremias, Hrubovcak, and Durst calculated weighted average effective tax rates on capital for various census farm type categories. They found that differences in average effective tax rates among farms were smaller than differences between average effective tax rates on individual farm asset categories. Their research did not allow for differences in earning potential or for varying tax burden distributions by farm size among farm types.

Methodology

The farm business simulation model utilized in this research has been described by Reinders (pp. 130–156) and Lowenberg-DeBoer and Boehlje (Chapter 5). The central assumption of the model is that farm income can be estimated based on the value of farm assets. As proxies for the resources available in the farm business, asset values are logically related to productivity and income. In regression equations, asset values explain much of the variation in farm income and provide plausible income predictions. To allow for enterprise differences and economies of scale, a different set of farm income equations were used for each farm size and type. Investment is treated as a residual in the model; funds remaining after farm expenses, taxes, debt service, and consumption are re-invested. Consumption is modeled as a function of income; an empirical consumption function estimated by Brake is used. Investment is allocated to the various property categories based on the existing mix of assets. For example, if 5 percent of the value of total assets is in intermediate assets with a 3-year useful life, then 5 percent of the new investment will be treated as intermediate property with a 5-year useful life. A 10-year planning horizon is used. To focus the results on the tax impacts, a constant price level is assumed.

For this study the simulation model specified by Reinders was modified by adding an ERTA tax rate schedule and investment credit calculations to the income tax subroutine and by adding a subroutine to calculate depreciation for tax purposes. The depreciation calculation for tax purposes used the half year convention and ignored salvage value for simulations under both the old and new tax rules. The subroutine used the ACRS useful life categories for simulations under the new legislation and it aggregated property into 3, 5, 7, and 15-year useful life classes for the simulations under the old tax rules. Simulations under ERTA and TEFRA assume that the effects of the legislation are fully phased-in. For depreciation this means that all property is being depreciated with ACRS. In addition, the model was modified to allow for rented land and to treat a portion of farm income as capital gain. The proportion of current income which could be treated as capital gain was estimated from farm records system data. On hog farms the data indicated that from 17 to 31 percent of income could be treated as capital gain, with the higher percentages on the smaller farm sizes. The capital gain percentage varied from 2 to 18 percent on beef farms. There was a negligible amount of current income that could be treated as capital gain on the grain farm and vineyards, so zero capital gain was assumed.

Farm record data were used to define four farm types. The hog farm represents the case of farmers with relatively large amounts of depreciable property (Table 1). Other farm types (not analyzed here) with relatively large amounts of depreciable property include dairy farms, poultry production, and horticultural operations that use greenhouses. Specialized hog, dairy, poultry, and horticultural structures are generally eligible for investment tax credit. The beef raising (cow-calf) farm represents the situation of producers with relatively little depreciable property. Cash grain farms tend to use relatively large amounts of real estate with modest amounts of depreciable property. The tax situation of producers of cotton and other field crops will be similar to that of cash grain farmers. The vineyard is illustrative of the producer of perennial crops, which are depreciable and often were eligible for investment tax credit.

The hog, beef, and grain farms were based on Iowa Farm Business Association (IFBA) unpublished data. The vineyard was specified from data compiled by Cornell researchers on income, costs, and assets of New York Concord grape producers. Data for the hog, beef, and grain farms were available in 5 acreage categories for each type: size 1, 0–189 acres; size 2, 190–259 acres; size 3, 260–359 acres; size 4, 360–499 acres; and size 5, 500 acres and over. The vineyard data were not sorted by size. Hence, a total of 16 representative farms were analyzed. As a measure of farm size the IFBA acreage categories have two problems: (1) all farms with 500 acres and over are aggregated into a single category and (2) acreage is not a good measure of size for intensive livestock operations. In Iowa, however, most hog producers produce a major portion of their feed and many feed all of their grain, so acreage does have some value as a size indicator. The IFBA data do not represent the intensive, confinement hog producer who has little or no cropping operation. Initial asset mix and financial structure are given in Tables 2 and 3.

Debt use for the Iowa farms was specified with information from the 1979 Farm Finance Survey because the IFBA data do not include

Table 1. Percentage of Total Assets in Each Useful Life Category by Farm Type and Size

Farm Type and Size	Pre 1981 Law				ACRS		
	3 year	5 year	7 year	15 year	3 year	5 year	15 year
	percent						
Hog 1	0.2	1.6	8.6	6.1	0.5	14.2	1.8
Hog 2	0.1	1.2	6.8	5.7	0.3	11.5	1.8
Hog 3	0.1	0.9	7.4	5.1	0.3	11.3	1.8
Hog 4	0.1	1.5	7.4	5.1	0.4	12.2	1.5
Hog 5	0.1	0.7	6.0	5.1	0.3	9.9	1.7
Grain 1	0.1	1.7	5.6	2.3	0.3	7.7	1.6
Grain 2	N[a]	1.1	4.8	3.3	0.4	7.1	1.8
Grain 3	0.2	1.2	4.4	3.3	0.3	6.7	2.1
Grain 4	0.1	1.2	4.1	2.7	0.2	6.0	1.8
Grain 5	0.1	1.3	4.4	2.8	0.2	6.7	1.8
Beef 1	0.2	N	10.6	1.7	0.7	10.3	1.3
Beef 2	N	2.0	4.5	2.3	0.5	7.0	1.3
Beef 3	N	1.7	3.5	2.7	0.3	6.1	1.6
Beef 4	N	1.5	4.9	4.4	0.4	7.9	2.5
Beef 5	N	0.9	5.9	2.8	0.2	8.1	1.3
Vineyard	N	4.3	12.8	28.7[b]	2.2	43.5	N

[a] Negligible, percentage less than 0.1.
[b] The vineyard estimate assumes producing vineyards purchased.

financial information. Debt use for the vineyard was based on average debt in the farm records. Debt ranged from 24 to 35 percent of owned assets with the larger farms carrying a slightly heavier debt load and beef farms using less debt than the other farm types (Table 3). Owned assets excludes rented land. Off-farm income was specified with information from the Farm Finance Survey; it ranged from $15,100 to $19,600 annually, with the highest off-farm income on the largest and smallest farms.

The farms simulated represented moderate size commercial agriculture. The size 2 or 3 farms in each group have asset values roughly comparable to the average asset values for Iowa farms reported in the Census of Agriculture. For instance, the 1978 Census of Agriculture reports that the average Iowa cash grain farm had a real estate value of $497,100 and a machinery and equipment value of $50,666. This is comparable to the IFBA size 3 grain farm average of $547,000 for real estate and $32,700 for machinery and equipment. The representative Iowa farms include several farm sizes larger than the Iowa census averages, but they do not include the larger commercial farms. The small part-time operations are also not included. The vineyard operation is comparable to the smaller beef, hog, or grain farms in terms of acreage and other farm size measures.

Two sets of assumptions about the amount of undepreciated property in the first year were used in the simulations: 1) that all initial endowments of property were completely depreciated out for tax purposes, and 2) that a representative amount of undepreciated property was part of the initial endowment. The two assumptions were used to test the robustness of the results. The representative levels of undepreciated property were based on depreciation schedules of IFBA members for 1981. The simulations under both assumptions show the same patterns, but the assumption that all initial property is depreciated out for tax purposes facilitates comparisons between the old and new legislation because it allows farms to start the simulations with the same tax asset in the form of unused depreciation allowances under both tax regimes. Unless specifically noted, results of the simulations in which no depreciation deductions are carried into the first year are reported.

The impact of ERTA and TEFRA on the various farm types was measured by the change in net worth growth, total asset growth, effective tax rate, and tax liability between simulations of each farm under the pre-1981 law and under the tax reform legislation. These measures are imperfect for the purpose of comparing tax reform benefits among farms because they are affected by the initial scale of the farm. This problem is re-

Table 2. Initial Asset Mix for Simulations of the Vineyard and of Hog, Beef, and Grain Farms

Farm Size & Type	Total Assets Controlled	Percent Current Assets[a,b]	Percent Machinery and Equipment[a]	Percent Real Estate[a]	Percent Real Estate Rented	Percent Real Estate Depreciable[c]	Debt as Percent of Owned Assets
Hog 1	418,500	18	7	77	35	12	30
Hog 2	559,100	16	6	78	42	10	33
Hog 3	757,100	15	6	79	52	10	31
Hog 4	919,400	15	6	79	52	10	31
Hog 5	1,565,600	13	5	82	55	8	35
Grain 1	340,600	10	7	83	54	3	30
Grain 2	478,900	9	5	86	59	5	32
Grain 3	642,700	10	5	85	66	5	29
Grain 4	906,200	9	5	87	66	4	30
Grain 5	1,685,000	9	5	86	68	4	34
Beef 1	158,300	36	6	59	28	11	24
Beef 2	487,600	19	5	76	37	3	26
Beef 3	587,700	18	5	76	47	4	28
Beef 4	705,800	17	5	78	47	6	25
Beef 5	1,450,800	16	5	79	50	5	27
Vineyard	330,000	1	17	82	11	35	29

[a] Value of asset category as a percentage of the total asset value. Percentages may not sum to 100 because of rounding.
[b] Current assets are primarily livestock, stored grain, and feed.
[c] Value of depreciable real estate assets as a percentage of total real estate assets. The vineyard estimate assumes producing vineyards are purchased.

duced by comparing percentage change, so that each farm is measured relative to its own initial initial scale, and by comparing only the incremental difference between simulations under the old and new legislation. The tax liabilities are of interest primarily because they show some of the dynamics of the situation; they show how initial benefits compare to longer run benefits.

Simulation Results

All of the illustrative farms analyzed showed a larger growth in net worth and total assets under ERTA and TEFRA provisions than in simulations using the old tax rules (Table 4). This finding is consistent with previous research. Among the Iowa illustrative farms, the hog farms benefited more relative to other types of farms in the same acreage category. In addition, the largest farms tended to benefit more than the smaller farms from the ERTA provisions. The increase in net worth under the new tax rules tends to be greater, the total asset expansion larger, and the reduction in effective tax rates tends to be greater for hog farms than for other farm types (Table 4).

The pattern of tax benefits by farm size differs among the Iowa farm types. In the beef and grain farm simulations, the size 5 farms had substantially larger net worth increases, total asset expansion, and tax rate reductions from the new law than the smaller farm sizes. In the hog farm simulations the size 3, 4, and 5 farms had larger net worth increases and tax rate reductions than the size 1 and 2 farms under the new provisions. The absolute tax liability reductions due to ERTA were largest for the size 5 farms across all farm types. Hog farms tended to show tax liability reductions greater than those of beef and grain farms. Hog farms benefited more from the ERTA changes than the other Iowa farm types because they had higher income and more depreciable property. The relative benefits for the large beef and grain farms can be explained primarily by the large tax rate reductions in the top income brackets.

The vineyard simulations showed ERTA benefits roughly comparable to those found for the size 1 hog farm. The smallest hog farm started with about the same acreage, net worth, and first year income as the vineyard. In terms of net worth, total asset growth, and tax rate reduction, the vineyard benefited more than the smaller grain and beef farms which are comparable in terms of initial net worth and beginning income. These simulations used the assumption that vineyard expansion was accomplished by purchasing additional vineyard land; expansion by purchasing

Table 3. Representative Financial Structures Used in Simulations of Vineyards and Hog, Grain, and Beef Farms[a]

Farm Size and Type	Initial Equity	Initial Real Estate Debt	Initial Short Term Debt	Vaue of Rented Land
Hog 1	214,000	63,200	31,200	110,000
Hog 2	252,400	80,600	41,400	184,700
Hog 3	308,100	82,600	55,000	311,000
Hog 4	375,000	99,900	68,400	376,100
Hog 5	560,300	183,600	120,100	701,600
Grain 1	131,900	36,700	19,600	152,400
Grain 2	160,300	49,600	24,800	244,400
Grain 3	201,400	60,400	37,600	343,300
Grain 4	271,400	70,100	47,700	517,000
Grain 5	460,600	128,600	109,200	987,500
Beef 1	100,000	17,300	14,800	26,300
Beef 2	258,800	63,900	29,100	135,800
Beef 3	278,000	56,900	35,400	208,500
Beef 4	336,000	70,600	40,800	258,500
Beef 5	634,300	145,500	95,300	575,700
Vineyard	213,300	73,000	26,600	17,200

[a] Debt, equity, and rented assets may not sum exactly to the total assets controlled listed in Table 1 because of rounding.

bare land for vineyard development has more complex tax ramifications and was not modeled in this study. Because the useful life of the vines for tax purposes was dropped from 15 years to 5 years, the vineyard showed a larger reduction in the first year tax liability than the other small farm operations. The vineyard's tenth year tax liability reduction was, however, not large relative to the other farms; for example, the reduction was larger on the size 1 hog farm. This occurred because vineyard income does not increase as much as income on farms of most other types. The relatively sluggish growth of vineyard income is reasonable given the current weak demand situation for Concord grapes.

The vineyard case emphasizes the importance of before-tax profitability in analyzing the impacts of ERTA. The vineyard received a large tax reduction initially, but in latter years was not able to benefit as much from tax reform as other farm types because of its lower income growth. Producers of more profitable perennial crops than Concord grapes could be expected to benefit more than field crops and livestock farmers from ERTA because they will receive the same initial tax benefits as the Concord grape grower, but they will also have the profitability over time that allows them to make full use of the ERTA changes.

Tax Rate Change Impact

Additional simulations were done assuming that the tax rates alone were changed by ERTA, but depreciation and investment tax credit rules remained as they were before 1981. The results showed that the tax rate reduction impacts clearly dominate the impact of other ERTA and TEFRA changes (Table 5). For the beef farms and size 1, 2, 3, and 4 grain farms, simulations which assume only the tax rate change showed net worth growth within one percentage point of the net worth growth in simulations using the fully phased-in ERTA and TEFRA provisions. For hog farms and the size 5 grain farm, net worth growth in the simulations assuming only the tax rate change was about one percentage point lower than it was in simulations under the fully phased-in ERTA and TEFRA provisions. Net worth growth in the vineyard simulation was 2 percentage points lower when the tax rates alone were changed than it was when the full ERTA and TEFRA rules were used. Differences in effective tax rates, growth in total assets, and tax liabilities between the simulations under the full ERTA and TEFRA provisions and simulations assuming only the tax rate changes followed a similar pattern. Simulations which change tax rates and individual depreciation provisions suggest that the decrease in the useful life for tax purposes of specialized facilities and perennial crops is largely responsible for the additional tax benefit shown in the hog farm and vineyard models. The change in depreciation calculation (in contrast to the change in useful life for tax purposes) has relatively little impact on business growth or longer-run tax liability levels.

Table 4. The Impact of ERTA on Firm Growth and Income Tax Liability in Illustrative Farm Simulations[a]

Farm Size & Type	Increase in Percentage Net Worth Growth[b]	Increase in Percentage Growth in Assets Controlled[b]	Reduction in Effective Tax Rate[c]	Reduction in First Year Tax Liability	Reduction in Tenth Year Tax Liability
	percent			dollars	
Hog 1	15	8	6	2,600	3,200
Hog 2	15	7	6	2,600	3,600
Hog 3	22	9	7	3,900	5,100
Hog 4	24	10	8	5,300	5,000
Hog 5	23	8	9	7,800	11,700
Grain 1	6	2	3	600	1,200
Grain 2	6	2	3	800	1,000
Grain 3	10	3	5	1,400	2,800
Grain 4	7	2	5	1,500	2,300
Grain 5	22	6	9	5,600	10,100
Beef 1	6	4	3	800	500
Beef 2	7	4	6	1,600	3,800
Beef 3	6	3	5	1,700	3,000
Beef 4	8	4	7	2,800	4,800
Beef 5	12	5	9	5,100	13,600
Vineyard	13	9	7	3,200	2,900

[a] Expense method is used when it results in a higher final net worth. Only simulations of the size 1 grain farm and the size 1 and 3 beef farms do not benefit from the option to expense some investments.
[b] The difference between the percentage growth using pre-1981 tax rules and the growth under ERTA and TEFRA.
[c] The difference between the effective tax rate under pre-1981 rules and under the fully phased-in ERTA and TEFRA.

Financial Structure and Off-Farm Income

Not all producers are described by the representative initial financial structure and off-farm income assumptions. Some additional simulations were run with alternate financial and off-farm income parameters to test the sensitivity of the results to those assumptions. Simulations which assumed representative initial depreciation schedules and that all farm assets were owned without debt showed that producers with larger equity benefited more from ERTA relative to those who rent land or have larger debt loads (Table 6). The distribution of ERTA benefits was unchanged in the all-equity simulations; larger farms benefited relative to small farms and hog farms benefited relative to other farm types. The vineyard benefited more relative to the other farm types of comparable size, especially in the initial years of the simulation.

Hog farms were simulated without off-farm income. In analyses using representative initial depreciation schedules and financial conditions, the producers who had no off-farm income showed substantially smaller benefits from ERTA and TEFRA than farmers with the same size operation who earned the average off-farm income (Table 7). The benefits from the new tax provisions almost disappeared for the size 1 and 2 hog farms. Because the pattern of off-farm income by farm size was the same for other Iowa illustrative farms, the results for other farm types would be similar. Simulations with higher off-farm income showed substantially larger benefits from ERTA and TEFRA than the baseline runs.

Because the tax treatment of off-farm and ordinary farm income is the same under the pre-1981 legislation, and ERTA and TEFRA, the simulations assuming no off-farm income also illustrate the relative impacts on more and less efficient producers as well as farmers with larger and smaller debt loads. The no off-farm income simulations could be thought of as farms on which off-farm income is offset by inefficient production methods, poor cost control, or inadequate marketing. The farmer with the more profitable operation, given farm business size, will benefit most from ERTA and TEFRA. Alternatively, the no off-farm income simulation might be thought of as the case where off-farm income is needed to pay extra interest charges. This might reflect the case of a beginning farmer who had recently purchased farm land and pays a much higher interest rate than is assumed in the baseline scenario.

Table 5. The Impact of ERTA Tax Rates on Firm Growth and Income Tax Liability in Illustrative Farm Simulations Assuming Pre-1981 Depreciation and Investment Tax Credit Rules[a]

Farm Size and Type	Increase in Percentage Net Worth Growth[b]	Increase in Percentage Growth in Assets Controlled[b]	Reduction in Effective Tax Rate[c]
	percent		
Hog 1	14	7	5
Hog 2	14	7	5
Hog 3	21	8	7
Hog 4	23	9	7
Hog 5	22	8	9
Grain 1	6	2	3
Grain 2	6	2	3
Grain 3	10	3	5
Grain 4	7	2	5
Grain 5	21	6	9
Beef 1	6	4	3
Beef 2	7	4	6
Beef 3	6	3	5
Beef 4	8	4	7
Beef 5	12	5	9
Vineyard	11	7	6

[a] Expense method is used when it results in a higher final net worth. Only simulations of the size 1 grain farm and the size 1 and 3 beef farms do not benefit from the option to expense some investments.
[b] The difference between the percentage growth using pre-1981 tax rules and the growth under ERTA and TEFRA.
[c] The difference between the effective tax rate under pre-1981 rules and under the fully phased-in ERTA and TEFRA.

Table 6. The Impact of ERTA[a] on Firm Growth and Income Tax Liability in Simulations Using All Equity[b] and Representative Financial Structures, and Assuming Representative Initial Depreciation Schedules

	All Equity		Representative Financing	
Farm Size and Type	Increase in Percentage Growth of Total Assets[c]	Reduction in Effective Tax Rate[d]	Increase in Percentage Growth in Assets Controlled[c]	Reduction in Effective Tax Rate[d]
	percent			
Hog 1	6	4	5	4
Hog 2	5	4	4	4
Hog 3	7	5	6	5
Hog 4	8	6	8	6
Hog 5	7	7	6	7
Grain 1	3	3	1	2
Grain 2	2	4	1	2
Grain 3	4	5	2	3
Grain 4	3	5	1	4
Grain 5	7	9	5	7
Beef 1	4	3	3	2
Beef 2	4	5	3	4
Beef 3	3	5	2	4
Beef 4	3	5	2	4
Beef 5	5	7	4	6
Vineyard	8	5	5	4

[a] Expense method not used.
[b] All assets are owned without debt. No rented land is used.
[c] The difference between the percentage growth using pre-1981 tax rules and the growth under the new legislation. For all-equity simulations growth in total assets is equal to growth in net worth.
[d] The difference between the effective tax rate under pre-1981 rules and under ERTA and TEFRA.

Table 7. The Impact of ERTA[a] on Hog Farm Growth and Income Tax Liability in Simulations With and Without Off-Farm Income and Using Representative Initial Depreciation Schedules and Financial Structure

Farm Size and Type	Increase in Percentage Net Worth Growth[b]	Increase in Percentage Growth in Assets Controlled[b]	Reduction in Effective Tax Rate[c]
	----------percent----------		
Average Off-Farm Income:			
1	9	5	4
2	9	4	4
3	15	6	5
4	19	8	6
5	17	6	7
No Off-Farm Income:			
1	1	1	1
2	1	0	1
3	6	3	3
4	10	4	5
5	10	4	5

[a] No expense method used.
[b] The difference between the percentage growth using pre-1981 tax rules and growth under ERTA and TEFRA provisions.
[c] The difference between the effective tax rates under pre-1981 rules and under ERTA and TEFRA.

The simulations using all equity financial structures and those assuming no off-farm income suggest that ERTA and TEFRA impacts will vary greatly among farms of the same size depending on financial and income characteristics. Wealthier farmers will tend to benefit relative to their neighbors with the same farm business size but less equity. Farms with off-farm income will benefit relative to those with no off-farm income, all other things equal; and more efficient farmers will benefit relative to the less efficient.

Implication for TRA Effects

Because the Tax Reform Act of 1986 is in many ways a continuation of the reform efforts begun with ERTA, the results of this research have implications for understanding the distributional effects of the 1986 legislation. Like ERTA, a key element in the TRA is the tax rate cuts (Patrick). This research suggests that the tax rate cuts will dominate the TRA impacts, creating incentives for expansion and increasing the after tax income that is available for reinvestment. Unlike the situation under ERTA, the TRA cuts are partially offset by the elimination of some deductions and credits. For farmers the elimination of the investment tax credit and the capital gain deduction are particularly important (Patrick).

Additional simulations of the hog farm were done under both the pre-1981 tax rules and under ERTA with the investment tax credit set to zero. The hog farms were chosen to test the importance of the investment tax credit because they have a large amount of property eligible for the credit. In both cases the investment tax credit had only a small effect on the net worth accumulation and other farm financial characteristics. Net worth growth was reduced less than one percentage point for all the hog farm sizes under both the pre-1981 and ERTA tax situations. Investment tax credit effects on other Iowa farm types would be smaller than those on hog farms because of the smaller amount of property eligible for the credit on those farms. These simulations suggest that the elimination of the investment tax credit by the TRA will have few direct distributional consequences.

The size 5 hog farm was simulated without the capital gain deduction under both the pre-1981 and ERTA tax rules. The size 5 hog farm was chosen to test the importance of the capital gains deduction because of the large amount of income that could be treated as capital gain, and hence sheltered from taxes, on this farm. The simulations showed that capital gains deduction was somewhat less important in aiding net worth growth under the lower ERTA tax rates, than it was under the pre-1981 rules, but net worth growth reduction due to the elimination of the capital gain deduction was substantial in both cases. Net worth growth was reduced by 12 percentage points under the pre-1981 tax rules and by 10 percentage points under ERTA by the elimination of the capital gain deduction. These simulations suggest that the elimination of the capital gains deduction by the TRA may reduce the growth advantage shown by the hog farms in simulations under ERTA provisions. Because the TRA does not greatly change the depreciation calculation for perennial crops or specialized structures (Research Institute of America), some of the tax advantage enjoyed by hog producers and farmers with vineyards or orchards can be expected to continue.

Conclusions and Implications

The simulation results go beyond previous research to show that tax reform of the type represented by ERTA and TEFRA can have major distributional impacts within the farm sector. In the short run at least, users of specialized livestock and horticultural facilities, and producers of perennial crops stand to gain relative to other farmers. In the longer run tax benefits may attract additional investment, increasing supplies and driving down prices. Operators of larger, higher income farms tend to benefit from ERTA type tax reform relative to farmers with smaller, lower income units. The simulations indicate that the major source of this distributional impact is the change in the tax rates. Changes in net worth growth and other measures of tax reforms benefits were similar in simulations which assumed the fully phased-in ERTA and TEFRA provisions and those which assumed only the tax rates were changed. The distributional pattern produced by the ERTA tax rate reductions is reinforced by the depreciation changes, primarily the reduction in useful life for tax purposes of specialized facilities and perennial crops.

The Tax Reform Act of 1986 adds to ERTA benefits for larger, higher income farms by further cutting marginal tax rates. This research suggests that the TRA elimination of the investment tax credit will have only a small effect on farm income and business growth and that the removal of the capital gain deduction could reduce growth substantially for some farmers which formerly could treat a large part of their income as capital gain. Neither ERTA nor TRA create new forces for structural change in U.S. agriculture, but they both reinforce some of the existing incentives for concentrating agricultural production in large units.

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