

Tax-Deferred Risk Management Accounts for Farmers

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Abstract

Income tax incentives directly affect the economic feasibility of proposals for tax-deferred risk management accounts. Data indicate that despite clear financial advantages from tax deferral and reduced income variability, income targeting may preclude many farmers from contributing enough money for accounts to be effective.

* Ideas expressed in this paper are those of the author and do not necessarily reflect an official position of the Economic Research Service or the U.S. Department of Agriculture.

Tax-Deferred Risk Management Accounts for Farmers

A Legacy of Risk Reduction Programs

Tax-deferred savings accounts could help some farmers manage variability in farm income. By depositing income into these accounts during years of high net income, farmers could build a reserve fund for withdrawal during years with abnormally low income. Farmers would be better able to smooth their household consumption over time and self-insure some of their income risk.

Although the Federal Agriculture Improvement and Reform Act of 1996 does not authorize a risk-management savings account program, it gives jurisdiction for any such program to USDA's new Risk Management Agency. Strong farm income from both high grain prices and the new transition payments encouraged such accounts to be proposed during the 1996 legislative session.¹ Although these bills were never enacted, such accounts may continue to be suggested as farmers and policymakers respond to the changing agribusiness environment. The Canadian government currently offers farmers a modified form of the tax-deferred risk management account called NISA, the Net Income Stabilization Account (Coble).

The potential for significant income variability exists because of uncertain prices and crop yields. Much of this uncertainty comes from uncontrollable weather patterns and the nearly perfectly competitive markets farmers face for output price determination. This observed uncertainty has contributed, at least in part, to the rationale for many of the government farm programs since the 1930s (Petzel).

The 1996 Farm Act reduced the level of price supports and, in some cases, may have increased the variability of net farm income by decoupling government payments from market prices. Previous farm bills made cash deficiency payments which increased as market prices decreased. The intention was to help stabilize farmers' incomes, but scholars are now beginning to question whether such programs were effective in stabilizing revenue (Glauber and Miranda). Nonetheless, the 1996 Farm Act will pay farmers a fixed cash transition payment each year from 1996-2002, regardless of current market conditions. Low loan rates for nonrecourse commodity loans will typically not increase farm income during most years. Farmers, therefore, have more responsibility to manage risk despite the availability of transition payments, and are being encouraged to learn more about risk management alternatives. Marketing techniques, including futures and options contracts, are commonly suggested methods to reduce risk. Private and public insurers are also developing new contracts for revenue, yield, and price insurance.

In addition to the ability to manage income risk, farmers would also benefit from tax incentives linked to the accounts. Tax provisions are, in fact, one of the most important issues behind such accounts because they are the primary incentive to encourage farmer participation. Tax incentives

¹ For example, H.R.3559 and H.R.2905 in the 2nd Session of the 104th Congress, 1996.

encourage broader participation and greater balances, but clearly are not necessary for farmers to “save for a rainy day.” Taxpayers could benefit if additional financial diversification and liquidity reduce the need for farm disaster relief or extended income support programs.

This report addresses the feasibility, from the farmer’s perspective, of tax-deferred risk management accounts. Issues include the potential usefulness of such accounts, taxation and restrictions on their use, the value of the tax deferral, and the likelihood accounts would be used.

Tax Incentives Require Restrictions to Target Benefits and Limit Abuse

Tax-deferred risk management accounts are a tax policy targeted to production agriculture, based on social and economic goals. Regulations may be adopted so that off-farm income cannot be diverted into an account. Because the Treasury Department would likely oppose a proposal that does not have specific tests for program eligibility, or the timing and size of withdrawals (Durst), tax-deferred risk management accounts may need to correspond to common income tax measures such as net farm income on Schedule F.² Defining a low income year which would allow a penalty-free withdrawal also complicates the implementation question. Historical price triggers may be incorporated into tax forms, but would not reflect farm-level yield variability. Historical averages of Schedule F farm profits might allow individual income testing, but may not reflect the true income variability target.

The taxation of risk management accounts is, nonetheless, fundamentally simple. A deposit into the account reduces taxable income (and taxes) in the year of deposit, and a withdrawal increases taxable income (and taxes) in the year of withdrawal. The present value of the tax deferral increases with the length of time funds remain in the account. Further increasing the value of the deferral, accounts may also allow some farmers to avoid paying higher marginal tax rates during high income years, or avoid losing the benefit of certain deductions or exclusions during low income years. The deferral of taxes would not be limited to Federal income taxes, but may also include state and local income taxes and the self-employment tax. Upon withdrawal, the funds would be taxed as regular income and self-employment taxes, if deferred, would also be due. Tax penalties may also apply to withdrawals during years when withdrawal restrictions are not met. Interest earnings may also be tax deferred, but may need to be accounted separately because self-employment taxes would not be applicable to interest income.

The fungibility of money raises the issue of which income is effectively tax deferred, especially if the household receives substantial off-farm income. If off-farm income is large and consistent from year to year, the household may not need another mechanism to manage risk (Monke). Another difficult question arises from balances remaining in tax-deferred risk management accounts when the farmer retires. Converting the funds from risk management into a retirement account ignores the original targeting objective. Abuse may be limited by placing ceilings on

² Schedule F of Internal Revenue Service (IRS) Form 1040 is used to report income and expenses from farming.

account balances (and deposits) which reflect “reasonable” withdrawals to cover basic living expenses for several consecutive low income years. A more aggressive approach would liquidate accounts and add them to taxable income if the taxpayer stops farming (Schedule F not attached).

Saving Is One of Many Responses to Income Risk

Risk averse people respond to risk in different ways. In the traditional firm-level production model, economic output is reduced from a profit maximizing level which employs a single activity to some diversified combination of risky activities which together are less risky and do not have as large expected return. The firm’s total risk may also be reduced by other activities such as hedging or buying insurance.

In a household model, risk responses often take a different form than production diversification. Because households are not assumed to face the array of production alternatives available to a firm, they respond by buying insurance, accumulating precautionary savings (self-insuring), reserving lines of credit, and earning additional (off-farm) income (Chen). Most farm households already use one or more of these methods to control risk exposure, and therefore have less need for another risk management technique (Monke). Evidence from surveys of Illinois and Kansas farmers indicates that farm household consumption actually varies relatively little (Langemeier and Patrick, 1990, 1993). On the other hand, reduced government involvement may expose households to more consumption variability because the marginal propensity to consume from transfer payments may be greater than for consumption from farm income (Carriker, et al.) Nonetheless, the precautionary savings motive forms the foundation for tax-deferred risk management accounts.

Precautionary savings allow household consumption to vary less to the extent that balances are greater than the shortfall in disposable income. Proposals for government programs such as the tax-deferred risk management account (or the existence of NISA in Canada) indicate a collective belief that households cannot or will not save enough according to their precautionary motive without additional economic incentives. If the incentive to accumulate precautionary savings is targeted to a specific segment of the population (such as farmers), the government is asserting that the target group deserves special treatment, possibly because the target group’s marginal propensity to save is suboptimal for the population (Chen and Meilke) or insufficient given circumstances facing the target group.

Precautionary savings accounts may be subsidized in many ways. Given Federal budget pressures in the U.S. and objectives of the 1996 Farm Act, targeted tax incentives seem the most likely way such accounts would be subsidized. For comparison, however, NISA matches farmer deposits with government contributions, subsidizes interest rates, and only partially defers taxes. Canadian subsidies may not be efficient because farmers have been observed to deposit only enough money to receive the maximum matching contribution (Coble and Stokes).

Saving Competes With Other Uses of Farm Income

Farm households have four general alternatives for “excess” cash flow³ from a year with above average earnings: (1) make deposits into precautionary savings accounts (regular or tax-deferred), (2) retire debt (repay principal), (3) invest in capital improvements (expand enterprises or replace machinery), and (4) spend on household consumption. Savings and debt retirement offer definite advantages for risk reduction, and can have varying effects on income taxes.

All savings accounts improve a household’s ability to withstand adverse financial conditions, but tax-deferred accounts grow faster because deposits are from pretax funds and interest earnings are not taxed as they accumulate. Debt repayment reduces financial risk because it decreases leverage. Early debt retirement may increase future taxes (if all other factors remain constant) because expected interest expense deductions become smaller. Capital improvements are difficult to characterize in terms of risk management. They can increase financial risk if debt is used (leverage), but may increase or decrease business risk depending on the type of technology adopted and diversification achieved. Household consumption generally does nothing to help manage or prepare for risk, and usually does not change tax liability.

Saving Helps Smooth Income Over Time, Especially If Tax-deferred

Precautionary saving has the obvious ability to reduce variability in consumption and disposable income by transferring income over time. The tax-deferred component of risk management accounts offers additional smoothing potential by reducing the burden of current and/or future taxes. Taxes on current income would at least be delayed and, in some cases, could be reduced by allowing income to be taxed at lower rates in the future.

Income taxes also act automatically to help stabilize after-tax disposable income (Baumol and Blinder). Because they vary proportionally with income, taxes reduce the absolute net change in after-tax income. If tax rates are progressive, taxes become an even more powerful stabilizer when income varies enough to change the marginal tax rate. Panel A of figure 1 illustrates the automatic stabilizer by presenting the tax “wedge” between before- and after-tax income. When income increases during the hypothetical second year, taxes increase and the tax wedge becomes bigger. The opposite effect occurs during the poorer fifth year. Over the 5-year period, the automatic stabilizer allows after-tax income to vary \$10,000 less than before-tax income.

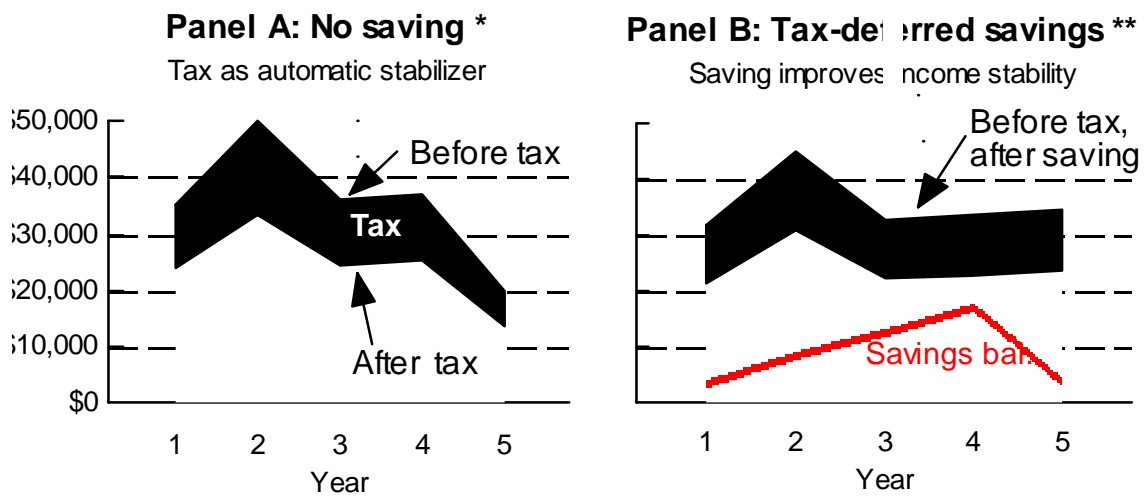
Tax-deferred precautionary savings is illustrated in panel B and can dramatically reduce the variability in after-tax income. Using the same tax rate schedule and time series of income, panel

³ Focusing on tax policy and implementation issues, this paper uses “net farm income” to refer to farm income reported for taxes. This also reflects cash flow issues because many farmers use the cash method of accounting for income tax purposes. Although tax considerations usually cause farm income reported for taxes to understate actual farm income, taxable measures are relevant because such accounts could likely be targeted to farmers based on taxable farm income.

B assumes savings deposits equal to 10 percent of net farm income in years 1-4, and a withdrawal to increase after-tax income in year 5 to a more normal level. This scenario of tax-deferred savings results in less after-tax income variability (5-year range of \$9,000 in panel B, compared to a \$20,000 range in panel A), after-tax income reduction of about \$2,400 during normal years (1, 3 and 4) offset by \$10,000 more in after-tax income in year 5, and more than \$3,000 in tax-deferred reserves remaining in precautionary savings.

For a risk-averse household, the reduction in annual consumption seems a relatively small cost compared to the reduced income variability and avoiding the potential for very low income in year 5. Valued at the end of year 5 on a real basis, including the value of remaining savings as if they were taxed, this precautionary savings scenario adds over \$1,300 in present value to the household's income stream. Deferring income taxes and earning interest income each adds a marginal amount of present value, and the transfer of income from year 2 to year 5 allows it to be taxed at a lower rate. The overall success of this scenario, however, depends on accumulating sufficient reserves before the low-income year occurs.

Figure 1. Taxes and precautionary saving reduce after-tax income variability



* Assumes a hypothetical, before-tax self-employment income stream of \$35,000 in "normal" years 1, 3 and 4 (real dollars, 3 percent inflation); \$50,000 in year 2; and \$20,000 during a poor year 5. Income below \$41,200 is taxed at the 15 percent marginal Federal bracket, and income above is taxed at 28 percent. State taxes (3 percent) and self-employment taxes (15.3 percent, deductible) are also included. Personal exemptions and deductions are ignored for simplicity.

** Assumes before-tax income stream from Panel A. Saving deposits equal 10 percent of before-tax income in years 1-4, and earn 5 nominal percent interest annually (tax-deferred). Dissaving in year 5 maintains real after-tax income equal to that in years 1, 3 and 4.

The Value of Tax Deferral May Be Large for Some Farmers

The difference between tax-deferred risk management accounts and self-initiated precautionary savings accounts is the tax incentive offered by the government. Therefore, the value of the tax deferral is fundamental to the farmer's decision of whether to participate if such accounts were offered. The type of taxes, their marginal rate and the length of time that funds remain tax-deferred are important. Unlike Individual Retirement Annuities (IRAs) which may defer taxes for decades, tax-deferred savings accounts would likely defer taxes for a much shorter time and, therefore, benefit less from tax deferral. Nonetheless, the value of deferral remains large in many cases, in part because of the possibility to defer self-employment taxes in addition to income taxes.

The present value of tax deferral is the difference between the present values of a tax-deferred risk management account and a similar precautionary savings account without the tax deferral. The present value of a regularly-taxed savings account is:

$$PV_{\text{regular}} = Y(1-t_0) [1 + r(1-t_{1r})]^n / (1+d)^n \quad (1)$$

where PV is the present value of saving over an n-year horizon, Y is pre-tax income allocated for savings, t_0 is the combined federal, state, and self-employment tax rates today, r is the nominal rate of return to savings, t_{1r} is the combined tax rate on future interest income, and d is the discount rate.⁴ The term $Y(1-t_0)$ represents the after-tax amount of the deposit, the large middle bracketed term is the after-tax compounded growth rate and the last term is the discount factor.

The present value of a comparable n-year investment using a tax-deferred account is:

$$PV_{\text{tax-deferred}} = Y[(1+r)^n - t_{1y} - t_{1r}[(1+r)^n - 1]] / (1+d)^n \quad (2)$$

where t_{1y} is the combined tax rate at the time the "principal" is withdrawn. The two tax rates (t_{1r} and t_{1y}) allow separate deferred taxation of the savings deposits and the interest earnings so that self-employment taxes might be collected on the former but not the latter.⁵ The first component of the large bracketed term allows the deposit to grow tax deferred; the second and larger third terms subtract taxes at the end of the horizon on the principal and interest earnings, respectively.

⁴ Tax rates are specified as the marginal tax rates which are deferred by a tax-deferred risk management account. Self-employment taxes are included in this analysis because money which is deposited into these savings accounts would be deducted from net farm income which is subject to the self-employment tax. For consistency with the risk management motive, a conservative investment (such as a money market savings account) is assumed. Investment income will be taxed, therefore, as ordinary income because no capital gains are expected.

⁵ If deposits defer self-employment taxes, but such taxes are not levied on interest income, then $t_{1y} = t_{1r} + t_{SE}$, where t_{SE} equals the effective self-employment tax rate.

Therefore, the value of tax deferral, when expressed as a proportion of the value of a regular account, is $(PV_{\text{tax-deferred}} / PV_{\text{regular}}) - 1$. Note that the discount rate $(1+d)$ and pre-tax income (Y) terms in equations (1) and (2) disappear in this relative comparison. The ratio represents the extra funds available on an after-tax basis at the end of the savings horizon, when compared to the regular savings account.

Assuming a five year horizon, marginal Federal and state income tax rates totaling 31 percent, an effective self-employment tax rate of 12.9 percent⁶ and a five percent nominal rate of return to savings, tax deferral adds 13 percent to the present value of a precautionary savings plan. Reducing the rate of return to four percent reduces the deferral value to 11 percentage points. Increasing the time horizon adds about two percentage points, per year, to the difference. If the marginal Federal tax were instead the lower 15 percent rate, the value of the tax deferral declines to nine percentage points (compared to 13 percent in the original scenario). If the taxpayer is able to avoid the 28 percent Federal bracket in the current year on the amount of the deposit, and pay only the 15 percent rate later, the value of tax deferral increases to 37 percent of the value of the non-tax-deferred savings plan. Therefore the value of tax deferral is quite large, especially if farmers can avoid higher marginal tax rates when incomes are high.

Savings deposits compete with other alternatives for risk management funds, including loan prepayments. The present value of principal prepayments on an outstanding loan may also be computed using equation (1). The formula assumes that interest is paid on the outstanding loan balance and that principal prepayments are made as cash flow permits. Principal payments reduce future interest expenses (adding to present value), but increase future taxes because the interest deduction is lost on the amount saved.⁷ The principal payment would be $Y(1-t_0)$ and the interest rate charged on the loan would be r .

Compared to prepaying outstanding loan principal, tax-deferred risk management accounts may not always offer greater present value. A five year horizon with a five percent rate of return on savings and an eight percent interest rate on a farm loan still indicates a slight advantage to the savings account. Increasing the loan's interest rate to nine percent (or decreasing the savings rate of return to four percent) is sufficient for loan repayment to dominate tax-deferred saving.

Comparing loan repayment to precautionary saving may not place sufficient weight on the risk management flexibility offered by savings. Principal prepayments are "sunk" into the loan,

⁶ Federal taxpayers receive a deduction for one-half of their self-employment tax. This effectively reduces the 15.3 percent self-employment tax. Given a 28 percent Federal bracket and three percent state bracket, the effective self-employment tax rate is 12.9 percent; that is, $0.153 \cdot (1 - \frac{1}{2}(0.28 + 0.03))$. State-level income taxes are not deductible unless the taxpayer itemizes personal deductions, which is not assumed in this scenario.

⁷ Assumes a business loan (or principal-residence mortgage) which allows interest to be deducted as an expense.

whereas savings deposits provide liquidity and flexibility for unexpected future contingencies. Although reducing outstanding indebtedness may improve creditworthiness, unused borrowing capacity may not increase by the full amount of the loan repayment, nor may household expenses qualify for future borrowing. Therefore despite the potential for loan repayment to dominate savings with respect to present value, it does not offer the same flexibility for risk management. Compared to regular precautionary savings, the dominance of tax-deferred accounts appears to be large enough to compensate for any liquidity lost from withdrawal restrictions – at least when the objective is reducing variability in net farm income.

Many Farmers Are Unlikely to Save Enough Because of Targeting Restrictions

Previous sections suggest that tax-deferred risk management accounts offer clear financial incentives for risk management, but note that regulations would likely restrict participation based on farm income. This section address the ability of farmers to use such accounts, based on reported farm income. Data from the 1992 *IRS Individual Public Use Tax File* (U.S. Dept. of Treasury) are used to provide tax information about farm sole proprietors. A subset of 6,391 tax returns⁸ represents 2.3 million farm sole proprietors and was selected based on the presence of Schedule F. A second set representing 450,000 “primary farmers” was selected if half their total income came from farm sources such as net farm profits, farm rental income, and capital gains from the sale of business assets.

Farm net income reported for taxes is also often relatively small, limiting the amount of money many farmers would be able to deposit in tax-deferred risk management accounts, especially if the deduction were targeted on Schedule F. About 60 percent of all farmers and 15 percent of primary farmers reported negative farm net income in 1992. Both of these ratios have increased since 1987. Table 1 indicates that nearly 40 percent of primary farmers have net farm income less than \$10,000, and 63 percent have net farm income less than \$20,000. Although farm income reported for taxes was slightly below average in 1992, these figures are broadly representative of historical data. Therefore if deposits to risk management accounts are limited to positive net farm income, many primary farmers may have difficulty accumulating enough deposits to make tax-deferred risk management accounts effective.

Conclusions

Tax-deferred risk management accounts offer a unique potential for farmers to self-insure part of their intertemporal income variability. Many issues, however, confront policy makers who must address its potential implementation. These include tax accounting and targeting issues, abuse as a long-term tax avoidance or retirement savings mechanism, and the likelihood that farmers would utilize this risk management tool.

Tax advantages are clear, especially for taxpayers in higher marginal brackets, those who may

⁸ Data are masked and stripped of any information which would identify a specific taxpayer.

avoid paying higher marginal brackets, and those who may more fully utilize deductions by taking withdrawals. Many farmers, however, may not be able to fully benefit from tax-deferred risk management accounts because of income targeting restrictions. Persistently low farm income (at least as reported for income tax purposes) may preclude a significant portion of farmers from accumulating large enough balances to reduce their income variability from a bad crop year.

Table 1. Distribution of Net Farm Income Reported for Taxes.

Net Farm Income*	All Farmers		Primary Farmers**	
	Frequency	Cumulative frequency	Frequency	Cumulative frequency
Less than \$0	57.0	57.0	7.9	7.9
\$1 under 5,000	22.1	79.1	18.2	26.1
\$5,000 under 10,000	6.4	85.5	13.7	39.8
\$10,000 under 20,000	6.8	92.3	23.6	63.3
\$20,000 under 50,000	5.7	98.0	26.4	89.7
\$50,000 and above	2.0	100.0	10.3	100.0

* Includes net farm profits (Schedule F), farm rental income and capital gains from the sale of business assets (Form 4797).

** Selected when farm income exceeds half of total income.

Source: Computed from the 1992 *IRS Individual Public Use Tax File*.

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