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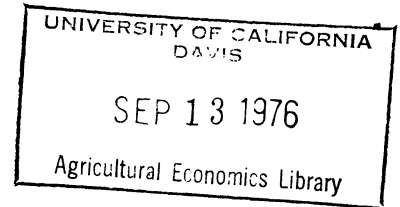
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*Farm
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FARM FINANCIAL MANAGEMENT AND TAX-DEFERRED
RETIREMENT PLANS: SOME ECONOMIC ASPECTS OF
ALTERNATIVE INVESTMENTS

Darrel L. Acker, Paul L. Wright,
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Introduction

Passage of the Pension Reform Act of September, 1974 was aimed at broadening the availability of tax-deferred or tax-sheltered retirement programs by (1) adding the Individual Retirement Account (IRA) and (2) improving the opportunities for the employee to utilize and to benefit from other qualified pension and retirement programs already permitted in the tax law.¹

The annual limits for tax-sheltered contributions into a Keogh plan were raised from the lesser of 10 percent or \$2,500 to 15 percent or \$7,500 (IRS, Publ. no. 590). Addition of the IRA and the "15 percent or \$7,500" limits for Keogh plans and other provisions was an attempt to give non-corporate business owners and employees greater opportunity to achieve parity with those who have the benefit of more flexible corporate pension plan rules.

As farmers examine the corporate form of business arrangement, it is essential that they have some knowledge of the distinctive characteristics of the corporate pension planning possibilities, as contrasted to the IRA or Keogh alternatives (Thies).

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1. Pension Reform Act is a common reference to the full legislation entitled Employee Retirement Income Security Act of 1974 (ERISA), P. L. 93-406, 88 Stat. 829 (1974).

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While tax lawyers and pension planning specialists have been pre-occupied with study of the full implications of the many changes brought by the Pension Reform Act, we feel that many of those trying to decide whether and at what level to participate in a qualified retirement plan should focus upon an analysis of alternative rates of return for available investments, given expected marginal rates of income tax both for the current years and for future years before and during retirement.

Some Economics of Tax-Sheltered Investments²

The analysis to be briefly described is summarized in Table 1 "Accumulated Retirement Benefits" on page 3. For simplicity, the analysis is based on \$1,000, before tax, available annually for investment. The approach is to accumulate deposits and earnings under the various assumptions about earnings rates under both sheltered and non-sheltered programs at alternative marginal annual tax rates at time of accumulation of the retirement fund. Then alternative tax rates are also applied to the pay-out stream during retirement to ascertain the total pay-out to the plan beneficiary. It is these resulting alternative streams of retirement benefits that are shown in Table 1.

The Investment Alternatives: The first four investments (A thru D) are believed to reflect a meaningful set of possibilities. A 6 percent earnings rate on a tax-sheltered fund and accumulated remaining balances during retirement may be the lowest one would accept in today's economy. The 6 percent rate is now paid on U. S. Retirement Bonds, one of the alternatives for funding a qualified retirement plan. Nine percent (Alternative C) is probably feasible on certain well-managed retirement funds.

2. These data to follow and an extended discussion are reported in an Ohio State Farm Management Mimeo (Acker and Wright) and were generated with a computer routine, "Annuity" (COMSHARE).

Table 1. Accumulated Retirement Benefits (in After-Tax Dollars) per \$1000 Before-Tax Annual Investment with Rankings

Investment alternative	Before retirement- During retirement-	Tax rates		
		20%	30%	40%
<hr/>				
<u>20-year investment, 8-year withdrawal period</u>				
A. Tax-sheltered-6% earnings throughout		\$ 42,651(4)	\$37,912(3)	\$33,173(3)
B. No tax shelter-10% earnings before retirement, 6% during retirement		\$ 46,108(3)	\$35,322(4)	\$26,525(4)
C. Tax-sheltered-9% earnings throughout		\$ 66,552(2)	\$59,157(1)	\$51,763(1)
D. No tax-shelter-15% earnings before retirement, 6% during retirement		\$ 72,598(1)	\$52,230(2)	\$36,891(2)
		<u>Tax rates before and during retirement</u>		
		<u>20%</u>	<u>30%</u>	<u>40%</u>
A. Tax-sheltered-6% earnings throughout		\$ 37,912(4)	\$33,173(4)	\$28,434(3)
B. No tax shelter-10% earnings before retirement, 6% during retirement		\$ 45,053(3)	\$34,488(3)	\$25,889(4)
C. Tax-sheltered-9% earnings throughout		\$ 59,157(2)	\$51,763(1)	\$44,368(1)
D. No tax shelter-15% earnings before retirement, 6% during retirement		\$ 70,936(1)	\$51,006(2)	\$36,006(2)
<hr/>				
<u>30-year investment, 8-year withdrawal period</u>				
E. Tax-sheltered-6% earnings throughout		\$ 81,480(2)	\$71,295(2)	\$61,110(1)
F. No tax shelter-10% earnings before retirement, 6% during retirement		\$111,528(1)	\$79,466(1)	\$55,640(2)
<hr/>				
<u>30-year investment, 15-year withdrawal period</u>				
G. Tax-sheltered-6% earnings throughout		\$ 97,681(2)	\$85,471(2)	\$73,260(1)
H. No tax shelter-10% earnings before retirement, 6% during retirement		\$130,099(1)	\$91,322(1)	\$62,930(2)

"No tax shelter" earning rates are set at 10 percent (Alternative B) and 15 percent (Alternative D) to reflect the wide differences in returns that exist in agriculture and other businesses.

In Alternatives A thru D, the participant is assumed to start the investment program at age 45 and retire at 65. All pay-outs of retirement deposits plus interest are completed during the 8-year withdrawal period.³ A 6 percent rate of return is set on all plans during the retirement years.

Four additional alternatives, E thru H, are evaluated to see how longer investment or withdrawal periods might affect the comparisons. However, results are reported here only for tax rates which are the same before and during retirement.

Marginal tax rates: Marginal tax rates of 20, 30 and 40 percent are used for before-retirement taxation. For one set of cases, the marginal tax rate during retirement is assumed to be 10 percent lower than before retirement; i.e. 10, 20 and 30 percent. Appendix A discusses levels of adjusted gross income at which various average and marginal tax rates would be experienced, before and during retirement.

This approach to a "marginal" tax rate is a simplification in that it is assumed to be the sum of both state and federal rates. Further, a given payment into an investment program as well as pay-out during retirement is likely to fall into more than one bracket, making our "marginal" rate an average of tax brackets.

Accumulating Retirement Benefits: Tax-sheltered alternatives are compounded annually at the indicated earnings rates for either 20 or 30 years with the resulting total pay-out through an annuity covering 8 or

3. The life expectancy is age 73 for a male at age 45 (U. S. Bureau of Census).

15 years. Remaining balances during the pay-out continue to earn at the designated rate for earnings through retirement. Resulting annuities are reduced by the assumed "during retirement" income tax rate. Table 1 values then are the sum of the annuity payments minus taxes.

For example, the table value for Alternative A, with tax rates before and during retirement of 20 percent is obtained as follows:

\$1,000 compounded at 6 percent per annum for 20 years =
 \$36,785.59. This amount, amortized over 8 years for withdrawal with the remaining balance earning 6 percent, yields
 \$5,923.80 per year.
 $\$5,923.80 - 20 \text{ percent income tax} = \$4,739.04$. Then
 $\$4,739.04 \times 8 \text{ years} = \$37,912.32$ net after-tax "accumulated retirement benefits".

For non-sheltered investments, the \$1,000 before-tax investment is reduced by the appropriate tax. This amount is compounded for 20 or 30 years at the net after-tax interest rate. The interest earned during the withdrawal period is taxed, but the pay-out of principal is not taxed since it was taxed when the non-sheltered investment fund was established. Net annual annuity payments, spread over 8 or 15 years, are totaled to yield the Table 1 values.

For example, the table value for Alternative B, with the taxpayer in a 20 percent marginal tax bracket throughout, is obtained as follows:

\$1,000 available to invest - 20 percent tax = \$800 invested.
 Investing at 10 percent yields \$80.
 $\$80 - 20 \text{ percent income tax} = \64 . Hence, an after-tax annual rate of return of $\$64 \div \$800 = 8 \text{ percent}$. This \$800 compounded at 8 percent per annum for 20 years = \$36,609.57. Then \$36,609.57,

amortized over 8 years with remaining balances earning 6 percent, yields \$5,895.46 per year or a total of \$47,163.64. Of this, \$10,554.07 is interest earned during retirement, which after taxes of 20 percent leaves \$8,443.20. The \$36,609.57 accumulated principal plus \$8,443.20 = \$45,052.77 "accumulated retirement benefits".

Interpretation of Results: The accumulated retirement benefits in Table 1 must be viewed with all the assumptions used for the calculations in mind. Yet important generalizations can be drawn from Table 1. For example, as tax rates increase, the tax-sheltered alternatives become more attractive. Alternative D (the non-sheltered plan with 15 percent earnings before and 9 percent after retirement) ranks first in the 20-10 percent tax bracket, but falls to second place in the two higher brackets. For the tax rates of 40 percent before retirement and 30 percent after retirement, Alternative C ranks first with accumulated benefits of \$51,763. In the same tax brackets, Alternative D (15 percent earnings before retirement) gives only about \$3,700 more accumulated benefits than Alternative A (the 6 percent tax-sheltered program). Alternative A ranks either last or next to last for all comparisons of alternatives.

The difference from best to worst alternative narrows as the tax rate increases. With the same tax rate before and after retirement the difference falls more rapidly and is not as great at any tax level as differences under differential tax rates. Thus, the loss from a "wrong" decision is not as great at higher tax levels, and especially so if little difference is expected in tax rates before and during retirement.

Increasing the investment period by 10 years to 30 years, alternatives E and F, more than doubles the accumulated retirement benefits. The tax-sheltered Alternative E moves from a \$30,000 disadvantage at the 20 percent tax rates to an over \$5,000 advantage at the 40 percent rates when compared to Alternative F. At some tax rate between 30 and 40 percent, there is a "break-even point" where the accumulated retirement benefits from alternatives E and F are equal.

Retirement benefits will be expanded even further by increasing the withdrawal period to 15 years. This results by spreading a given accumulated fund over 7 additional years, allowing for 7 more years to earn at the 6 percent rate on the remaining balance.

Table values can be expanded by multiplying by the appropriate factor to find the accumulated retirement benefits for greater than \$1,000 before-tax annual investments.

Figures 1 and 2 portray the results for alternatives A thru D under the two sets of tax rate assumptions. These figures compare the four investment alternatives over tax rates ranging from 0 to 60 percent by the amount of the vertical distance between lines. This allows comparisons of our investment strategies at tax rates other than those in Table 1 and shows "break-even" points, beyond which one alternative overshadows another in total benefits accumulated.

For example, Figure 1 shows that at tax rates approaching 50 percent before and 40 percent after retirement respectively, Alternative A accumulates greater benefits than Alternative D. However, in Figure 2, where before and after retirement tax rates are the same, the "break even" point doesn't come until the tax rate is nearly 60 percent.

This emphasizes the importance of the assumption of lower tax rates

during retirement than during the individual's pre-retirement years, when tax-sheltered deposits are accumulated (Trimble, Tables 1-10). Our results also show for those in the 50 percent and above marginal tax rates, that the relative profitability of a tax-sheltered plan at the 6 percent earning rate relies on the assumption of lower tax rates after retirement. In reality, the assumption of lower tax rates after retirement may depend upon the overall investment and estate plans for the individual. For many successful businessmen, the level of taxable income is maintained or increases into retirement. But, it is also likely the marginal tax rate will fall for those at the 50 and 60 percent levels before retirement, as they reduce their labor and management earnings in favor of non-taxable social security and perhaps set up leasing arrangements favorable to the younger farmers in the family. The wealthy estate planner may completely divest of some of the income earning assets by gift. Thus, a well-planned investment strategy even 20 to 30 years before age 65, which includes consideration of a tax-sheltered retirement program, must take into consideration the overall estate planning strategy, particularly as it will influence marginal income tax rates.

Some Shortcomings of the Analysis: The earnings rates and marginal tax rates applied above are constant. In reality, these vary widely not only from random events year to year, but also over the business life cycle of the individual. Our analysis above suggests that perhaps the young individual, with high yielding "no tax-shelter" investment alternatives but currently in a low marginal income tax bracket, should not consider even a relatively high yielding tax-sheltered retirement plan. This decision to hold all investment in the farm business may be reinforced in view of the need to accumulate sizeable amounts of capital

Figure 1: ACCUMULATED RETIREMENT BENEFITS (in After-Tax Dollars)
 PER \$1,000 BEFORE-TAX ANNUAL INVESTMENT FOR 20 YEARS,
 WITH 10% LOWER TAX RATES DURING RETIREMENT

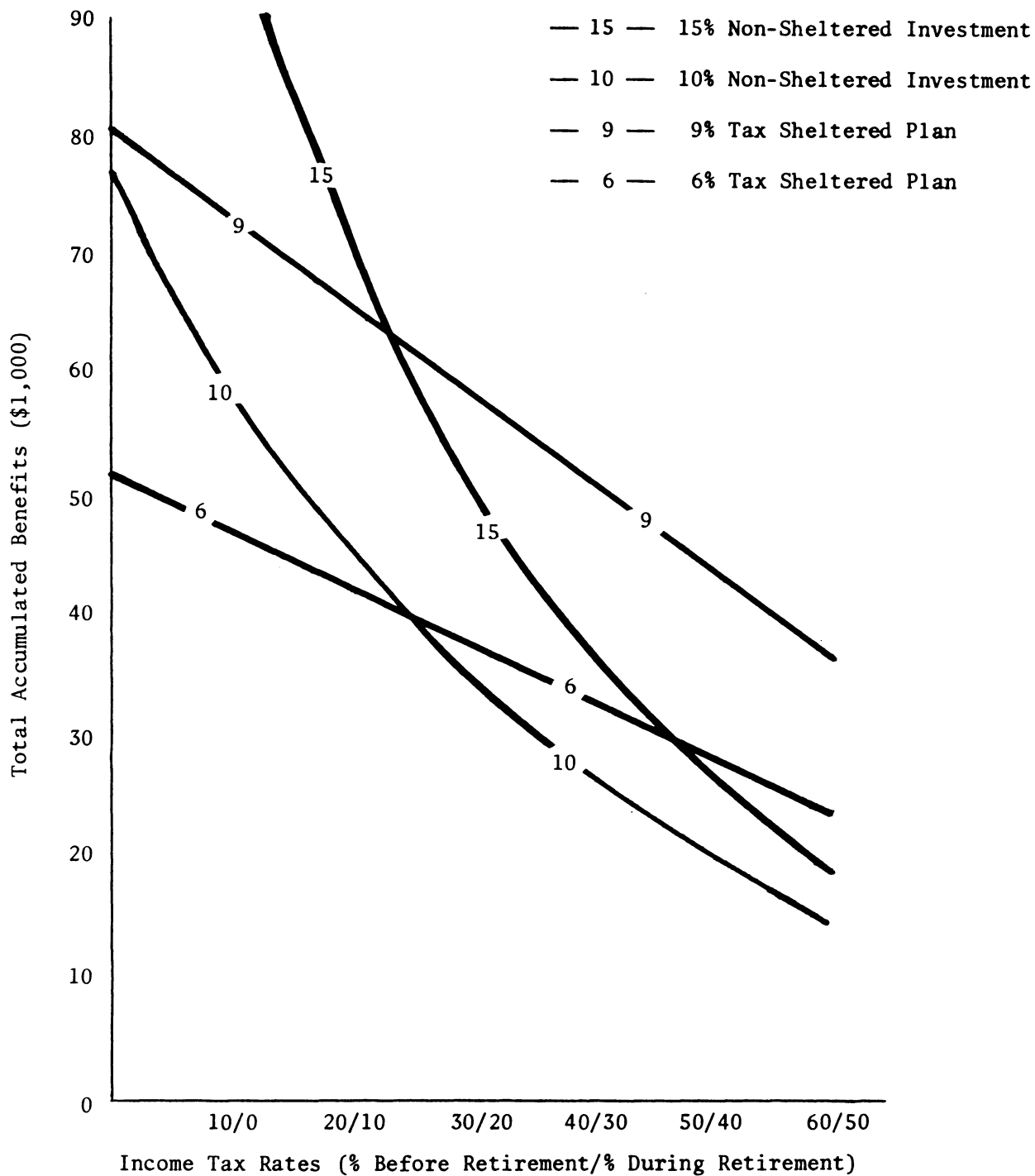
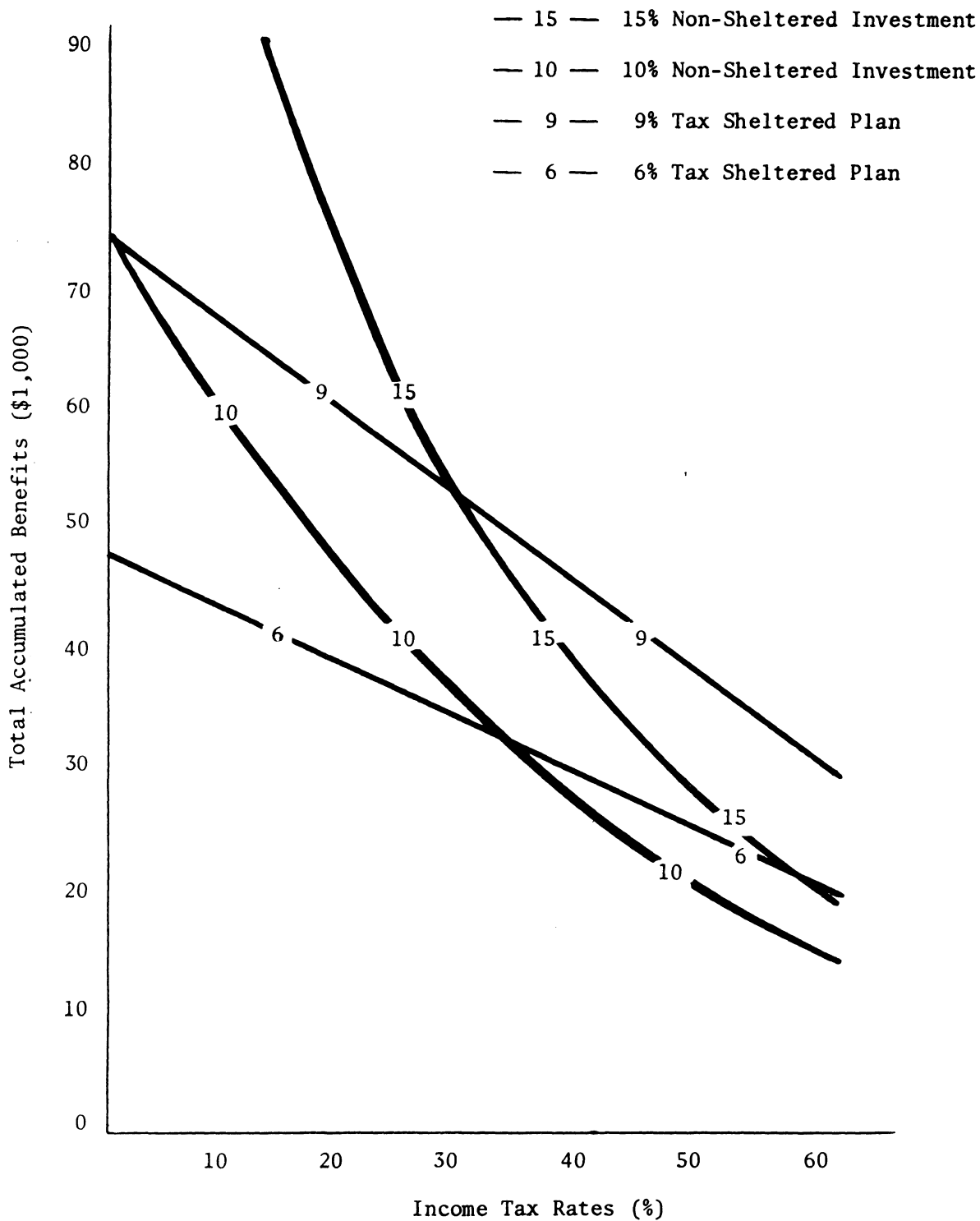


Figure 2: ACCUMULATED RETIREMENT BENEFITS (in After-Tax Dollars)
PER \$1,000 BEFORE-TAX ANNUAL INVESTMENT FOR 20 YEARS, WITH
CONSTANT TAX RATES BEFORE AND DURING RETIREMENT



for a viable business unit. But, if the young individual is in a high marginal tax bracket even in the early years of operation, the most profitable investment strategy in terms of our analysis above suggests a tax-sheltered retirement program.

Uncertainties loom large with respect to the variables considered above. Length of life itself and perhaps random occurrence of investment opportunities are major uncertainties. Of course, funds can be removed from self-employed qualified retirement plans before age 59 1/2, albeit at a substantial tax penalty. The rate of inflation is an important uncertainty which could substantially influence the results discussed above. Some qualified retirement fund alternatives do not adjust their eventual payoff with changes in the value of the dollar. On the other hand, certain qualified retirement funds might capture the benefits of inflation if the appropriate investment assets are held. Assets can also deflate, as was the case with many stocks in recent years; so this possibility has to be weighed. It is very difficult to compare alternative investments over a long period of time with an estimated constant rate of return.

Certain investments receive preferred capital gains income tax treatment as opposed to ordinary income. This complicates the calculating of estimated after tax returns from alternative investments.

Individuals have personal preferences in their choices of investments. These preferences may show a disregard for what appears to be best from a rate-of-return and income-tax-analysis point of view. In fact, some individuals may mix investment alternatives in order to minimize expected variations in returns. Many will avoid "putting all their eggs in one basket" even though they know their total expected returns are reduced as

a result.

Corporate Employee Retirement Plans

Our analysis above ignores the relationship of federal estate or gift taxes to the choice of tax-deferred retirement plans. All IRA's and those individual Keogh-type funds established from self-employed or stockholder-employee earnings are part of the gross estate for the federal estate tax problem as well as constituting a potentially taxable gift if transferred during lifetime (Bissell).

Often an individual dies with a substantial qualified retirement fund in the estate assets. To the extent the corporate employer has furnished the annual retirement fund deposits into a qualified plan, it is possible, with appropriate beneficiary designations, to keep the accumulated fund out of the gross federal estate tax problem. This feature of the federal tax law gives the corporate employee plan an advantage over IRA and Keogh plans. Further, the corporate employee retirement or pension fund can offer a significant federal estate tax advantage over other no tax-shelter investments.

For example, consider two individuals, "A" and "B". "A" has \$400,000 worth of real property in the estate, while "B" has \$200,000 of real property and a federal estate tax-excluded corporate employee pension fund of \$200,000. Assume that each has other assets such that they are in the 32 percent federal estate tax bracket. Each has a surviving spouse receiving half the adjusted gross estate to fully utilize the marital deduction. In the case of "A", all \$400,000 is part of the adjusted gross estate, with \$200,000 going into the taxable estate. For "B", the \$200,000 pension fund is not part of the federal estate tax problem, and only \$200,000 goes into the adjusted gross estate and after the marital

deduction of 50 percent only \$100,000 goes into the taxable estate. The difference is \$100,000 at 32 percent or \$32,000 federal estate tax.

Also, "B" should realize a savings in estate settlement fees, because the pension fund is not part of the federal estate tax problem. Note, however, that the pension fund may be subject to state inheritance or estate tax. Of course, other estate planning techniques are available to alleviate the federal estate tax disadvantage which confronts "A".

Nevertheless, the federal estate tax implications of alternative tax-sheltered pension funds may influence not only the choice of investments, but also the form of legal business arrangement selected by the farmer and other businessmen. The estate and gift tax advantage currently afforded the corporate employee pension fund is available to the stockholder-employee of the "regular" corporation as well as the "tax-option" or "Subchapter-S" corporation.

While tax-option corporations are generally limited to the Keogh plan rules for contributions and other aspects of a pension plan, such as vesting, the regular corporation has more flexibility provided by the Internal Revenue Code and Regulations in particular, with respect to levels of tax-sheltered contributions permitted and deferral of vesting of benefits not allowed under Keogh rules.

Once incorporated, the farmers may become employees of their own corporations. Employee compensation, pension and profit-sharing plan contributions and other fringe benefits (e.g. group term life insurance and medical program) are income tax deductible expenses to the corporation. Farmers should weigh the advantages of pension plans and other fringe benefits available to them and other employed family members against disadvantages of incorporating.

Othersemployed off the farm may benefit from corporate employee pension plans offered by their employer. Thus, even the decision to maintain off-farm employment may be a significant part of the individual estate planning strategy, since it relates to the possibilities of alternative investments and the choice of pension plans available.

Final Comments

The Pension Reform Act of 1974 introduced many important changes into the tax law relating to qualified tax-sheltered retirement funds. In particular, the IRA plan was added making it possible for the farmer not already participating in a qualified pension plan to contribute 15 percent up to \$1,500 of earned income annually into a tax deferred fund irrespective of employees in the farm business. Many self-employed farmers in the past may have avoided the Keogh retirement plan because of the requirement of equal benefits for employees with 3 or more years service. At the same time, the limits on annual tax deferred contributions into a Keogh plan have shifted from 10 percent up to \$2,500 to 15 percent up to \$7,500. This higher Keogh limit also applies to corporate employee plans of tax option (Subchapter-S) corporations.

While these changes and others were designed to give self-employed individuals qualified pension plan opportunities closer to those of regular corporate employee plans, several distinct advantages still remain with the regular corporate employee pension plan. Besides the more favorable estate tax treatment discussed above, the corporate plans allow annual contributions of up to 25 percent of employee compensation. Further, Keogh plans vest benefits immediately, while corporate plan benefits may be deferred as long as 5 years. That is, in a Keogh plan, what goes into an employee's pension fund is his even if he leaves the

employer after only a short period. But in a corporate profit-sharing pension plan, allowable forfeitures brought about by employees leaving employment before their benefits have vested, are reallocable to the benefit of remaining employees, (Thies, p. 11).

Another provision of the new pension legislation is the tax-free roll-over. Under this procedure, assets in a qualified pension plan can be rolled over into an IRA until the employee retires or obtains a new employer whose pension fund may allow the transfer in of assets from the roll-over IRA (King). Roll-over procedures are also available to those who desire to transfer from a Keogh to a corporate plan. The roll-over is available without the penalty normally attached to withdrawals before disability or the minimum retirement age of 59 1/2. A roll-over provides for the possible convenience of consolidating an individual's tax-sheltered funds and/or shifting to a fund which has a higher earning rate.

In closing, it can be said that the tax-sheltered retirement plan offers chance for a double subsidy (Levi and Rogers p. 259). For sure, the deferral of taxes on retirement fund deposits amounts to an interest-free loan. Another subsidy is possible if the income taxes actually paid when the funds are withdrawn during retirement are less than they would have been if the income was taxed in the year earned and when interest was accruing during the accumulation period.

In times of high income and associated high income tax liability, the tax-sheltered retirement plans appear to be increasingly attractive especially in light of the new features, such as the IRA, increased Keogh limits and tax-free roll-over procedures. But the economic analysis of alternative investments above suggests that what seems to be a benefit may not apply in all situations.

Furthermore, the popular analysis of "IRA or Keogh plan" may be seriously misleading to the self-employed farmer (Prairie Farmer). The self-employed farmer may find from a full analysis of the corporate pension plan fringe benefit alternatives as well as other tax and estate planning features, that the more profitable strategy is to become an employee of his own corporation whether it is the relatively restrictive tax option corporation or a regular corporation.

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Appendix

TAX-DEFERRED RETIREMENT PLANS FOR FARMERS - AN INTERPRETATION

One of the advantages of a "tax-sheltered" retirement plan may be that the taxpayer expects to be in a lower tax bracket after retirement, and consequently pay less tax on the distribution from his retirement account than he would have paid on the funds when contributed. It is sometimes implied that no income tax will be paid on the proceeds from a "tax-sheltered" plan after retirement. It is unlikely that no tax will be paid and the assumption of lower tax rates after retirement may or may not be valid depending on the individual situation.

Table A1 shows the Federal income tax rates which would apply at selected levels of adjusted gross income, based on 1975 tax rates (IRS, Publ. no. 17). If a farmer had an average annual adjusted gross income of \$20,000 before retirement, his average tax rate (on the whole \$20,000) would be 16.2 percent and his marginal tax rate (on the last \$3,900 of taxable income) would be 25 percent. If his adjusted gross income during retirement averaged \$10,000, he would pay an average rate of 8.3 percent on the \$10,000. His marginal rate would be 19 percent on the last \$2,000 of taxable income.

In this example, if he were to shift taxable income from before to during retirement by use of a tax-sheltered annuity, investing \$1,000 per year, it would reduce his tax by \$250 in the year of a deposit (25 percent of \$1,000). If he received the same \$1,000 back in one year during retirement, he would pay \$190 added tax that year (19 percent of \$1,000). Thus he would pay a 6 percent lower tax rate on that \$1,000.

Table A1 Average and Marginal Federal Income Tax Rates at Selected Levels of
Income for Married Persons Filing a Joint Return, 1975

Annual Adjusted Gross Income	Before Retirement ^{a/}			After Retirement ^{a/}		
	Taxable Income ^{b/}	Average Tax Rate ^{c/}	Marginal Tax Rate ^{d/}	Taxable Income ^{b/}	Average Tax Rate ^{c/}	Marginal Tax Rate ^{d/}
\$ 5,000	\$ 2,600	7.7%	16%	\$ 100	0.3%	14%
10,000	6,600	11.1%	19%	5,100	8.3%	19%
20,000	15,900	16.2%	25%	14,400	14.3%	25%
30,000	25,900	21.1%	36%	24,400	19.3%	36%
40,000	35,900	25.7%	42%	34,400	24.2%	42%
50,000	45,900	30.0%	50%	44,400	28.5%	50%
60,000	55,900	36.0%	53%	54,400	32.2%	53%
80,000	75,900	40.8%	55%	74,400	37.7%	55%
100,000	95,900	42.7%	60%	94,400	44.3%	69%

^{a/} Before retirement 2 exemptions, after retirement 4 exemptions, at \$750 each.

^{b/} Adjusted gross less deductions and exemptions. Standard deduction of 16% up to \$2,600 maximum (\$1,900 "low-income" deduction at \$5,000 and \$10,000 income).

^{c/} Total taxes divided by adjusted gross income.

^{d/} Tax rate applied to last (highest) portion of income.

In some of the above analysis a 10 percent lower average tax rate during retirement is assumed. To anticipate paying a 10 percent lower average tax rate during retirement than before, the figures in Table A1 indicate that 1) An adjusted gross income of at least \$10,000 on the average, before retirement, and nearly no adjusted gross income during retirement, or 2) Incomes between \$30,000 and \$60,000 before retirement with reductions of about \$20,000 after retirement or 3) Greater reductions in income for those with pre-retirement incomes of over \$60,000.

In order to be in a 10 percent lower marginal tax bracket he must anticipate an adjusted gross income before retirement of near \$20,000 and/or very little if any adjusted gross income during retirement. At higher income levels before retirement (\$30,000-\$40,000 for example), he would need to expect an adjusted gross income during retirement which will be at least \$10,000 less than it was before retirement to realize a reduction in his marginal tax rate of 10 percent or more. With higher before-retirement income, even greater reductions in income during retirement become necessary to get a 10 percent decrease in the marginal tax rate.

Under present regulations, the taxpayer will have the advantage of double exemptions after age 65. He will probably have less earned income (perhaps none, his social security benefits are non-taxed), and medical expenses may be higher. However, the previously self-employed farmer, while he was in business, may also have taken advantage of depreciation and investment credit rules to keep his taxable income down. After "retirement" he is likely to have income from the rent of his farm assets, or interest and capital gains on the proceeds from the sale of the farm and from other accumulated savings. Many times he may

continue to participate to some extent in the operation of the farm, or in some part-time job, up to an income level which would not seriously reduce his social security benefits.

Also, at this stage of life, he is likely to have few if any dependent children, may be paying less tax-deductible interest, and may have Medicare paying a large portion of his medical expenses. So in some cases, the tax rate (marginal or average) could be as high or even higher after retirement than while he was working toward retirement. Therefore, perhaps the term "tax-deferred" would be more descriptive of the effect of the plans discussed above than "tax-sheltered".

It is thus important for the taxpayer to attempt to project his own income situation after retirement and not simply assume that he will be in a lower tax bracket. And as retirement approaches there are farm business decisions which can be made to change the level of post-retirement income.