An Agricultural Law Research Article

Effects of Federal Taxes on Member Cash Flows From Patronage Refunds

by

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Scheduled changes in Federal Insurance Contributions Act (FICA) tax rates will affect member net cash flow when a patronage refund is received from a cooperative. Cash patronage refunds at the minimum 20 percent level generally required by law will create negative cash flows for patrons in very low tax brackets. Negative cash flows accumulated over the 10-year period 1981–90 may result in opportunity costs to patrons that exceed the value of the refunds. Boards will need to consider one or more of the following strategies to deal with this problem: (1) increased cash patronage refunds, (2) shorter revolving periods, and (3) use of nonqualified written notices of allocation.

Farmer-owned agricultural cooperatives operate differently from investor-owned corporations in that net margins (net savings) are passed back to each individual cooperative patron in proportion to the patron's volume of business with the cooperative. As a consequence, the Internal Revenue Service (IRS) views cooperative operations as extensions of farm businesses and classifies these refunds as ordinary farm income. Cooperative earnings are currently viewed by the IRS as an amount that patrons were underpaid for commodities marketed or as an amount that patrons were overcharged for production inputs (thereby reducing the patron's net taxable income in either case).

The IRS has required that patronage refunds issued by cooperatives be taken as ordinary income by farmer members in the year received. Furthermore, in the case of members actively engaged in farming operations, the patronage refunds are subject to Federal Insurance Contributions Act (FICA) taxes on self-employment income in addition to the ordinary income tax liability (Estes, Harl).

Members' tax situations may be such that the average income and self-employment tax paid per dollar of patronage refund received is less than the mandatory 20 percent received in cash. However, because the decision to patronize the cooperative rather than an investor-owned firm is a voluntary decision, a marginal analysis of tax impacts is a more appropriate framework than an average analysis. It is not difficult to envision a situation where tax due from the patron arising from the qualified patronage refund

might create a net cash flow drain from a patron's farming operation when the refund is viewed from a marginal perspective. Some patrons may be tempted not to patronize the cooperative rather than accept the negative cash flow consequences arising from a decision to patronize the cooperative.

Changes were made in the FICA self-employment tax in the late 1970s, and additional changes are scheduled to phase in between 1983 and 1990 (U.S. Department of Health and Human Services). These changes have the potential to make negative cash flows larger and more frequent during the decade of the 1980s (see table 1). Although credits will ease the transition during this decade, negative cash flows may be expected to increase, ceteris paribus, as the changes become effective. Beyond this transition period, negative cash flows can be expected to be more frequent.

Objectives

The objectives of this paper are as follows: (1) to evaluate the impact of graduated federal income taxes due on qualified patronage refunds to farmer members and the implications of these taxes on cash flow at the member level; (2) to determine the impact of scheduled changes in the flat rate FICA self-employment tax on qualified patronage refund distributions and the implications of this tax on member cash flow; and (3) to evaluate the cost (or benefit) of cooperative membership to members in various tax situations using the compounded value of net cash flows for patrons of an operating cooperative over the period from 1981 to 1990.[1]

Methodology

A simulation model for a farm supply and marketing cooperative operating on a buy-sell basis was employed.[2] Simulation methodology was selected to simultaneously accommodate: (1) complex tax relationships, (2) the fact that the cooperative and the farm business are not independent with respect to taxation, and (3) the need to relate cooperative fixed asset acquisition, depreciation, investment tax credit, and cash payout decisions to farmer cash flow.

Table 1.—Scheduled Tax on Self-Employment Income, 1983–90

Year	Nominal Rate	Credit	Effective Rate	Maximum Taxable Income Base Subject to FICA Tax
	-------------------- *Percent* ---------------------			*Dollars*
1983	9.35	—	9.35	35,700
1984	14.0	2.7	11.3	37,800
1985	14.1	2.3	11.8	40,200
1986	14.3	2.0	12.3	42,300
1987	14.3	2.0	12.3	44,700
1988–89	15.02	2.0	13.02	44,700
1990	15.3	[a]	15.3	44,700

[a]After 1989, the credit is scheduled to terminate.

The model employed is capable of producing dynamic projections of cooperative financial statements for up to 10 years. Capabilities of the model include the ability to generate dynamic projections for gross income, gross margins, expenses, earnings, federal income taxes, assets, liabilities, member equity, and member equity retirement given base data from a cooperative and instructions for changes in future years. Projections from the model are based on the audited financial statements of a buy-sell grain marketing and farm supply cooperative in year t_0. Fixed data were entered into the projection for year t_0, and instructions for changes were entered for years t_1-t_{10} (extending from 1981 to 1990) based on stated plans of the board and management of the cooperative. These data included: (1) anticipated volumes of business in farm product marketing and farm supply sales, (2) anticipated changes in expenses, (3) planned additions to fixed assets, (4) planned equity retirements, (5) planned seasonal and long-term loans, (6) planned debt retirement, and (7) depreciation strategies. Thus, net savings and investment tax credit available for distribution were geared to planned performance of the cooperative. The plans of the cooperative used were such that individual years' earnings and investment tax credit represented a range of investment and earnings levels typical of local cooperatives.

A second model was used to develop projections for net cash flow to members in various marginal federal income tax brackets. The net cash flow model measured the impact of cash paid out to members, the income tax due, and investment tax credit passed to the membership as a consequence of cooperative membership.[3]

Net cash flow to members in the ith tax bracket in year t was defined as the cash patronage refund minus the tax liability resulting from the patrons' marginal tax rate and the appropriate FICA rate plus the portion of the unused investment tax credit earned in year t passed to patrons in the ith bracket. Patron cash flows in absolute dollars vary depending on the amount of patronage done with the cooperative. To avoid confusion arising from this variation, cash flows were calculated on a per dollar refund basis by dividing the second term of (1) by total patronage. Differences between the percentage cash paid and the second term yield net cash flow per dollar of refund. These relationships are shown by the equation:

$$NCF_{ti} = C_{ti} - \left[\frac{P_{ti}(T_i + F_t) - ITC_{ti}}{P_{ti}} \right] \tag{1}$$

where:

NCF_{ti} = net cash flow to the ith tax bracket in year t

i = one of 14 marginal income tax rate brackets

C_{ti} = percentage cash patronage refund to the ith tax bracket in year t

P_{ti} = total patronage refund to the ith tax bracket in year t

T_i = personal marginal tax rate in the ith tax bracket

F_t = appropriate flat rate FICA in year t for income levels less than the maximum FICA wage base, year t

ITC_{ti} = unused investment tax credit earned by the cooperative in year t and distributed to patrons in the ith bracket

Federal income tax brackets, depreciation rates, and investment tax credit eligibilities used to generate cooperative earnings were based on the provisions of the Tax Equity and Fiscal Responsibility Act (TEFRA 1982). Patron tax brackets were likewise based on the Economic Recovery Tax Act (ERTA 1981) and TEFRA 1982. FICA taxes were incorporated into the model based on scheduled phase-in of increases in the FICA self-employment tax to take place from 1983–89.

Although care was exercised in the selection of a "typical" case cooperative and earnings projections that were tied to an actual cooperative business plan, neither of these steps are critical factors in the generalization of results. Statement of net cash flow results on a per dollar basis eliminate the effects of absolute levels of earnings. Levels of investment tax credit generated (as a percentage of distributable net savings) required to offset the cooperative's tax liability do affect the net cash flow per dollar of distribution. Efforts were made to select a cooperative with a typical program of investment in and normal replacement of fixed assets eligible for investment tax credit.

Net Cash Flow to Members

Net cash flow to members from a qualified patronage refund is a function of member tax bracket, FICA position of the member, volume of business done, investment tax credit passed to members, and the proportion of the refund paid in cash by the cooperative.[4] The impact of nonqualified written notices of allocation (until redeemed) or net savings retained as unallocated equity on member cash flow is generally neutral.[5] Therefore, these types of distribution were not considered in the patron cash flow analysis.

The member net cash flows per dollar of distribution are shown in tables 2–5 for four levels of cash patronage refunds with and without FICA tax. Net cash flow per dollar of patronage refund behaved as would be expected (when FICA self-employment tax was not considered) under each level of cash paid out. When only federal income taxes were considered, net cash flows were generally positive up to the level where the marginal tax bracket equaled the portion of the patronage refund paid in cash. The unused portion of investment tax credit remaining after corporate taxes and passed to members was the only source of variation in member net cash flow from what would be expected, given marginal tax bracket and percentage cash patronage refunds.

However, when the effect of the FICA tax was included, negative cash flows became more common and the patron marginal tax bracket was no longer a valid predictor of patron cash flow. Under the assumption that the cash payout was 20 percent (table 2), cash flow was negative in nine of the ten years. Only in 1982 did positive net cash flow occur to members in tax brackets 26 percent and below. This result occurred primarily because a relatively large amount of investment tax credit was passed to members in that year, which allowed patrons in lower brackets to cover their tax liabilities. The pass-through occurred because the cooperative made large additions to fixed assets that might be expected only once per decade in a typical local cooperative. This left an unusually large amount of investment tax credit available for pass-through to members. This would occur only when

Table 2.—Net Cash Flow to Members Per $1 Qualified Patronage Refund Allocation, 20% Cash Patronage Refunds[a]

Year	1982		1983		1984		1985		1986–1987		1988–1989		1990–1991	
Fed. Tax Bracket	without FICA	with FICA	without FICA	with FICA	without FICA	with FICA	without FICA	with FICA	without FICA	with FICA	without FICA	with FICA	without FICA	with FICA
11%	$0.090	−$0.004	$0.224	$0.144	$0.090	−$0.023	$0.106	−$0.010	$0.090	−$0.033	$0.090	−$0.040	$0.090	−$0.063
14	.060	−.034	.199	.119	.060	−.053	.076	−.040	.060	−.063	.060	−.070	.060	−.093
17	.030	−.064	.173	.093	.030	−.083	.047	−.069	.030	−.093	.030	−.100	.030	−.123
20	.000	−.094	.148	.068	.000	−.113	.018	−.098	.000	−.123	.000	−.130	.000	−.153
23	−.030	−.124	.122	.042	−.030	−.143	−.012	−.128	−.030	−.153	−.030	−.160	−.030	−.183
26	−.060	−.154	.097	.017	−.060	−.173	−.041	−.157	−.060	−.183	−.060	−.190	−.060	−.213
29	−.090	−.184	.071	−.009	−.090	−203	−.071	−.187	−.090	−.213	−.090	−.220	−.090	−.243
32	−.120	−.120	.045	−.035	−.120	−.233	−.100	−.216	−.120	−.243	−.120	−.250	−.120	−.273
35	−.150	−.150	.020	.020	−.150	−.150	−.130	−.130	−.150	−.150	−.150	−.150	−.150	−.150
38	−.180	−.180	−.006	−.006	−.180	−.180	−.159	−.159	−.180	−.180	−.180	−.180	−.180	−.180
41	−.210	−.210	−.031	−.031	−.210	−.210	−.189	−.189	−.210	−.210	−.210	−.210	−.210	−.210
44	−.240	−.240	−.057	−.057	−.240	−.240	−.218	−.218	−.240	−.240	−.240	−.240	−.240	−.240
47	−.270	−.270	−.082	−.082	−.270	−.270	−.248	−.248	−.270	−.270	−.270	−.270	−.270	−.270
50	−.300	−.300	−1.08	−1.08	−.300	−.300	−.277	−.277	−.300	−.300	−.300	−.300	−.300	−.300

[a]Values above the line are affected by FICA tax. Values below the line are not affected by the FICA tax because patrons in those marginal brackets have incomes above the maximum taxable income base.

the cooperative makes such large investments that earned investment tax credit exceeds the cooperative's taxable income in the current year.

The net cash flow under the assumption that 30 percent of the qualified allocation was paid in cash (table 3) yielded negative cash flows to members in the 23 percent marginal brackets and higher with the exception of the years in which there were large amounts of investment tax credit. When a 40 percent cash payout was assumed (table 4), cash flows were positive for members in marginal tax brackets below 40 percent with one exception.

Members in the neighborhood of the 30–32 percent tax bracket who were at the threshold of the maximum FICA taxable earnings level suffered a one- to two-cent negative cash flow per dollar received in 1983 and beyond. This result occurred because members in brackets above this level had already paid the maximum FICA tax on self-employment earnings and members in brackets below received enough in the 40 percent cash distribution to cover FICA taxes. This disparity grew larger as the increases in the flat rate FICA tax were fully implemented later in the 10-year period.

Table 5 shows member cash flows under the assumption that 45 percent cash was paid out. Members in all tax brackets below 45 percent received positive cash flows with one exception. When the 15.3 percent FICA tax was assumed to operate in 1990 and 1991 without the credits offered in earlier years, a small negative cash flow occurred among members in the 32 percent bracket.

Opportunity Cost of Investment in the Cooperative and Net Cash Flows

There has been debate in the agricultural economics literature concerning producers' investment in their cooperative and the return on that investment. Some investigators have attempted to use standard portfolio analysis and research methodologies appropriate to investor-owned firms to determine member investment in cooperatives (Knoeber and Baumer 1983 and 1985). Other investigators have questioned this approach to analyzing patron investment. They maintain that cooperatives are financed in a radically different way from investor-owned firms. Furthermore, they maintain that the differences make some standard analytical techniques used for investor-owned firms inappropriate for analyzing farmer investment in their cooperative (Ratchford). We adopt this latter view and contend that negative cash flow from current patronage refunds is one of the special features of cooperative capitalization that distinguishes cooperatives from investor-owned firms.

Membership in many farmer-owned cooperatives (particularly supply and grain marketing cooperatives) has required a relatively low cash investment. Stock purchases required for membership are generally less than $1,000 and, in most cases, less than $100. In some cooperatives, a large portion of the entry stock purchase can be earned through future patronage refunds.

The net effect is to make membership open to all farmers with little negative impact on cash flow for direct investment. Membership costs and investments in the cooperative are financed from cooperative net savings. This source of investment is passive and noncompetitive with other invest-

Table 3.—Net Cash Flow to Members Per $1 Allocation, 30% Cash Patronage Refunds[a]

Year	1982		1983		1984		1985		1986–1987		1988–1989		1990–1991	
Fed. Tax Bracket	without FICA	with FICA	without FICA	with FICA	without FICA	with FICA	without FICA	with FICA	without FICA	with FICA	without FICA	with FICA	without FICA	with FICA
11%	$0.190	$0.097	$0.224	$0.144	$0.190	$0.077	$0.187	$0.071	$0.190	$0.067	$0.190	$0.060	$0.190	$0.037
14	.160	.067	.199	.199	.160	.047	.157	.041	.160	.037	.160	.030	.160	.007
17	.130	.037	.173	.093	.130	.017	.128	.011	.130	.007	.130	.000	.130	−.023
20	.100	.007	.148	.068	.100	−.013	.098	−.018	.100	−.023	.100	−.030	.100	−.053
23	.070	−.024	.122	.042	.070	−.043	.069	−.047	.070	−.053	.070	−.060	.070	−.083
26	.040	−.054	.097	.173	.040	−.073	.039	−.077	.040	−.083	.040	−.090	.040	−.113
29	.010	−.084	.071	.009	.010	−.103	.010	−.106	.010	−.113	.010	−.120	.010	−.143
32	−.020	−.020	.045	.035	−.020	−.133	−.020	−.136	−.020	−.143	−.020	−.150	−.020	−.173
35	−.050	−.050	.020	.020	−.050	−.050	−.049	−.049	−.050	−.050	−.050	−.050	−.050	−.050
38	−.080	−.080	−.006	−.006	−.080	−.080	−.079	−.079	−.080	−.080	−.080	−.080	−.080	−.080
41	−.110	−.110	−.031	−.031	−.110	−.110	−.108	−.108	−.110	−.110	−.110	−.110	−.110	−.110
44	−.140	−.140	−.057	−.057	−.140	−.140	−.138	−.138	−.140	−.140	−.140	−.140	−.140	−.140
47	−.170	−.170	−.082	−.082	−.170	−.170	−.167	−.167	−.170	−.170	−.170	−.170	−.170	−.170
50	−.200	−.200	−.108	−.108	−.200	−.200	−.196	−.196	−.200	−.200	−.200	−.200	−.200	−.200

[a]Values above the line are affected by FICA tax. Values below the line are not affected by the FICA tax because patrons in those marginal brackets have incomes above the maximum taxable income base.

Table 4.—Net Cash Flow to Members Per $1 Allocation, 40% Cash Patronage Refunds[a]

Year	1982		1983		1984		1985		1986–1987		1988–1989		1990–1991	
Fed. Tax Bracket	without FICA	with FICA	without FICA	with FICA	without FICA	with FICA	without FICA	with FICA	without FICA	with FICA	without FICA	with FICA	without FICA	with FICA
11%	$0.290	$0.197	$0.260	$0.180	$0.290	$0.177	$0.285	$0.169	$0.290	$0.167	$0.290	$0.160	$0.290	$0.137
14	.260	.167	.234	.154	.260	.147	.255	.139	.260	.137	.260	.130	.260	.107
17	.230	.137	.209	.129	.230	.117	.226	.110	.230	.107	.230	.100	.230	.077
20	.200	.107	.183	.103	.200	.087	.196	.080	.200	.077	.200	.070	.200	.047
23	.170	.077	.158	.078	.170	.057	.167	.051	.170	.047	.170	.040	.170	.017
26	.140	.047	.132	.052	.140	.027	.138	.022	.140	.017	.140	.010	.140	−.013
29	.110	.017	.107	.027	.110	−.003	.108	−.008	.110	−.013	.110	−.020	.110	−.043
32	.080	.080	.081	.001	.080	−.033	.079	−.037	.080	−.043	.080	−.050	.080	−.073
35	.050	.050	.055	.055	.050	.050	.049	.049	.050	.050	.050	.050	.050	.050
38	.020	.020	.030	.030	.020	.020	.020	.020	.020	.020	.020	.020	.020	.020
41	−.010	−.010	.004	.004	−.010	−.010	−.010	−.010	−.010	−.010	−.010	−.010	−.010	−.010
44	−.040	−.040	−.021	−.021	−.040	−.040	−.039	−.039	−.040	−.040	−.040	−.040	−.040	−.040
47	−.070	−.070	−.047	−.047	−.070	−.070	−.069	−.069	−.070	−.070	−.070	−.070	−.070	−.070
50	−.100	−.100	−.072	−.072	−.100	−.100	−.098	−.098	−.100	−.100	−.100	−.100	−.100	−.100

[a]Values above the line are affected by FICA tax. Values below the line are not affected by the FICA tax because patrons in those marginal brackets have incomes above the maximum taxable income base.

Table 5.—Net Cash Flow to Members Per $1 Allocation, 45% Cash Patronage Refunds[a]

Year	1982		1983		1984		1985		1986–1987		1988–1989		1990–1991	
Fed. Tax Bracket	without FICA	with FICA	without FICA	with FICA	without FICA	with FICA	without FICA	with FICA	without FICA	with FICA	without FICA	with FICA	without FICA	with FICA
11%	$0.340	$0.247	$0.303	$0.223	$0.340	$0.227	$0.334	$0.218	$0.340	$0.217	$0.340	$0.210	$0.340	$0.187
14	.310	.217	.277	.197	.310	.197	.305	.189	.310	.187	.310	.180	.310	.157
17	.280	.187	.251	.171	.280	.167	.275	.159	.280	.157	.280	.150	.280	.127
20	.250	.157	.226	.146	.250	.137	.246	.130	.250	.127	.250	.120	.250	.097
23	.220	.127	.200	.120	.220	.107	.216	.100	.220	.097	.220	.090	.220	.067
26	.190	.097	.175	.095	.190	.077	.187	.071	.190	.067	.190	.060	.190	.037
29	.160	.067	.146	.066	.160	.047	.157	.041	.160	.037	.160	.030	.160	.007
32	.130	.130	.124	.044	.130	.017	.128	.012	.130	.007	.130	.000	.130	−.023
35	.100	.100	.098	.098	.100	.100	.098	.098	.100	.100	.100	.100	.100	.100
38	.070	.070	.072	.072	.070	.070	.069	.069	.070	.070	.070	.070	.070	.070
41	.040	.040	.047	.047	.040	.040	.039	.030	.040	.040	.040	.040	.040	.040
44	.010	.010	.021	.021	.010	.010	.010	.010	.010	.010	.010	.010	.010	.010
47	−.020	−.020	−.004	−.004	−.020	−.020	−.020	−.020	−.020	−.020	−.020	−.020	−.020	−.020
50	−.050	−.050	−.030	−.030	−.050	−.050	−.049	−.049	−.050	−.050	−.050	−.050	−.050	−.050

[a]Values above the line are affected by FICA tax. Values below the line are not affected by the FICA tax because patrons in those marginal brackets have incomes above the maximum taxable income base.

ment capital demands in the farming operation. The capitalization of the cooperative is accomplished by using funds that would not have been available had the producer elected to do business with an investor-owned firm not operating as a cooperative. In investor-owned firms, this capital would accrue to stockholders based on the size of their investment, and the farmer doing business there would receive no refund. Thus, the producer member does not invest in the conventional sense of the word.

Negative cash flows resulting from patronage refunds represent an important divergence from this type of "passive" investment of capital. Producer members must count the negative cash flows as a direct capital investment in the cooperative. Moreover, negative cash flows directly compete with other potential investments in the farming operation. Presumably the "cash flow" investment is to be returned when the noncash portion of the refund is redeemed at face value at some point in the future. Thus, the cost of the negative cash flow is the opportunity cost of the capital required to make up the difference between the cash patronage refund received and taxes paid on that refund over the revolving period.

Costs of negative cash flows recur annually until the noncash portions of the refunds are revolved out. Because the tax is less than the refund to be revolved out, the negative net cash flow will eventually be corrected in nominal terms. However, if the revolving fund is sufficiently long, the cumulative opportunity cost may exceed the value of the noncash portion of the refund when it is finally revolved. In that case, the patron would have incurred a positive cost of cooperative membership.

Conversely, positive cash flows represent a positive return above the required passive investment generated by doing business with the cooperative. Such positive cash flows can never result in a positive cost of cooperative membership. Because they represent cash that is immediately available, they can only enhance the nominal benefit of cooperative membership when the full refund is revolved.

Cumulative costs and benefits (beyond the nominal refund itself) arising from either negative or positive net cash flows may be evaluated over any given time interval between the allocation of a qualified refund and revolvement of that refund. The net financial benefit or cost of "cash flow" investment in the cooperative over the interval depends on: (1) the amount of cash flow received from each year's cash patronage refund after taxes, (2) the number of years in the interval to be evaluated, and (3) the rate at which cash flow costs or benefits are compounded to account for the time value of money.

This technique was employed to evaluate the costs of cooperative membership over the 10-year projection period presented in the foregoing qualified allocated refund analysis. Cash flow costs of membership were evaluated for each of the 14 member income tax brackets using equation (2) and equation (3).

Equation (2) measures the opportunity cost or benefit arising from net cash flows during any year t during the 10-year projection (under the assumption that none of the noncash portion of the refunds received during the period was returned). At the end of the 10-year period, the initial net cash flow is subtracted out in order to isolate the pure opportunity cost of negative cash flow or benefit from positive cash flow during the evaluation

period.[6] Equation (2) thus provides for larger compounded costs or benefits for cash flows generated earlier in the period than for those generated later in the period (Barry, Hopkin, and Baker, p. 185).

Equation (3) sums the opportunity cost or benefit of cash flows for each year t over the remaining portion of the 10-year period for any given member tax bracket.

$$C_{it} = NCF_{it} [(1 + r)^{n-t} - 1] \tag{2}$$

$$C_i = \sum_{t=0}^{9} NCF_{it} [(1 + r)^{n-t} - 1] \tag{3}$$

where:

i = one of 14 marginal income tax rate brackets

n = 10 years of projection period over which costs or benefits are analyzed

C_{it} = cost or benefit of the cooperative (as measured by opportunity cost of negative or positive cash flow) for members in the ith bracket receiving a refund in year t

NCF_{it} = net cash flow to the ith tax bracket in year t

t = the year in which the cash patronage portion of a refund is passed

r = compounding rate (10 percent, 14 percent)

C_i = the cumulative cost or benefit of the cooperative (as measured by opportunity cost of negative or benefit of positive cash flow) for members in the ith tax bracket over the 10-year period

These results are shown in table 6 for cash flow levels generated by members in each possible tax bracket. Data in table 6 may be interpreted as the compounded opportunity cost of interest or benefit of interest arising from cash flow effects of the patronage refund during the 1981–90 period. As in the case of the net cash flow data presented earlier (tables 2–5), the values in table 6 are stated on a per dollar of distribution received basis. Columns showing cash flows for federal income tax without FICA are provided for comparison. A negative sign is used to indicate a net cost. Positive values indicate net benefits.

Patrons receiving a 20 percent cash patronage refund had a positive benefit from cooperative membership only if they were in the 11 percent marginal income tax bracket. Patrons in other tax brackets incurred an opportunity cost for membership in the cooperative arising from negative net cash flows. The level of opportunity cost when all taxes, including FICA taxes, were paid fell within a range from 6.7¢ per dollar of patronage refund received to $1.98 under a 10 percent compound rate and 7.9¢ to $3.15 under a 14 percent compound rate. Patrons in the 26 percent marginal bracket and above incurred more than $1.00 of opportunity cost for each dollar of patronage refund received under the 10 percent compound rate with the exception of those members in the 35 percent bracket. These members were above the FICA ceiling during part of the projection period and, as a consequence, incurred a lower opportunity cost. At the 14 percent compound rate, all members in brackets above 23 percent incurred an opportunity cost greater than $1.00 for each dollar of refund received.

If patrons received a 30 percent cash refund, the opportunity cost of membership was greatly reduced when a 10 percent compound rate was assumed. Only members in tax brackets higher than 47 percent had an opportunity cost of membership that exceeded $1.00 for each dollar of refund received. Using the higher compound rate resulted in opportunity costs greater than $1.00 for all brackets above 29 percent, with the exception of the 38 percent and 41 percent brackets. Cash patronage refunds of 40 percent resulted in opportunity costs of less than $1.00 per dollar of refund received. In fact, positive benefits accrued to members in all tax brackets up to 38 percent with the exception of the 29 percent and 32 percent bracket. The flat rate FICA tax with its ceiling created small opportunity costs for members in these two brackets. A 45 percent cash patronage refund created benefit for all cooperative members except those in the 47 percent and 50 percent brackets.

Summary and Conclusions

The analysis indicates that the opportunity cost of cooperative membership is heavily influenced by the level of cash paid out and the FICA tax. Furthermore, the regressive effects of the FICA tax tend to place a heavier opportunity cost on cooperative members in the lower and middle tax brackets (at low levels of cash payout) than members in these brackets have experienced in the past.

Although farmers have been liable for FICA tax on patronage refunds (in addition to federal income tax) for many years, the scheduled increases in rates during the 1980s will magnify the impact of these taxes on cash flow at the farm level. Cash patronage refunds at the minimum 20 percent level were shown to be inadequate to cover the tax liabilities of members in most marginal tax brackets. Even patrons in relatively low tax brackets (14 percent) were shown to experience negative cash flows. The opportunity cost of negative cash flows to members in the 20 percent marginal tax bracket was shown to erode the value of the refund by 60 percent and 93 percent (under a 10 percent and 14 percent compound rate, respectively) for the 10-year period 1981–90. In higher tax brackets, the opportunity cost exceeded the value of the refund.

Added to the changes in FICA rates, changes in the debt and asset structure of agriculture may result in higher tax brackets for many producers in the future. During the 1970s and early 1980s, farm asset values increased at a rapid rate. Higher collateral values permitted purchase of additional farm equipment and land using borrowed funds. As a consequence of higher asset values and a higher proportion of debt financing, large segments of the farm population had a substantial interest deduction from taxable income. The investment credit on equipment purchased further reduced the tax rate bracket for a significant portion of farm operators.

Carry-forward provisions will permit some of these preferences to be used during the 1980s. However, current reductions in farm asset values will drastically reduce farmers' ability to expand by pledging assets as collateral for borrowing. Thus, a larger portion of funds for farm expansion must come from earnings. It will be more difficult to shield this income from taxation than it has been in the past decade.

Table 6.—Opportunity Cost (–) or Benefit of Compounded Interest on Member Net Cash Flow Per $1 Patronage Refund Received

Federal Tax Bracket	20% Cash Patronage Refund				30% Cash Patronage Refund			
	10% Compound Rate		14% Compound Rate		10% Compound Rate		14% Compound Rate	
	without FICA	with FICA	without FICA	with FICA	without FICA	with FICA	without FICA	with FICA
11%	$0.876	$0.056	$1.410	$0.111	$1.476	$0.658	$2.361	$1.065
14	0.656	− 0.067	1.060	− 0.079	1.257	0.535	2.010	0.875
17	0.437	− 0.383	0.709	− 0.590	1.037	0.218	1.660	0.362
20	0.218	− 0.602	0.360	− 0.938	0.658	− 0.001	1.039	0.014
23	− 0.003	− 0.823	0.008	− 1.290	0.598	− 0.222	0.959	− 0.340
26	− 0.221	− 1.041	− 0.341	− 1.639	0.378	− 0.442	0.609	− 0.690
29	− 0.442	− 1.266	− 0.693	− 1.997	0.158	− 0.662	0.258	− 1.014
32	− 0.662	− 1.332	− 1.044	− 2.088	− 0.017	− 0.733	− 0.020	− 1.139
35	− 0.881	− 0.881	− 1.394	− 1.394	− 0.281	− 0.281	− 0.443	− 0.443
38	− 1.101	− 1.101	− 1.745	− 1.745	− 0.502	− 0.502	− 0.795	− 0.795
41	− 1.321	− 1.321	− 2.095	− 2.095	− 0.720	− 0.720	− 1.144	− 1.144
44	− 1.540	− 1.540	− 2.446	− 2.446	− 0.941	− 0.941	− 1.496	− 1.496
47	− 1.760	− 1.760	− 2.796	− 2.796	− 1.160	− 1.160	− 1.845	− 1.845
50	− 1.980	− 1.980	− 3.146	− 3.146	− 1.379	− 1.379	− 2.196	− 2.196

Federal Tax Bracket	40% Cash Patronage Refund				45% Cash Patronage Refund			
	10% Compound Rate		14% Compound Rate		10% Compound Rate		14% Compound Rate	
	without FICA	with FICA	without FICA	with FICA	without FICA	with FICA	without FICA	with FICA
11%	$2.061	$1.243	$3.301	$2.005	$2.508	$1.690	$4.003	$2.707
14	1.840	1.022	2.948	1.653	2.288	1.470	3.652	2.356
17	1.622	0.876	2.600	1.408	2.067	1.249	3.300	2.004
20	1.401	0.583	2.248	0.952	1.849	1.031	2.951	1.655
23	1.182	0.364	1.899	0.603	1.628	0.810	2.599	1.303
26	0.962	0.120	1.548	0.212	1.410	0.591	2.250	0.954
29	0.743	−0.075	1.198	−0.098	1.185	0.367	1.891	0.595
32	0.523	−0.147	0.847	−0.197	0.970	0.300	1.549	0.505
35	0.302	0.302	0.495	0.495	0.749	0.807	1.197	1.290
38	0.084	0.084	0.146	0.146	0.530	0.530	0.846	0.846
41	−0.137	−0.137	−0.206	−0.206	0.310	0.310	0.496	0.496
44	−0.298	−0.298	−0.460	−0.460	0.090	0.090	0.145	0.145
47	−0.449	−0.449	−0.695	−0.695	−0.105	−0.105	−0.168	−0.168
50	−0.599	−0.599	−0.931	−0.931	−0.349	−0.349	−0.556	−0.556

Cooperative boards of directors should recognize that such changes will affect the opportunity cost of cooperative membership. More sophisticated cooperative members are likely to question the value of the cooperative if chronic cash flow deficits result in high opportunity costs of cooperative membership. When those opportunity costs exceed the value of the refund itself, producers may conclude that membership is not worthwhile.

A board may pursue several options to address this problem. The most obvious option is an increased cash portion of patronage refunds. The efficiency of this option was demonstrated in the preceding analysis where it was shown that higher cash patronage refunds generate positive benefits to a greater number of patrons. However, as also shown in the analysis, members in some middle brackets experienced a net cash flow opportunity cost while patrons in higher brackets experienced a benefit. This inequity among members in different tax brackets could be unacceptable in some cooperatives. To some extent, this option leaves the opportunity cost of cooperative membership to the vagaries of a regressive tax.

A second option that boards of directors might consider is to adopt a shorter revolving period. Although this does not address the problem of the negative net cash flow due to the level of cash patronage refunds, it does reduce the associated opportunity cost. Compounding over a shorter period may keep the opportunity cost below $1.00 for more patrons. This option does not address the problem of inequities created by FICA. However, if sufficient cash flow is available in the cooperative to pay a higher portion of refunds in cash, either the higher cash payment or this option may be viable.

A third option for boards of directors is the use of different allocation methods. Nonqualified written notices of allocation could be used instead of qualified allocations (Royer and Wissman). Savings distributed as non-qualified allocations are not subject to the FICA tax and federal income tax until the patron receives the entire distribution as cash at the time of revolvement. The use of nonqualified allocations would thereby eliminate the effects of FICA on the opportunity cost of membership in the coopera-tive. Patrons in lower tax brackets would still remain liable for FICA tax when the nonqualified refunds are revolved out. However, the compounding effect of positive and negative cash flows would be eliminated for patrons at all income levels.

Notes

1. FICA tax can be construed as generating a potential stream of benefits upon retirement. However, FICA-Social Security is not managed as an annuity on the producer's behalf. Rather, the treatment of payments is subject to unilateral legis-lative change in the future. Furthermore, few farmers are observed to be maximizing payments of the tax over the majority of their farming career. The possibility of affecting the level of benefits appreciably is, for the most part, limited to the five years immediately before retirement. It is, therefore, left to the reader to place subjective valuation on this elusive benefit and to compare that benefit with the opportunity cost of negative cash flow from cooperative refunds.

2. The methodology could be applied to a pooling cooperative as well as a buy-sell cooperative. However the decision to join a pooling cooperative usually involves a long-term contractual obligation. Also, alternatives for marketing and processing

services offered by pooling cooperatives are frequently limited. The patron may be less likely to abandon the cooperative abruptly due to tax related changes in net cash flow.

3. IRS regulations dictate that cooperatives use available investment tax credit to offset corporate federal taxes. Any unused portion is passed to members based on patronage. This enhances patron cash flow when the patron has a positive tax liability. It may be carried forward in the event that the patron cannot use it in the current year.

4. In some cases, excess investment tax credit is available for distribution to members (after the corporate federal income taxes are paid on nonqualified allocated equity or unallocated equity at the cooperative). A positive cash flow to members may result from this excess investment credit. However, the presence or absence of excess investment tax credit depends on the investment by the cooperative from year to year and the earnings level of the cooperative.

5. It makes no corporate tax liability difference whether nonqualified written notices are used or net savings are retained as unallocated equity. IRS treatment of both for tax purposes is the same. Only if nonqualified allocated equity is retired are tax liabilities different.

6. Because the cash portion of the refund when combined with the noncash portion at revolvement will eliminate all cash flow effects other than the time value of money (between issue and revolvement), the initial positive or negative cash flow is subtracted out.

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