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SELECTING TAX ALTERNATIVES UNDER THE TAX REFORM ACT

by
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The Tax Reform Act of 1986 (TRA) resulted in dramatic changes in tax laws for agricultural producers. Under the TRA farmers do, however, have a number of alternatives which influence the amount of taxes paid. The objectives of this paper are to review tax alternatives available to farmers and to determine under what conditions which alternatives should be selected in order to maximize after-tax income.

Tax Alternatives Available

Standard Deduction vs. Itemization: Under the TRA, taxpayers must choose between claiming the standard deduction or itemizing deductions. Since this is an annual election, the choice criterion is simple: choose the alternative which provides the largest deduction. Given the simplicity of this choice we will ignore it in further discussion.

Expensing vs. Nonexpensing: Under the Tax Reform Act, taxpayers who purchase new or used property for business purposes may elect to take an immediate deduction, rather than depreciate, up to $10,000 of the property's cost. However, if the annual investment in qualifying property exceeds $200,000 then the allowance decreases such that each dollar of investment over $200,000 results in a one dollar reduction of the maximum $10,000 allowance. If the current expense allowance exceeds total income earned from a business or trade, the unused portion may be carried forward as a deduction for future years.

The current expensing allowance may offset only active sources of income. Furthermore, if the property is not used for business purposes at least 50 percent of the time during the first two years of its life, the allowance is subject to recapture provisions. The Tax Reform Act stipulates a recapture period equal to the whole recovery life of the property.

Assuming positive income, the immediate deduction provided by the current expense allowance should reduce the tax burden in the year of purchase. However, claiming the current expense allowance also requires the taxpayer to reduce the property's depreciable basis by the total allowance earned, whether or not it can be completely deducted the first year. A smaller basis means smaller

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depreciation deductions in the future, and taxpayers should be aware of the implications for later tax years when considering the current expense election.

Cash Versus Accrual Accounting: The Tax Reform Act continues to allow most farmers to use the cash method of accounting, but new regulations have been incorporated to prevent abuse. The allowable deduction for prepaid expenses is now limited to 50 percent of the total farm expenses for the year. However, a taxpayer who lives on the farm and whose principal occupation is farming will not be subject to the new limitation if 1) the prepayment limitation has been met for the 3 preceding tax years, or 2) the excess prepayment is due to a business operations change caused by extraordinary circumstances (p. 3 Durst).

Most farmers prefer to use the cash method of accounting, and even under the new tax code, only large farms (specifically C corporations or partnerships that have a C corporation partner) which earn over $5,000,000 in annual gross receipts are required to use accrual accounting (p. 319 RIA Analysis). The tax liability may vary according to the accounting method used for preparing tax returns. For example, interest is a large expense for many operations, but under the cash accounting method farmers cannot claim deductions for accrued interest. They must pay off the accrued amount before that portion of the interest expense may be deducted. In choosing between cash and accrual accounting, farmers must determine whether the tax savings realized from income deferral and deductions for prepaid expenses exceed the lost deductions for accrued expenses. The difference in taxes between the two methods will depend upon the size and timing of business earnings and expenses.

Depreciation Method: The Tax Reform Act provides three alternative depreciation systems: the modified ACRS accelerated depreciation (MACRS), the Alternative Depreciation System (ADS), and a straight-line (SL) method. Like the old ACRS method, MACRS generates larger depreciation deductions in the early years of an asset's useful life. The Act continues the convention of pre-assigning property to a specific recovery class, but many types of property have been reassigned to classes with longer recovery periods. The Act creates new 7 and 20 year classes for personal property and extends the recovery period for real property and fixed improvements.

Longer recovery periods mean smaller annual deductions for some types of property, but the MACRS system now calls for double declining balance depreciation on all classes of personal property with recovery periods of 10 years or less. The remaining classes of personal property will continue to be depreciated according to the 150 percent declining balance method. To ensure maximum annual deductions, taxpayers will be permitted to switch to straight-line depreciation when the annual straight-line deduction exceeds the deduction under the declining balance method.

The ADS is an alternative to the MACRS form of depreciation. In general, the ADS calls for straight-line depreciation over longer recovery periods (p 209 RIA Analysis). Regulations require use of the ADS in calculating the depreciation allowance for the alternative minimum tax, certain tax-exempt properties, luxury assets, and properties held outside the U.S. However, the ADS may be elected for any property which also qualifies for MACRS depreciation. The ADS election is an annual election, but in any one year, such an election must hold for an entire recovery class of personal property (p. 209 RIA Analysis). However, the election for real property may be made on a property-by-property basis (p. 209 RIA Analysis).

Taxpayers who elect the straight-line method must either use the recovery periods assigned to the ADS or the recovery periods assigned to the MACRS recovery classes.

The tax code does not allow taxpayers to claim a full year's depreciation on new property placed into service during the tax year. Therefore, the tax code incorporates special mid-month, half-year, and mid-quarter conventions for calculating the depreciation allowance during the first and last years of service. Each of the depreciation methods mentioned above is subject to these conventions.

Farmers need to consider the interrelationship between depreciation and the other provisions in the tax code. For example, taxpayers who elect to use MACRS depreciation must calculate ADS deductions in order to determine the alternative minimum tax. In choosing one depreciation method over another, farmers should pick the method which maximizes the after-tax income over the long-run.

Looking at the tax options available; expensing versus nonexpensing, cash versus accrual, and three depreciation options; we find a total of 12 (2 x 2 x 3) possible selections. How can a farmer choose among these alternatives to maximize after-tax income? The answer of course is: "it depends." We move next to the identification of factors which are likely to influence the choice.

FACTORS AFFECTING TAX CHOICES

There are likely numerous factors which influence the appropriate choice of tax options. A priori, some of the more important are thought to be:

- Size of Farm
- Type of Farm
- Debt/Equity Position
- Future Price Directions
- Replacement Pattern for Capital Assets

- constant replacement
- early replacement
- late replacement

- Stage of Growth

  - no growth
  - expansion
  - contraction

In this paper, we will look at the influence of size, debt/equity position, future price directions, and the replacement pattern for capital assets on the best choice of tax options available under the TRA. This paper will not address the issue of type of farm or stage of growth although both are likely to influence the choice of tax options.

Methodology

To assess the relative effects of the discretionary tax provisions, three interrelated models were used. A brief description of each follows.

Firm Simulation Model: The farm simulation model (FSM) constructed for this study has the capability to stimulate four years' financial statements for cash grain (corn/beans), beef cow-calf, and farrow-to-finish hog operations. The model itself is comprised of six components: the input sections, the debt schedule, the depreciation schedule, the cash flow statements, the inventory and accrual schedules, and the income statements.

The FSM starts with information taken from the 1986 FBFM data bank. Projecting future annual production and financial performance requires adjusting the base year inputs with adjustment factors. The adjustment factors are actually indices which create variations to the base year's production, price, and expense inputs throughout the four-year projection horizon. The model can simulate outcomes for a wide variety of economic scenarios.

The Aardvark Professional Tax Planner: The Aardvark Professional Tax Planner is the software package used to calculate the tax liability for the farm scenarios simulated by the FSM. The Professional Tax Planner is distributed by the CYMA/McGraw Hill Publishing Company. The equipment needed to run the program consists of an IBM-compatible personal computer with 512K of memory and two floppy disk drives as well as several 5-1/4 inch formatted diskettes on which to save the individual tax plan worksheets.

The tax planning software performs comprehensive tax calculations needed to accurately evaluate the tax alternatives of the Tax Reform Act of 1986 (p. ix, Operator's Guide to the Professional Tax Planner). The program allows the user to

generate up to five years of tax return projections according to the rules and regulations contained in the current tax code.

The Net Present Value Model: To evaluate how various tax alternatives affect financial outcomes, a net present value (NPV) model was developed to compare simulated after-tax incomes. The NPV model calculates discounted values for the four years of projected income and for the future tax benefits the farmer derives from unused current expense credits and depreciation beyond the four-year projection horizon.

The discounted after-tax cash flows from the four-year projection consist of: net cash farm income plus depreciation, off-farm income, and interest income, less total taxes paid (the federal income tax, self employment taxes, and any additional tax owed from the alternative minimum tax). Although accrual income almost always differs from cash income, the model utilizes cash income because the net present value framework calls for the discounting of cash flows, not accrual adjustments. Therefore, the differences in after-tax cash flows between accrual and cash accounting are created by the difference in taxes paid.

The model calculates the future benefits from depreciation by multiplying the annual depreciation expense beyond year four by the average annual tax rate over the four-year projection horizon. The model follows the same format for calculating the value of any unused current expense credits. However, it is assumed that all unused current expense credits occur in year five.

Simulation Results

The models developed for this study can be used to simulate a wide variety of farm scenarios. A limited number of those scenarios are reported here.

Table 1 identifies the net present value of after-tax income and carryover tax credits for a small (547 acre) grain farm. This table demonstrates the various outcomes for all possible tax alternative combinations assuming constant capital replacement. Results of each of the 12 possible tax alternatives are reported, first under a scenario of constant prices and next under a scenario of generally increasing but variable prices. Results show some differences among the various tax alternatives.

Table 2 provides evidence of the best and worst tax alternatives, given various price scenarios and replacement patterns for machinery. Several points are evident from Table 1 and 2. First, the best and worst tax strategy varies from one price scenario to the next. In addition, the difference in the best and worst strategy may vary by more than $6,000 over a four year period. Consequently, the choice of strategy to follow can create a rather sizeable difference in financial outcomes. Not surprisingly, the current expensing alternative always showed up in the best strategy. However in a somewhat surprising result,

Table 1. Net Present Values of After-Tax Cash Flows for Various Tax Strategies, Small Grain Farms, Initial D/A Ratio = 20 Percent, Constant Replacement Scenario

Price Scenario	Cash vs. Accrual	Current Expensing vs. No Expensing	Depreciation Method MACRS	ADS	SL
			-- dollars --		
Constant	Accrual	NCE	148,131	146,593	147,312
Constant	Cash	NCE	147,733	146,200	146,913
Constant	Accrual	CE	151,438	150,967	151,177
Constant	Cash	CE	151,043	150,571	150,781
Rising	Accrual	NCE	186,902	187,358	186,101
Rising	Cash	NCE	190,060	188,529	189,451
Rising	Accrual	CE	188,663	188,097	188,380
Rising	Cash	CE	189,971	190,983	189,685

Table 2. Best and Worst Tax Strategies for Various Price and Replacement Patterns, Small Grain Farm Initial D/A Ratio = 20 Percent

Price Scenario	Replacement Pattern	Best Strategy	Worst Strategy	Difference in NPV
Constant	Constant	Accrual MACRS CE	Cash ADS NCE	$5,238
Rising	Constant	Cash ADS CE	Accrual SL NCE	$4,882
Constant	Early	Accrual MACRS CE	Cash ADS NCE	$3,948
Rising	Early	Cash SL CE	Accrual ADS NCE	$6,969
Constant	Late	Accrual MACRS CE	Cash ADS CE	$2,799
Rising	Late	Cash SL CE	Accrual ADS NCE	$5,414

current expensing also showed up among the worst strategies for the constant price-late replacement scenario. Thus one can not conclude that current expensing is always best irrespective of the other tax alternatives selected.

Table 3 identifies the best and worst strategies for a small grain farmer with an initial D/A ratio of 50 percent. A comparison of Table 2 and 3 reveals that for the rising price and early replacement pattern scenario, the best and worst tax strategies for the farmer with an initial D/A ratio of 50 percent are different than for a farmer with an initial D/A ratio of 20 percent. Thus financial position of the farmer can affect optimal tax strategy. Note also that the difference between the best and worst tax strategy is often higher for the farmer with the higher D/A ratio despite the fact that taxable income is much lower.

Table 4 and 5 identify the best and worst tax strategies for large (1,565 acres) grain farms under various price and replacement pattern scenarios. As was the case for small grain farms, the best strategy varies depending upon the initial D/A ratio. However, for large grain farmers, the worst tax strategy was the same regardless of the D/A ratio, except in constant price-early replacement scenario.

By comparing Tables 2 and 4 and Tables 3 and 5 we can determine if the best and worst tax strategies change by size of farm, given the same price and replacement pattern scenarios. Results of these comparisons indicate differences by size of farm do exist for both the best and worst strategies. Thus size of farm is shown to influence the optimal tax management strategy. Comparisons by type of farm have not yet been completed. However, preliminary evidence seems to suggest differences will also exist by type of farm.

SUMMARY:

The Tax Reform Act of 1986 offers farmers a number of tax alternatives including cash versus accrual accounting, expensing versus nonexpensing and three possible methods of depreciation. Simulation results suggest that the best choice for these alternative depends upon the size of farm, the level of debt, future price directions, and the replacement pattern for capital assets.

Simulation results also suggest that the magnitude of difference in net present value of after-tax cash flows between the best and worst choices for the various tax alternatives is substantial. Therefore, knowledge of the best tax strategy to follow can improve the financial position of farm firms.

Table 3. Best and Worst Tax Strategies for Various Price and Replacement Patterns, Small Grain Farms, Initial D/A Ratio = 50 Percent

Price Scenario	Replacement Pattern	Best Strategy	Worst Strategy	Difference in NPV
Constant	Constant	Accrual MACRS CE	Cash ADS NCE	$6,010
Rising	Constant	Accrual ADS CE	Cash SL NCE	$5,752
Constant	Early	Accrual MACRS CE	Cash ADS NCE	$6,488
Rising	Early	Cash MACRS CE	Cash ADS NCE	$4,137
Constant	Late	Accrual MACRS CE	Cash ADS NCE	$5,504
Rising	Late	Cash SL CE	Accrual ADS NCE	$3,038

Table 4. Best and Worst Tax Strategies for Various Price and Replacement Patterns, Large Grain Farms, Initial D/A Ratio = 20 Percent

Price Scenario	Replacement Pattern	Best Strategy	Worst Strategy	Difference in NPV
Constant	Constant	Accrual SL CE	Cash ADS NCE	$9,110
Rising	Constant	Cash MACRS CE	Accrual ADS NCE	$12,805
Constant	Early	Accrual MACRS CE	Cash ADS CE	$4,707
Rising	Early	Cash MACRS CE	Accrual ADS NCE	$9,523
Constant	Late	Accrual MACRS NCE	Cash ADS NCE	$5,949
Rising	Late	Cash MACRS CE	Accrual ADS NCE	$9,772

Table 5. Best and Worst Tax Strategies of Various Price and Replacement Patterns, Large Grain Farms, Initial D/A Ratio = 50 Percent

Price Scenario	Replacement Pattern	Best Strategy	Worst Strategy	Difference in NPV
Constant	Constant	Accrual MACRS CE	Cash ADS NCE	$8,546
Rising	Constant	Cash MACRS CE	Accrual ADS NCE	$11,015
Constant	Early	Accrual SL NCE	Cash ADS NCE	$6,137
Rising	Early	Cash SL CE	Accrual ADS NCE	$13,231
Constant	Late	Accrual MACRS CE	Cash ADS NCE	$7,563
Rising	Late	Cash SL CE	Accrual ADS NCE	$10,410

REFERENCES

Durst, Ron. "The New Tax Law and Its Effects on Farmers." Agricultural Outlook, November 1986, 1-8.

The RIA Complete Analysis of the '86 Tax Reform Act. Ed. by Thomas J. Goger et al. New York: Research Institute of America, 1986.