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The impact of the Economic Recovery Tax Act of 1981

on the intergenerational transfer of farm estates

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by

Sandra L. Johnson

A Thesis Submitted to the

Graduate Faculty in Partial Fulfillment of the

Requirements for the Degree of

MASTER OF SCIENCE

Department: Economics

Major: Agricultural Economics

Signatures have been redacted for privacy

Iowa State University
Ames, Iowa

1982

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CHAPTER I. INTRODUCTION

Estate Taxes

Estate taxes have become a major issue for many farmers. The significant increases in net worth of farms during the past decade have resulted in a growing number of farms which are large enough to be subject to estate taxes. Accordingly, farmers have increased their attention to estate planning, which is used to decrease the potential tax liability and facilitate the intergenerational transfer of property. In some instances, estate planning may simply involve specifying a particular will or appointing an executor to settle the estate. In instances involving a large estate where the potential tax liability is substantial, sophisticated planning techniques such as reapportioning property between spouses or setting up a trust may be employed. In some cases, planning can result in substantial tax savings, and where the farm operation is continued beyond the death of the owner operator, estate planning can facilitate the transfer of the farming enterprise.

Estate taxes can have a particular impact on a farm firm because they affect not only the transfer of wealth but also the business operations if the farm enterprise is continued after the owner's death. This latter situation occurs because the farm owner's personal assets (which may be taxed at his death) are also business assets. Thus, estate taxes can deplete the asset base of the farm enterprise, thereby affecting its operating efficiency. Conversely, a shareholder's death would have no appreciable effect on a large corporation's asset base.

At the aggregate level, it has been suggested that estate taxes can have an impact on the structure of agriculture. Changes in tax law in recent years have prompted growing concern about the potential effects of estate taxes on the agricultural sector because these tax laws contain provisions directed specifically at agriculture. Using a theoretical approach, Boehlje (2) and Sisson (26) have argued that certain estate tax provisions can influence economic elements such as farm size, resource allocation, and resource prices in the agricultural sector.

In essence, estate taxes offer a mode by which policy makers can influence the intergenerational transfer of property by changing the value of property rights attached to ownership. As used here, the term property rights refers to the set of legally recognized privileges associated with property ownership. In the United States, the area of law concerning delineation of property rights is tailored after the Old English common law where the King granted individuals certain rights to land while retaining an interest in the property. Similarly, ownership rights are not absolute in our system today where the state has retained the powers of eminent domain and taxation, along with certain police powers.

It is partly through the ability to tax property, specifically estate taxes, that the state influences intergenerational transfers. Through this process the state can ultimately affect ownership patterns which in turn affect farm structure. For example, in an extreme case, if policy makers wanted to prevent farmland from passing from one generation to the next, they could set estate taxes at 100 percent.

In the opposite extreme, the absence of any estate tax could possibly lead to a situation where all farmland was tied to particular families or a landed gentry. In actuality, the policies pertaining to gift and estate taxes have fluctuated narrowly somewhere in between these two extremes depending on the political environment prevailing at the time.

The method by which policy makers use estate tax laws to influence ownership patterns in the agricultural sector is to make the tax provisions discriminatory to particular groups. In concept, this method is comparable to the progressive federal income tax structure in which different groups are taxed at different marginal tax rates in order to influence income distribution. Similarly, the tax schedule applicable to a taxable estate is progressive in nature with the tax rate increasing with estate size. In addition, further differentiation among groups beyond estate size is accomplished by linking preferential tax provisions to particular estate characteristics. These special tax features and their effect on different farms will be discussed in length in the following chapter. At this point, however, it will be useful to take an overall look at some of the ways that estate taxes affect the farm firm.

Effect on the Farm Firm

Farm firms which are large enough to be subjected to an estate tax liability are affected by these taxes in a number of ways, either directly or indirectly. Obviously, the tax burden reduces the amount of wealth that a farmer may transfer to his heirs. In addition, there are transfer costs involved in probating an estate such as executor fees,

court costs, and legal fees. When these costs are added to the estate taxes, the result is a significant demand for funds at the time of probate. Estate planners have suggested the use of life insurance to meet some of these financial needs (18).

If funds are not available to meet these tax and fee obligations, then assets must be sold to generate the necessary cash and done so within the nine-month period in which the tax is due. The value of these assets is higher to the firm than the market value when they must be liquidated in a relativelv short period of time; therefore, the sale results in what is known as a liquidity loss (34). The liquidity loss associated with different assets varies depending on the type and marketability of the asset. For example, when so called "liquid assets," such as a savings account or a short-term time deposit are liquidated, they result in a small loss in value, if any. However, the sale of less liquid assets such as real estate can result in a significant liquidity loss. Therefore, any resulting losses represent another transfer cost involved in passing on property.

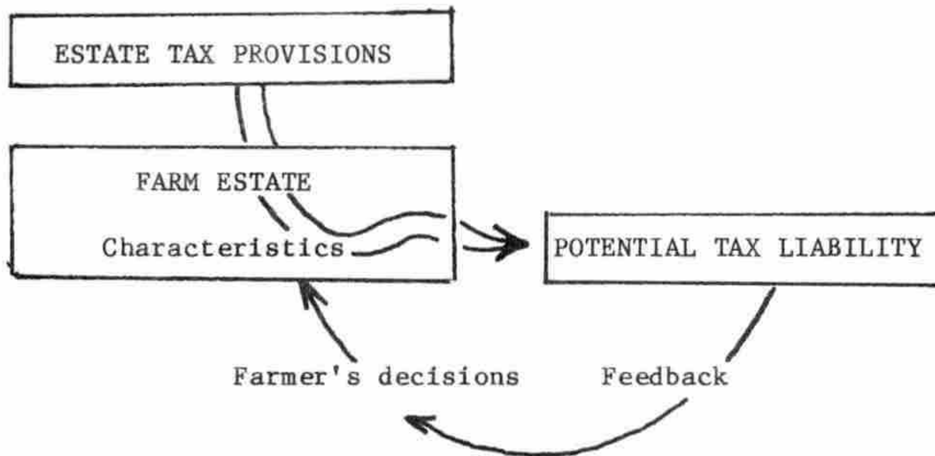
The effects of estate taxes mentioned above may plague any estate subject to estate taxes. If the farm firm is discontinued at the death of the owner, then the taxes and transfer costs affect the amount of wealth received by the heirs. If the farming operation is continued on by the deceased's heirs, then estate taxes may have a substantial impact on the firm. The cash demands at the time of the owner's death may compete with both the long-term and short-term capital needs of the firm. For example, funds set aside for maintenance or expansion may be shifted to pay the tax debt. Furthermore, if assets such as farm

machinery or real estate must be sold to meet the tax liability, then the farm's ability to function as a viable economic unit may be hampered. For instance, a livestock breeder may underutilize the ranch's existing facilities if he is forced to liquidate part of his herd in order to fulfill an estate tax obligation.

In addition to the effects that estate taxes have on the farm firm at the time of the owner's death, estate taxes may influence certain decisions that the farm operator makes with regards to the type assets he holds, the financial structure of the firm and how resources are employed. If one of the farmer's objectives include transferring the maximum amount of his estate to his heirs, then he may find it beneficial to take the steps necessary to qualify for special tax provisions which can reduce his potential tax liability. For example, since there are certain tax advantages associated with qualifying farmland as opposed to other business assets, a farmer may choose to own more farmland than he would if such an incentive did not exist. Because this same advantage also applies to farmland which was purchased with debt, a farmer might also be influenced to leverage his position in order to enjoy the benefits accruing to both the debt and equity portions of the land. Finally, the specifications for eligibility of certain tax provisions relate to a firm's business activities in a period both before and after the owner's death and as such may affect the use of resources during the specified period.

Again, a more thorough discussion of these special tax provisions may be found in the following chapter but at this point one may envision

how a potential tax liability may influence a farmer's decisions if he can make adjustments to reduce the tax liability. The simple diagram below illustrates the preceding discussion. In essence, estate tax provisions work through the estate--depending upon its particular characteristics--to arrive at the potential tax liability. The potential tax liability in turn may have a feedback effect on the farmer inducing him to modify certain estate characteristics in order to reduce the potential tax liability.



Earnings vs. Capital Gains in Agriculture

The returns to a farming enterprise occur both as net farm income and asset appreciation, particularly in the case of farm real estate. In terms of the value of resources committed, farmers seem to be willing to accept relatively depressed incomes compared to their nonfarm counterparts. This situation exists because one form of compensation accrues as significant increases in net worth.

As Melichar (21) has suggested, it is useful to view farm real estate as a growth stock in which the major portion of return comes in

the form of appreciation or real capital gains with a smaller portion taking the form of net farm income. For example, according to a survey (16) conducted at Iowa State University on the returns to farmland in 1980, the annual return on investment from farmland based on earnings amounted to 3.14 percent while the market value of land increased 10.6 percent for the same year. Thus, during this period, appreciation accounted for nearly two-thirds of the total return to farm real estate with income contributing only a little more than one-third. Considering that farmland comprises a large portion of the value of total assets on many farms, such an increase in market value can have an appreciable effect on the farmer's net worth position. Thus, it is apparent that appreciation acts as an important subsidy to the income or earnings associated with agricultural assets. Finally, this appreciation takes the form of increases in net worth until the assets are liquidated and the gains are realized.

One way a farmer may want to monetize the value of gains in net worth is by disposing of the appreciated assets and facing the resulting capital gains tax. Alternatively, he may wish to transfer these gains to others, such as his descendents, and as such will face costs imposed by the gift and estate tax legislation. The dramatic increases in land prices exhibited throughout the 1970s, coupled with the trend towards fewer and larger farms, have caused many farm estates to reach sizeable proportions in terms of net worth. For example, summary data (17) for the values of Iowa farmland for the past decade reveal that the price for the weighted average for all grades of farmland rose from $419 per

acre in 1970 to $1,958 per acre in 1979 representing a 367 percent increase over this nine-year period. In terms of net worth, the equity for the average Iowa farm rose from $381,723 in 1977 to $611,900 in 1981 representing just over a 60 percent increase during this five-year period (31). Accordingly, gift and estate taxes have become a major issue to many farmers who have accepted modest earnings on their assets in exchange for increases in wealth which they wish to transfer to their descendents.

Estate Taxes--A Historical Perspective

The present form of the federal estate tax system began in 1916. In terms of total federal tax revenue, estate taxes contribute less than five percent of total tax receipts (1). They were established not for their revenue generating capacity but rather as an instrument for carrying out social preference. The actual purpose of estate taxes has its moral and philosophical beginnings in the Puritan work ethic and fundamentals of democracy. Namely, the general view was that people should not be rewarded with unearned wealth and that people should be given somewhat equal opportunities at birth. Accordingly, the taxes were directed primarily at large fortunes and did not preclude modest transfers.

Up until 1932, the federal tax rates were quite lenient imposing no significant burden even on moderately large estates with the upper rate being only around ten percent. Afterwards the rates were increased and in 1954 a maximum rate of 77 percent was set for taxable estates in excess of $10,000,000. In 1976, however, there was a reverse in this

trend as the estate tax elements of the Tax Reform Act of 1976 had the general effect of lowering estate tax liabilities. For example, the maximum tax rate was set at 70 percent for estates over $5,000,000 and a more generous tax credit replaced the existing exemption.

The Tax Reform Act of 1976 also contained special tax provisions which applied specifically to farm estates. By this time, farm firms had reached sizeable proportions in terms of net worth (due to the increases in land prices mentioned earlier) and they were generally characterized by low liquidity. Therefore, estate taxes posed a potential hardship in operating a farm enterprise which was undergoing an estate transfer. Accordingly, the special tax provisions were designed to lighten the estate tax burden of qualifying farms in order to reduce the problems associated with perpetuating the farm unit beyond the death of the owner operator.

The Economic Recovery Tax Act of 1981 strengthens the trend established by the 1976 legislation. Again, tax rates were lowered with a maximum rate of 50 percent to be phased in by 1985 and the tax credit is to be increased over a six-year period. Furthermore, the specifications set forth in the 1976 act, for the special provisions regarding agriculture, were liberalized, resulting in higher potential reductions for qualifying estates.

Objectives

The Economic Recovery Tax Act of 1981 is a major piece of legislation which will undoubtedly have a substantial impact on the

agricultural sector. With regards to intergenerational transfers of property, this act in general will result in a lower tax liability for farm estates than the previous law. This paper will deal with quantifying the resulting differences between liabilities incurred under the pre-1981 versus the post-1981 law for selected farm scenarios. Furthermore, certain implications regarding the effects that these tax changes will have on farm structure will be drawn. More specifically, the objectives of this paper are as follows:

1. Review selected tax provisions in the new law, using the pre-existing law as a base for comparison, and develop hypotheses regarding their possible impact on different farm firms.
2. Show the effect that certain estate characteristics--namely size, asset composition, and financial structure--have on the potential estate tax liability and develop these factors into a conceptual framework to use as an analytical tool.
3. Quantify and compare the tax consequences resulting under the pre-1981 and post-1981 law for different farm firms.

   Measure the resulting estate transfer costs in terms of several meaningful response variables which will enhance interpretation of the results.

5. Using theoretical concepts developed in previous studies, draw inferences from the results of the analysis regarding the possible effects that the new law will have on the structure of agriculture.

Literature Review

Estate taxes provide pecuniary incentives for effective estate planning. The fundamentals of farm estate planning may be found in Harl (14), Looney (18), and Suter (28). Harl emphasizes the importance of explicitly identifying objectives and offers various estate planning tools for obtaining these objectives. Assuming the objective of maximizing the value of property passed to heirs, Reinders, et al. (23), took a mathematical approach to an estate planning tool by determining the optimal marital deduction using a linear programming model. Boehlje, et al. (5), conducted a survey of probate records that revealed which estate planning methods were being used in Iowa and the characteristics of those who used them.

Numerous studies have been directed at determining the impact of estate taxes on the farm sector. In the early 1970s, Woods' (34) study showed the increasing importance of estate taxes resulting from substantial appreciation of farm estates, contrary to a previous finding by Hady (12), based on 1961 data, that estate taxes were not substantial enough to present a major problem to typical farm estate transfers. Uchtmann (30) compared the estate taxation of agricultural property in the United States to the corresponding systems in several European countries and found that in comparative terms, the U.S. farmer was not faced with an excessive tax burden.

The Tax Reform Act of 1976 invoked a series of publications concerning the effect of estate taxes on agriculture, primarily because of the controversial use valuation provision initiated in this act.

Discussions pertaining to the problems associated with use valuation may be found in Looney (19), and Matthews and Stock (20). Boehlje and Harl (6) calculated the potential benefits from use valuation for various investors in qualified farmland on a per acre basis and translated these benefits into a bid premium.

Using an intergenerational transfer simulation model, Roush (24) compared tax consequences of estate settlements under the pre-1976 and post-1976 law for alternative will strategies. The recent changes in the estate tax law create the need for a similar before-after type approach in order to quantify the impact of the Economic Recovery Tax Act of 1981. Also using an estate transfer model, Boehlje (2) examined the financial consequences resulting from estate transfers for farms with different size, asset composition, financial structure and tenure characteristics. Using the results of this analysis, he then made inferences concerning the effect that estate tax provisions have on the structure of agriculture. This study follows a method similar to that used by Boehlje; however, the changes in the tax law resulting from the 1981 tax act are integrated into the analysis. Sisson (27) suggests that the special estate tax provisions will have significant impact on the structure of agriculture for aspects such as real estate prices and resource allocation. The quantitative results in this study will provide a basis for extending Sisson's arguments to account for the changes in the use valuation provision promulgated in the Economic Recovery Tax Act of 1981.

CHAPTER II. CONCEPTUAL FRAMEWORK

Estate taxes affect farm firms differently depending on the unique characteristics of the farm estate. This chapter will focus on the relationship between selected estate tax provisions and farm characteristics. In order to analyze this relationship, a conceptual framework is developed out of estate characteristics which either directly or indirectly influence the potential tax liability.

Since the purpose of this paper is to analyze the potential impact of the changes made in the Economic Recovery Tax Act, the provisions in effect prior to the new law are reviewed first for comparative purposes. This review combined with a description of changes brought on by the new law form an institutional framework which will facilitate the comparative analysis used in this study. Such an approach is valuable because it gives insight into evaluating the new tax law relative to the pre-existing legislation. In addition, given that some effects of the old law have been identified, using the old law as a base of comparison will aide in making projections about possible consequences of the new law. Following the discussion of the institutional framework, the conceptual framework is developed and then used to draw hypotheses concerning the potential impact of the new law on different farms.

Selected Estate Tax Provisions--Institutional Framework

The last major piece of legislation concerning estate and gift taxes prior to 1981 was the Tax Reform Act of 1976. In this act,

policy makers set new tax rates and initiated new provisions such as the unified tax credit and special use valuation of farmland. The Economic Recovery Tax Act of 1981 has brought dramatic changes in the federal tax law, surpassing the 1976 legislation. With respect to estate tax, in general the bill makes the existing provisions more liberal and reduces the effective tax rate. This section contains an overview of selected tax provisions in the 1976 legislation along with the modifications resulting from the new law which will undoubtedly have some--and in some instances--significant impact on the intergenerational transfer of farm property.

Unified Tax Rate Schedule

Prior to 1976, there were separate tax rates applied to gift and estate taxes, with the gift tax being 75 percent of the estate tax rate. It was argued that this preferential treatment for gifting encouraged lifetime transfers of wealth and as such was more beneficial to the wealthy who could more easily afford to make gifts (1). Therefore, in 1976, legislators combined the gift and estate tax schedules into a unified tax schedule. Under this system, which also applied under the current law, gifts in excess of the allowable deduction are taxed at the same rate as the taxable estate. Table 2.1 shows the unified tax rate schedule put into effect by the 1976 legislation where the maximum tax rate was set at 70 percent for taxable estates of $5,000,000 and over.

Table 2.1. Federal estate and gift tax rate schedule under 1976 law[a]

Tentative Tax Base From (1)	Tentative Tax Base To (2)	Tax on Amount in Column (1) (3)	Tax Rate (%) on excess of amount in Column (1) (4)
$ 0	$ 10,000	$ 0	18
10,000	20,000	1,800	20
20,000	40,000	3,800	22
40,000	60,000	8,200	24
60,000	80,000	13,000	26
80,000	100,000	18,200	28
100,000	150,000	23,800	30
150,000	250,000	38,800	32
250,000	500,000	70,800	34
500,000	750,000	155,800	37
750,000	1,000,000	248,300	39
1,000,000	1,250,000	345,800	41
1,250,000	1,500,000	448,300	43
1,500,000	2,000,000	555,800	45
2,000,000	2,500,000	780,800	49
2,500,000	3,000,000	1,025,800	53
3,000,000	3,500,000	1,290,000	57
3,500,000	4,000,000	1,575,800	61
4,000,000	4,500,000	1,880,800	65
4,500,000	5,000,000	2,205,800	69
5,000,000	***	2,550,800	70

[a]Source: Internal Revenue Code, Section 2001 (15).

The 1981 legislation calls for four yearly decreases in the tax rates above the 50 percent level. In 1982, the top rate of 70 percent is reduced to 65 percent, in 1983 it will be 60 percent, in 1984 it will be 55 percent and finally, by 1985, the top tax rate will be 50 percent. In 1985, this top rate of 50 percent will apply to taxable estates in excess of $2,500,000. There is no change in the tax rates below the 50 percent level. Table 2.2 shows the tax rate schedule which will be in effect in 1987.

Unified Tax Credit

Another new component of the 1976 act was the unified tax credit which replaced the previous gift and estate tax exemption. A tax credit is subtracted from the calculated tax obligation whereas an exemption is deducted from the adjusted gross estate in arriving at the taxable estate. As set out in the Internal Revenue Code (15), the unified tax credit could be used to offset gift tax liabilities incurred during life or estate taxes on property transferred at death. In 1977, the tax credit was set at $30,000 which was equivalent to a $120,677 exemption and thus was substantially more generous than the $60,000 exemption that it replaced. The act provided for an increase in this credit each year to reach a maximum level of $47,000 by the year 1981, which was equivalent to a $175,625 exemption. As specified by the new law, the unified credit will increase beyond the $47,000 level over a six-year period commencing in 1982. The schedule of increases and the corresponding exemption equivalents are shown in Table 2.3. By 1987,

Table 2.2. Federal estate and gift tax rate schedule under the 1981 law by the year 1985[a]

Tentative Tax Base From (1)	Tentative Tax Base To (2)	Tax on Amount in Column (1) (3)	Tax Rate (%) on excess of amount in Column (1) (4)
$ 0	$ 10,000	$ 0	18
10,000	20,000	1,800	20
20,000	40,000	3,800	22
40,000	60,000	8,200	24
60,000	80,000	13,000	26
80,000	100,000	18,200	28
100,000	150,000	23,800	30
150,000	250,000	38,800	32
250,000	500,000	70,800	34
500,000	750,000	155,800	37
750,000	1,000,000	248,300	39
1,000,000	1,250,000	345,800	41
1,250,000	1,500,000	448,300	43
1,500,000	2,000,000	555,800	45
2,000,000	2,500,000	780,800	49
2,500,000	***	1,025,000	50

[a]Source: Economic Recovery Tax Act of 1981 (H.R. 4242) (11).

Table 2.3. Schedule of increases in the unified tax credit and corresponding exemption equivalents designated in the 1981 legislation[a]

Year	Unified Credit	Equivalent Exemption
1982	$ 62,800	$225,000
1983	79,300	275,000
1984	96,300	325,000
1985	121,800	400,000
1986	155,800	500,000
1987	192,800	600,000

[a]Source: Economic Recovery Tax Act Bill of 1981 (H.R. 4242) (11).

the unified tax credit will offset all the federal tax for taxable estates of $600,000 or less, thereby eliminating the tax rates between 18 and 37 percent.

Marital Deduction

The marital deduction is the amount of property which may pass tax free from the deceased to the spouse. This property must pass without reservation (13) and its value is subtracted from the adjusted gross estate to arrive at the taxable estate figure. Prior to the 1981 legislation, this amount was limited to the greater of $250,000 or 50 percent of the adjusted gross estate.

Under the 1981 legislation, the marital deduction is now set at an unconstraining level of 100 percent (11). Effectively, this modification allows for unlimited transfer of property between spouses, tax free. For example, under the present law, a husband can pass all of his property outright to his wife using the marital deduction and there will be no federal tax due at his death; of course, this property will be taxed subsequently at the wife's death.

Gift Tax Exclusion

The gift tax exclusion, as outlined by Harl (13), allows a certain amount of present interests in property to pass during life without invoking a federal gift tax liability. Prior to 1981, the annual gift tax exclusion was $3,000 per recipient. If both spouses consented to the gift, then up to $6,000 per recipient per year could be transferred tax free, even if only one spouse owned the gift property. Thus, a

husband and wife with four children could give up to $24,000 to their children each year without incurring a federal gift tax liability. The 1981 tax act increased the annual gift tax exclusion to $10,000 per recipient per year (13). Thus, a husband and wife can give up to $20,000 per recipient annually without incurring a federal tax liability. In addition, there is now unlimited tax-free gifting between spouses corresponding to the 100 percent marital deduction.

Special Use Valuation

With respect to the farming sector, the use valuation provision enacted in the 1976 legislation was perhaps the most significant and complicated aspect of the estate tax changes. This provision enabled qualified farmland to be valued at a "use value" instead of the fair market value in calculating the gross estate for tax purposes. The special use provision came largely in response to the farm sector's argument that the land's productivity value should be used in assessing estate taxes rather than the market value which was greater due to escalating real estate prices. The legislative intent behind the provision was to "reduce the frequency of forced sales of farmland to pay estate taxes" (29), thereby facilitating the transfer of an ongoing farm business. An upper limit was specified such that the value of the adjusted gross estate could not be reduced by more than $500,000. Under the 1981 act, the maximum limit on reduction was increased over a three-year period: the limit was set at $600,000 for 1981, $700,000 for 1982, and $750,000 for 1983 and thereafter (11).

In order to insure that the tax relief from this provision was available only to those which the legislators intended, the code contained a barrage of both pre- and post-death requirements specifically designed to disqualify those to whom the relief was not targeted. In brief, an outline of the requirements is given below, along with the several rule changes instigated in the 1981 act.

<u>Pre-death Requirements</u>.

1. As specified in the Internal Revenue Code, Section 2032A(b), the adjusted value of the farm real or personal property must constitute 50 percent of the adjusted value of the gross estate. As used here, the term "gross estate" refers to a net worth figure or the value gross estate minus the unpaid indebtedness associated to the property (15). This farm real or personal property must be used in its qualified use on the date of the individual's death and pass to a qualified heir or heirs by inheritance and not by purchase (13). A qualified heir is defined in S2032A(e)(1) as "a member of the deceased's family who acquired such property from the deceased." The term "family member" includes the deceased's spouse, lineal descendents, parents, grandparents, and aunts or uncles of the deceased and their descendents (15).

   The 1981 law redefines "family member" to include an individual's spouse, parents, siblings, children, stepchildren,

and spouses and lineal descendents of these individuals (11). In addition, a qualified heir may now purchase the qualified property without losing eligibility for use valuation (13).

2. As specified in § 2032A(b)(1)(B), at least 25 percent of the adjusted value of the gross estate must consist of qualified farm real property that was passed to a qualified heir.
3. During five or more years during the eight-year period ending at the individual's death, the real property must be "owned by the descendent or a member of the descendent's family and used for a qualified use," and, furthermore, the descendent or a member of his family must materially participate in the farm operation during this time period (15). A cash rent lease to a non-family member was not sufficient to meet the material participation requirement. Instead, a crop-share lease was the minimum arrangement allowed (13).

The material participation requirement is relaxed in the 1981 act so that it is now permissible for a qualified heir who is the surviving spouse of the deceased, has not attained the age of 21, is disabled or is a student, to be involved in "active management" to satisfy the requirement (15). Active management refers to such activities as deciding what to plant, inspecting growing crops and choosing where and when to market the harvested crop (13).

Post-Death Requirements. The post-death requirements of the use value provision pertain to the fifteen-year period (ten-year period under the 1981 law) following the individual's death. Failure to meet these requirements triggers a recapture of tax which was secured by a special tax lien. Recapture occurs if one of the following has come about:

1. If the property is disposed of within the fifteen-year period to someone other than a qualified heir (15). Full recapture was instigated during the first ten years with a phase-out period over the last five years (15). Under the new law, the five-year phase-out period is eliminated, leaving a total recapture period extending ten years after the individual's death (11).
2. Under the 1976 legislation, replacement of property by a qualified heir using a tax-free exchange for income tax purposes resulted in recapture; however, such a transaction does not trigger recapture under the new law (13).
3. If the property is not employed in its qualified use as set forth in § 2032A(c)(7), lack of material participation for three or more years during any eight-year period after the individual's death invoked recapture (15). The new law creates a two-year grace period directly following the individual's death where recapture will not occur if the qualified use begins within two years after the individual's death (15).

Recapture does not occur if the property goes through involuntary conversion and the proceeds are used to purchase real estate to be used for the same purpose (15). Also, the death of a qualified heir negates the possibility of recapture on that heir's portion of property.

If the recapture does occur, the resulting liability is the lesser of a) the actual reduction in federal estate tax brought on by the use of the special use valuation, or b) the difference between the use value and the fair market value of the property if disposition occurred other than by sale (2). Thus, the most that the heirs would be liable for is the tax savings resulting from use valuation. Since there is no interest due on this amount, use valuation can lead to a tax savings even if recapture did occur because of the beneficial effect of deferring the tax liability without an interest charge (2). Finally, the special tax lien is valid until the possibility of recapture is gone.

Methods of Valuation. Within the provision, two methods are designated by which qualified farmland can be valued. First, the value of the cash rent[1] minus the property taxes is capitalized by the appropriate Federal Land Bank interest rate (15). The code calls for the use of "the average annual gross cash rental on comparable land used for farming purposes and located in the locality of such farm" and "the average annual effective interest rate for all new Federal Land Bank loans" (15).

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[1]Under the 1981 law, if cash rent data are not available, then a net share rental value may be substituted for cash rent data.

Alternatively, if the suitable cash rent data are not available or if the executor opts not to use the rent capitalization method, then a complex "five-factor formula" can be used to calculate use value. The components of this formula are outlined in § 2032(e)(8) as follows:

A. The capitalization of income which property can be expected to yield for farming or closely held business purposes over a reasonable period of time under prudent management using traditional cropping patterns for the area, taking into account soil capacity, terrain configuration, and similar factors,

B. The capitalization of the fair rental value of the land for farmland or closely held business purposes,

C. Assessed land values in a state which provides a differential or use value assessment law for farmland or closely held business purposes,

D. Comparable sales of other farms or closely held business land in the same geographical area far enough removed from a metropolitan or resort area so that nonagricultural use is not a significant factor in the sales price, and

E. Any other factor which fairly values the farm or closely held business value of the property.

These factors are then combined into a single value estimate.

A more thorough discussion of the use value provision may be found in "Proceedings of Symposium on Farm Estate Issues Raised by the Tax Reform Act of 1976" (32) and a review of the Economc Recovery Tax Act by Harl (13).

Installment Payment of Tax

The installment payment provision is designed to help alleviate some of the cash flow problems often associated with settling an estate, at which time funds are needed to pay the federal and state tax liability and various legal fees. In essence, the installment payment of tax offers a source of liquidity by enabling participants to defer the payment of the federal tax liability over a fifteen-year period.

The payback schedule is constructed so that only interest is due during the first five years following the individual's death, with the repayment of principal and interest on unpaid principal beginning at that time and extending in equal installments for up to ten years (15). An interest rate of four percent is charged on the first $345,800 of federal estate tax (minus the unified credit) attributable to the closely held business; this amount of tax corresponds to a taxable estate of $1,000,000 (15). For tax in excess of this figure, the interest rate applicable to unpaid income tax is used (2).

To be eligible for this provision under the 1976 legislation, the closely held business had to exceed 65 percent of the adjusted gross estate (as valued for federal tax purposes); furthermore, if one-third of the closely held business was "distributed, sold, exchanged or otherwise disposed of" or withdrawn from the business, the remaining installments became due (15). These two requirements are liberalized in the 1981 act. First, the "65 percent rule" is lowered so that presently, the closely held business need only exceed 35 percent of the value of the adjusted gross estate (11). Secondly, now 50 percent or

more of the business must be disposed of to terminate installment reporting (11).

Factors Influencing the Potential Tax Liability--Conceptual Framework

As seen in the previous section, estate tax laws are intentionally designed to have a differential impact on various estate types as distinguished by their particular characteristics. For example, the progressive tax rate schedule is delineated by estate size and the special use value provision is directed at closely held family farms. Due to the actual mechanics of these laws, the size, asset mix, financial structure, and eligibility for special tax provisions of farm estates can have a significant effect on the tax liability, whether the outcome was intended or not. In this section, the elements of the conceptual framework--size, asset mix, financial structure, and eligibility for special tax provisions--are developed by examining the relationship between these factors and the potential tax liability.

Size

The size of the farm estate directly and indirectly influences the potential tax liability. First, the graduated tax schedule is designed so that as estate size increases the marginal tax rate also increases. For example, under the 1976 law, the tentative tax due on a taxable estate of up to $175,625 could be completely offset by the $47,000 unified tax credit. On the other hand, a tax of $2,503,800

would have been due on a $5,000,000 taxable estate after using the entire tax credit.

Secondly, the farm size influences the tax liability due to the specifications of the use value and installment payment provisions. As mentioned earlier, the maximum estate reduction allowable under the 1976 legislation was $500,000 and this upper bound could effectively limit the tax savings accruing to a large estate. With respect to the installment provision, the preferential four percent interest rate on deferred taxes is applicable to taxable estates of $1,000,000 or less and the rate increases to that charged on unpaid income tax for amounts in excess of this figure.

Of greater importance, however, are Boehlje's findings in "The Impact of Selected Income and Estate Tax Provisions on the Structure of Agriculture" regarding the value--in terms of potential tax savings--that use valuation and installment have for different size farms. The study included a comparison of estate tax consequences under the 1976 law for various farms, located in eight different regions of the United States, ranging in size from an initial net worth of $707,909 to $1,497,493, assuming estate settlements for the immediate deaths of both spouses. The results revealed that in absolute terms, the tax savings from qualification of use valuation and installment payment of tax were greater for farms with the largest net worth (2). For example, the tax savings resulting from qualification of both provisions amounted to $69,121 for the farm with an initial net worth of $707,909, whereas the

same qualification resulted in a savings of $175,673 for the $1,497,493 size farm.

Furthermore, when the benefits of qualifying for the special provisions were measured in terms of the percent of the parents' property received by heirs after all the taxes and transfer costs had been deducted, it was found that the provision dramatically increased this percentage for the larger estates, more so than for the smaller estates. For example, qualification for both provisions resulted in a 10 percent increase in the percent of parents' property received by heirs for the $707,909 size farm and a 19 percent increase for the $1,497,434 size estate (2). Thus, from these findings, it was concluded that these tax provisions act to offset the progressive nature of the tax schedule for farms in this size range. When the same analysis was extended to a farm with an initial net worth of $1,000,000, that was then doubled and tripled in size, the absolute magnitude of the tax savings increased but its proportion of the total tax liability declined with increasing farm size due to the upper bounds on the provisions mentioned above.

Asset Mix

The asset composition of the farming enterprise can also affect the tax liability as well as other costs associated with the inter-generational transfer of property. A farm type of which qualified farmland constitutes a large percentage of the total estate value can receive more tax savings from use valuation than a farm of comparable

size but with a smaller percentage of land to total assets. For example, consider two farm enterprises each with a net worth of $1,000,000 but in one operation, qualified farmland is worth $800,000 and in the other, all farmland is rented. If the farmland had a use value of $400,000, the resulting tax savings from use valuation could amount to approximately $163,000 (using the 1981 tax schedule) whereas no such reduction would be available to the land-renting operation. However, in considering the transfer costs involved in settling the estate, it should be recognized that having a large percent of the farm value in a relatively less liquid asset such as real estate could result in significant liquidity losses if land had to be sold to pay an estate tax liability.

Percent Equity

To a certain degree, the financial structure of the farm firm (in terms of the ratio of owner's equity to the value of total assets, debt included) can influence the potential tax liability. This is because tax savings from use valuation accrue to the owner's equity capital as well as the debt capital invested in qualified farmland. For purposes of calculating the estate tax liability, the reduction in the value of the gross estate brought on by use valuation is the same whether there is debt attached to the land or not. Since this reduction in the gross estate is eventually translated into a tax saving, in some instances tax benefits arise from the use of financial leverage.

Boehlje's study (2) included a comparison between two farms each with an initial net worth of $1,000,000 but one with 100 percent owner equity (no debt) and the other with twice the assets but only 50 percent equity. When neither estate qualified for use valuation, the consequences were practically the same, only a slight difference originated from the higher transfer costs associated with the larger gross estate of the leveraged farm. However, when a farm qualified for use valuation, the 100 percent equity farm received a tax savings of $143,892, or a 50 percent savings, compared to a $210,732, or 79 percent, tax savings for the leveraged farm.

In addition, it should be noted that due to debt servicing requirements, a firm which employs debt funds must be more concerned with cash flow than one which has 100 percent equity. As such, the increased demand for cash funds during an estate settlement may place a particular burden on leveraged firms and may result in increased liquidity losses. Thus, the positive effect of leverage brought on by use valuation may partially be offset by the adverse effect that leverage has with respect to cash flows during the intergenerational transfer of property.

Eligibility for Special Tax Provisions

Due to the eligibilty requirements specified in the special use valuation and installment payment of tax provisions, the qualifying characteristics of an estate can significantly influence the tax liability. Qualification for use valuation is limited to estates which

could be characterized as closely held family farms because of the requirements that the property must pass to a family member who continues to farm for fifteen years after the property transfers. The installment provision specifically states that the estate must be comprised of a "closely held business." Since qualification for either of these provisions can result in substantial tax savings, the distinguishing characteristics of an estate can impact the potential tax liability.

Hypotheses

The similarities in the 1981 tax legislation and the pre-existing tax law suggest that Boehlje's (2) findings, pertaining to the differential impact of federal estate tax on various farm estates, will persist under the new tax law. Furthermore, modifications in the Internal Revenue Code as amended by the Economic Recovery Tax Act, are expected to exaggerate the effects of the tax law identified in Boehlje's study (2) as well as reduce the cost of transferring most estates. Specifically, the following consequences are expected to occur:

1. The increase in the unified tax credit will substantially reduce the tax liabilities for all estates while increasing the size of an estate which may be passed tax free.
2. The use valuation provision will be relatively more valuable to larger estates. In addition, the increase in the use valuation limit will increase the potential tax savings to the larger farms while providing no benefit to the smaller estates.

3. The decrease in the upper marginal tax rate will reduce the progressiveness of the federal estate tax for large estates.
4. Farm estates with a greater percent of land to total assets will incur less tax liability if they qualify for use valuation than an estate of comparable size but with less acreage. However, one may also expect a farm with a high land/asset ratio to incur greater liquidity losses in an estate settlement.
5. Farms using more debt will incur less tax liability than an estate with a comparable net worth but less debt, assuming both estates have the same proportion of land to gross assets and both qualify for use valuation.

CHAPTER III. METHODOLOGY

The purpose of this study is to analyze the impact of the Economic Recovery Tax Act of 1981 on farm estates undergoing an intergenerational transfer. The analysis involves a two-way comparison. First, the economic and financial consequences under the 1981 legislation are compared for farms with various estate characteristics. To examine this issue, the approach used parallels that employed by Boehlje in a USDA CARD report entitled, "Analysis of the Implications of Selected Income and Estate Tax Provisions on the Structure of Agriculture" (2). Secondly, the tax consequences resulting under the pre-1981 tax law are compared to those occurring under the new law.

In Boehlje's study, analysis was made of the impact of selected estate and income tax provisions of the Tax Reform Act of 1976, in terms of variables such as after-tax income, firm growth and estate transfer costs, for firms of different size, asset composition, financial structure and tenure characteristics. Eight USDA "typical farms" were selected for the analysis based on geographic location and commodity specialization. In addition, Boehlje developed alternative scenarios with different financial structures, tenure arrangements, sizes and asset compositions to broaden the base of comparison. For the analysis pertaining to estate taxes, the Iowa State Computer Assisted Estate and Business Planning model was used to determine the financial consequences for the intergenerational transfer of the various farm scenarios.

The Iowa State Computer Assisted Estate and Business Planning model, revised to account for changes in the tax law brought about by the 1981 legislation, will also be used in this study to simulate the economic outcome for selected farm estate settlements. However, the procedure applied here differs somewhat from Boehlje's approach. In this study, the farm situations to be analyzed are not restricted to USDA typical farms, rather; the range of observation is broadened to include some of the large and small farms which exist in the agricultural sector. A spectrum of farm scenarios is synthesized explicitly to widen the analytical perspective. While these scenarios are contrived and thus more abstract than typical farms, they are designed as such to facilitate a systematic approach to the desired analysis.

Analytical Framework

The procedure used to analyze the impact of the 1981 tax act is designed to answer the following questions. Quantifying the results to these questions will provide the basis for either confirming or rejecting the hypotheses set forth in the previous chapter.

1. What is the differential tax consequence for estates with unlike characteristics? How do the results change when the estates qualify for the use valuation and installment payment of tax provisions?
2. What is the difference in the tax consequence between an estate probated after instigation of the new law as compared to the pre-existing law?

3. Does any differential identified in (1) remain constant between the old versus the new law; in other words, does the differential impact of estate taxes on farms with unlike characteristics become more or less pronounced under the 1981 tax law?

To answer the first question, the conceptual framework developed in the previous chapter is used to model a series of alternative farm scenarios which are expected to yield quite different results. The procedure involves selecting a base scenario—which can be described as a typical Iowa farm--and modifying the original situation to obtain three groups of variations, namely, size, asset mix, and financial structure (percent equity). These groups are elements of the conceptual framework and have been identified as estate characteristics which are likely to have the most profound effect on the potential tax liability. In order to isolate the effect of varying a particular parameter of the scenario, such as size, all other estate characteristics are held constant over a particular set of variations, except in the case of qualification of the special tax provisions (classified as eligibility for special tax provisions in the conceptual framework). Only in this case will possible interaction between elements of the conceptual framework be explored.

In order to compare the tax consequences under the old and new law for various farm situations, the size, asset mix and percent equity variations described above are run under the original estate planning model designed for the 1976 act and again under the model as revised for

the 1981 act. Not only does this procedure facilitate a before-after type analysis, it also provides the information necessary to evaluate the relative impact of the tax law changes as posed in question (3) above. The assumptions underlying the base scenario and scenario variations are presented in the following sections, preceded by a summary of the assumptions underlying the estate planning model.

Estate Planning Model

The Iowa State Computer Assisted Estate and Business Planning model was developed to aid in evaluating alternative estate plans and property organizations for estates with different characteristics. Input for the model includes family characteristics, asset ownership, will and/or gifting plans, and the county and state in which the estate is located. The model provides the financial consequences resulting under three death sequences (2): 1) the husband dies immediately and the wife dies shortly thereafter, 2) the wife dies immediately and the husband dies shortly thereafter, and 3) the husband and wife live to their life expectancy or die in ten years, whichever comes first.

The financial consequences are calculated at each spouse's death and the output includes the gross estate, executor and legal fees, adjusted gross estate, marital deduction, federal estate and state inheritance tax, needs and sources of liquidity, and the division of property passing on to the heirs. The executor fees, legal fees and court costs are assumed to equal the maximum charges allowed by Iowa probate law.

If there are insufficient funds to pay the settlement costs and tax liabilities, it is assumed that assets are sold by order of decreasing liquidity to meet the obligations. The following liquidity losses associated with the forced sales are assumed in the model (2): 1) cash - 0 percent, 2) stocks, bonds, securities - 2 percent, 3) household and personal - 6 percent, 4) machinery, livestock, inventories - 6 percent, 5) business real estate - 15 percent, and 6) personal realty - 15 percent.

For the expected life scenario, the husband's and wife's estates are assumed to increase in value. The rate of return on all assets is 5 percent and the earnings from these assets (after income taxes and family consumption) are reinvested as assets in the same proportions existing in the initial estate. An appreciation rate of 8 percent is assumed for all real estate.

Basic Farm Scenario

Data from the USDA publication "Economic Indicators of the Farm Sector: State Income and Balance Sheet Statistics, 1980" were used to create the base farm scenario (31). In particular, the balance sheet for Iowa was used to obtain information concerning gross farm size, asset composition, claims and the equity/asset ratio. For example, dividing total value of business real estate held by farms in Iowa by corresponding total farm assets yields a ratio of land to total assets of 77 percent. The remaining 23 percent of total assets was proportioned out among the remaining non-real assets to give each

category's proportion of this total. On the balance sheet, non-real assets included such items as livestock, machinery, crops and household equipment.

The categories of assets listed in the balance sheet were then grouped by asset type for use in the Iowa State Computer Assisted Estate and Business Planning model. Asset input for the model is arranged under one of the following six categories and classification of the assets-- which were not business real estate--under the appropriate headings resulted in the percentages shown in Table 3.1. Thus, an asset such as livestock would be classified under the business personal heading for inputing purposes. The percentages of non-real assets shown are presumed to remain constant throughout all derivations. Except in the case of the asset mix variations, the proportion of business real estate total assets is assumed constant at the 75 percent level leaving the remaining 25 percent to be divided among non-real assets. The will plan used for both the husband and wife in all scenarios is one-half to spouse in trust, one-half to spouse in fee simple. A complete description of the will along with other standardized assumptions is found in Table 3.2.

Size Variation

In order to quantify the differences in the tax liability and transfer costs associated with estates of different sizes, the size variable (in terms of net worth) was parameterized keeping the asset mix and percent equity constant. Specifically, the sizes analyzed include a

Table 3.1. Percentage breakdown of non-real assets

Six Asset Categories	Percent of Total Nonreal Assets
1. Business personal	.72
2. Non-business real estate[a]	.03
3. Non-business personal intangible	.02
4. Non-business personal tangible	.02
5. Cash	.05
6. Life insurance[b]	.16

[a]The non-real assets category is defined to include all assets which are not business real estate, thus, non-business real estate is contained in this group.

[b]Life insurance was not separated out on the USDA balance sheet. Therefore, it was assumed to amount to four percent of total net worth, shown above as 16 percent of 23 percent (the proportion of non-real assets to total net worth), based on findings in an extension survey of estate planning in Iowa (5).

Table 3.2. Standardized assumptions for farm estates

I. FAMILY CHARACTERISTICS

Husband: age 82, health - good

Wife: age 69, health - good

Son: age 45, health - excellent

Daughter: age 42, health - excellent

II. WILL PLAN: HALF TO SPOUSE IN TRUST, HALF TO SPOUSE IN FEE SIMPLE

This plan will be used by both the husband and wife. Functionally, under this plan, one-half of the adjusted gross estate passes to the surviving spouse in a life estate (which) is taxed at the first death) and the remaining portion of the estate passes to the surviving spouse through the marital deduction. At the death of the surviving spouse, all property passes to the children in fee simple and the amount in the life estate receives no no additional tax.

III. FARM CHARACTERISTICS

The farm was assumed to exist in Dallas county where in 1979 the average fair market value of farmland ($2,000 per acre) was equal to the state average. Accordingly, the cash rent data for the use valuation calculations also came from this property.

IV. MARITAL DISTRIBUTION OF PROPERTY

To facilitate the analysis, it was assumed that all assets except life insurance were owned in tenancy in common between husband and wife; thus, each spouse has an equal share in the estate.

V. LIFE INSURANCE

Each spouse owns their own life insurance policy with the other spouse as the beneficiary. Thus, the face value of the policy is included in the deceased's estate. Also, the husband and wife each own the same amount of insurance.

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net worth of $500,000, $750,000, $1,000,000, $1,500,000, $2,000,000 and $3,000,000. In all variations the owner's equity was assumed to be 100 percent so that the use of debt could not influence the results. Furthermore, the value of land as a proportion of total assets was set at 75 percent which is close to the state average. Table 3.3. shows the abbreviated balance sheets for each of the six size variations.

Asset Mix Variation

In order to examine the effect that asset composition has on the response variables, the value of farmland to total assets ratio was varied holding farm size and owner equity constant. A farm size of $1,000,000, while larger than the state average, was selected because tax consequences associated with smaller estates were not substantial enough to make useful comparisons. Again, owner's equity was assumed to be 100 percent. Three scenarios representing a land/asset ratio of 75 percent, 50 percent, and 25 percent were analyzed, corresponding to total acres of 375, 250, and 125, respectively. The 250 and 125 acre farms might typify enterprises such as a livestock feeding operation where the value of land represents a relatively smaller proportion of total assets, or a crop operation in which some of the farmland is rented. The balance sheets corresponding to the three asset mix variations are shown in Table 3.4.

Percent Equity Variation

Finally, the effect that the use of leverage has on the tax liability and transfer costs was analyzed by varying the percent of

Table 3.3. Abbreviated balance sheets for the six farm scenarios used in the size variation

	Size 1	Size 2	Size 3[a]	Size 4	Size 5	Size 6
Gross estate	$500,000	$750,000	$1,000,000	$1,500,000	$2,000,000	$3,000,000
Debt	-0-	-0-	-0-	-0-	-0-	-0-
Equity	500,000	750,000	1,000,000	1,500,000	2,000,000	3,000 000
Land[b]	375,000	562,500	750,000	1,125,000	1,500,000	2,225,000
Other assets	125,000	187,500	250,000	375,000	500,000	775,000
Number of acres	188	282	375	563	750	1,125

[a]Size 3 is also used in the type and equity variations.

[b]In all situations above, the value of land to total assets is 75 percent.

Table 3.4. Abbreviated balance sheets for three farm scenarios used in the asset mix variation

	Type 1	Type 2	Type 3
Gross	$1,000,000	$1,000,000	$1,000,000
Debt	-0-	-0-	-0-
Equity	1,000,000	1,000,000	1,000,000
Land	750,000	500,000	250,000
Other assets	250,000	500,000	750,000
Number of acres	375	250	125
Land/asset ration	75%	50%	25%

owner's equity in the estate while holding farm size and asset mix constant. The owner's equity level (defined as the value of owner's equity as a percent of the value of total assets) was set at levels of 100, 80, and 60 percent. The rather restricted use of debt associated with these levels reflects the financially conservative behavior of firms exhibited in the agricultural sector. For Iowa, the average for this ratio of owner's equity to total assets is 85.9 percent (31). Across the percent equity variations, the value of the initial net worth was held constant at $1,000,000; therefore, as debt utilization was increased the corresponding gross estate also increased. It was assumed that the proportion of debt was held constant over all assets, thus, the percent of owner's equity in each asset is the same. Again, the land to asset ratio was maintained at the 75 percent level. Table 3.5 shows the abbreviated balance sheets for the three equity variations.

Table 3.5. Abbreviated balance sheets for the three farm scenarios used in the percent equity variations

	Equity 1	Equity 2	Equity 3
Gross	$1,000,000	$1,250,000	$1,666,667
Debt	-0-	250,000	666,667
Equity	1,000,000	1,000,000	1,000,000
Land[a]	750,000	937,500	1,250,000
Other assets[a]	250,000	312,500	416,667
Number of acres	375	469	625
Equity/total assets ratio	100%	80%	60%

[a]Value of land and other assets includes debt.

CHAPTER IV. NUMERICAL RESULTS

The financial consequences of estate settlement for the scenarios identified in the previous section are first determined according to the Internal Revenue Code as amended by the Economic Recovery Tax Act of 1981. Using the same procedure, the scenarios are then evaluated under the pre-existing federal estate tax law. The results are then used in a comparative analysis between the old and new law. The response variables used to discuss and compare the results under the different scenarios are explained below, followed by the actual results under the 1981 tax law and the comparative analysis.

Response Variables

In order to compare the tax consequences for alternative situations, the total federal tax liability is calculated by summing the federal tax obligation at each spouse's death. If the estate qualifies for installment payment of tax, then the present value of the deferred tax liability is computed by discounting each total annual payment (interest plus principal) in the repayment schedule using a discount rate of eight percent. This present value figure is added to the sum of the tax liabilities incurred at each spouse's death to arrive at the total federal tax liability.[1] Since the interest rate charged on amounts of deferred tax in excess of $345,000 (minus the unified credit) is greater than the discount rate used in the calculations,

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[1] In the ten-year projection, the wife's tax liability, incurred after four years, is added to the husband's tax liability which occurs at his death, six years after the wife's death.

use of the installment tax provision in such cases would result in a negative tax savings. Therefore, it is assumed that the installment provision is utilized only for tax obligations amounting to $345,000 (minus the unified credit) or less, and any tax over this figure is paid immediately.

Another response variable used to interpret the results is the total non-estate tax transfer costs calculated separately at the husband's and wife's death. This figure includes the executor fees, the court costs and legal fees associated with settling an estate. By law, these costs are calculated as a percentage of the gross estate and, therefore, increase proportionally with increases in gross estate size. In addition, the non-estate tax transfer costs (also referred to as additional transfer costs) include Iowa state inheritance tax. This death tax is based on the amount of property that each heir receives and can be influenced by many factors. For this reason, the state tax can complicate interpretation of the results. How the change in the federal tax law indirectly influences the state tax liability is not an issue to be analyzed in this study; therefore, no attempt will be made to explain possible effects that the new federal tax law may have on the potential state tax liability. Rather, the state tax was included in this analysis to indicate the magnitude of another component of the total transfer costs, outside of the federal tax liability. Inheritance tax rates vary across states, but the rate applied in Iowa, ranging from 5 to 10 percent, is not considered atypical. Finally, combined with the settlement costs and the state inheritance tax are any losses brought on

by the liquidation of assets needed to pay the state and federal tax liabilities. Thus, additional transfer costs give an indication of the financial burden placed on the farm firm during an estate transfer, beyond the actual federal tax liability.

The percent of the parents' property received by the heirs is a third response variable; it is calculated by dividing the value of the final property that the heirs receive by the value of the parents' original estate. It combines the effect of the total tax liability and the additional transfer costs by showing the percentage of the parents' original estate remaining for inheritance after all the settlement costs are paid. The percent of parents' property received by heirs gives an indication as to the percentage of the firm's assets remaining after the intergenerational transfer if the heirs continue farming after the parents' demise. Such information could be useful in evaluating the impact that estate transfers could have on the operating efficiency of a farm unit. In the ten-year projection, two percentages are calculated for the percent of parents' property received by heirs. First, the value of the parents' property remaining for inheritance is divided by the value of the estate just prior to the parents' death. Secondly, the value of property received by heirs is divided by the value of the parents' initial estate, before any appreciation occurs. This latter percentage is greater than 100 percent for all estates analyzed in this study.

Finally, the tax savings from qualification for use valuation and installment payment of tax provisions are calculated in terms of the

dollar savings for each provision as well as the percent reduction in federal tax which they represent. These variables are useful in examining the different financial consequences of special tax provisions for various farm scenarios and quantifying the provision's actual value to each firm.

Financial Consequences under the 1981 Tax Act

The size, asset mix, and percent equity variation scenarios, evaluated under the new tax law, were examined for alternative tax treatments. For each particular scenario, four cases representing the possible combinations of qualifications for use valuation and installment reporting of tax are evaluated. These are 1) eligibility for neither use valuation nor installment reporting of tax, 2) eligibility for installment payment but not use valuation, 3) eligibility for use valuation but not installment payment, and 4) eligibility for both use valuation and installment payment of tax. In addition, each scenario includes an immediate death situation and a ten-year projection situation as defined in the model section of Chapter III. The results are grouped under three subheadings--size, asset mix, and percent equity--according to the variation performed. Preceding these sections is a discussion of the results of an illustrative scenario.

Base Scenario Results

Tables 4.1 through 4.6 summarize the financial consequences of the six size variations ranging in size from an initial net worth of

TABLE 4.1 FINANCIAL CONSEQUENCES OF ESTATE TAXATION UNDER THE ECONOMIC RECOVERY TAX ACT OF 1981 FOR FARM SIZE 1

QUALIFIES FOR:				
SPECIAL USE VALUATION	NO	NO	YES	YES
INSTALLMENT PAYMENT	NO	YES	NO	YES
FINANCIAL CONSEQUENCES				
INITIAL NET WORTH	500000	500000	500000	500000
ESTATE SETTLEMENT-IMMEDIATE DEATH				
HUSBAND'S DEATH:				
ADJUSTED GROSS ESTATE	237811	237811	118691	118691
FEDERAL ESTATE TAX	0	0	0	0
ADDITIONAL TRANSFER COSTS	13598	13598	12894	12894
WIFE'S DEATH:				
ADJUSTED GROSS ESTATE	355646	355646	177641	177641
FEDERAL ESTATE TAX	38539	2770	0	0
ADDITIONAL TRANSFER COSTS	28335	28773	23665	23665
TOTAL FEDERAL ESTATE TAX	38539	29203	0	0
PROPERTY RECEIVED BY HEIRS ($)	419527	428425	463441	463441
PERCENT OF PARENT'S PROPERTY RECEIVED BY HEIRS (%)	84	86	93	93
TAX SAVINGS FROM QUALIFICATIONS:				
DOLLAR AMOUNT ($)	0	9336	38539	38539
PERCENT REDUCTION (%)	0	24	100	100
ESTATE SETTLEMENT-10 YEAR PROJECTION				
HUSBAND'S DEATH:				
ADJUSTED GROSS ESTATE	390384	390384	141397	141397
FEDERAL ESTATE TAX	0	0	0	0
ADDITIONAL TRANSFER COSTS	26158	26158	19841	19841
WIFE'S DEATH:				
ADJUSTED GROSS ESTATE	864062	864062	251567	251567
FEDERAL ESTATE TAX	74109	2433	0	0
ADDITIONAL TRANSFER COSTS	96826	95179	69411	69411
TOTAL FEDERAL ESTATE TAX	74109	55402	0	0
PROPERTY RECEIVED BY HEIRS ($)	981536	1001891	1089439	1089439
PERCENT OF PARENT'S PROPERTY RECEIVED BY HEIRS (%)	84	85	93	93
TAX SAVINGS FROM QUALIFICATIONS:				
DOLLAR AMOUNT ($)	0	18707	74109	74109
PERCENT REDUCTION (%)	0	24	100	100
PERCENT OF INITIAL NET WORTH (%)	96	200	218	218

TABLE 4.2 FINANCIAL CONSEQUENCES OF ESTATE TAXATION UNDER THE ECONOMIC RECOVERY TAX ACT OF 1981 FOR FARM SIZE 2

QUALIFIES FOR:				
SPECIAL USE VALUATION	NO	NO	YES	YES
INSTALLMENT PAYMENT	NO	YES	NO	YES
FINANCIAL CONSEQUENCES				
INITIAL NET WORTH	750000	750000	750000	750000
ESTATE SETTLEMENT-IMMEDIATE DEATH				
HUSBAND'S DEATH:				
ADJUSTED GROSS ESTATE	357911	357911	179231	179231
FEDERAL ESTATE TAX	0	0	0	0
ADDITIONAL TRANSFER COSTS	22893	22893	18310	18310
WIFE'S DEATH:				
ADJUSTED GROSS ESTATE	531931	531931	268046	268046
FEDERAL ESTATE TAX	93537	6170	11303	1584
ADDITIONAL TRANSFER COSTS	44186	45845	39527	39630
TOTAL FEDERAL ESTATE TAX	93537	70734	11303	8766
PROPERTY RECEIVED BY HEIRS ($)	589659	610802	680860	683293
PERCENT OF PARENT'S PROPERTY RECEIVED BY HEIRS (%)	79	81	91	91
TAX SAVINGS FROM QUALIFICATIONS:				
DOLLAR AMOUNT ($)	0	22803	82234	84771
PERCENT REDUCTION (%)	0	24	88	91
ESTATE SETTLEMENT-10 YEAR PROJECTION				
HUSBAND'S DEATH:				
ADJUSTED GROSS ESTATE	598598	598598	217372	217372
FEDERAL ESTATE TAX	0	0	0	0
ADDITIONAL TRANSFER COSTS	48214	48214	30624	30624
WIFE'S DEATH:				
ADJUSTED GROSS ESTATE	1334358	1334358	599720	599720
FEDERAL ESTATE TAX	237975	84975	0	0
ADDITIONAL TRANSFER COSTS	167612	157553	124882	124882
TOTAL FEDERAL ESTATE TAX	237975	198042	0	0
PROPERTY RECEIVED BY HEIRS ($)	1369977	1419968	1666701	1666701
PERCENT OF PARENT'S PROPERTY RECEIVED BY HEIRS (%)	77	79	92	92
TAX SAVINGS FROM QUALIFICATIONS:				
DOLLAR AMOUNT ($)	0	39933	237975	237975
PERCENT REDUCTION (%)	0	17	100	100
PERCENT OF INITIAL NET WORTH (%)	183	189	222	222

TABLE 4.3 FINANCIAL CONSEQUENCES OF ESTATE TAXATION UNDER THE ECONOMIC RECOVERY TAX ACT OF 1981 FOR FARM SIZE 3

QUALIFIES FOR:				
SPECIAL USE VALUATION	NO	NO	YES	YES
INSTALLMENT PAYMENT	NO	YES	NO	YES
FINANCIAL CONSEQUENCES				
INITIAL NET WORTH	1000000	1000000	1000000	1000000
ESTATE SETTLEMENT-IMMEDIATE DEATH				
HUSBAND'S DEATH:				
ADJUSTED GROSS ESTATE	478011	478011	239561	239561
FEDERAL ESTATE TAX	0	0	0	0
ADDITIONAL TRANSFER COSTS	34816	34816	25266	25266
WIFE'S DEATH:				
ADJUSTED GROSS ESTATE	706600	706600	356639	356639
FEDERAL ESTATE TAX	151125	9196	38845	5295
ADDITIONAL TRANSFER COSTS	68019	61639	54776	55640
TOTAL FEDERAL ESTATE TAX	151125	114082	38845	30088
PROPERTY RECEIVED BY HEIRS ($)	750630	790957	881112	889005
PERCENT OF PARENT'S PROPERTY RECEIVED BY HEIRS (%)	75	79	88	89
TAX SAVINGS FROM QUALIFICATIONS:				
DOLLAR AMOUNT ($)	0	37043	112280	121037
PERCENT REDUCTION (%)	0	24	74	80
ESTATE SETTLEMENT-10 YEAR PROJECTION				
HUSBAND'S DEATH:				
ADJUSTED GROSS ESTATE	808877	808877	293598	293598
FEDERAL ESTATE TAX	0	0	0	0
ADDITIONAL TRANSFER COSTS	71942	71942	43343	43343
WIFE'S DEATH:				
ADJUSTED GROSS ESTATE	1811864	1811864	1084902	1084902
FEDERAL ESTATE TAX	417285	264285	149855	8526
ADDITIONAL TRANSFER COSTS	240485	230426	187734	186553
TOTAL FEDERAL ESTATE TAX	417285	377352	149855	112968
PROPERTY RECEIVED BY HEIRS ($)	1749758	1799750	2093949	2132020
PERCENT OF PARENT'S PROPERTY RECEIVED BY HEIRS (%)	73	74	85	87
TAX SAVINGS FROM QUALIFICATIONS:				
DOLLAR AMOUNT ($)	0	39933	267430	304317
PERCENT REDUCTION (%)	0	10	64	73
PERCENT OF INITIAL NET WORTH (%)	175	180	209	213

TABLE 4.4 FINANCIAL CONSEQUENCES OF ESTATE TAXATION UNDER THE ECONOMIC RECOVERY TAX ACT OF 1981 FOR FARM SIZE 4

QUALIFIES FOR:				
SPECIAL USE VALUATION	NO	NO	YES	YES
INSTALLMENT PAYMENT	NO	YES	NO	YES
FINANCIAL CONSEQUENCES				
INITIAL NET WORTH	1500000	1500000	1500000	1500000
ESTATE SETTLEMENT-IMMEDIATE DEATH				
HUSBAND'S DEATH:				
ADJUSTED GROSS ESTATE	718231	718231	360661	360661
FEDERAL ESTATE TAX	35266	2469	0	0
ADDITIONAL TRANSFER COSTS	60355	60689	41349	41349
WIFE'S DEATH:				
ADJUSTED GROSS ESTATE	1038920	1053918	532398	532398
FEDERAL ESTATE TAX	256131	14249	93691	12090
ADDITIONAL TRANSFER COSTS	125136	92187	83451	85595
TOTAL FEDERAL ESTATE TAX	291397	221652	93691	72393
PROPERTY RECEIVED BY HEIRS ($)	1041542	1130494	1281507	1300660
PERCENT OF PARENT'S PROPERTY RECEIVED BY HEIRS (%)	69	75	85	87
TAX SAVINGS FROM QUALIFICATIONS:				
DOLLAR AMOUNT ($)	0	69745	197706	219004
PERCENT REDUCTION (%)	0	24	68	75
ESTATE SETTLEMENT-10 YEAR PROJECTION				
HUSBAND'S DEATH:				
ADJUSTED GROSS ESTATE	1232536	1232536	482538	482538
FEDERAL ESTATE TAX	0	0	0	0
ADDITIONAL TRANSFER COSTS	122405	122405	72698	72698
WIFE'S DEATH:				
ADJUSTED GROSS ESTATE	2772794	2772794	2063063	2063063
FEDERAL ESTATE TAX	807391	654391	514760	361760
ADDITIONAL TRANSFER COSTS	465541	424142	335337	325278
TOTAL FEDERAL ESTATE TAX	807391	767458	514760	474827
PROPERTY RECEIVED BY HEIRS ($)	2441162	2508091	2871396	2921387
PERCENT OF PARENT'S PROPERTY RECEIVED BY HEIRS (%)	66	68	78	78
TAX SAVINGS FROM QUALIFICATIONS:				
DOLLAR AMOUNT ($)	0	39933	292631	332564
PERCENT REDUCTION (%)	0	5	36	41
PERCENT OF INITIAL NET WORTH (%)	163	167	191	195

TABLE 4.5 FINANCIAL CONSEQUENCES OF ESTATE TAXATION UNDER THE ECONOMIC RECOVERY TAX ACT OF 1981 FOR FARM SIZE 5

QUALIFIES FOR:				
SPECIAL USE VALUATION	NO	NO	YES	YES
INSTALLMENT PAYMENT	NO	YES	NO	YES
FINANCIAL CONSEQUENCES				
INITIAL NET WORTH	2000000	2000000	2000000	2000000
ESTATE SETTLEMENT-IMMEDIATE DEATH				
HUSBAND'S DEATH:				
ADJUSTED GROSS ESTATE	958431	958431	344469	344469
FEDERAL ESTATE TAX	70802	4956	0	0
ADDITIONAL TRANSFER COSTS	86744	87822	53431	53431
WIFE'S DEATH:				
ADJUSTED GROSS ESTATE	1371127	1401219	727043	727043
FEDERAL ESTATE TAX	369218	88438	157708	20100
ADDITIONAL TRANSFER COSTS	192179	135530	117025	120700
TOTAL FEDERAL ESTATE TAX	440020	351191	157708	121792
PROPERTY RECEIVED BY HEIRS ($)	1318618	1442340	1671835	1704075
PERCENT OF PARENT'S PROPERTY RECEIVED BY HEIRS (%)	66	72	84	85
TAX SAVINGS FROM QUALIFICATIONS:				
DOLLAR AMOUNT ($)	0	88829	282312	318228
PERCENT REDUCTION (%)	0	20	64	72
ESTATE SETTLEMENT-10 YEAR PROJECTION				
HUSBAND'S DEATH:				
ADJUSTED GROSS ESTATE	1659082	1659082	909084	909084
FEDERAL ESTATE TAX	54928	2754	0	0
ADDITIONAL TRANSFER COSTS	173146	174314	116813	116813
WIFE'S DEATH:				
ADJUSTED GROSS ESTATE	3713971	3746315	3040825	3040825
FEDERAL ESTATE TAX	1182870	1040502	917819	764819
ADDITIONAL TRANSFER COSTS	724942	686276	525511	484112
TOTAL FEDERAL ESTATE TAX	1237798	1194880	917819	877886
PROPERTY RECEIVED BY HEIRS ($)	3079998	3158006	3587316	3654249
PERCENT OF PARENT'S PROPERTY RECEIVED BY HEIRS (%)	62	63	72	73
TAX SAVINGS FROM QUALIFICATIONS:				
DOLLAR AMOUNT ($)	0	42918	319979	359912
PERCENT REDUCTION (%)	0	3	26	29
PERCENT OF INITIAL NET WORTH (%)	154	158	179	183

TABLE 4.6 FINANCIAL CONSEQUENCES OF ESTATE TAXATION UNDER THE ECONOMIC RECOVERY TAX ACT OF 1981 FOR FARM SIZE 6

QUALIFIES FOR:				
SPECIAL USE VALUATION	NO	NO	YES	YES
INSTALLMENT PAYMENT	NO	YES	NO	YES
FINANCIAL CONSEQUENCES				
INITIAL NET WORTH	3000000	3000000	3000000	3000000
ESTATE SETTLEMENT-IMMEDIATE DEATH				
HUSBAND'S DEATH:				
ADJUSTED GROSS ESTATE	1438851	1438851	738851	738851
FEDERAL ESTATE TAX	146082	10226	34077	4473
ADDITIONAL TRANSFER COSTS	141411	144301	95139	95123
WIFE'S DEATH:				
ADJUSTED GROSS ESTATE	2033606	2095695	1411649	1425167
FEDERAL ESTATE TAX	614502	329806	389988	109566
ADDITIONAL TRANSFER COSTS	340420	271495	183401	183585
TOTAL FEDERAL ESTATE TAX	760584	649567	424065	345053
PROPERTY RECEIVED BY HEIRS ($)	1841341	2002193	2298612	2376664
PERCENT OF PARENT'S PROPERTY RECEIVED BY HEIRS (%)	61	67	77	79
TAX SAVINGS FROM QUALIFICATIONS:				
DOLLAR AMOUNT ($)	0	111017	336519	415531
PERCENT REDUCTION (%)	0	15	44	55
ESTATE SETTLEMENT-10 YEAR PROJECTION				
HUSBAND'S DEATH:				
ADJUSTED GROSS ESTATE	2517282	2517282	1767281	1767281
FEDERAL ESTATE TAX	198762	45762	69608	4880
ADDITIONAL TRANSFER COSTS	274513	278140	217148	218525
WIFE'S DEATH:				
ADJUSTED GROSS ESTATE	5593854	5688942	4972307	5012614
FEDERAL ESTATE TAX	1905263	1771098	1673591	1532929
ADDITIONAL TRANSFER COSTS	1314473	1280775	1093963	1056421
TOTAL FEDERAL ESTATE TAX	2104025	2042994	1743199	1698711
PROPERTY RECEIVED BY HEIRS ($)	4329920	4442593	4908548	4990050
PERCENT OF PARENT'S PROPERTY RECEIVED BY HEIRS (%)	57	58	64	65
TAX SAVINGS FROM QUALIFICATIONS:				
DOLLAR AMOUNT ($)	0	61031	360826	405314
PERCENT REDUCTION (%)	0	3	17	19
PERCENT OF INITIAL NET WORTH (%)	144	148	164	166

$500,000 to $3,000,000. The numerical results assuming an initial net worth of $1,000,000 (size 3 in Table 4.3) will be used to illustrate the information provided in the table because this scenario is also used as a starting point for the asset mix and percent equity variations.

In the immediate death situation, when the estate qualifies for neither the use valuation provision nor the installment payment of tax provisions, the adjusted gross estate at the husband's death is $478,011. The unified tax credit completely offsets the tentative federal tax at his death, and accordingly, his estate incurs no federal tax liability. The additional transfer costs amount to $34,816, of which $1,131 represents liquidity losses as shown in Appendix I. The value of the wife's adjusted gross estate at her subsequent death is $706,600 and the resulting federal estate tax is $151,125, after all tax credits have been subtracted. The corresponding additional transfer costs increase to $68,019 at her death reflecting greater settlement costs and state inheritance tax (owing to the large estate size), as well as increased liquidity losses (resulting from the sale of assets to meet the tax and settlement obligations). The total federal tax obligation at both deaths amounts to $151,125 and the heirs receive $750,630 of property which represents approximately 75 percent of the parents' original estate.

In the ten-year projection, both the husband's and the wife's estates have appreciated significantly. Even though the husband's adjusted gross estate has reached $808,877, there is no tax liability because by the year of his death the unified tax credit has increased

sufficiently to offset any tax. The additional transfer costs at his death in the ten-year projection amount to $71,942, which includes the settlement costs, state inheritance tax and liquidity losses. By the tenth year, the wife's property--combined with the property she received at her husband's death four years prior--has appreciated to a value of $1,811,864 and her estate incurs a tax obligation of $417,285, which is also the total federal tax after both deaths. The heirs receive property valued at $1,749,758 which is approximately 64 percent of the value of the parents' estates just prior to death, and 175 percent of the farm's initial net worth. Thus, even with the federal tax obligation and estate settlement costs, the heirs receive a value of property 75 percent greater than their parents currently own, assuming an 8 percent inflation rate.

In the second case, when both the husband's and wife's estates qualify for the installment tax provision, the federal estate tax due at the wife's death in the immediate death situation is $9,196 with the remaining tax obligation becoming due over the fifteen-year installment period. Since there was no tax incurred at the husband's death, the present value of the wife's deferred tax can be calculated by subtracting the tax paid immediately from the total federal tax obligation. The present value of this tax, deferred at a preferential four percent interest charge, is $104,886 bringing the total federal tax obligation attributable to her estate to $114,082. Thus, as shown in the table, the dollar amount of tax savings resulting from the installment payment of tax provision (the total federal tax incurred

when the estate qualifies for neither provision minus the total federal tax when there is installment payment of tax) equals $37,043 or a 24 precent reduction.

In addition to the tax savings accruing from the delayed payment schedule, the installment provision also reduces the additional transfer costs at the wife's death because this provision acts as a source of liquidity. Since the size of the gross estates are equal when the estate qualifies for the installment payment of the tax, and when it does not, the settlement costs are also equal because these costs are calculated as a percent of the gross estate. Therefore, the difference in the total additional transfer costs arises from a reduction in liquidity loss (see Appendix I) amounting to $3,381 when the estate does not qualify for the installment payment of tax compared to $107 when it does. Thus, the installment payment of tax provision reduces both the actual federal tax obligation and the non-tax transfer costs.

In the ten-year projection, the tax savings from installment payment of tax (in percentage terms) drops to nine percent. This occurs because the federal tax liability at the wife's death is too large to qualify in total for the four percent interest rate. As discussed in the previous section, there is no incentive to defer a tax liability greater than $345,800 minus the unified credit because the interest rate exceeds the discount rate; therefore, all tax in excess of this amount is paid immediately. Thus, the upper limit on the amount that qualifies for the 4 percent interest rate causes the percentage tax reduction

owing to this provision to decline from that achieved in the immediate death situation.

In the case where the husband's and wife's estates qualify for the use valuation provision, but not the installment payment provision, the total federal tax liability is reduced dramatically in both the immediate and ten-year projection situations. In the immediate death situation, qualification for use valuation results in $112,280 of tax savings (a 74 percent tax reduction) along with a $13,243 reduction in the additional transfer costs. In the ten-year projection, the land in the estate has appreciated to a point where the $750,000 maximum allowable reduction limit on use valuation has been obtained. Therefore, the percent reduction in tax brought on by qualification for use valuation decreases to a level of 64 percent. In both the immediate death and ten-year projection situations, the percent of the parents' property received by heirs is increased substantially (between 12 and 13 percent) compared to the case where the estates do not qualify for use valuation.

The lowest total tax liabilities and the highest value of property received by heirs in both the immediate death and ten-year projection occur when the estates qualify for both the use valuation and installment payment provisions. If the husband and wife die immediately, qualification for both tax provisions reduces the total tax by $121,037 (compared to the no installment/no use valuation case), representing an 80 percent tax reduction. In this situation, the savings from both provisions are not cumulative. Use valuation reduces

the federal tax liability; hence, the absolute savings which can be obtained by deferring the tax obligation is also reduced.

Size variation Of the six different size farms evaluated (see Table 3.3), the largest, with an initial net worth of $3,000,000, incurred the greatest total federal tax liability. In the immediate death situation when the parents' estates qualify for neither special tax provision, the federal tax attributable to the $3,000,000 estate is $760,584 compared to $151,125 for the $1,000,000 estate. Thus, tripling the estate size while keeping all other factors constant increases the tax liability by more than five fold. The total federal tax for the smallest estate evaluated (with an initial net worth of $500,000) is $38,539, or approximately four times smaller than that incurred by the $1,000,000 estate. Thus, as would be expected from the progressive tax rate schedule, the total federal tax liability is an increasing function of estate size. Accordingly, the percent of the parents' property received by heirs decreases with increases in estate size.

Assuming that the estates qualify for the installment payment of tax provision, the dollar value of the tax savings from this provision in the immediate death situation ranges from $9,336 for the smallest estate to $110,017 for the largest estate. In percentage terms, the reduction in federal tax resulting from qualification for this provision remains constant at approximately the 24 percent level up to the $1,500,000 estate size because the tax savings are proportional to the tax liability. Beyond this size, the percent reduction in tax declines, with only a 3 percent savings for the largest estate because the upper

limit for the four percent interest rate has been reached. For the same reason, the percentage reduction in taxes due to the installment payment provision is lower in the ten-year projections as compared to the immediate death situation, for estates which are larger than $500,000 in initial net worth, because the estates have appreciated over this time period.

If the estates qualify for the use valuation alone, the savings from this provision are greatest in absolute terms for estates with the largest net worth; for the $500,000 estate, the tax saving is $38,539, while for the $3,000,000 estate it amounts to $336,519. This occurs because the larger estates have more acreage and therefore can receive greater benefits from this provision. The percent tax reduction from qualification decreases with increases in estate size, but at a decreasing rate. For instance, for the smallest estate, use valuation reduces the taxable estate in both the immediate and ten-year completely offset by the unified tax credit at each spouse's death; therefore, use valuation results in a 100 percent reduction in taxes. If the estate size is doubled to $1,000,000, the tax reduction declines to 74 percent representing a 26 percent difference. If the estate size is then doubled again, the tax reduction falls to 64 percent or a 10 percent decrease from the 74 percent level. Thus, while the percent reduction in tax brought on by use valuation decreases as estate size increases, the rate at which it does so also diminishes over the range of estate sizes analyzed in this study.

In all cases except the $750,000 estate, the percent reduction in tax obtained by qualifying for use valuation decreases in the ten-year projections as a result of increasing estate sizes due to appreciation. In the $750,000 estate, however, the percentage is 88 in the immediate death situation and 100 percent in the ten-year projection. This occurs because the increase in the unified credit specified in the 1981 legislation has reached its maximum by the time of the husband's later death and is great enough, when combined with the use valuation, to completely offset the tax liability.

The percent of parents' property received by heirs is greatest for all situations when the estates qualify for both provisions. However, as found in Boehlje's study (2), the difference in this percentage when estates qualify for neither provision compared to when they qualify for both provisions is greater for the larger estates. In other words, qualification for both provisions increases the percentage of parents' property received by the heirs substantially more for the larger firms. For example, qualification for neither provision results in 61 percent of the parents' property received by heirs for the $3,000,000 estate, compared to 79 percent when the same estate qualified for both provisions, representing an 18 percent increase. Alternatively, qualification for both provisions resulted in a 9 percent increase for the $500,000 estate. Thus, the provisions tend to counteract the progressive nature of the tax rate schedule.

Of further interest is the relative value of the use valuation and installment payment provision to different size farms. By comparing the

tax savings from each of these provisions, it is evident that the value of use valuation is significantly greater than installment payments in terms of reducing the total federal tax liability. However, it should be recalled that installment payments reduce the additional transfer costs (which can be a substantial portion of the total transfer costs to the smaller farms) and, therefore, the value of installment payments may be understated in come cases when reduction in taxes is used as a measure. As estate size increases, the value, in terms of the percent reduction in tax, of use valuation and installment become closer. For the $500,000 estate, the difference in the percent reduction from qualification between use valuation (100 percent) and installment payment of tax (24 percent) is 76 percentage points. For the $3,000,000 estate in the ten-year projection, the difference between the percent tax reduction with use valuation (44 percent) and installment payment (15 percent) decreases to 29 percentage points. This occurs because once the use valuation limit is reached, the benefits from use valuation decrease faster than the benefits from the installment payment of tax.

Asset mix variation The tax consequences for the asset mix variations are shown in Tables 4.3, 4.7, and 4.8. For this analysis, the size and percent equity are held constant at $1,000,000 and 100 percent while the land to total asset ratio is varied (see Table 3.3). The $1,000,000 farm estate in Table 4.3 represents a land/asset ratio of 75 percent whereas Tables 4.7 and 4.8 depict ratios of 50 percent (identified as 50 percent land) and 25 percent (identified as 25 percent land), respectively.

TABLE 4.7 FINANCIAL CONSEQUENCES OF ESTATE TAXATION UNDER THE ECONOMIC RECOVERY TAX ACT OF 1981 FOR FARM SIZE 3 WITH A LAND/ASSET RATIO OF 50%

QUALIFIES FOR:				
SPECIAL USE VALUATION	NO	NO	YES	YES
INSTALLMENT PAYMENT	NO	YES	NO	YES
FINANCIAL CONSEQUENCES				
INITIAL NET WORTH	1000000	1000000	1000000	1000000
ESTATE SETTLEMENT-IMMEDIATE DEATH				
HUSBAND'S DEATH:				
ADJUSTED GROSS ESTATE	478011	478011	319045	319045
FEDERAL ESTATE TAX	0	0	0	0
ADDITIONAL TRANSFER COSTS	34816	34816	27490	27490
WIFE'S DEATH:				
ADJUSTED GROSS ESTATE	706600	706600	473749	473749
FEDERAL ESTATE TAX	151125	9196	74915	7519
ADDITIONAL TRANSFER COSTS	63683	61639	56399	58124
TOTAL FEDERAL ESTATE TAX	151125	114082	74915	57324
PROPERTY RECEIVED BY HEIRS ($)	754645	790957	841195	857061
PERCENT OF PARENT'S PROPERTY RECEIVED BY HEIRS (%)	75	79	84	86
TAX SAVINGS FROM QUALIFICATIONS:				
DOLLAR AMOUNT ($)	0	37043	76210	93801
PERCENT REDUCTION (%)	0	25	50	62
ESTATE SETTLEMENT-10 YEAR PROJECTION				
HUSBAND'S DEATH:				
ADJUSTED GROSS ESTATE	725027	725027	382190	382190
FEDERAL ESTATE TAX	0	0	0	0
ADDITIONAL TRANSFER COSTS	62104	62104	41955	41955
WIFE'S DEATH:				
ADJUSTED GROSS ESTATE	1523404	1523404	788828	788828
FEDERAL ESTATE TAX	307634	154634	48379	3599
ADDITIONAL TRANSFER COSTS	170879	174965	147120	148316
TOTAL FEDERAL ESTATE TAX	307634	267701	48379	36691
PROPERTY RECEIVED BY HEIRS ($)	1544463	1580310	1843557	1854049
PERCENT OF PARENT'S PROPERTY RECEIVED BY HEIRS (%)	75	77	89	89
TAX SAVINGS FROM QUALIFICATIONS:				
DOLLAR AMOUNT ($)	0	39933	259255	270943
PERCENT REDUCTION (%)	0	13	84	88
PERCENT OF INITIAL NET WORTH (%)	154	158	184	185

TABLE 4.8 FINANCIAL CONSEQUENCES OF ESTATE TAXATION UNDER THE ECONOMIC RECOVERY TAX ACT OF 1981 FOR FARM SIZE 3 WITH A LAND/ASSET RATIO OF 25%

QUALIFIES FOR:				
SPECIAL USE VALUATION	NO	NO	YES	YES
INSTALLMENT PAYMENT	NO	YES	NO	YES
FINANCIAL CONSEQUENCES				
INITIAL NET WORTH	1000000	1000000	1000000	1000000
ESTATE SETTLEMENT-IMMEDIATE DEATH				
HUSBAND'S DEATH:				
ADJUSTED GROSS ESTATE	478011	478011	398528	398528
FEDERAL ESTATE TAX	0	0	0	0
ADDITIONAL TRANSFER COSTS	34816	34816	30536	30536
WIFE'S DEATH:				
ADJUSTED GROSS ESTATE	706600	706600	590316	590316
FEDERAL ESTATE TAX	151125	9196	112804	8701
ADDITIONAL TRANSFER COSTS	63683	61638	57427	60039
TOTAL FEDERAL ESTATE TAX	151125	114082	112804	85633
PROPERTY RECEIVED BY HEIRS ($)	754644	790956	799509	824068
PERCENT OF PARENT'S PROPERTY RECEIVED BY HEIRS (%)	75	79	80	82
TAX SAVINGS FROM QUALIFICATIONS:				
DOLLAR AMOUNT ($)	0	37043	38321	65492
PERCENT REDUCTION (%)	0	25	25	43
ESTATE SETTLEMENT-10 YEAR PROJECTION				
HUSBAND'S DEATH:				
ADJUSTED GROSS ESTATE	641391	641391	470349	470349
FEDERAL ESTATE TAX	0	0	0	0
ADDITIONAL TRANSFER COSTS	52445	52445	41885	41885
WIFE'S DEATH:				
ADJUSTED GROSS ESTATE	1236811	1236811	814111	814111
FEDERAL ESTATE TAX	202537	49537	57026	3990
ADDITIONAL TRANSFER COSTS	136177	140264	122338	123755
TOTAL FEDERAL ESTATE TAX	202537	162604	57026	43184
PROPERTY RECEIVED BY HEIRS ($)	1301921	1337767	1469218	1481643
PERCENT OF PARENT'S PROPERTY RECEIVED BY HEIRS (%)	78	80	87	88
TAX SAVINGS FROM QUALIFICATIONS:				
DOLLAR AMOUNT ($)	0	39933	145511	159353
PERCENT REDUCTION (%)	0	20	72	79
PERCENT OF INITIAL NET WORTH (%)	130	134	147	148

In the first case where the estates qualify for neither tax provision, the financial consequences are almost identical for the various asset mixes. However, the additional transfer costs associated with the 50 percent and 25 percent land farms are lower reflecting smaller liquidity losses (see Appendix III). These farms have a relatively higher percentage of business assets (which are more liquid than real estate) than the farm which has a land to asset ratio of 75 percent. However, the reduction in the additional transfer costs is not substantial enough to significantly alter the percent of parents' property received by heirs; this percent is constant over all three type estates at approximately 75 percent.

In the ten-year projection, the percent of the parents' property received by the heirs is six percent greater for the 25 percent land farm than for the 75 percent land farm. This situation occurs since the 75 percent land estate appreciates faster than the estates with less acreage because of the assumption that land appreciates at 8 percent whereas the other business assets do not appreciate. Since the 75 percent land estate is larger after appreciation than the other two estates, the corresponding tax is higher and the percent of parents' property received by heirs is smaller. However, the percent of parents' property received by heirs, relative to the initial worth, is significantly greater for the 75 percent land farm as a result of appreciation: this percentage is 154 for the 25 percent land farm but 175 for the 75 percent land estate.

When the estates qualify for the installment payment of tax, the percent reduction in tax is the same, because, as mentioned previously, savings from installment payments are a function of the tax liability and therefore not directly affected by asset composition. However, as expected, the results across different asset mixes are quite different if the estates qualify for use valuation. If the husband and wife die immediately, the dollar reduction in tax from this provision for the 75 percent land farm is $112,280 (representing a 74 percent reduction) whereas it is $38,321 (representing a 50 percent reduction) for the 25 percent land farm; with 250 more acres of qualified farmland, the 75 percent land farm is able to benefit more from the use valuation. Accordingly, when the estates qualify for use valuation, the percent of parents' property received by heirs is higher for the 75 percent land farm, at 88 percent, than the 25 percent land farm at 84 percent.

After ten years of appreciation, however, the results are altered substantially. By this time, the 75 percent land estate has grown large enough to obtain a maximum reduction from use valuation; therefore, the percent reduction in tax from qualifying for use valuation falls to 65 percent. However, even though this percentage has fallen, the 75 percent land farm still receives the greatest absolute benefits for use valuation compared to the farms with a lower land/asset ratio. The 50 percent land estate has more acres than it did in the immediate death situation, because, by model assumption. Thus, with more acreage, the 50 percent land estate can obtain greater benefits from use valuation in the ten-year projection, as shown by the percent reduction in taxes of

84 percent compared to 50 percent in the immediate death situation. For the same reason, the percent reduction in tax also increases for the 25 percent land farm from 25 percent in the immediate death situation to 71 percent in the ten-year projection.

When the estates qualify for both tax provisions, the percent of parents' property received by the heirs (in the immediate and projected situations), is greatest for the 75 percent land estate which has the largest acreage. In addition, the increase in the percent of the parents' property received by the heirs from qualifying for both provisions (compared to qualifying for neither provision) is greater for the 75 percent land farm (13 percent increase) than the 25 percent land farm (8 percent increase) which has one-third as many acres of qualified farmland.

Percent equity variation Tables 4.9 and 4.10 summarize the results from the equity variations. In these variations, the initial net worth is constant at $1,000,000 in the immediate death situation while the gross estate increases with debt utilization (see Table 3.4). Again, Table 4.3 is used for comparison and represents a farm with 100 percent equity. The other equity levels are 80 and 60 percent, while in all cases the value of land to total assets ratio is 75 percent.

The financial consequences of the equity variations are similar to those in the asset mix variation primarily because of the effect of the use valuation provision and the appeciation assumptions inherent in the simulation model. When the three estates qualify for neither tax

TABLE 4.9 FINANCIAL CONSEQUENCES OF ESTATE TAXATION UNDER THE ECONOMIC RECOVERY TAX ACT OF 1981 FOR A GROSS ESTATE OF $1,500,000 AND EQUITY OF 80%

QUALIFIES FOR:				
SPECIAL USE VALUATION	NO	NO	YES	YES
INSTALLMENT PAYMENT	NO	YES	NO	YES
FINANCIAL CONSEQUENCES				
INITIAL NET WORTH	1000000	1000000	1000000	1000000
ESTATE SETTLEMENT-IMMEDIATE DEATH				
HUSBAND'S DEATH:				
ADJUSTED GROSS ESTATE	473194	473194	175184	175184
FEDERAL ESTATE TAX	0	0	0	0
ADDITIONAL TRANSFER COSTS	39603	39603	28978	28978
WIFE'S DEATH:				
ADJUSTED GROSS ESTATE	696851	696851	258670	258670
FEDERAL ESTATE TAX	147961	9522	8340	1176
ADDITIONAL TRANSFER COSTS	75906	68959	60411	60564
TOTAL FEDERAL ESTATE TAX	147961	111828	8340	6470
PROPERTY RECEIVED BY HEIRS ($)	740945	781034	902271	903988
PERCENT OF PARENT'S PROPERTY RECEIVED BY HEIRS (%)	74	78	90	90
TAX SAVINGS FROM QUALIFICATIONS:				
DOLLAR AMOUNT ($)	0	36133	139621	141491
PERCENT REDUCTION (%)	0	24	94	96
ESTATE SETTLEMENT-10 YEAR PROJECTION				
HUSBAND'S DEATH:				
ADJUSTED GROSS ESTATE	862105	862105	233857	233857
FEDERAL ESTATE TAX	0	0	0	0
ADDITIONAL TRANSFER COSTS	83742	83742	49657	49657
WIFE'S DEATH:				
ADJUSTED GROSS ESTATE	1989245	1989245	1268254	1268254
FEDERAL ESTATE TAX	484335	331335	213781	60781
ADDITIONAL TRANSFER COSTS	287495	270470	227424	217374
TOTAL FEDERAL ESTATE TAX	484335	444402	213781	173848
PROPERTY RECEIVED BY HEIRS ($)	1885411	1939167	2243207	2293193
PERCENT OF PARENT'S PROPERTY RECEIVED BY HEIRS (%)	71	73	83	84
TAX SAVINGS FROM QUALIFICATIONS:				
DOLLAR AMOUNT ($)	0	39933	270554	310487
PERCENT REDUCTION (%)	0	8	56	64
PERCENT OF INITIAL NET WORTH (%)	189	194	224	229

TABLE 4.10 FINANCIAL CONSEQUENCES OF ESTATE TAXATION UNDER THE ECONOMIC RECOVERY TAX ACT OF 1981 FOR A GROSS ESTATE OF $1,666,667 AND EQUITY OF 60%

QUALIFIES FOR:				
SPECIAL USE VALUATION	NO	NO	YES	YES
INSTALLMENT PAYMENT	NO	YES	NO	YES
FINANCIAL CONSEQUENCES				
INITIAL NET WORTH	1000000	1000000	1000000	1000000
ESTATE SETTLEMENT-IMMEDIATE DEATH				
HUSBAND'S DEATH:				
ADJUSTED GROSS ESTATE	465138	465138	67722	67722
FEDERAL ESTATE TAX	0	0	0	0
ADDITIONAL TRANSFER COSTS	47606	47606	36941	36941
WIFE'S DEATH:				
ADJUSTED GROSS ESTATE	680543	680543	93409	93409
FEDERAL ESTATE TAX	142579	9658	0	0
ADDITIONAL TRANSFER COSTS	89250	81212	67413	67413
TOTAL FEDERAL ESTATE TAX	142579	107887	0	0
PROPERTY RECEIVED BY HEIRS ($)	724764	764599	895645	895645
PERCENT OF PARENT'S PROPERTY				
RECEIVED BY HEIRS (%)	72	76	90	90
TAX SAVINGS FROM QUALIFICATIONS:				
DOLLAR AMOUNT ($)	0	34692	142579	142579
PERCENT REDUCTION (%)	0	24	100	100
ESTATE SETTLEMENT-10 YEAR PROJECTION				
HUSBAND'S DEATH:				
ADJUSTED GROSS ESTATE	951458	951458	201463	201463
FEDERAL ESTATE TAX	0	0	0	0
ADDITIONAL TRANSFER COSTS	103548	103548	62336	62336
WIFE'S DEATH:				
ADJUSTED GROSS ESTATE	2287953	2287953	1574168	1574168
FEDERAL ESTATE TAX	607261	454261	327229	174229
ADDITIONAL TRANSFER COSTS	379156	338281	294546	284487
TOTAL FEDERAL ESTATE TAX	607261	567328	327229	287296
PROPERTY RECEIVED BY HEIRS ($)	2096346	2162999	2484992	2534983
PERCENT OF PARENT'S PROPERTY				
RECEIVED BY HEIRS (%)	69	70	80	81
TAX SAVINGS FROM QUALIFICATIONS:				
DOLLAR AMOUNT ($)	0	39933	280032	319965
PERCENT REDUCTION (%)	0	7	46	53
PERCENT OF INITIAL NET WORTH (%)	210	216	248	253

provision, the tax liabilities are similar for all three equity variations in the immediate death situation; however, since the settlement costs are calculated as a percent of gross estate, the 60 percent equity farm incurs the highest transfer costs because it has the largest gross estate. As a result of these higher transfer costs, the percent of parents' property received by heirs is lowest for the most leveraged farm, assuming the estates do not qualify for use valuation.

In the ten-year projection, the more leveraged farms grow faster than the full equity farm because the net returns on borrowed funds are reinvested. Accordingly, the size of the husband's and wife's adjusted gross estates is larger with more leverage and thus subject to a greater tax liability. Consequently, when the estates do not qualify for either provision, the percent of parents' property received by the heirs is lowest for the 60 percent equity farm, but as a percentage of original net worth, the 60 percent equity farm is 210 percent larger in value than the current estate, compared to 175 percent for the full equity farm. Once again, the percent reduction in tax from the installment payment provision is a function of the federal tax liability and thus not significantly affected by the use of debt.

For the case when the estates qualify for use valuation, the total federal tax liability is reduced substantially with increased debt utilization because the leveraged farms have more qualified acres and, consequently, greater potential tax savings. For instance, the 100 percent equity farm, comprised of 375 acres, has a total federal tax

liability in the immediate death situation of $38,845 while the 80 percent equity, 469 acre farm has a liability of only $8,340. Use valuation reduces the taxable estate in the 60 percent equity, 625 acre farm enough to completely eliminate the federal tax in the immediate death situation. Correspondingly, the percent reductions in taxes attributable to this provision are 94 percent for the 80 percent equity farm and 100 percent for the 60 percent equity farm. However, as mentioned above, the estate settlement costs are higher for the more leveraged farm because it has a larger gross estate at both deaths; therefore, the increase in additional transfer costs associated with transferring a leveraged estate acts to temper the benefits of the use valuation provision on higher leveraged farms. Accordingly, the percent of parents' property received by the heirs is 88 percent for the full equity farm and 90 percent for each of the leveraged estates. When the estates qualify for both special tax provisions, the range in percent received by heirs narrows to between 91 and 92 percent.

In the ten-year projection, the 60 percent equity farm receives the smallest percent reduction in taxes from qualifying for use valuation, amounting to 46 percent; whereas the 80 percent equity farm and the full equity farms receive a 56 and 64 percent reduction, respectively. This occurs because after appreciation, the most leveraged farm has grown large enough to reach the maximum allowable limit on use valuation; accordingly, the relative benefits from qualifying for use valuation decline for the 60 percent equity farm in the ten-year projection as compared to the immediate death situation. Since the growth rates for

the estates in the percent equity variation are not equal (due to model assumptions discussed earlier), both estate size and financial structure are changing in the ten-year projection. Therefore, in the ten-year projection it is impossible to determine the effect of financial structure (or asset mix) on estate transfers with the approach used in this study because it is no longer possible to isolate the influence of this variable.

Comparative Analysis

In order to evalute the relative impact of the changes contained in the 1981 tax act, the scenarios analyzed in the previous sections were evaluated under the pre-1981 tax law. The financial consequences under the pre-1981 and post-1981 law will now be compared and the differences identified. Again, the results are grouped by the variations performed on the base scenario. To facilitate interpretation of the results, the following two response variables are used: total transfer costs, composed of the federal tax liability and additional transfer costs; and the percent of parents' property received by heirs.

Size Variation

Transfer costs Table 4.11 summarizes the total transfer costs by estate size for both the pre-1981 and post-1981 tax laws assuming alternative tax treatments. Case 1 designates qualification for neither special tax provision, case 2 refers to qualification for installment payment of tax, case 3 designates qualification for use valuation, and case 4 refers to qualification for both provisions. The first two

TABLE 4.11 TRANSFER COSTS UNDER THE PRE-1981 AND POST-1981 LAWS FOR DIFFERENT SIZE FARM ESTATES IN THE IMMEDIATE DEATH SITUATION

INITIAL NET WORTH	CASE	TOTAL NON-ESTATE TAX TRANSFER COSTS		CHANGE	TOTAL FEDERAL ESTATE TAX OBLIGATION		CHANGE	TOTAL TRANSFER COSTS		CHANGE
		PRE-1981	POST-1981		PRE-1981	POST-1981		PRE-1981	POST-1981	
($)		($)		($)	($)		($)	($)		($)
500000	1	41891	41933	-42	54339	38539	15800	96230	80472	15758
500000	2	42354	42371	-17	41176	29203	11972	83530	71574	11955
500000	3	36559	36559	0	0	0	0	36559	36559	0
500000	4	36559	36559	0	0	0	0	36559	36559	0
750000	1	69105	67079	2026	109337	93537	15800	178442	160616	17826
750000	2	68711	68738	-27	82682	70734	11948	151393	139472	11921
750000	3	57668	57837	-169	27103	11303	15800	84771	69140	15631
750000	4	57917	57940	-23	21019	8766	12253	78936	66706	12230
1000000	1	104398	102835	1563	177261	151125	26136	281659	253960	27699
1000000	2	96426	96455	-29	134222	114082	20140	230648	210537	20111
1000000	3	79705	80042	-337	54645	38845	15800	134350	118887	15463
1000000	4	80850	80906	-56	42326	30088	12237	123176	110994	12181
1500000	1	185195	185491	-296	320282	291397	28885	505477	476888	28589
1500000	2	152847	152876	-29	242040	221652	20388	394887	374528	20359
1500000	3	125662	124800	862	121488	93691	27797	247150	218491	28659
1500000	4	128420	126944	1476	93630	72393	21237	222050	199337	22713
2000000	1	276378	278923	-2545	469325	440020	29305	745703	718943	26760
2000000	2	221430	223352	-1922	367544	351191	16353	588974	574543	14431
2000000	3	176359	170456	5903	246432	157708	88724	422791	328164	94627
2000000	4	181977	174131	7846	188813	121792	67020	370790	295923	74866
3000000	1	475124	481831	-6707	787527	760584	26943	1262651	1242415	20236
3000000	2	412055	415796	-3741	662524	649567	12957	1074579	1065363	9216
3000000	3	330306	278540	51766	547125	424065	123060	877431	702605	174826
3000000	4	288804	278708	10096	448120	345053	103066	736924	623761	113162

CASE:
1 = QUALIFICATION FOR NEITHER TAX PROVISION
2 = QUALIFICATION FOR THE INSTALLMENT PAYMENT PROVISION
3 = QUALIFICATION FOR THE USE VALUATION PROVISION
4 = QUALIFICATION FOR BOTH SPECIAL TAX PROVISIONS

columns in Table 4.11 show the additional transfer costs in the immediate death situation. These include estate settlement costs, state inheritance tax, and liquidity loss after the death of both spouses. The third column, which is calculated by subtracting column two from column one, shows the change in the additional transfer costs resulting from the new law. Thus, a positive figure in this column represents a reduction in these costs from the new law as compared to the pre-existing law.

Columns four and five represent the total federal tax obligation after both deaths for the pre- and post-1981 law, while column six shows the difference between columns four and five. A positive figure in column six designates the federal tax reduction attributable to the new law. Finally, columns seven and eight show the total transfer costs associated with the pre-1981 and post-1981 law and the final column shows the difference in total costs occurring under these alternative laws. Again, a positive figure indicates a decrease in costs.

Examination of column three, the change in additional transfer costs, reveals several negative numbers which indicate an increase in these costs under the new law. For example, when the $3,000,000 estate does not qualify for either tax provision, it incurs a $6,707 increase in additional transfer costs under the new law, which amounts to a 1.4 percent increase. This situation occurs in part because the increased unified tax credit in the new law reduces the federal tax liability thereby increasing the amount of property passed to the surviving spouse. Consequently, there is a larger gross estate at the

second death. Thus, the corresponding settlement costs at the second death are also higher under the new law. Of greater significance, the increase in property transferred to the surviving spouse increases the state inheritance tax at the second death. The sale of assets to pay the additional settlement costs and tax liability in this instance increases the liquidity loss associated with the new law (see Appendix I). Thus, these factors may slightly buffer the overall benefit of the new law.

Another factor which may lead to an increase in the additional transfer costs is the characteristics of the state inheritance tax. The Iowa state death tax is an inheritance tax, which is conceptually different from an estate tax because it is based on the amount of property received by heirs. An estate tax is based on total property transferred rather than the amount an individual receives. The variables in this study are designed to analyze the federal estate tax and are not appropriate for examining the state inheritance tax. In addition, the difference in the inheritance tax and the estate tax is exaggerated by the presence of a trust, since the value of the trust is apportioned between the spouse and children in reference to the spouse's expected life (a variable which does not affect the estate tax). Because of these factors which affect the state inheritance tax, no meaningful relationship between the change in the federal tax liability and the state inheritance tax is exhibited in the results.

The greatest decrease in additional transfer costs under the new law, amounting to $51,766, occurs for the largest estate ($3,000,000)

when it qualifies for use valuation. With respect to the additional transfer costs, the largest estate receives the greatest benefit from the new law, partly because the significant decrease in the federal tax liability in this situation reduces the liquidity loss substantially (by $19,405 as shown in Appendix I). Since Iowa has recently incorporated the use valuation provision into the state inheritance tax, qualification for this provision also reduces the state tax. For this reason, the state tax at the husband's death is lower than it is under the previous legislation.

As would be expected from the increase in the unified tax credit, the new tax law reduces the total federal estate tax liability after both deaths for all six estates under various tax treatments, with the exception of the $500,000 estate in the two cases when it qualifies for use valuation. In these two situations, there is no federal tax obligation under the pre-existing law so the increase in the tax credit has no value to the smallest estate, if it qualifies for use valuation. Of the estates examined, the decline in the federal tax is greatest for the largest estate when it qualifies for use valuation alone. This is a result of the benefits that this estate receives from the increase in the maximum allowable reduction from use valuation. In addition, this estate was the only one analyzed that was large enough to make full use of the $62,800 credit in the new law at both the husband's and wife's death given the will plan specified in the model.

For estates of the sizes $500,000 through $1,500,000, the estates benefit most from the new law when they do not qualify for either tax

rovision. When the smaller estates qualify for a special tax provision, the tax liability declines to a point where the increase in the tax credit under the new law is not needed; hence, the benefits from the new law are reduced. For example, when the $1,000,000 estate qualifies for use valuation, the tax is reduced sufficiently at the first death to preclude the use of the tax credit increase. Since more of the credit is used if the same estate does not qualify for use valuation, the new law has a greater comparative value when the estate does not qualify for special tax treatment.

Conversely, the $2,000,000 and $3,000,000 estates receive the greatest benefits from the new law when they qualify for use valuation. This occurs because for the $2,000,000 estate, the use value reduction limit in the pre-1981 law is reached at the second death. For the $3,000,000 estate, the use value limit is constraining at both deaths. Thus, primarily because of the $200,000 increase in the use value limit, these estates receive the greatest benefit from the new law when they qualify for use valuation.

The last column in Table 4.11 shows the sum of the changes in total federal tax liability and the additional transfer costs; thus, this column gives an indication of the overall impact of the 1981 tax act for the scenarios analyzed. The relationships between estate tax and tax treatment for this variable are illustrated in Table 4.1 which shows the dollar benefit from the new law for the various farm estates. The change in total transfer costs are plotted for each tax treatment,

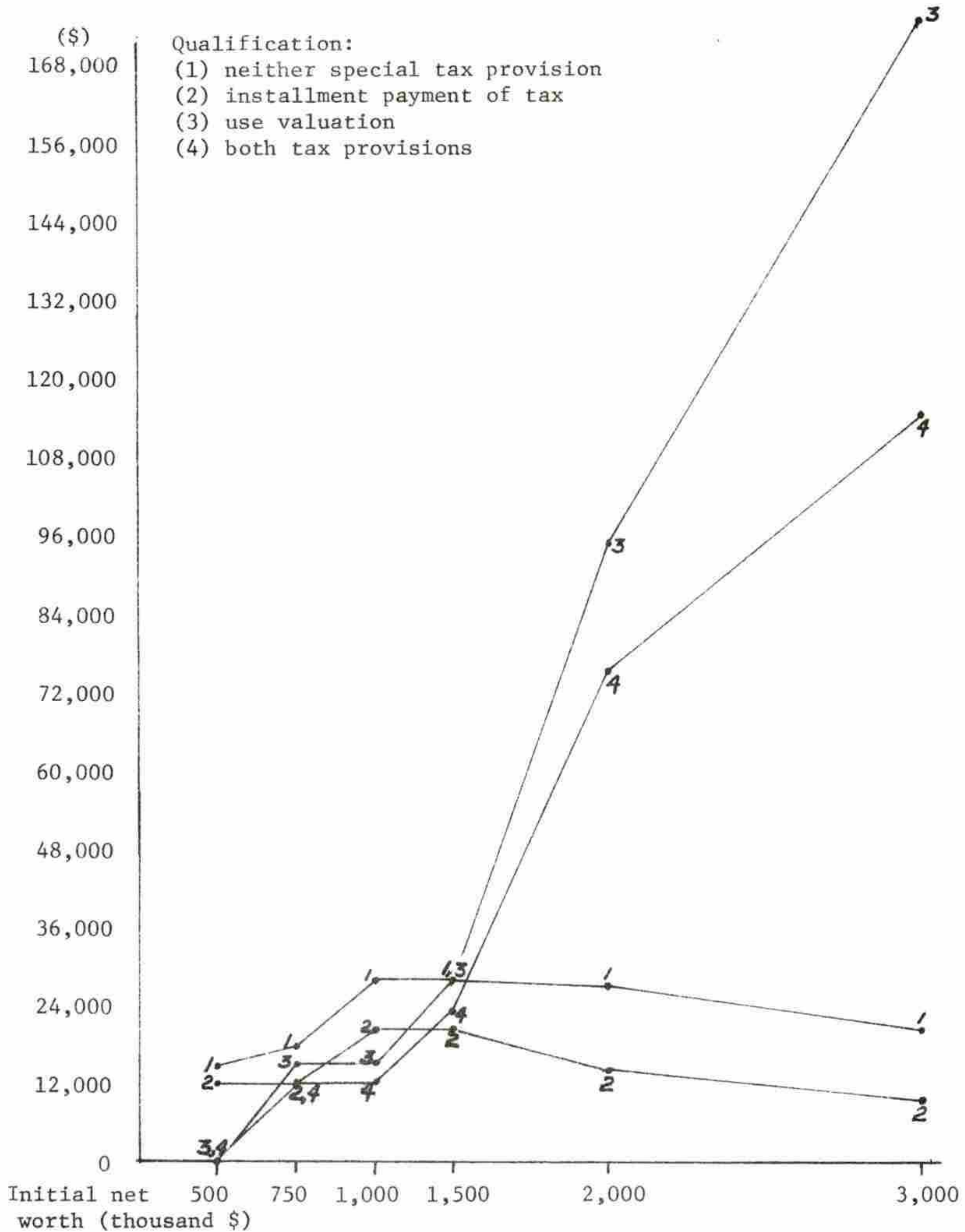

Figure 4.1. Reduction in total transfer costs resulting from the 1981 tax act for different size farm estates under alternative tax treatments, assuming death occurs in 1982

designated 1, 2, 3, and 4 on the graph, and lines are drawn to connect these cases for the different farm estates.

Inspection of this graph reveals that for the no installment/no use valuation case, the benefits from the new law increase for sizes $500,000 through $1,000,000, then remain approximately constant for sizes $1,000,000, $1,500,000, and $2,000,000 before declining at the $3,000,000 estate. This configuration occurs because when esates do not qualify for special use valuation, the tax savings from the new law are primarily a function of the change in the tax credit and the will plan used.

The tentative tax at the first death for the $500,000 and $750,000 estates is smaller than the unified credit in the 1981 law; therefore, these estates do not fully realize the benefit of the larger credit under the new law using the will plan specified in this analysis. A will plan which resulted in a higher taxable estate at the first death would increase the benefits from the new law for these smaller estates. The $1,000,000, $1,500,000 and $2,000,000 estates have tax liabilities large anough to utilize the entire $62,800 tax credit at both deaths; therefore, the tax benefits for these estates are approximately equal. Comparing across estate sizes, the benefits of the new law for the no installment/no use valuation case decline slightly for the $3,000,000 estate, because of an increase in the state inheritance tax for this estate. As discussed above, there is no direct functional relationship between the state tax and the change in the federal tax; therefore, for

the purpose of this analysis, this slight decline in the no installment/no use valuation case can be ignored.

In the second case, when the estate qualifies for installment payment of tax, the results are similar to those in the no installment/no use valuation case. The value of installment payments is a function of the tax credit because the amount of tax which can be deferred at the four percent interest rate is equal to $342,800 minus the tax credit. Thus, lines 1 and 2 are approximately parallel because they are each a function of the same factors. Accordingly, the relative benefit from the new law is the same in both of these cases. However, because the tax under both the pre-1981 and post-1981 law is less when the estates qualify for the installment provision, the absolute dollar benefit from the new law is also less when the estates qualify for this provision. It is for this reason that line 1 lies below line 2.

In the case where estates qualify for use valuation, the benefits from the new law are significantly different for the various size estates. The smallest estate receives no benefit from the new law if use valuation is used. When estate size increases, the absolute tax savings from the 1981 tax act also increase. The $750,000 and $1,000,000 size estates receive the same tax benefit ($15,800 as shown in Table 4.11) which is equal to the increase in the tax credit used at the second death. The change in the use valuation provision in the 1981 law does not benefit these estates because for them, the previous reduction limit of $500,000 was non-constraining. The benefit from the new law increases to approximately $28,500 for the $1,500,000 estate;

this occurs because at the second death, the reduction in the value of farmland is slightly over the allowable reduction in the pre-1981 law.

The $2,000,000 farm estate, when it qualifies for use valuation, receives a significant benefit (amounting to approximately $94,500) from the new law, far surpassing the benefit received by the same estate not qualifying for use valuation. This occurs because at the wife's death, the use valuation limit is reached under the pre-1981 law, just as in the $1,500,000 estate, because the larger estate exceeds the pre-1981 use value limit by more than the smaller estate. Finally, the largest estate receives the greatest absolute benefit, totaling almost $175,000, from the new law, when it qualifies for the use valuation provision. This occurs because the $3,000,000 estate is large enough to utilize the $100,000 increase in the reduction allowed by use valuation at both spouses' deaths.

When the estates qualify for both special tax provisions, as shown by line 4, the largest estate again receives the largest absolute benefit while the smallest estate receives none. Line 4 lies below line 3 for the same reasons discussed earlier explaining why the line corresponding to qualification for installment payment lies below the no installment/no use valuation line: when the estate qualifies for the installment payment, the tax is always less; therefore, absolute savings from the new law decline while the relative benefit remains the same.

Figure 4.2 shows the total transfer costs for the six different estates under the pre- and post-1981 tax laws. The cases in which the estates qualify for neither special tax provision and when they qualify

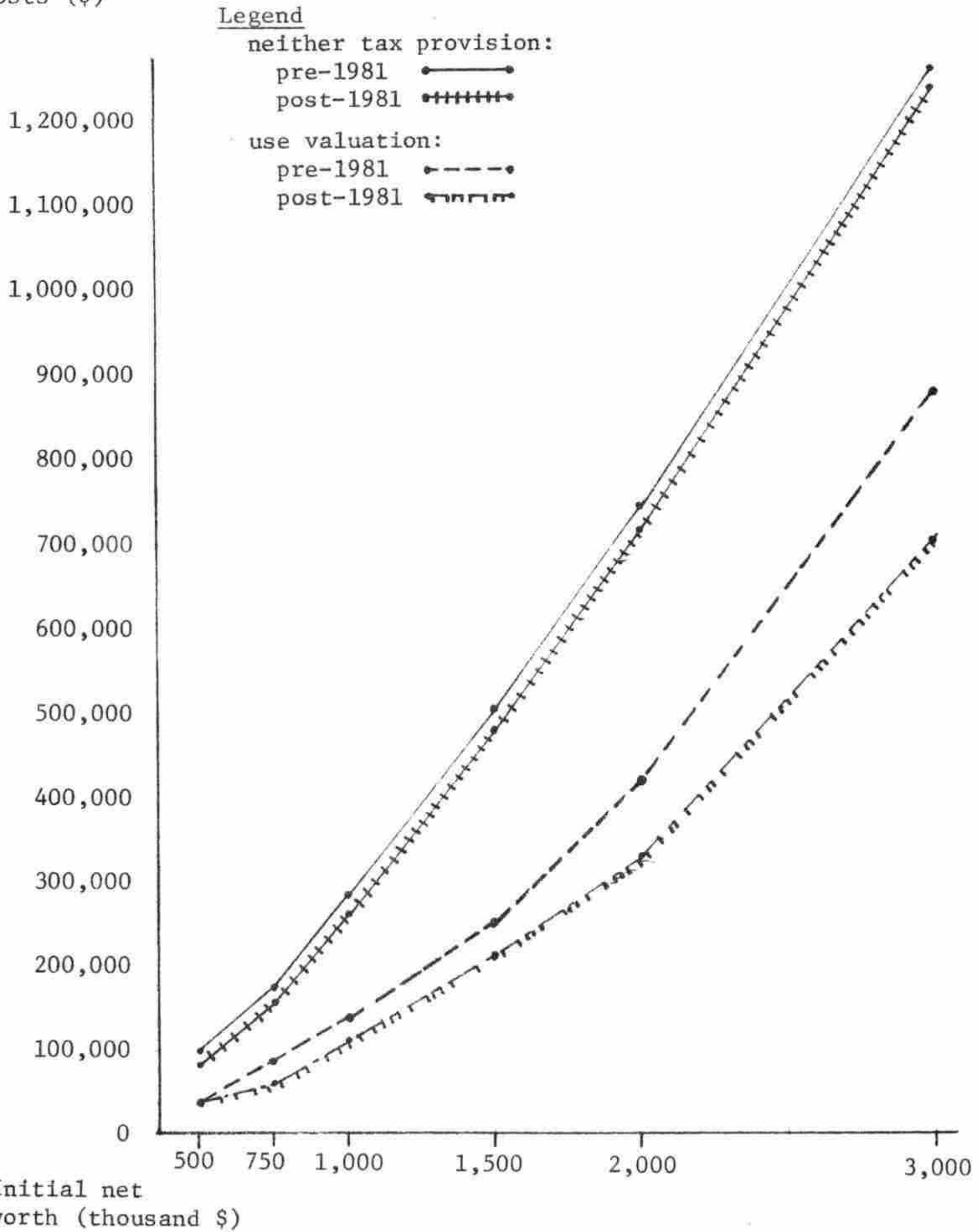

Figure 4.2. Total transfer costs for different size farm estates under the pre-1981 and post-1981 tax law, assuming death occurs in 1982

for use valuation were chosen to represent the comparison, because, as seen in the previous discussion, it is in these cases that the most notable changes in the financial consequences can be observed.

Assuming no special tax treatment, the line connecting the corresponding transfer costs for the various estates, slopes upward for both the pre- and post-1981 laws. This upward slope reflects the increase in estate size (consequently a larger tax liability) as well as the increasing marginal tax rate. The federal tax liability has the greatest effect on total transfer costs. The tax rate schedule for these size estates is the same for both laws; thus, for the no installment/no use valuation case the lines are parallel. The gap between these two lines is approximately equal to the amount of increase in the unified credit or $15,800 in the immediate death situation. The small variations in this amount are attributable to the other components of total transfer costs discussed earlier, such as the state inheritance tax.

In the case where the estates qualify for use valuation, the transfer costs are reduced dramatically. Under the old law, the line corresponding to use valuation is less steep than the line corresponding to the no installment/no use valuation case. As Boehlje (2) found, this provision acts to moderate the progressive nature of the tax schedule by providing larger dollar tax savings to bigger estates. As shown by this graph, the 1981 tax act strengthens this effect by further lessening the slope in case 3 for the larger estates. This situation occurs because of the increased limit on the maximum allowable reduction from use

valuation of farmland. For estates with an initial net worth up to and including $1,500,000, the new limit increase provides no additional benefits. Alternatively, the $2,000,000 and $3,000,000 estates receive a significant reduction in transfer costs from the change in the use valuation provision.

In the ten-year projection, the estates have appreciated substantially from the original net worth values and several changes have occurred in the new tax law by this time. First, the increases in the unified credit have been completely phased in by the time of the husband's death, reaching the maximum level of $192,800. Secondly, the maximum level of the phased in use valuation reduction limit ($750,000) has also been obtained. Finally, the decrease in the marginal tax rate for larger estates has also been phased in so that under the new law, the highest marginal tax rate is 50 percent and is applicable to a tentative tax base of $2,500,000 and over.

Table 4.12 summarizes the transfer costs associated with the size variation under the pre-1981 and post-1981 law for the ten-year projection. The effect of the increased tax credit can be analyzed by examining case 1, where estates do not qualify for any special tax treatment. By comparing the total federal tax column for the new law in the ten-year projection (Table 4.12) to the corresponding total federal tax column for the new law in the immediate death situation (Table 4.11), it is evident that with no special tax treatment, the taxes for each estate have increased in the ten-year projection. However, the reduction in taxes from the new law is greater, in both absolute and

TABLE 4.12 TRANSFER COSTS UNDER THE PRE-1981 AND POST-1981 LAWS FOR DIFFERENT SIZE FARM ESTATES IN THE 10-YEAR PROJECTION

INITIAL NET WORTH	CASE	TOTAL NON-ESTATE TAX TRANSFER COSTS		CHANGE	TOTAL FEDERAL ESTATE TAX OBLIGATION		CHANGE	TOTAL TRANSFER COSTS		CHANGE
		PRE-1981	POST-1981		PRE-1981	POST-1981		PRE-1981	POST-1981	
($)		($)		($)	($)		($)	($)		($)
500000	1	132587	122984	9603	222142	74109	148033	354729	197093	157636
500000	2	121194	121337	-143	166594	55402	111191	287788	176739	111048
500000	3	92729	89252	3477	58817	0	58817	151546	89252	62294
500000	4	94166	89252	4914	44771	0	44771	138937	89252	49685
750000	1	225035	215826	9209	408890	237975	170915	633925	453801	180124
750000	2	205245	205767	-522	325591	198042	127549	530836	403809	127027
750000	3	173290	155506	17784	215004	0	215004	388294	155506	232788
750000	4	165818	155506	10312	162067	0	162067	327885	155506	172379
1000000	1	342454	312427	30027	611172	417285	193887	953626	729712	223914
1000000	2	301396	302368	-972	521933	377352	144581	823329	679720	143609
1000000	3	258753	231077	27676	383752	149855	233897	642505	380932	261573
1000000	4	238980	229896	9084	305765	112968	192797	544745	342864	201881
1500000	1	609880	587946	21934	1052385	807391	244994	1662265	1395337	266928
1500000	2	540225	546547	-6322	954949	767458	187491	1495174	1314005	181169
1500000	3	462836	408035	54801	796302	514760	281542	1259138	922795	336343
1500000	4	428589	397976	30613	711399	474827	236572	1139988	872803	267185
2000000	1	923628	898088	25540	1552544	1237798	314746	2476172	2135886	340286
2000000	2	870464	860590	9874	1454878	1194880	259998	2325342	2055470	269872
2000000	3	759779	642324	117455	1275785	917819	357966	2035564	1560143	475421
2000000	4	687503	600925	86578	1182565	877886	304679	1870068	1478811	391257
3000000	1	1671649	1588986	82663	2721637	2104025	617612	4393286	3693011	700275
3000000	2	1657547	1558915	98632	2636189	2042994	593195	4293736	3601909	691827
3000000	3	1485469	1311111	174358	2411253	1743199	668054	3896722	3054310	842412
3000000	4	1443437	1274946	168491	2314317	1698711	615606	3757754	2973657	784097

CASE: 1 = QUALIFICATION FOR NEITHER TAX PROVISION
2 = QUALIFICATION FOR THE INSTALLMENT PAYMENT PROVISION
3 = QUALIFICATION FOR THE USE VALUATION PROVISION
4 = QUALIFICATION FOR BOTH SPECIAL TAX PROVISIONS

relative terms, for the ten-year projection than for the immediate death situation. For instance, the percent reduction in tax resulting from the new tax law assuming the estates do not qualify for either tax provision (calculated as the change in tax divided by the tax incurred under the pre-1981 law), ranges from approximately 29 percent for the $500,000 estate down to 3 percent for the $3,000,000 estate in the immediate death situation.[1] Alternatively, the $500,000 estate, after ten years of appreciation and the corresponding tax changes described above, receives a 66 percent reduction in tax from the new law. This percentage decreases, as estate size increases, to a level of 20 percent for the $2,000,000 estate but then rises to 23 percent for the $3,000,000 estate. This increase in the percent reduction in tax from the new law for the largest estate occurs because of the change in the upper marginal tax rate. Specifically, the decrease in the marginal tax rate for taxable estates in excess of $2,500,000 (as specified in the 1981 tax act), effects the tax liability at the wife's death, making the federal tax liability attributable to her estate lower than it would have been under the pre-existing law.

Figure 4.3 depicts the reduction in total transfer costs resulting from the new law in the ten-year projection. The lines corresponding to the no installment/no use valuation case and the case in which estates qualify for the installment payment, slope upward as estate size

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[1]The decline in this percentage across estate size results because the value of fixed credit decreases in relative terms as the tax liability increases.

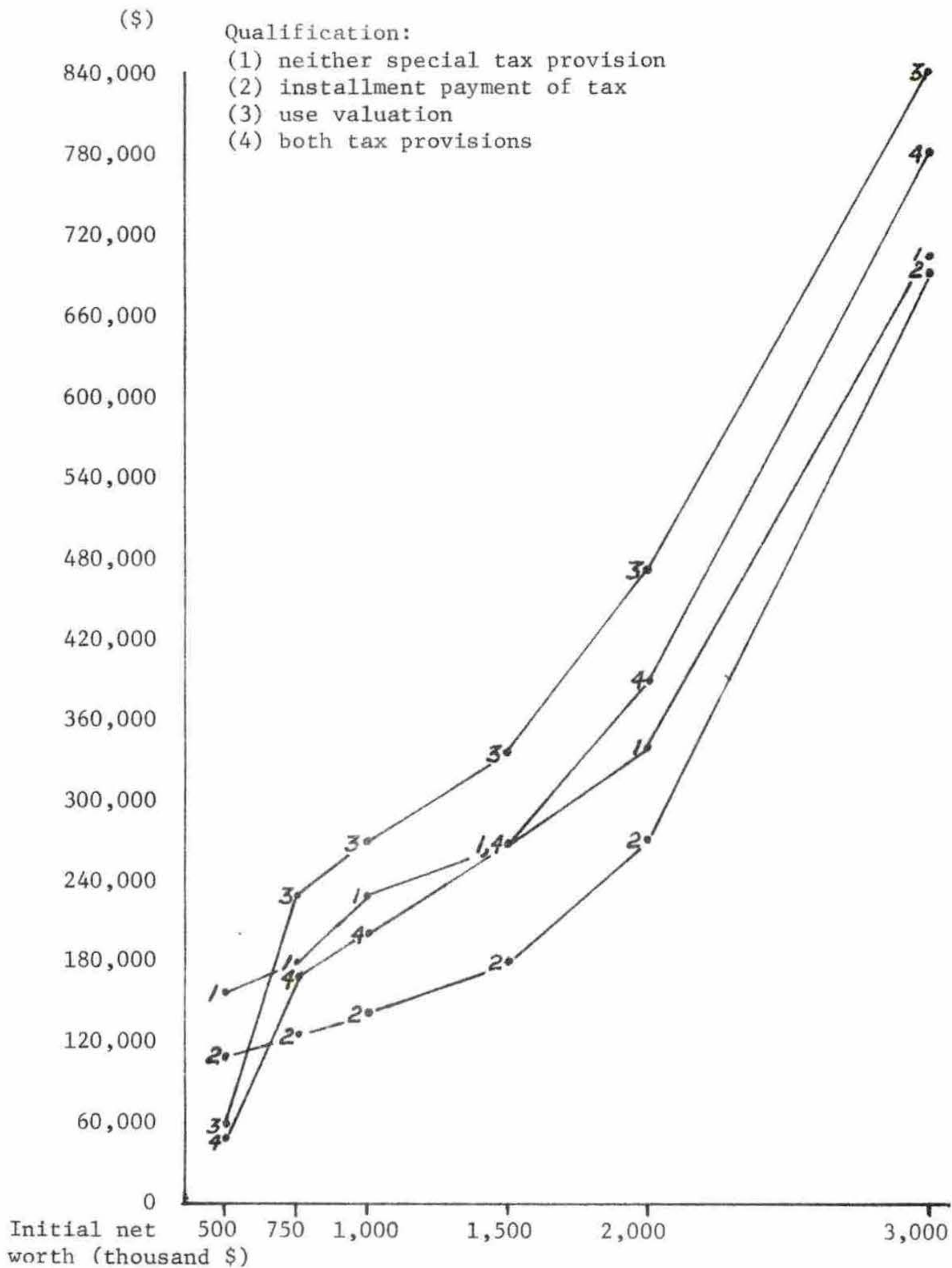

Figure 4.3. Reduction in total transfer costs resulting from the 1981 tax act for different size farm estates under alternative tax treatments: ten-year projection

increases. This occurs because the successively larger estates are able to more fully utilize the tax credit at the first death: all estates use the entire tax credit at the second death. The $2,000,000 estate uses the full credit at both deaths. The benefits from the new law (associated with the $2,000,000 estate) are larger for the $3,000,000 estate because of the decrease in the marginal tax rate mentioned above. The results, assuming the estates qualify for the installment payment of tax, parallel those for the no installment/no use valuation case for the same reason identified in the immediate death situation: both cases are a function of the tax credit. Since the tax liability is less when the estate qualifies for the installment payment provision, the absolute benefit from the new law is less in this case than it would have been if the estate did not qualify for installment. For this reason, line 2 lies below line 1.

When the estates qualify for use valuation, assuming the ten-year projection, the results change significantly but not to the same relative degree as in the immediate death situation. This is reflected by the relatively narrower range between the four lines in Figure 4.3 than existed between the lines in Figure 4.1. Just as in the immediate death situation, the smallest estate receives less comparative benefit from the new law when it qualifies for use valuation than in the cases in which it does not qualify for this provision. Again, this occurs because the smallest estate incurs no tax liability under the pre-existing law, assuming it qualifies for use valuation.

Because of the combined effect of the use valuation provision and the increased tax credit, the $750,000 estate incurs no tax liability in the ten-year projection, whereas it did under the new law in the immediate death situation. This occurs because the unified tax credit has increased sufficiently by the ten-year projection to completely offset the federal tax liability in the case where the estate qualifies for use valuation.

In the immediate death situation, the tax benefits from the new law for the $2,000,000 and $3,000,000 estates are significantly greater when these estates qualify for use valuation compared to the cases in which they did not qualify. For instance, the $3,000,000 estate received a $174,826 reduction in transfer costs from the new law when it qualified for use valuation alone compared to a $20,236 reduction when it did not qualify for either provision. However, the difference in tax benefits from the 1981 law for alternative tax treatments is not as great in the ten-year projection for the two largest estates. After appreciation, these estates far exceed the $750,000 use value reduction limit and thus the change in the use valuation provision does not have as much relative value as it did in the immediate death situation. Again, the results for the case in which the estates qualify for both provisions parallel those for the case in which the estates qualify for use valuation alone.

Percent of parents' property received by heirs The percent of parents' property received by heirs is used in this section to summarize the results discussed in the previous section. This variable is

calculated by dividing the value of the property received by heirs by the estate's original net worth. Since the value of the property received by heirs is what is left of the original net worth after the total transfer costs have been subtracted, the percent of parents' property received by heirs is a function of the total transfer costs. Therefore, the results observed in this section are substantiated and explained in the preceding discussion on transfer costs.

Figures 4.4 and 4.5 show the percent of parents' property received by heirs resulting under the pre- and post-1981 law for alternative tax treatments: qualification for--neither special tax provision, installment payment of tax, use valuation, and both tax provisions. Each graph, which designates a particular size estate, contains the results for both laws in the immediate death and ten-year projection situations.

For the $500,000 estate, shown in the graph at the far left in Figure 4.4, the gap between the lines corresponding to the immediate death situation is largest when this estate qualifies for neither tax provision. This gap indicates that for the estate with an initial net worth of $500,000, the tax savings resulting from the new law are largest when the estate does not qualify for any special tax provision. In this case, the new law has the effect of increasing the percent received by heirs by three percentage points; whereas, if the same estate qualifies for use valuation, it receives no increase in the amount of property passed to heirs, from the new law.

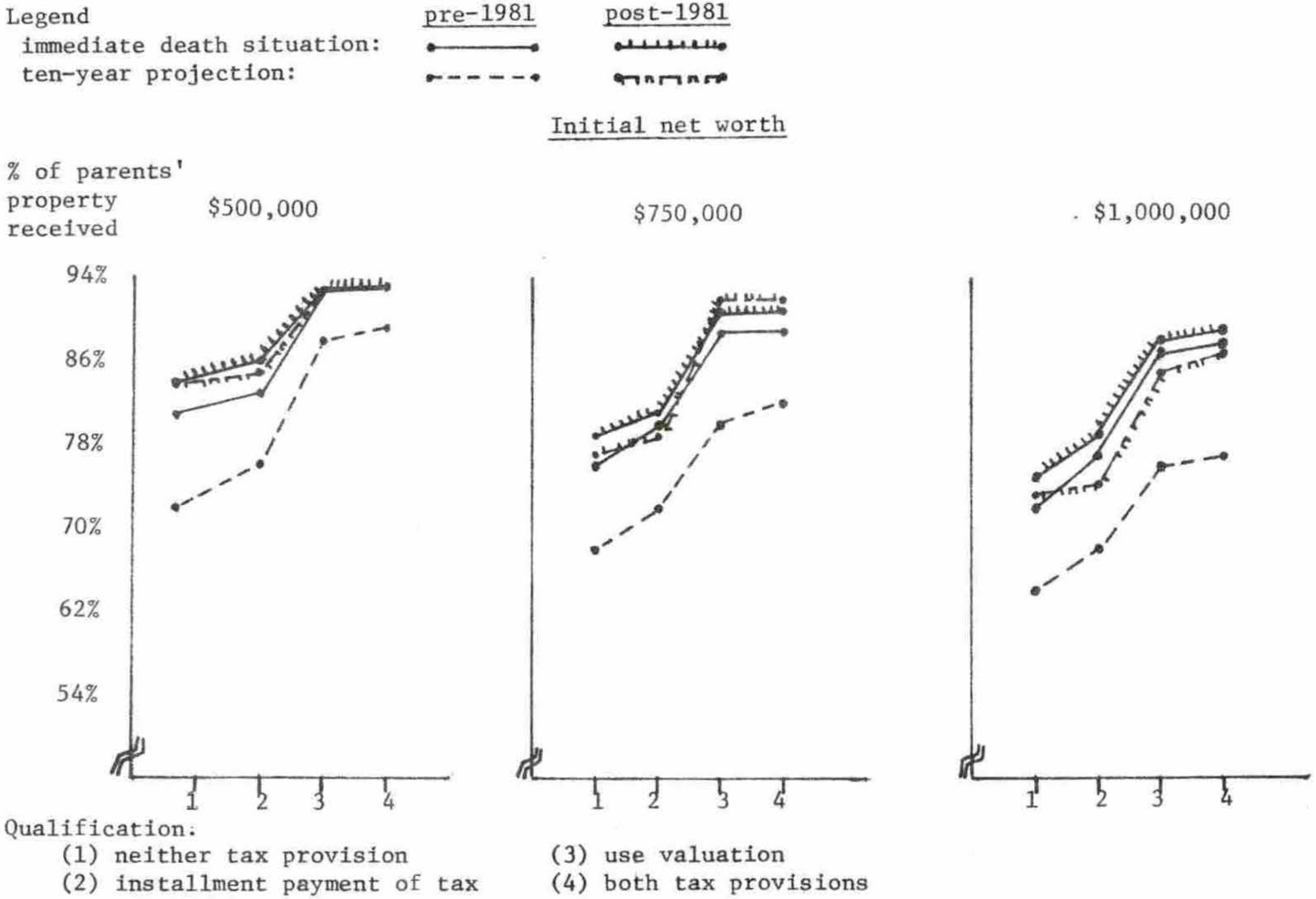

Figure 4.4. Percent of parents' property received by heirs for alternative tax treatments under the pre-1981 and post-1981 law: size $500,000 through $1,000,000

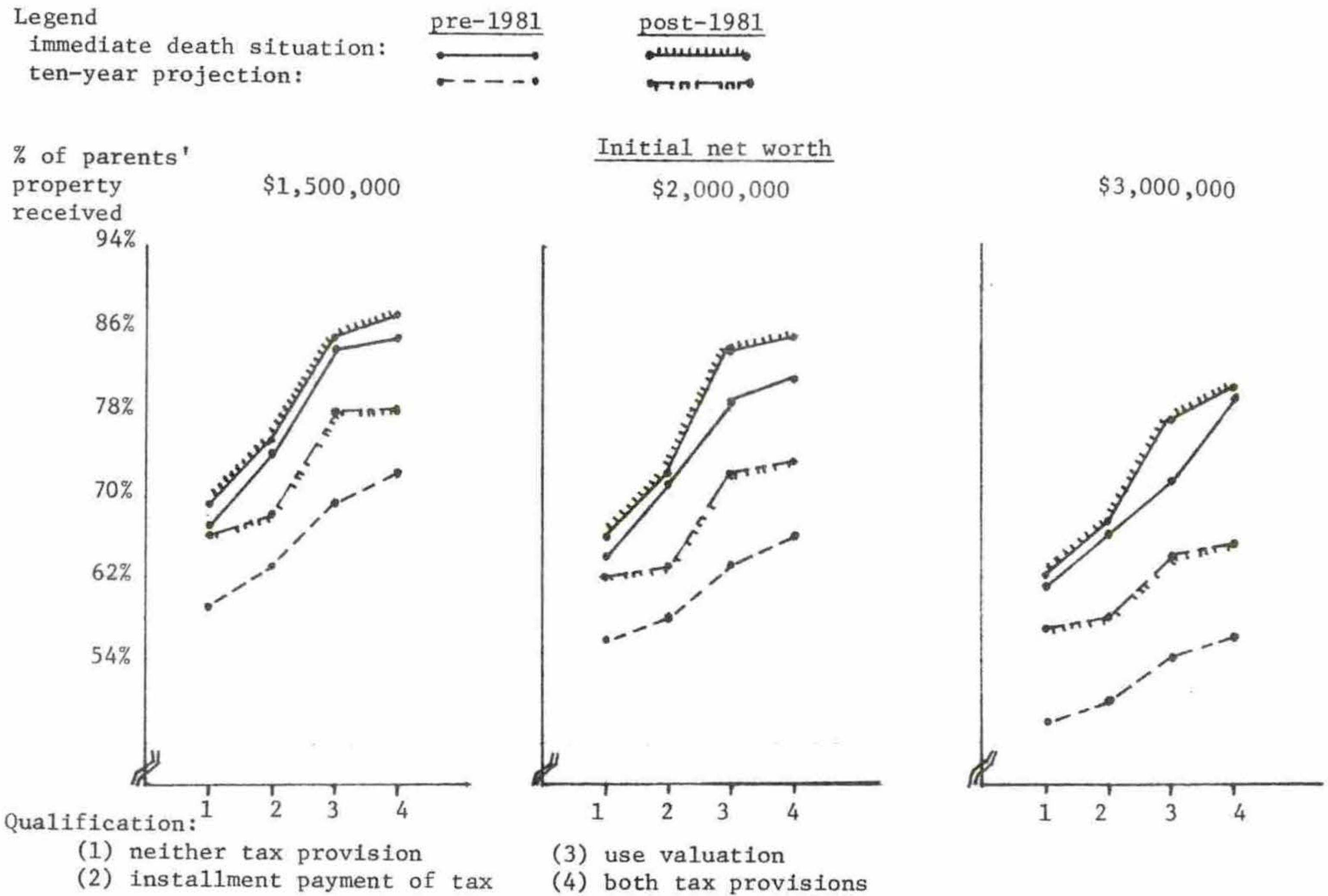

Figure 4.5. Percent of parents' property received by heirs for alternative tax treatments under the pre-1981 and post-1981 law: size $1,500,000 through $3,000,000

In the ten year projection, for the $500,000 estate, the percent of the parents' property received is substantially greater under the new law than under the pre-existing legislation. Assuming this estate does not qualify for either tax provision;, the 1981 law increases the percent of parents' property received by 12 percentage points. The closeness between the lines corresponding to the new tax law, in the immediate and ten year projection, suggests that the changes in the 1981 tax act are sufficiently generous to keep up with the 8 percent appreciation rate specified in the model during this ten year period; that is, for the $500,000 estate, the percent of parents' property received by heirs is approximately equal in the immediate death and ten year projection period (when the estate is substantially larger). For all estates larger than this one, the percent of parents' property received is greater in the immediate death situation than in the ten-year projection.

The benefits from the new law for the $1,500,000 estate, shown at the far left in Figure 4.5, increase the percent of parents' property received by approximately 2 percent for all tax treatments in the immediate death situation. Conversely, for the $2,000,000 estate, the gap between the lines corresponding to the pre- and post 1981 law is not uniform in width across the various tax treatment. For this estate, the gap widens considerably when the estate qualifies for use valuation. This indicates that the $2,000,000 estate is the first of those analyzed that is large enough to benefit from the use valuation limit increase, in the immediate death situation. The $3,000,000 estate receives an

even greater benefit from the change in the use valuation limit; estate settlement under the 1981 tax act increases the percent of parents' property received by heirs to 77 percent compared to 71 percent under the prior law, assuming the estate qualifies for use valuation.

Figure 4.6 shows the percent of parents' property received by heirs plotted across estate size in four graphs each representing alternative tax treatments. As would be expected, in all cases the lines have a negative slope. For the immediate death cases when the estates do not qualify for use valuation (shown by the left two graphs in Table 4.6), the lines corresponding to the pre- and post-1981 law are parallel. This construction implies that the benefit from the new law, in terms of the percent of parents' property received by heirs, is constant for all farm sizes examined, assuming they do not qualify for use valuation.

The gap between the lines corresponding to the pre- and post-1981 law is much wider in the ten-year projection assuming the estates do not qualify for use valuation than it is in the immediate death situation. This indicates that after the increase in the tax credit is passed in, the new law will result in a significant increase in the wealth phased to heirs, even for large estates. In addition, the benefits from the larger credit and changes in tax rates are greater for the largest and smallest estates in the ten year projection: the percent of parents' property received by heirs is increased by 9 percentage points from the new law for the $500,000 and $3,000,000 estates compared to 7 percentage points for the $1,500,000 estate. This situation occurs because (a) the $15,800 increase in the unified tax credit offsets a greater percentage

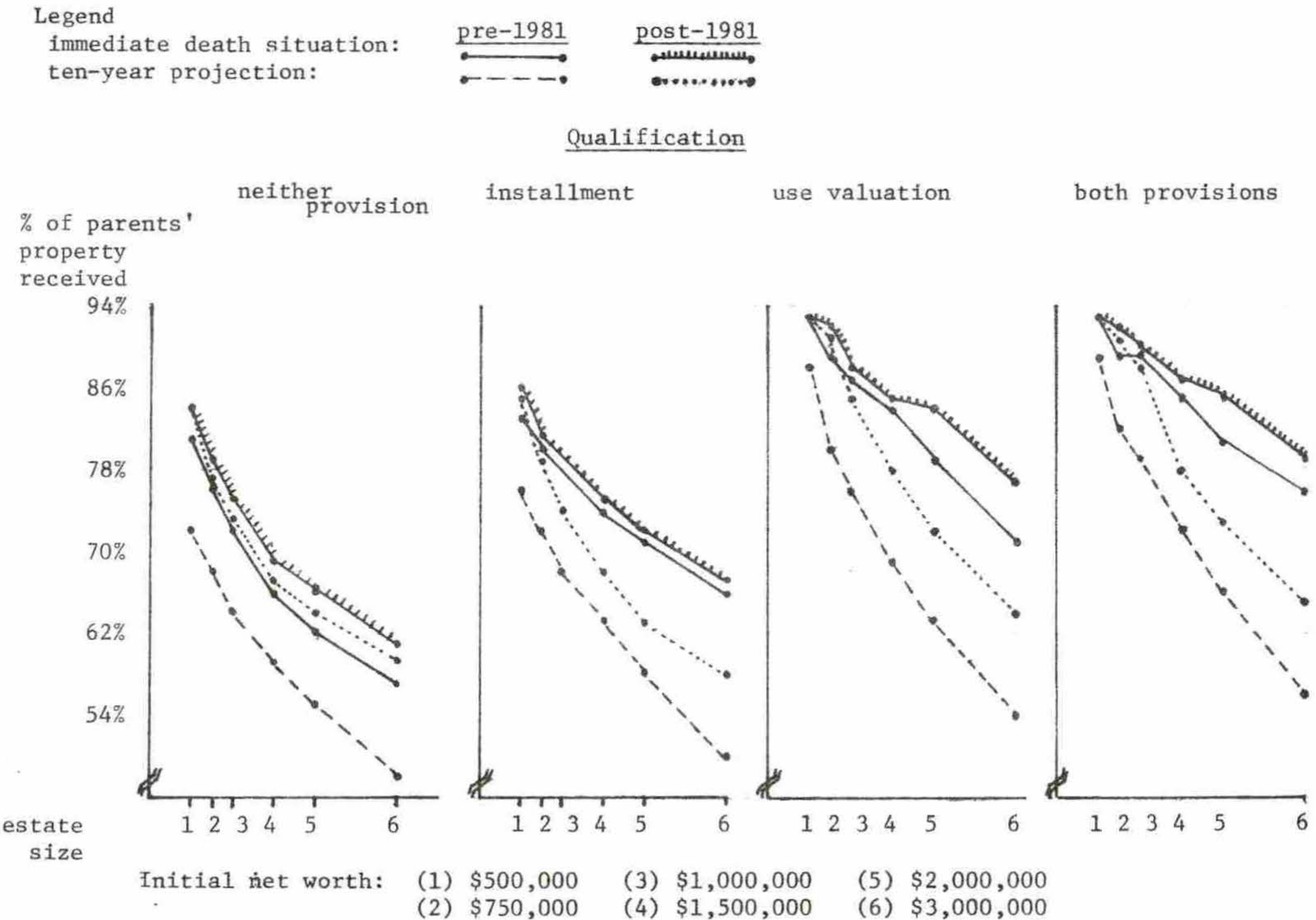

Figure 4.6. Percent of parents' property received by heirs for different size farm estates under alternative tax treatments and tax law

of the tax liability incurred by the smaller estates, and (b) the decrease in the marginal tax rate for levels over 50 percent only benefits taxable estates in excess of $2,500,000. Therefore, in relative terms, transfer costs are reduced more for the "large" and "small" estates as compared to the middle size estates.

Assuming that the estates qualify for use valuation, the two largest estates ($2,000,000 and $3,000,000) receive the greatest benefit from the new law, as mentioned above. Accordingly, the slope of the line corresponding to use valuation in the immediate death situation is less steep for the new law than for the pre-existing tax law for the two largest estates. Thus, the 1981 tax act magnifies the effect of the use valuation provision which existed under the prior law by further counter-acting the progressive nature of the tax rate schedule.

Asset Mix Variation

Table 4.13[1] summarizes the total transfer costs under the pre-1981 and post-1981 tax law for three estates, each with an initial net worth of $1,000,000 but with varying land/asset ratios of 75 percent, 50 percent and 25 percent (see Table 3.3). The third column, which represents the change in additional transfer costs, contains negative figures in all but one situation. As discussed in the previous section, negative numbers indicate an increase in costs and in

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[1]Since the estates with more land appreciate faster than those with less land, analysis in the ten-year projection involves comparing estates of different size and asset mix. Therefore, the ten-year projection situation is not included in Table 4.13 because the effects of asset composition are confounded by estate appreciation.

TABLE 4.13 TRANSFER COSTS UNDER THE PRE-1981 AND POST-1981 LAWS FOR $1,000,000 FARM ESTATES WITH DIFFERENT LAND/ASSET RATIOS

LAND/ ASSET RATIO	CASE	TOTAL NON-ESTATE TAX TRANSFER COSTS		CHANGE	TOTAL FEDERAL ESTATE TAX OBLIGATION		CHANGE	TOTAL TRANSFER COSTS		CHANGE
		PRE-1981	POST-1981		PRE-1981	POST-1981		PRE-1981	POST-1981	
(%)		($)		($)	($)		($)	($)		($)
IMMEDIATE DEATH:										
75	1	104398	102835	1563	177261	151125	26136	281659	253960	27699
75	2	96426	96455	-29	134222	114082	20140	230648	210537	20111
75	3	79705	80042	-337	54645	38845	15800	134350	118887	15463
75	4	80850	80906	-56	42326	30088	12237	123176	110994	12181
50	1	98121	98499	-378	177261	151125	26136	275382	249624	25758
50	2	96426	96455	-29	134222	114082	20140	230648	210537	20111
50	3	83554	83889	-335	90715	74915	15800	174269	158804	15465
50	4	85571	85614	-43	69414	57324	12090	154985	142938	12047
25	1	98121	98499	-378	177261	151125	26136	275382	249624	25758
25	2	96426	96454	-28	134222	114082	20140	230648	210536	20112
25	3	87645	87963	-318	130640	112804	17836	218285	200767	17518
25	4	90542	90575	-33	99525	85633	13892	190067	176208	13859

CASE: 1 = QUALIFICATION FOR NEITHER TAX PROVISION
2 = QUALIFICATION FOR THE INSTALLMENT PAYMENT PROVISION
3 = QUALIFICATION FOR THE USE VALUATION PROVISION
4 = QUALIFICATION FOR BOTH SPECIAL TAX PROVISIONS

most cases are attributable to an increase in the state inheritance tax at the second death.

The positive figure in the third column, corresponding to the 75 percent land estate, when it does not qualify for either tax provision, occurs because of a significant decrease in liquidity loss (see Appendix II). This decline in liquidity loss results from the decrease in the federal tax liability. As discussed in the previous section on the asset mix variation, the 75 percent land estate suffers greater liquidity losses than the other estates because it is comprised of less liquid assets than the other estates. Therefore, the decrease in federal estate tax is especially beneficial to this estate.

Assuming the estates do not qualify for either tax provision, the reduction in federal tax from the 1981 law (column six) is the same for all three farms, in both absolute and relative terms. This reduction amounts to $26,136 or a 15 percent reduction in tax. When the estates qualify for installment payment, the reduction in tax is again the same for all three estates, amounting to $20,140 or a 15 percent reduction in tax from the new law. These results are expected because it is only when the estates qualify for use valuation that any differences in federal tax arise among the estates with different asset compositions.

The results change significantly when the estates qualify for use valuation. While the dollar benefit from the new law is approximately equal (amounting to the change in tax credit used at the second death) for all three estates, the percent reduction in tax received by each estate is different because the tax incurred under the pre-existing law

is different among estates. For instance, the 75 percent land estate receives a $15,800 reduction which represents a 30 percent reduction in tax from the $54,645 liability incurred under the pre-1981 law. The 50 percent land farm also receives a $15,800 reduction in taxes, but this figure represents a 17 percent reduction in the pre-1981 level of $130,640. The 25 percent land estate receives a $17,836 reduction because some of the increased credit is used at the first death; however, this benefit represents only a 14 percent decrease in taxes. Therefore, in absolute terms, the 25 percent land estate receives a slightly greater benefit from the new law when it qualifies for use valuation than the other estates, however, the 75 percent land estate receives the greatest percent reduction from the new law because it has the smallest liability under the pre-existing law.

When the estates qualify for both provisions, the absolute benefit from the new law is greater for all estates than when the estates qualify for use valuation alone. However, as indicated earlier, qualification for the installment payment provision has the same relative benefit (for a particular estate) under the pre-1981 and post-1981 law. Therefore, the percent reduction in tax from the new law is the same when the estate qualifies for both provisions as it is when the estate qualifies for use valuation alone. Thus, the 25, 50, and 75 percent land estates receive a percent reduction in tax from the new law of 14, 17, and 30 percent, respectively, when they qualify for both tax provisions.

The change in total transfer costs are reflected in Figure 4.7 which shows the percent of parents' property received by heirs for the estates with different asset mixes. Each graph, which designates a particular tax treatment, shows the results for the pre-1981 and post-1981 tax law for the immediate death situation.

When the estates do not qualify for either tax provision, shown in the graph at the far left, the percent of parents' property received by heirs is the same for all asset mixes under the new law. However, compared to the pre-existing law, the 75 percent land estate receives a greater benefit from the new law because of the decrease in the liquidity loss mentioned above.

Assuming the estates qualify for use valuation, the results found in the previous asset mix section are reflected in the two right graphs in Figure 4.7. The 75 percent land estate receives the greatest percent of parents' property received by heir because it has the most farmland.

The 25 percent farm, with the least acreage, transfers less property to the heirs than the other estates within this variation. With respect to the impact of the new law, the two lines corresponding to the pre-1981 and post-1981 laws are parallel. This indicates that for an estate with an initial net worth of $1,000,000, the effect of leverage existing under the pre-1981 law (identified by Boehlje (2)), persists under the new law. Furthermore, for the estate size examined here, the effect is neither strengthened nor lessened. However, one might expect this effect to intensify for estates which are large enough to utilize the increase in the use valuation limit.

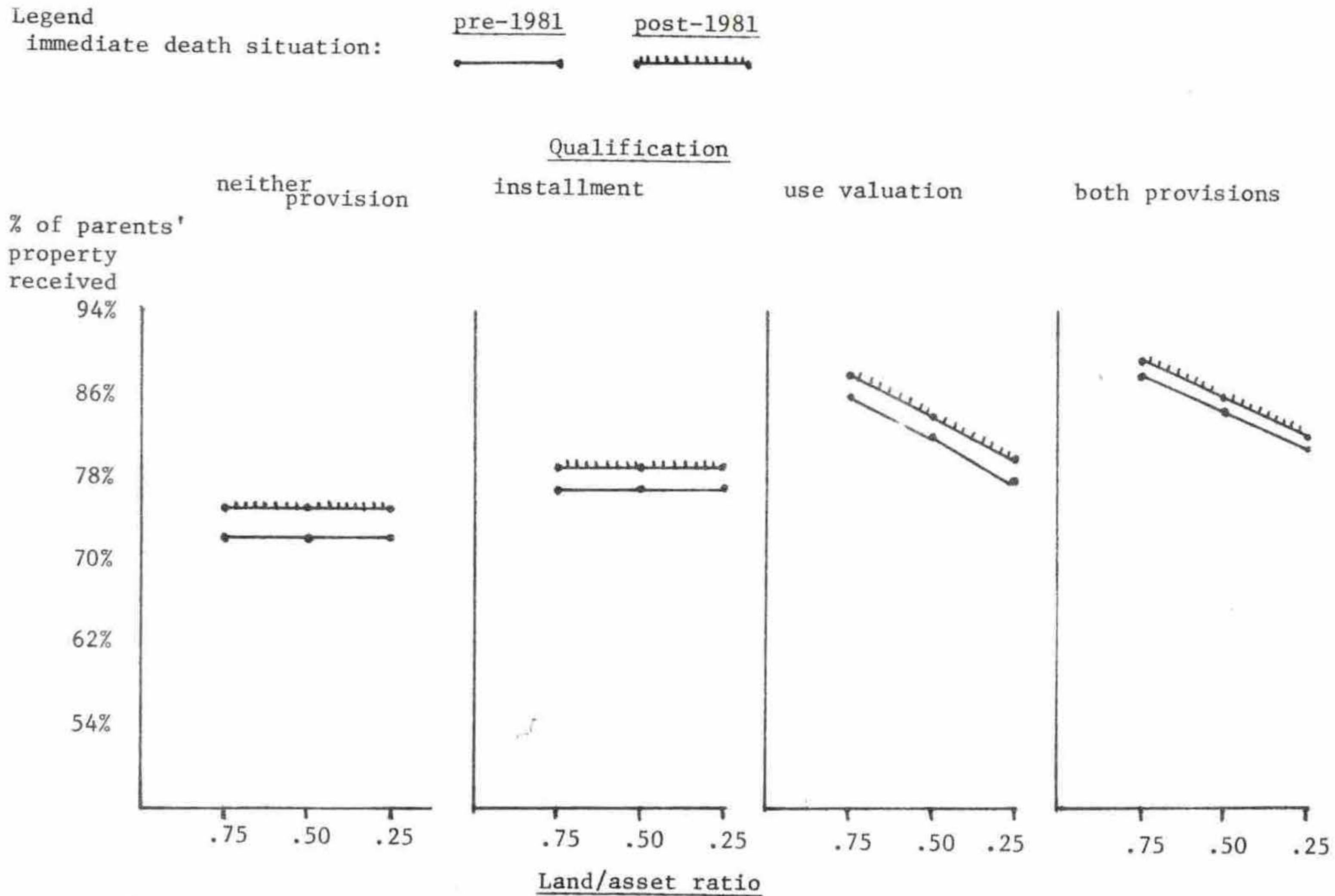

Figure 4.7. Percent of parents' property received by heirs for farm estates with different land/asset ratios, under alternative tax treatments and tax law

Percent Equity Variation

Table 4.14[1] summarizes the transfer costs under the pre-1981 and post-1981 law for the percent equity variation (see Table 3.5). In this variation, the owner's equity levels are 100, 80 and 60 percent, reflecting different financial structures. The initial net worth for each estate is $1,000,000 while the size of the gross estate increases with increased leverage.

As seen in the asset mix variation, there are several negative figures in the third column, indicating an increase in the additional transfer costs under the new law. Again, this increase is primarily attributable to the state inheritance tax. In addition, as a result of the decrease in federal tax from the new law, the amount of property passed to the surviving spouse is increased. Therefore, the settlement costs at the second death are also higher, as they are based on the size of the gross estate.

In terms of the change in total transfer costs, the difference in the absolute benefits from the new law are insignificant for the farms with different financial structures, assuming they do not qualify for use valuation. The slight differences which do occur result from differences in settlement costs which affect the size of the taxable estate and hence the tax liability. In terms of the relative benefit

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[1]Since the estates which use more debt appreciate faster than those with less debt, analysis in the ten-year projection involves comparing estates of different size and financial structure. Therefore, the ten-year projection is not included in Table 4.14 because the effects of the financial structure are confounded by estate appreciation.

TABLE 4.14 TRANSFER COSTS UNDER THE PRE-1981 AND POST-1981 LAWS FOR $1,000,000 FARM ESTATES WITH DIFFERENT EQUITY RATIOS

EQUITY RATIO	CASE	TOTAL NON-ESTATE TAX TRANSFER COSTS		CHANGE	TOTAL FEDERAL ESTATE TAX OBLIGATION		CHANGE	TOTAL TRANSFER COSTS		CHANGE
		PRE-1981	POST-1981		PRE-1981	POST-1981		PRE-1981	POST-1981	
(%)		($)		($)	($)		($)	($)		($)
IMMEDIATE DEATH:										
100	1	104398	102835	1563	177261	151125	26136	281659	253960	27699
100	2	96426	96455	-29	134222	114082	20140	230648	210537	20111
100	3	79705	80042	-337	54645	38845	15800	134350	118887	15463
100	4	80850	80906	-56	42326	30088	12237	123176	110994	12181
80	1	117341	115509	1832	173531	147961	25570	290872	263470	27402
80	2	108535	108562	-27	131613	111828	19784	240148	220390	19757
80	3	89053	89389	-336	24140	8340	15800	113193	97729	15464
80	4	89495	89542	-47	18728	6470	12257	108223	96012	12210
60	1	139064	136856	2208	167269	142579	24690	306333	279435	26898
60	2	128797	128818	-21	127081	107887	19195	255878	236705	19174
60	3	107821	104354	3467	3418	0	3418	111239	104354	6885
60	4	107885	104354	3531	2637	0	2637	110522	104354	6168

CASE: 1 = QUALIFICATION FOR NEITHER TAX PROVISION
2 = QUALIFICATION FOR THE INSTALLMENT PAYMENT PROVISION
3 = QUALIFICATION FOR THE USE VALUATION PROVISION
4 = QUALIFICATION FOR BOTH SPECIAL TAX PROVISIONS

from the new law, each estate receives a 15 percent reduction in tax from the new law when they do not qualify for use valuation.

Assuming the estates do qualify for use valuation, the benefits from the new law are different, in absolute terms, for farms with different financial structures. The full equity and 80 percent equity farms each receive a $15,800 reduction in tax (equal to the change in the tax credit) from the new law, while the 60 percent equity farm receives only a $3,418 reduction. This occurs because the most leveraged farm has a tax liability of only $3,418 greater than the tax credit under the old law. Therefore, only this portion of the increased credit is needed to completely eliminate the tax for the most leveraged farmers.

Accordingly, the percent reduction in tax from the new law is 100 percent for the 60 percent equity farm. Alternatively, the 100 percent and 80 percent equity farms receive a 30 percent and 65 percent reduction in tax, respectively. Thus, in relative terms, the benefits from the new law increase with increased debt utilization, when the estates qualify for use valuation. However, this benefit from debt utilization is tempered by the associated increase in settlement costs.

Figure 4.8 shows the percent of parents' property received by heirs after the total transfer costs have been subtracted. In the two left graphs, where the estates do not qualify for use valuation, the lines slope downward. This indicates that the increased settlement costs associated with the leveraged farms are significant enough to reduce the percent of parents' property received by the heirs.

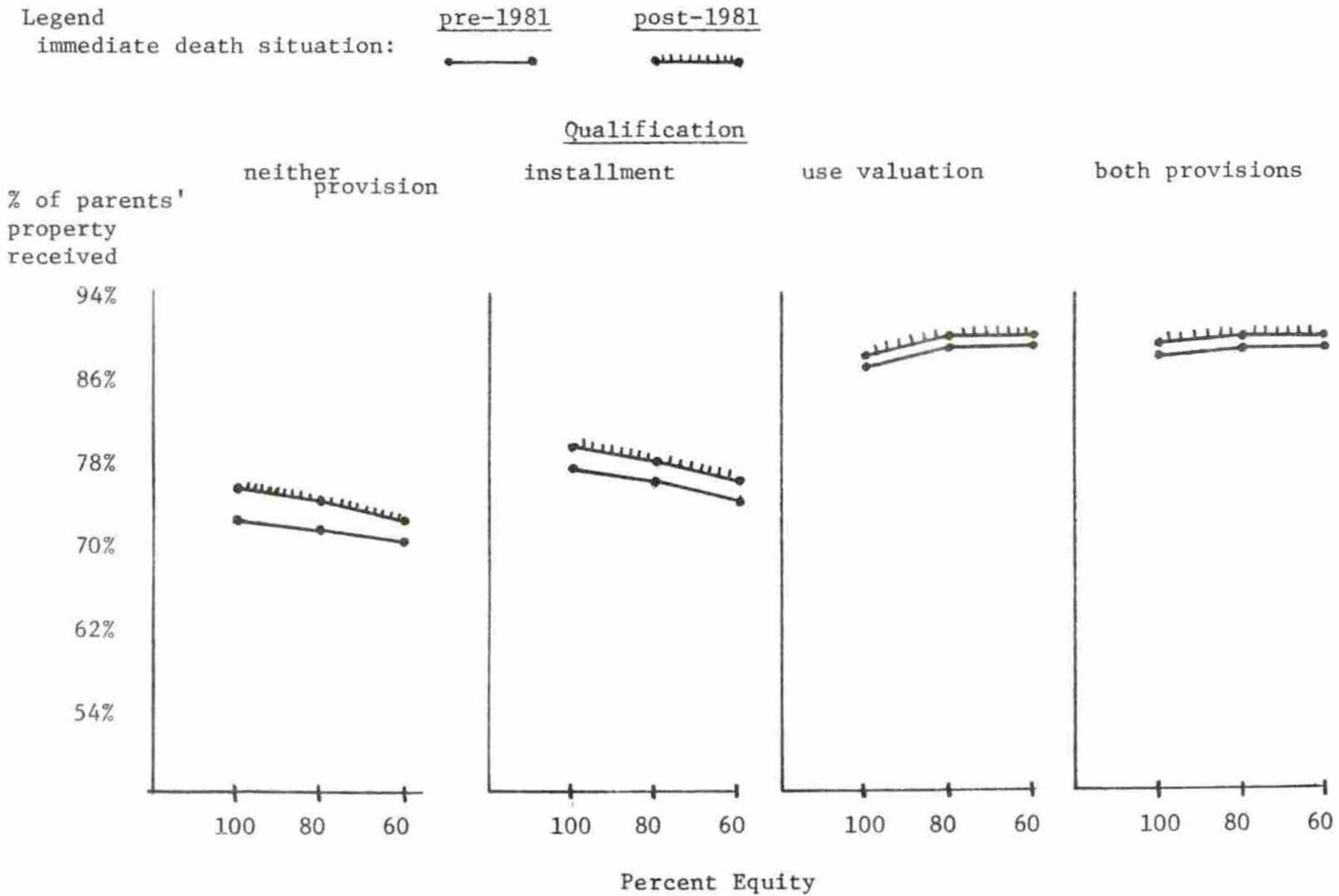

Figure 4.8. Percent of parents' property received by heirs for farm estates with different equity ratios, under alternative tax treatments and tax law

Alternatively, when the estates qualify for use valuation, the lines slope upward. Therefore, the tax benefits from having more farmland (and more debt) offset the negative effect of the increased settlement costs associated with a larger gross estate.

With respect to the consequences of the new law, the lines corresponding to the pre-1981 and post-1981 laws are parallel in each tax treatment. This indicates that the new law does not strengthen or weaken the effect that financial structure has on transfer costs that existed under the previous law. Again, results could be significantly different for an estate size which was large enough to exceed the pre-1981 use valuation limit.

CHAPTER V. SUMMARY AND CONCLUSIONS

The Economic Tax Recovery Act of 1981 is a major piece of tax legislation that will have a substantial impact on farm estate tax liabilities. The focus of this study is to quantify the effect that the 1981 act will have on farms with different characteristics. In addition, these results are compared with those which would have occurred under the pre-existing tax law in order to gauge the relative impact of the new law. Such information will be useful in drawing inferences about the possible effect of the new law on the structure of agriculture.

The procedure entails creation of a base scenario which can be described as a "typical" Iowa farm. This scenario is modeled into three groups of variations designed explicitly to show the relationship between estate characteristics and transfer costs. The variations include size, in which the farm's initial net worth is parameterized; asset mix, in which the land to total asset ratio is varied; and percent equity, in which the use of debt is parameterized. An estate planning model is used to simulate the financial consequences for estate transfers. The scenarios are evaluated for alternative tax treatments, with respect to the use valuation and the installment payment of tax provisions, and for the pre-1981 and post-1981 tax law. The transfer costs are measured with several response variables which enhance interpretation of the results.

The results from the scenario variations evaluated under the 1981 law indicate that estate characteristics, specifically size, asset

The results from the scenario variations evaluated under the 1981 law indicate that estate characteristics, specifically size, asset composition, and financial structure, influence transfer costs. For example, in the size variation, the largest estates incur proportionally greater tax liabilities than estates of smaller net worth because of the progressive tax rate schedule. However, assuming the estates qualify for special use valuation and installment payment of tax, the tax obligation in absolute terms is reduced dramatically for the larger estates, and to a lesser degree for the smaller estates. Accordingly, by qualifying for these provisions, the percent of parents' property received by heirs increases more for the larger estates than it does for the smaller estates. Thus, as indicated in Boehlje's study (2), these provisions counteract the progressive tax rate schedule.

The results for estates with different asset mixes are almost identical if the estates do not qualify for use valuation. However, the estates with a greater proportion of land to total assets incur higher liquidity losses because by model assumption, a higher loss is attached to the sale of real estate than to business assets. The estates with more acreage receive the greater absolute and relative benefits from qualifying for use valuation. Accordingly, the percent of parents' property received by heirs is larger for an estate with more farmland than one of comparable net worth and less acreage.

The results for the percent equity variation parallel those in the asset mix variation. Since the leveraged estates have a larger gross estate (assuming initial net worth is constant) they incur larger

settlement costs than a full equity farm. The larger settlement costs are substantial enough to make the percent of the parents' property received by heirs smaller for the more leveraged farm assuming the estates do not qualify for use valuation. However, an estate with more qualified farmland and more debt receives a greater tax benefit from use valuation than a full equity estate of comparable net worth. This occurs because the benefits from use valuation accrue to both the debt and equity portions of the land. However, the tax savings from financial leverage associated with use valuation are tempered by increased settlement costs; thus, the percent of the parents' property received by the heirs is not substantially increased by debt utilization for the $1,000,000 estate analyzed in this study.

Comparing the above results to the financial consequences resulting under the pre-1981 law indicates the relative impact of the new legislation on different farm estates. When the estates do not qualify for use valuation, the change in the federal tax from the new law is a function of the increased tax credit and the will plan specified in the model. In terms of estate size, the absolute benefit from the new law increases slightly with increases in net worth. This occurs because the smaller estates do not fully utilize the $62,800 tax credit at the first death. Thus, as estates get larger, the benefits from the new law increase as more of the credit is utilized at the first death. Yet, the fact that the smaller estates incur tax liabilities at the second death and do not use the full credit at the first death indicates that the will plan used in this study is sub-optimal for the smaller estates

under the 1981 law. Conceivably, if a will is designed for each estate so that the full credit is used at both deaths, the absolute benefit from the new law will be approximately the same for all estate sizes. Since the will plan used in this analysis (one-half to spouse in trust, one-half to spouse in fee simple) is not uncommon, this result suggests that estate planning revisions may be necessary to capture the potential benefits from the new law.

Even though the larger estates receive a greater absolute benefit from the new law, a greater percent reduction in tax (calculated as the change in tax divided by the pre-1981 tax liability) to the smaller estates. This occurs because they have a smaller tax liability under the pre-1981 law than the larger estates do. Therefore, if a will is designed for the smaller estates to utilize the increase in the tax credit at both deaths, then the percent reduction in tax from the new law will be substantially greater for the smaller estates (as compared to the larger estates).

In the ten-year projection, after the estates have appreciated and the tax credit increases designated in the 1981 act have been completely phased in, the absolute and relative benefits from the new law are greater than in the immediate death situation, assuming no special tax treatment. The percent of parents' property received by heirs is substantially higher than it would have been under the pre-existing legislation. For example, when the $500,000 estate does not qualify for special tax treatment, the percent of parents' property received by the heirs is 12 percentage points higher under the new versus the old law;

whereas in the immediate death situation, the new law increases the percent of parents' property received by heirs by 3 percentage points. In fact, for this estate size, the percent of parents' property received by heirs under the 1981 law is the same in the immediate death and ten-year projection situations. This implies that for a $500,000 estate, the increase in the unified credit, specified by the 1981 act, keeps up with the 8 percent inflation rate assumed in the model. For estates with an initial net worth greater than $500,000, the percent of parents' property received by heirs is less in the ten-year projection than in the immediate death situation.

In sum, the increase in the unified credit decreases the federal tax liabilities for all estate sizes. Correspondingly, the liquidity losses associated with the estate transfers also decline under the new law. These benefits translate into an increase in the percent of the parents' property which is ultimately received by heirs. This percentage increase, for the estate sizes examined, ranges between 1 and 3 percentage points in the immediate death situation and between 7 and 12 percentage points in the ten-year projections, assuming no special tax treatment. Thus, more property (including farmland) may be passed to subsequent generations under the 1981 law than could have been transferred under the pre-existing legislation. Using Matthews' and Stock's logic (20), this situation will result in fewer farming opportunities for those who do not inherit farmland. However, whether or not farmland is sold during an estate transfer not only depends on the transfer costs but also the intentions of the heirs. If they do not

wish to continue the farming operation beyond their parents' demise, then farmland may be sold even if no tax liability is incurred.

In the case where the estates qualify for the installment payment provision, the tax benefit from the new law is still a function of the increase in the tax credit and the will plan. The amount of tax which can be deferred is proportional to the business assets which are constant (equal) for a given estate under the pre-1981 adn post-1981 law. Thus, the value of deferring a tax liability is a constant proportion--under both the old and new law--of the federal estate tax. It follows that while the absolute federal tax liability is different under the pre-1981 and post-1981 law, the relative value of the installment payment provision is unaffected by the change in the federal tax legislation. Therefore, the percent reduction in tax from the 1981 law is the same when an estate qualifies for the installment payment provision and when an estate does not qualify for this provision. However, the absolute tax savings from the new law are less when an estate qualifies for the installment payment provision than when it does not qualify for the provision. Since a portion of tax liability is deferred at an artificially low interest rate, installment payments effectively reduce the tax obligation. Thus, under both the pre-1981 and post-1981 law, qualification for this provision results in a lower tax; accordingly, the absolute benefit from the new law is also lower when the estate qualifies for installment payments. Finally, the results under the pre-1981 and post-1981 law are approximately the same for estates with different asset mixes or financial structures, assuming

they qualify for just the installment payment provision or for neither tax provision. Thus, under these conditions, the new law exerts no differential impact on estates of varying asset composition or debt utilization.

If the farm estates qualify for use valuation, the benefits from the 1981 tax act differ substantially for the various farm sizes. The largest estate receives the greatest absolute reduction in federal tax from the new law; that is, when the $2,000,000 and $3,000,000 estates qualify for use valuation, the tax savings from the new law increase dramatically. The benefits added from the new law accruing to the large estates are twofold. First, these estates are large enough to benefit from the increase in the maximum allowable use value reduction limit initiated in the 1981 act. Since allowing a greater reduction in land valuation further reduces the size of the taxable estate, the new law results in a smaller tax liability as well as a lower tax bracket. Secondly, as noted above, only the large estates of those examined had tax liabilities large enough to fully utilize the increased tax credit at both deaths.

Conversely, the smaller estates, up through an initial net worth of $1,000,000, receive comparatively more benefit from the new law if they don't qualify for use valuation. This occurs because qualification for use valuation reduces the tax liability to a point where these estates do not use as much of the unified credit as they do without qualifying for this provision. For instance, when the $500,000 estate qualifies for use valuation it receives no tax savings from the new law

because use valuation eliminates the tax under the pre-existing law, thus no further reduction in tax is possible. In addition, the use valuation limit under the pre-existing law is non-constraining for these estates so the increase in this limit has no value for them.

In sum, when farm estates qualify for special use valuation, the larger estates receive a greater absolute benefit from the new law than smaller estates. Furthermore, the results in this analysis suggest that the 1981 tax law magnifies the effect of use valuation (as quantified by Boehlje (2)) by further counteracting the progressive nature of the tax rate schedule. In addition, the changes in tax consequences attributable to the increase in the use valuation reduction limit have other implications for the structure of agriculture. Several possible impacts of the use valuation provision were identified by writers when the provision was initiated in 1976. Since the 1981 act strengthens the the effects of the use valuation provision, these writers' arguments can be extended to draw inferences about the possible impact of the new law.

One argument is that the benefits from use valuation are capitalized into the bid price of farmland. Sisson (26) states that "the net effect of the special farm valuation rules will be to capitalize at least part of the estate tax reductions into future land values, which will make farm entry more difficult." Boehlje and Harl (6) quantified the capitalized value or bid premium corresponding to the use valuation benefits for investors with different life expectancies. The results indicated that the present value of the

benefits from use valuation are larger for older farmers because less time elapses before they receive the benefits. They conclude that, ". . . use valuation legislation could enable older farmers to outbid younger farmers for a particular parcel of land, based strictly on the value of the tax benefits each would receive." Matthews and Stock (20) support a similar view, stating that "the beginning farmer will likely face higher land prices, which reflect the capitalized advantages offered wealthy persons who want to reduce the estate tax impact." Since the increase in the maximum allowable reduction from use valuation augments the potential benefits from this provision, the 1981 act will result in a potential increase in the bid premium identified by several writers. Applying the above reasoning, the use valuation limit will lead to increased real estate prices.

A related argument is that the use valuation provision encourages farmers to increase their land holdings. This occurs because existing farmers who can qualify for this provision have tax incentives to buy more farmland, up to the point where they obtain the maximum allowable reduction from use valuation. Based on this argument, the increase in the use valuation limit will provide incentives for farmers to increase their land holdings even more. With respect to the 1976 legislation, Matthews and Stock (20) assert that use valuation "encourages qualified farmers to expand their land ownership rather than to diversify assets into retirement plans, stocks, and bonds." Boehlje notes that the use valuation provision "discourages liquidity planning on the part of farmers because the purchase of an illiquid asset--farmland--receives

special tax benefits." These arguments suggest that the use valuation provision influences investment decisions through the special tax treatment applied to farmland. The associated increase in demand for farmland could exert upward pressures on the price of real estate. Finally, Sisson (26) argues that larger farms receive greater benefits from use valuation. They can bid real estate away from smaller farmers. He concludes that "the use valuation rules act to encourage a situation characterized by fewer and larger farms, and provide less opportunity for the creation of moderate-sized, owner-operated farms on a scale which reflects one lifetime's wealth accumulation."

Several other arguments surrounding the use valuation provision stem from the eligibility rules set forth in the provision. These issues include the potential impact of use valuation on encouraging outside investment, influencing tenure arrangements, and tying farmland to particular families during the fifteen-year recapture period. The results of this study suggest that the 1981 tax law may increase the pecuniary incentives for qualifying for the use valuation provision and avoiding the recapture. However, analyzing the effect of the changes in the eligibility rules specified in the new law is beyond the scope of this paper.

The above discussion pertains primarily to the interaction between use valuation and estate size. Boehlje (2) indicated that the use valuation provision encourages the use of financial leverage and favored farms with a greater percentage of land to total assets. The results in this study indicate that a similar differential exists for estates with

various asset compositions and financial structures under the 1981 legislation. However, for the estate size analyzed in the asset mix and percent equity variations, the effect identified by Boehlje is maintained but not strengthened by the new law, as it was in the size variation.

Further research is needed to evaluate the impact of the 1981 tax act on the potential tax liabilities associated with farms that have alternative asset compositions and financial structures, which are large enough to benefit from the use valuation limit increase.

In the introduction of this paper, it is asserted that estate taxes can ultimately affect the structure of agriculture. One way in which the estate taxes may influence the agricultural sector is by providing pecuniary incentives for farmers to modify certain estate characteristics in order to reduce the potential tax liability. Research is needed to verify and measure the influence that a potential tax liability has on a farmer's decisions. Measuring this effect at the firm level would give insight into ascertaining the aggregate impact of estate taxes on certain dimensions of the agricultural sector such as resource pricing and allocation.

As mentioned above, Boehlje and Harl (6) calculated the benefits from the use valuation provision on a per acre basis for investors with different life expectancies, while in this study the spouses' ages are held constant for all scenarios examined. Since Boehlje's and Harl's calculations indicate that the farmer's age can significantly influence the potential bid premium associated with the use valuation tax benefits

for a farmland investment, the benefits from the use valuation reduction limit increase should be incorporated into these calculations.

In addition, the consequences of the changes in the eligibility rules in the use valuation and installment provisions need to be determined. For instance, the relaxation in the active management requirement can be expected to increase the number of estates which qualify for the use valuation provision. The decrease in the recapture period and the two-year grace period specified in the 1981 Act will reduce the incidence of recapture. With respect to the installment payment of tax provision, the reduction in the amount of property in an estate which must be a part of a "closely held family business" is expected to increase the number of estates which qualify for deferred payment of tax. These changes merit investigation since each may have significant impact on the agricultural sector.

Further research should be directed at assessing the burden of estate transfer costs outside of the federal tax liability. The results in this study suggest that additional transfer costs are a more significant cost than the federal tax liability for a $500,000 estate. As such, reducing these non-estate transfer costs may be a better approach to aiding small farmers in an intergenerational transfer than reducing the federal tax liability.

Finally, several parameters in this study, such as will specification and marital divisions of property are held constant in order to isolate the effect that size, asset composition, and financial structure has on the financial consequences resulting from

intergenerational transfers of farm estates. Alternatively, a different procedure could be used to analyze the effect of some other changes made in estate tax law. For instance, under the 1981 legislation, gifting between spouses is tax free. This change reduces some of the disincentives associated with reapportioning property ownership between husband and wife. Thus, estate planners will have more flexibility in modifying this aspect of the farm estate, which in some instances can have a significant impact on the potential tax liability. Accordingly, research should be directed at finding the distribution of property between spouses which will reduce the potential tax liability for various estate situations.

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APPENDIX I. LIQUIDITY LOSSES UNDER THE PRE-1981 AND POST-1981 LAWS FOR DIFFERENT SIZE FARM ESTATES IN THE IMMEDIATE DEATH SITUATION

INITIAL NET WORTH	CASE	LIQUIDITY LOSS AT HUSBAND'S DEATH		CHANGE	LIQUIDITY LOSS AT WIFE'S DEATH		CHANGE	TOTAL LIQUIDITY LOSS		CHANGE
		PRE-1981	POST-1981		PRE-1981	POST-1981		PRE-1981	POST-1981	
($)		($)	($)	($)	($)	($)	($)	($)	($)	($)
500000	1	705	705	0	3900	2892	1008	4605	3597	1008
500000	2	705	705	0	733	666	67	1438	1371	67
500000	3	705	705	0	388	388	0	1093	1093	0
500000	4	705	705	0	388	388	0	1093	1093	0
750000	1	981	981	0	10099	7311	2788	11080	8292	2788
750000	2	981	981	0	1552	1491	61	2533	2472	61
750000	3	981	981	0	2252	1244	1008	3233	2225	1008
750000	4	981	981	0	764	623	141	1745	1604	141
1000000	1	2388	1257	1131	17155	14905	2250	19543	16162	3381
1000000	2	1327	1257	70	2354	2317	37	3681	3574	107
1000000	3	1257	1257	0	4239	3231	1008	5496	4488	1008
1000000	4	1257	1257	0	1366	1240	126	2623	2497	126
1500000	1	5647	4059	1588	32056	30320	1736	37703	34379	3324
1500000	2	2056	1966	90	3914	3896	18	5970	5862	108
1500000	3	1808	1808	0	9096	7322	1774	10904	9130	1774
1500000	4	1808	1808	0	2769	2521	248	4577	4329	248
2000000	1	8868	6880	1988	48475	47514	961	57343	54394	2949
2000000	2	2774	2677	97	9209	9964	-755	11983	12641	-658
2000000	3	3070	2361	709	16948	11979	4969	20018	14340	5678
2000000	4	2449	2361	88	4591	3943	648	7040	6304	736
3000000	1	15713	12789	2924	86398	85736	662	102111	98525	3586
3000000	2	4229	4117	112	27968	29925	-1957	32197	34042	-1845
3000000	3	9549	5639	3910	49362	33867	15495	58911	39506	19405
3000000	4	4063	3750	313	15070	11764	3306	19133	15514	3619

CASE: 1 = QUALIFICATION FOR NEITHER TAX PROVISION
2 = QUALIFICATION FOR THE INSTALLMENT PAYMENT PROVISION
3 = QUALIFICATION FOR THE USE VALUATION PROVISION
4 = QUALIFICATION FOR BOTH SPECIAL TAX PROVISIONS

APPENDIX II. LIQUIDITY LOSSES UNDER THE PRE-1981 AND POST-1981 LAWS FOR DIFFERENT SIZE FARM ESTATES IN THE 10-YEAR PROJECTION

INITIAL NET WORTH	CASE	LIQUIDITY LOSS AT HUSBAND'S DEATH		CHANGE	LIQUIDITY LOSS AT WIFE'S DEATH		CHANGE	TOTAL LIQUIDITY LOSS		CHANGE
		PRE-1981	POST-1981		PRE-1981	POST-1981		PRE-1981	POST-1981	
($)		($)	($)	($)	($)	($)	($)	($)	($)	($)
500000	1	1455	1225	230	36349	12887	23462	37804	14112	23692
500000	2	1237	1225	12	5247	4970	277	6484	6195	289
500000	3	1225	1225	0	6708	2970	3738	7933	4195	3738
500000	4	1225	1225	0	3565	2970	595	4790	4195	595
750000	1	4414	1819	2595	67201	42142	25059	71615	43961	27654
750000	2	1939	1819	120	16593	17683	-1090	18532	19502	-970
750000	3	1819	1819	0	32968	5786	27182	34787	7605	27182
750000	4	1819	1819	0	7135	5786	1349	8954	7605	1349
1000000	1	7382	2435	4947	102525	74057	28468	109907	76492	33415
1000000	2	2658	2435	223	47506	49598	-2092	50164	52033	-1869
1000000	3	2435	2435	0	62284	23047	39237	64719	25482	39237
1000000	4	2435	2435	0	14737	9606	5131	17172	12041	5131
1500000	1	17194	3650	13544	176794	150087	26707	193988	153737	40251
1500000	2	4082	3650	432	119677	123087	-3410	123759	126737	-2978
1500000	3	7603	3638	3965	132417	86378	46039	140020	90016	50004
1500000	4	3940	3638	302	79288	61919	17369	83228	65557	17671
2000000	1	28128	8411	19717	262704	231654	31050	290832	240065	50767
2000000	2	5619	5138	481	208457	201122	7335	214076	206260	7816
2000000	3	13776	4848	8928	219296	160520	58776	233072	165368	67704
2000000	4	5411	4848	563	158138	133520	24618	163549	138368	25181
3000000	1	51777	20086	31691	469174	399731	69443	520951	419817	101134
3000000	2	11386	10691	695	425979	360145	65834	437365	370836	66529
3000000	3	32769	11729	21040	423147	323486	99661	455916	335215	120701
3000000	4	8347	7598	749	364109	291966	72143	372456	299564	72892

CASE: 1 = QUALIFICATION FOR NEITHER TAX PROVISION
2 = QUALIFICATION FOR THE INSTALLMENT PAYMENT PROVISION
3 = QUALIFICATION FOR THE USE VALUATION PROVISION
4 = QUALIFICATION FOR BOTH SPECIAL TAX PROVISIONS

APPENDIX III. LIQUIDITY LOSSES UNDER THE PRE-1981 AND POST-1981 LAWS FOR $1,000,000 FARM ESTATES WITH DIFFERENT LAND/ASSET RATIOS

LAND/ ASSET RATIO	CASE	LIQUIDITY LOSS AT HUSBAND'S DEATH		CHANGE	LIQUIDITY LOSS AT WIFE'S DEATH		CHANGE	TOTAL LIQUIDITY LOSS		CHANGE
(%)		PRE-1981 ($)	POST-1981 ($)	($)	PRE-1981 ($)	POST-1981 ($)	($)	PRE-1981 ($)	POST-1981 ($)	($)
IMMEDIATE DEATH:										
75	1	2388	1257	1131	17155	14905	2250	19543	16162	3381
75	2	1327	1257	70	2354	2317	37	3681	3574	107
75	3	1257	1257	0	4239	3231	1008	5496	4488	1008
75	4	1257	1257	0	1366	1240	126	2623	2497	126
50	1	2388	1257	1131	11343	10890	453	13731	12147	1584
50	2	1327	1257	70	2354	2317	37	3681	3574	107
50	3	1257	1257	0	6677	5668	1009	7934	6925	1009
50	4	1257	1257	0	1748	1656	92	3005	2913	92
25	1	2388	1257	1131	11343	10890	453	13731	12147	1584
25	2	1327	1257	70	2354	2317	37	3681	3574	107
25	3	1482	1257	225	9154	8256	898	10636	9513	1123
25	4	1276	1257	19	2073	2008	65	3349	3265	84
10-YEAR PROJECTION:										
75	1	7382	2435	4947	102525	74057	28468	109907	76492	33415
75	2	2658	2435	223	47506	49598	-2092	50164	52033	-1869
75	3	2435	2435	0	62284	23047	39237	64719	25482	39237
75	4	2435	2435	0	14737	9606	5131	17172	12041	5131
50	1	6193	2207	3986	45517	27562	17955	51710	29769	21941
50	2	2409	2207	202	17865	18627	-762	20274	20834	-560
50	3	2251	2207	44	23883	9778	14105	26134	11985	14149
50	4	2212	2207	5	8529	7163	1366	10741	9370	1371
25	1	5006	1979	3027	26055	18943	7112	31061	20922	10139
25	2	2154	1979	175	9415	10009	-594	11569	11988	-419
25	3	2990	1979	1011	17019	8972	8047	20009	10951	9058
25	4	2055	1979	76	6452	5875	577	8507	7854	653

CASE: 1 = QUALIFICATION FOR NEITHER TAX PROVISION
2 = QUALIFICATION FOR THE INSTALLMENT PAYMENT PROVISION
3 = QUALIFICATION FOR THE USE VALUATION PROVISION
4 = QUALIFICATION FOR BOTH SPECIAL TAX PROVISIONS

APPENDIX IV. LIQUIDITY LOSSES UNDER THE PRE-1981 AND POST-1981 LAWS FOR $1,000,000 FARM ESTATES WITH DIFFERENT EQUITY RATIOS

EQUITY RATIO	CASE	LIQUIDITY LOSS AT HUSBAND'S DEATH		CHANGE	LIQUIDITY LOSS AT WIFE'S DEATH		CHANGE	TOTAL LIQUIDITY LOSS		CHANGE
		PRE-1981	POST-1981		PRE-1981	POST-1981		PRE-1981	POST-1981	
(%)		($)	($)	($)	($)	($)	($)	($)	($)	($)
IMMEDIATE DEATH:										
100	1	2388	1257	1131	17155	14905	2250	19543	16162	3381
100	2	1327	1257	70	2354	2317	37	3681	3574	107
100	3	1257	1257	0	4239	3231	1008	5496	4488	1008
100	4	1257	1257	0	1366	1240	126	2623	2497	126
80	1	2639	1565	1074	18162	15886	2276	20801	17451	3350
80	2	1629	1565	64	2800	2760	40	4429	4325	104
80	3	1565	1565	0	2679	1671	1008	4244	3236	1008
80	4	1565	1565	0	1356	1214	142	2921	2779	142
60	1	3058	2079	979	19851	17511	2340	22909	19590	3319
60	2	2136	2079	57	3520	3476	44	5656	5555	101
60	3	2079	2079	0	2114	1896	218	4193	3975	218
60	4	2079	2079	0	1923	1896	27	4002	3975	27
10-YEAR PROJECTION:										
100	1	7382	2435	4947	102525	74057	28468	109907	76492	33415
100	2	2658	2435	223	47506	49598	-2092	50164	52033	-1869
100	3	2435	2435	0	62284	23047	39237	64719	25482	39237
100	4	2435	2435	0	14737	9606	5131	17172	12041	5131
80	1	9914	2958	6956	118644	91641	27003	128558	94599	33959
80	2	3201	2958	243	64253	66618	-2365	67454	69576	-2122
80	3	2958	2958	0	78737	38625	40112	81695	41583	40112
80	4	2958	2958	0	30970	14630	16340	33928	17588	16340
60	1	14912	3872	11040	146452	123616	22836	161364	127488	33876
60	2	4146	3872	274	93905	96659	-2754	98051	100531	-2480
60	3	4618	3828	790	107539	66056	41483	112157	69884	42273
60	4	3883	3828	55	59014	41597	17417	62897	45425	17472

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