The Effect of the Housing Boom on Farm Land Values via Tax-Deferred Exchanges

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ABSTRACT: This project examines Section 1031 of the Internal Revenue Code and agriculture land exchanges. Stakeholders in rural communities and agriculture are particularly interested in Section 1031 because the recent growth in transaction values of farmland may have, in part, been stimulated by Section 1031 land exchanges. Further, although many have speculated that such exchanges are widely used, little empirical research exists about the provision. We examine the theory of exchanges and develop a theoretical premium value for exchanges. We also present the first evidence of like-kind exchanges involving farmland using Federal tax data.

INTRODUCTION

The potential impact of fluctuations in the value of real estate, or real property, on the overall economy became painfully apparent in the U.S. and many other parts of the world in 2008. While most of the attention has been focused on the bubble in housing there was an equivalently dramatic rise in the value of farmland transactions. While there were many common and uncommon factors that led to the rise in residential and agricultural land transaction values, a piece of the Federal tax code (Section 1031) related to the treatment of capital gains could have provided a pathway for the housing bubble to significantly affect farmland transaction prices. While there is widespread belief that the rapid increase in the use of 1031 exchanges in recent years may have contributed to the increase in the transaction prices of farmland[1], this is the first empirical examination of this question at the national level.

Section 1031 of the Internal Revenue Code permits taxpayers to defer the recognition of gains or losses for tax purposes from the disposition of property if the taxpayer engages in a 'like kind' exchange. The use of like-kind exchanges in all types of real estate increased significantly starting in the late 1990's. Recent research has shown that 1031 buyers pay more for property and take on more risk than other buyers in the commercial real estate sector (Ling and Petrova, 2008).

There are a few important characteristics of the policy and the market for farmland that could have allowed like-kind exchanges to have a significant effect on farm land values.

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[1] Throughout the paper, when we use the term "value of farmland" or "land value" we are referring to the transaction value, not the "productive value" of the land, which is a term associated with the value of the agricultural output of the land.

1) Section 1031 requires that a replacement property is identified within 45 days of the sale of the previous property and that the exchange is completed within 180 days.

2) An equivalent *value* of real property must be exchanged to completely defer capital gains tax on the sale of the relinquished property.

3) The housing boom stimulated the sale of farmland for residential and commercial development where this farmland was sold at a much higher price than an equivalent parcel of farmland without development pressure.

4) A relatively small amount of farmland is available for purchase in any given year.

A typical transaction might involve the sale of a parcel of farmland to a developer at a higher price than what equivalent land that would be expected to remain in agriculture would be sold for. The seller then has a limited time frame to identify and purchase another piece of real estate of equivalent value to defer paying capital gains tax. This could require purchasing a much larger amount of land than was sold if the seller prefers to purchase farmland that will remain in agriculture. Given that a relatively small amount of farmland is available for purchase at any given point in time there is significant pressure to buy what is available causing upward price pressure on farmland, which is exacerbated if the seller prefers to buy land in a particular area. As a result, the sale of a relatively small amount of farmland to a developer for a comparatively high price could potentially result in a significant increase in the sale price of farmland as those seeking to meet the 1031 exchange requirements compete with other buyers.

While many parties have speculated about the extent and degree to which real farm property was being disposed of through like-kind exchanges and its effect on farm land values, there has been limited research on the topic. Concerns were raised in a 2006 article in the Farm Journal about Section 1031 "shaking up" rural America by creating a competition between young farmers and urban landlords (Bernick 2006). The article suggests that younger farmers wishing to acquire farmland are often outbid by investors with "1031 money", who are in some cases older farmers who own large, valuable tracts and wish to avoid paying capital gains taxes and preserve their investment in the land through an exchange until they can pass the land to heirs. Despite these claims, little is known about the true volume of such exchanges.

In this article we address some of these concerns to the extent the data allow us. We present the first national analysis of tax data for like-kind exchanges deferring capital gains under Section 1031. Using data from the IRS's Sales of Capital Assets Panel Study, we examine like-kind exchanges and total farm land sales for the years from 1999 to 2005. We present a time-series of exchange volume as well as data on the characteristics of the exchange including the value of assets involved and the value of gains deferred. Further, because of the detail of the tax data, we are able to examine the extent to which famers are participating in Section 1031 like-kind exchanges. Together, these data provide insight into the relative importance of such exchanges.

BACKGROUND

Section 1031 of the IRS Code[2] allows for the nonrecognition of gain or loss from exchanges solely in kind. The Code holds that property must be productive or investment

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[2] As amended through December 31, 2008.

property, such as real estate, and exchanged for a property that is of like kind, and meets other requirements, such as timeliness of identification. In practice this means that an owner of real estate, working with an exchange intermediary who temporarily holds the titles involved in the exchange, may sell it and buy another piece of real estate that is of like kind and defer capital gains taxes, assuming there was a gain. As an example, an owner of a shopping center may sell the shopping center and buy agricultural land under Section 1031.

Tax-deferred exchanges have been around in one form or another for quite a while. The Revenue Act of 1921 established a provision that allowed for a tax-deferred exchange of assets that loosely resembled the Section 1031 of the Code as it stands today. Subsequently, revisions were made, and in 1979, in the case of Starker v. United States, clarification was given on the mechanics of a nonsimultaneous exchange and a ruling established the meaning of term "like-kind".

Recently, important actions by the IRS have helped to clarify how 1031 exchanges may be conducted, what types of ownership would be considered permissible, and how a request for a ruling from the Service should be structured. The practical effect for taxpayers of these actions was to reduce uncertainty about the exchange, therefore increasing the likelihood of successfully deferring capital gains.[3]

Like-kind exchanges have received limited attention in the literature, probably because of the uncertainty created by the code prior to the aforementioned IRS revenue procedures. The first research on the issue we have identified comes from Cowell and Dehring (2001). In their article, they develop a model of "tax-free" exchange for farmland under a simultaneous exchange scenario. They simplify the exchange case

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[3] See Revenue Procedures 2000-37 and 2002-22.

between a farmer and a developer by only considering the net cash from a transaction. By doing this, they express the sale versus exchange decision as a function of price and acre ratios. Considering a case of a farmer owning undeveloped land that a developer wishes to develop, a developer can purchase land outright from the farmer or can purchase other land and offer it to the farmer in an exchange. The essence of their argument is that the farmer has an incentive to exchange with developers based on the potential value of the capital gains deferral, and developers will agree to an exchange if they can offer a replacement property of less value than what they would have to pay to buy the undeveloped property.

Other Section 1031 research focuses on commercial real estate. In 2002, Holmes and Slade examined the impact of tax-deferred exchanges in the commercial real estate market of Phoenix, Arizona. They argue that the restrictions, particularly those concerning asset identification and disposal, imposed by the Section constrain exchangers and create price premiums. Owners of capital assets who choose to exchange a piece of property, in this case real property, face several complicating issues. In order to meet IRS requirements for a Section 1031 exchange, owners must adhere to time constraints for identifying replacement property and disposing of the relinquished property. Compliance risk may force the taxpayer exchanging the assets to pay a premium on the price. In addition, the taxpayer will incur transaction costs associated with the exchange, which may be higher that the costs associated with a taxable sale. Holmes and Slade use detailed market data from the CoStar Group to examine the effect the Section 1031 has on price differentials in the apartment market. Using the hedonic analysis, they show that the "price pressure hypothesis" is responsible for increasing the price of the replacement

property in a statistically significant way, though the price of the relinquished property is not affected.

Recently, Ling and Petrova (2008) study the effect of tax-deferred exchanges on transaction prices in multiple commercial real estate markets, focusing on the theoretical reservation price and observed market price. They first present a numerical tax-deferral valuation model to calculate the value of a capital gain tax deferral. In essence, the model compares the net present value (NPV) of a sale-purchase to the NPV of an exchange. The NPVs depend on many factors, including transaction costs, sales price of the disposed asset, acquisition price of the replacement asset, allowable depreciation, and holding periods for assets. The estimated magnitude of the tax deferral benefits increase with the length of holding of a relinquished property—a function of the accumulated gain. The value of tax-deferral is also positively related to the proposed length of the holding period of the replacement property because the tax benefit is felt immediately, and the benefit increases with the value of the capital gain tax. On the other hand, higher exchange costs reduce the tax-deferral benefit. Their numerical analysis based on the theory of such an exchange suggests a 5-10% price effect due to the tax-deferral.

To empirically estimate the value of capital gain of tax deferral, Ling and Petrova use a hedonic framework. They estimate the price of a property as a function of the characteristics of the property plus the impact the tax-deferred exchange has on price vis-à-vis the relative bargaining positions of the sellers and buyers.

Ling and Petrova use three proxies to measure the impact of bargaining, each a binary variable for 1) the sale of property used by the buyer to complete a 1031 exchange, 2) the sale of property being used to replace a property (or begin the

transaction), and 3) the sale of a property that is being used by the buyer and seller to complete a transaction and begin a transaction, respectively. Results show that taxpayers pay a price premium to acquire replacement property. In terms of economic significance, the results from the empirical study suggest buyers are paying a price premium of 5-35% to purchase replacement property, depending on the local market—a figure far higher in many cases than their theoretical model predicts.

MODEL

To consider whether the potential to defer taxes on capital gains from the sale of real property could affect the sale price of a parcel of farmland, we modify the model put forth by Ling and Petrova. We also evaluate the expression in order to examine the comparative statics and make predictions about how the value of the exchange varies with policy changes. While IRC section 1031 applies to the sale of any investment real property limiting this analysis to farmland simplifies analysis because it minimizes the importance of capital depreciation that is much more relevant when buildings rather than land constitute a majority of the property value. According to the Code, land cannot depreciate, and buildings constitute a small portion of the total value of most farmland sales. Therefore, we eliminate the consideration of depreciation. To compare apples to apples it is assumed that the original property is of the same value for the exchange and sale.

To estimate the potential effect of exchanges on land values we consider the scenario where a hypothetical landowner acquires a property in period *t-m* that is relinquished in period *t,* at which point a second property is acquired that is then sold in

period $t+n$. A sale–purchase approach is one option where the first property is sold and tax is paid on the increased value of the land over the holding period, and then a second property is acquired that is the value of what remains after taxes and other costs are paid after the sale. Alternatively, the owner can perform an exchange and defer paying capital gains tax in period t. Assuming no additional financing is available, this allows them to acquire a more valuable property than was possible when using a sale–purchase. Although, when the second property is sold capital gains are based on the original basis, or the value of the first property in period t-m. To recap, performing a 1031 exchange benefits the owner in two ways. Deferring the capital gains tax to a later period means that it is discounted in present value terms. Also, an exchange gives the owner more money when acquiring the replacement property that results in receiving more in rent each year from t to $t+n$ if the exchanger acquires more acreage. The size of the investment in the replacement property is also greater because of the deferred tax.

To fully account for the potential premium placed on an exchange, equations (1) and (2) show the present value of a sale–purchase and an exchange of the two properties in period t. For a sale (1) captures the amount received from the sale of the first property minus the capital gains tax, the price paid for the second property, and the cost of the sale: $P_t^1 - \tau_{cg}(P_t^1 - P_{t-m}^1) - P_t^S - C_t^S$. The sale price of the relinquished property at time t is P_t^1; P_{t-m}^1 represents the owner's basis in the relinquished property, the capital gains tax rate is τ_{cg}, and P_t^S is the purchase price of the replacement property. C_t^S is the transaction cost of the sale. This is followed by the rent, R_i^S, received each year per acre for the second property after ordinary income taxes, represented by τ_o. The last term is the value of the sale of the replacement property in period $t+n$ discounted to period t.

The value of an exchange shown in (2) is largely the same as that of a sale except there is no capital gains tax paid after the sale of the first property. Since we assume that all of the proceeds of the sale of the first property are used to acquire the second, the second property using an exchange will be of greater value than a sale. Equation (5) is the "no free money" restriction that rules out any outside financing in acquiring the second property. Equation (3) is the discount rate δ and the discount factor β. Equation (7) provides the basis for the remainder of the analysis by capturing the premium placed on an exchange by subtracting the present value of the sale from that of the exchange in period t.

(1)
$$V_t^S = P_t^1 - \tau_{cg}(P_t^1 - P_{t-m}^1) - P_t^S - C_t^S + \sum_{i=1}^{n} \beta^i (1-\tau_o)R_i^S + \beta^n \left[P_{t+n}^S - \tau_{cg}(P_{t+n}^S - P_t^S) - C_{t+n}^S \right]$$

(2) $$V_t^E = P_t^1 - P_t^E - C_t^E + \sum_{i=1}^{n} \beta^i (1-\tau_o)R_i^E + \beta^n \left[P_{t+n}^E - \tau_{cg}(P_{t+n}^E - P_{t-m}^1) - C_{t+n}^S \right]$$

(3) $$\beta = \frac{1}{1+\delta}$$

(4) $P_t^E = P_t^1$ (The price of the replacement property is equal to the price of the relinquished property, i.e., investment is rolled into a new vehicle.)

(5) $P_t^S = P_t^1 - \tau_{cg}(P_t^1 - P_{t-m}^1)$ (The "no free money" constraint.)

(6) $C_t^E = C_t^S$ (The cost of doing an exchange is equal to the cost of a sale)

(7) $$V_t^{E-S} = \sum_{i=1}^{n} \beta^i (1-\tau_o)(R_i^E - R_i^S) + \beta^n \left[(P_{t+n}^E - P_{t+n}^S) - \tau_{cg}((P_{t+n}^E - P_{t+n}^S) + (P_t^S - P_{t-m}^1)) \right]$$

In equation (7), the first quantity captures the fact that the landowner will be able to accrue more in rents each year from the ownership of the replacement property since

they were able to acquire a more acreage than if they had used a sale–purchase strategy that requires paying capital gains tax at time t. This is a result of the "no free money" constraint in equation (5). As will be shown later, this is a function of the capital gains tax rate and the income tax rate. A higher income tax reduces the difference in the rents received between an exchanged property and a purchased property following a sale. This quantity is always positive, as is the second term in equation (7) that reflects the benefit from being able to defer the cost of paying capital gains tax into the future. This benefits the seller in two ways. The present value of the cost of paying capital gains tax is less because it is discounted, and the replacement property is of higher value than with a sale, as was described when discussing rents.

Before moving to more general analysis it helps to get a sense of what the exchange premium per acre is in a simple hypothetical scenario. It also helps to look at the first term capturing rents, and the second reflecting the effect of the change in land values separately.

Looking first at the second term, consider a scenario where a property increases from $1,000 to $4,000 per acre from t-m to t. Using a like-kind exchange, the seller delays paying capital gains tax and acquires a property of the same value per unit, $4,000.[4] Using a sale–purchase strategy with no additional financing allows the seller to acquire a second property worth only $3,550 per acre. The tax bill when selling this replacement property in t+n is based on the realized gains from t-m to t+n. If the second property for both the exchange and the sale increase in value by 20% from t to t+n, then the exchange and the sale properties are worth $4800/acre and $4260/acre, respectively.

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[4] Of course, it is possible that someone buys a larger amount of land, but keeping the analysis to a per unit basis makes the results easier to understand.

Assuming a capital gains tax rate of 15% means that the exchange property tax due in period $t+n$ is \$570/acre, while the same value for the sale is \$106.50/acre. Therefore, assuming a standard discount rate of 3% and n=5, the present value of the second term in (7) in period t is \$66/acre.

To estimate the effect of an exchange on rents it is necessary to make an assumption about the relationship between land values and rents. A standard approach used here is to assume that the value of the exchange and sale property in period t is equal to the present value of the discounted stream of rents for an infinite number of periods. This leads to the identities

(8) $\quad R_i^E \big/ \delta = P_t^E$

(9) $\quad R_i^S \big/ \delta = P_t^S$

Isolating the term in (7) capturing the rents and substituting for them using (8), (9), (4), and (5) gives (10)

(10) $\quad \sum\limits_{i=1}^{n} \beta^i (1-\tau_o)(R_i^E - R_i^S) = \sum\limits_{i=1}^{n} \beta^i (1-\tau_o)(\delta \tau_{CG}(P_t^1 - P_{t-m}^1))$

For the hypothetical case being considered, the present value of the exchange premium per acre from the rent portion of equation (7) where $n=5$, and the landowner's marginal income tax rate is 30%, comes out to \$43. Without discounting, the value per acre is just over \$18. For comparison, rent per acre for cropland in the Cornbelt sold for \$100 to \$165 in 2008[5]. Combining the results from both parts of equation (7), the premium placed on an exchange in this scenario is about \$100.

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[5] http://www.nass.usda.gov/Charts_and_Maps/Land_Values_and_Cash_Rents/crop_rent_map.asp

The question then is how much would the exchange premium change for such an individual? Before arriving at an exact number, it is not immediately clear whether the exchange premium will be higher than in the previous scenario. An increase in the income tax rate reduces the exchange premium, by reducing the difference between rents from an exchange versus a sale, while an increase in the capital gains tax rate makes it larger. A higher capital gains tax increases the value in deferring the tax on gains into the future since a larger amount is being discounted. So, keeping the marginal income tax rate at 30% but increasing the capital gains tax rate to 20% brings the exchange premium up to $154. To isolate the effect of the income tax, keeping the 15% capital gains rate but assuming an income tax rate of 39.6% results in an exchange premium of $104. Changing both the income tax rate to 39.6% and the capital gains tax to 20% brings the exchange premium to $147.

The premium becomes bigger if the growth in the value of the second property from t to $t+n$ is relatively bigger than the growth of the original property from $t-m$ to t. Using the above example but assuming a doubling of the value of the original property from $t-m$ to t, and a 300% increase in the value of the second property yields a per acre exchange premium from the non-rent portion of (7) of $219.70. While 300% may seem large, it is mild relative to the growth in the market value of farmland near some urban areas where there is intense development pressure. Recall that this does not include the value to an exchange from the rent portion of (7) that would increase the value.

This requires generalizing (7) slightly to incorporate the capital gains tax rate into the term capturing rents, which can be done by assuming that the value per acre of the

second property is equal to the net present value of the infinite stream of rents received from putting the land to its most valuable use.

The premium can, of course, vary significantly if there are changes to the value of the original property, the value of either property, the capital gains tax rate, the income tax rate, and the number of years n that the second property is held. To more easily consider the relative influence of each of these factors on the exchange premium it helps to make further substitutions to (7) to put it entirely in terms of the value of the original basis by including parameters to capture the change in value of the first and second land parcels.

(11) $\gamma \geq 0$: percent change in value from $t\text{-}m$ to t.

(12) $\alpha \geq 0$: percent change in value from t to $t+n$

(13) $R_i^E \Big/ R_i^S = P_t^E \Big/ P_t^S$

(14) $P_t^E = \gamma P_{t-m}^1$

(15) $P_t^S = \gamma P_{t-m}^1 - \tau_{CG}(\gamma P_{t-m}^1 - P_{t-m}^1) = (\gamma - \gamma \tau_{CG} + \tau_{CG})P_{t-m}^1$

(16) $R_i^E - R_i^S = \delta \gamma P_{t-m}^1 - \delta \gamma P_{t-m}^1 \left(\gamma P_{t-m}^1 - \gamma \tau_{CG} P_{t-m}^1 + \tau_{CG} P_{t-m}^1 \Big/ \gamma P_{t-m}^1 \right) = \delta \tau_{CG}(\gamma - 1)P_{t-m}^1$

Using equations (8) through (14), we can write (7)--the premium value of an exchange over a sale–purchase strategy--solely in terms of the value of the original property and the choice parameters including capital gains tax rate, income tax rate, the discount rate, change in value of original property to period t, and the change in the value of the second property. It is assumed that all of the money remaining after the sale or exchange or sale of the first property is used to acquire the second property. This means that the second property will be of higher value for an exchange than a sale. Rents are

converted into property value by assuming that the price paid for the second property is equal to the discounted infinite stream of rents that would accrue from cash leasing the land,

(17)

$$V_t^{E-S} = \sum_{i=1}^{n} \beta^i (1-\tau_o) \delta\tau_{CG} (\gamma-1) P_{t-m}^1 + \beta^n \left[\tau_{CG} P_{t-m}^1 (1-\alpha-\gamma+\alpha\gamma) + \tau_{CG}^2 P_{t-m}^1 (\alpha+\gamma-\alpha\gamma-1) \right],$$

which simplifies to

$$(17b) \; V_t^{E-S} = \sum_{i=1}^{n} \beta^i (1-\tau_o) \delta\tau_{CG} (\gamma-1) P_{t-m}^1 + \beta^n \left[(\tau_{CG} - \tau_{CG}^2)(1-\alpha-\gamma+\alpha\gamma) P_{t-m}^1 \right].$$

The first-order conditions are:

$$(18) \quad \frac{\partial V_t^{E-S}}{\partial \tau_0} = -\sum_{i=1}^{n} \beta^i \tau_{cg} \delta(\gamma-1) P_{t-m}^1$$

and

(19)

$$\frac{\partial V_t^{E-S}}{\partial \tau_{CG}} = \sum_{i=1}^{n} \beta^i (1-\tau_o) \delta P_{t-m}^1 (\gamma-1) + \beta^n \left\{ P_{t-m}^1 (1-\tau_{CG})(1-\alpha-\gamma+\gamma\alpha) - P_{t-m}^1 \tau_{CG} (1-\alpha-\gamma+\gamma\alpha) \right\}$$

Considering the effect of the ordinary income tax rate on the value of the exchange premium above the sale requires evaluating the condition for several states of the value γ, the growth in the value of the relinquished property from time *t-m* to *t*.[6] When γ is less than 1, the sign of the derivative is positive. The value of an exchange premium is negatively related to the income tax rate when γ is greater than one, or stated another way, when the value of the relinquished property doubles. Intuitively, this is true because the larger the growth in the relinquished property, the greater the stream of rents that are

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[6] We only consider positive and nonzero values of γ.

derived from the replacement property; hence, because of capital gains tax due in a sale–purchase arrangement, the value of replacement property will be lower. The result comes from equation (13): When the growth rate is below 1, $P_t^S / P_t^E < 1$, and

because $R_i^S = P_t^S / P_t^E * R_i^E$, it follows that the difference between the rents will be negative. In the last case of γ=1, the sign is zero.

To evaluate the effect of a change in capital gains taxes, the cases must be evaluated based several parameters. The sign depends on what piece of the equation is dominant, and this will depend on the length of time the assets were held, respectively, the rental income ratio, δ, and the discount rate. Although these are not generalizable, two cases are. First, it is easy to see that when γ and α equal one, the sign of the derivative is zero. The other case that is self-evident is when both properties increase in value by more than 100%:

(19) $\dfrac{\partial V_t^{E-S}}{\partial \tau_{CG}} > 0$ when γ>1, α>1.

In this case, as capital gains taxes increase, the incremental value of an exchange over a sale is positive. We will not run through all the possible combinations of parameters; however, later in the paper, we discuss the impact of tax changes proposed in the 2010 President's Budget.

ANALYSIS OF FARMLAND EXCHANGES

We now turn from our analysis of the theory of an exchange to present a descriptive study of the disposition of real farm property using Federal tax data. We

assemble a time series of tax-deferred exchange and farmland sales data from the Internal

Revenue Service's Sales of Capital Assets (SOCA) Panel Study for tax years 1999

through 2005. The SOCA Panel Study contains information on like-kind exchanges,

recorded on the IRS Form 8824 and attached to an individual's tax return. The advantage

of the SOCA data is that it offers access to detailed information on the 1031 exchange.

The form contains information on the asset class of both the relinquished property and the

received property, the dates of the transactions, as well as information on the fair market

value (FMV) of the property received, and the deferred gain on the exchange. Our

analysis focuses on three permutations of like-kind transactions involving real farm

property. These are: farmland exchange for farmland, non-farmland property exchanged

for farmland, and farmland exchanged for non-farmland property. The SOCA data

provide information on the fair market value of the assets exchanged, as well as the

length of time the assets were held. Information for all farm land sales is also presented.

SOCA DATA

In order to answer questions about Section 1031's effect on changing farmland

values, it is necessary to identify the types of assets exchanged. We source our data from

the Internal Revenue Service's Statistics of Income (SOI) program. The program

provides data on tax laws as mandated by the Revenue Act of 1916. The SOI publishes

statistics on an annual basis that cover all facets of Federal tax policy. As part of their

charge, the SOI developed a stratified sample of individual returns to study the form 1040

Sales of Capital Assets (SOCA). The most recent panel was initiated in tax year 1999

with a cross-sectional sample from the population of all individual returns for that year. As described by the SOI:

> "This periodic study provides detailed data on the sales of capital assets reported in the capital gains schedule of the individual income tax return, and on sales of residences and personal or depreciable business property." (IRS 2009)

Form 8824, the form that reports like-kind exchanges, contains a wealth of information about the type of asset class of the relinquished property, received property, dates of the transactions, as well as information on the fair market value (FMV) of the property received, the adjusted basis of the property relinquished, any additional property, cash, or assumed liability (often called the "boot") involved in the exchange, as well as any recognized or deferred gain on the exchange. Based on the taxpayers description of the like-kind properties involved in the exchange, we classify the property as farm-ranchland or other type of like-kind property.

Farmers and non-operators who own farmland may also dispose of farmland through a regular sale, and to the extent there are gains or losses, recognize them for income tax purposes. To capture sales of farmland in each tax year of the study, we compile additional SOI data from two other sources: Schedule D of Form 1040, and Form 4797.

It should be noted that because we do not have direct access to the SOCA panel microdata, our analysis relies on special tabulations obtained from the SOI Individual Returns Branch. Unfortunately, the lack of microdata and the short time period precludes regression modeling because aggregating the data to yearly data points results in so few observations we lose important variation and thus have no way to identify coefficients of

interest to policy makers. Despite the lack of microdata, the tabulations on a national level are valuable because they provide the first objective examination of the state of real farm property exchanges during a crucial time period.

Time series analysis of exchanges

The number of like-kind exchanges involving farmland has increased in recent years. However, these exchanges continue to represent a relatively small share of farmland dispositions, including sales. At the same, time exchanges generally involve larger transactions. While farmers engage in a number of like-kind exchanges, the majority of exchanges involving farmland are by nonfarmers. However, exchanges by nonfarmers tend to involve smaller amounts with less gain to defer.

Table 1 presents data on like-kind exchanges from 1999-2005.[7] The first line of the table reports total number of like-kind exchanges reported by taxpayers in each tax year, regardless of asset type. The exchanges in table 1 describe the three types of exchanges involving farmland. These include: (1) farmland exchanged for another type of like-kind property, for example, residential rental property or timberland; (2) farmland exchanged for other farmland; (3) other property exchanged for farmland.

Like-kind exchanges involving farmland were the greatest in the 1999, both in absolute and relative terms. In 1999, the number of farmland exchanges was more than twice as great as the next highest year, 2002, and accounted for 7% of all like-kind exchanges.

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[7] Data for 2004 were unavailable.

Table 1
Counts of like-kind exchanges involving farmland

Type of exchange	1999	2000	2001	2002	2003	2005
Total like-kind exchanges	116,014	135,221	121,495	179,971	186,774	n.a.
Farmland exchanged for other property	2,539	177	568	5	95	n.a.
Farmland exchanged for farmland	5,022	2,198	2,144	2,785	32	2,562
Other property exchanged for farmland	5	138	19	74	15	n.a.
Total involving Farmland	7,566	2,513	2,731	2,864	141	2,562

Source: Statistics of Income, Sales of Capital Assets Panel Study.
Note: n.a.=not available.

Farmland-for-Farmland exchanges were the dominant form of exchange

The majority of exchanges involving farmland on either end of the exchange were dominated by the farmland-for-farmland exchange. In fact, exchanges in which farmland was exchanged for farmland accounted for 97% of exchanges in 2002 and 77% over the 1999-2003 period.

While overall like-kind exchanges have continually grown since 1999, that year was the biggest year for total exchanges involving farmland. Farmland for farmland exchanges in 1999 were nearly twice the number of any following year. Figure 1 illustrates the contrast across years. Clearly, there was a flurry of activity in 1999. To address why there were a relatively high number of farmland exchanges, more research is needed; however, a number of provisions in the Taxpayer Relief Act of 1997 may provide some clues about exchange behavior in 1999. A provision of the Act reduced the 20% capital gains rate to 18% (8% for taxpayers in the 15% ordinary income tax bracket)

for assets held more than five years, beginning in 2001.[8] Thus, one plausible strategy

would be to exchange the land in 1999 and hold it until 2006, when it could be sold and

the gains taxed at the 8% or 18% amount, rather than selling in 1999 and paying the 20%

rate. Another feature of the Act allowed for a larger exclusion for estate tax purposes for

certain land subject to a permanent conservation easement. This feature would have

added an incentive for farmers to exchange high value land, perhaps because of the

development potential.[9] Under this strategy, a farmer or owner of farmland would defer

capital gains taxes, and their estate would benefit from the larger exclusion, which was

$100,000 in 1998 but increased to $500,000 in 2002. These are two plausible reasons for

the volume of exchanges in 1999, but more research is needed.

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[8] It should be noted the Act also reduced the capital gains rate to 20% (10% for taxpayers in the 15%
bracket), however this would not encourage exchanges but rather sales.
[9] Because the Act explicitly targeted land near metropolitan areas, farmer-developer exchanges were likely.

Figure 1. Time trend for exchanges.
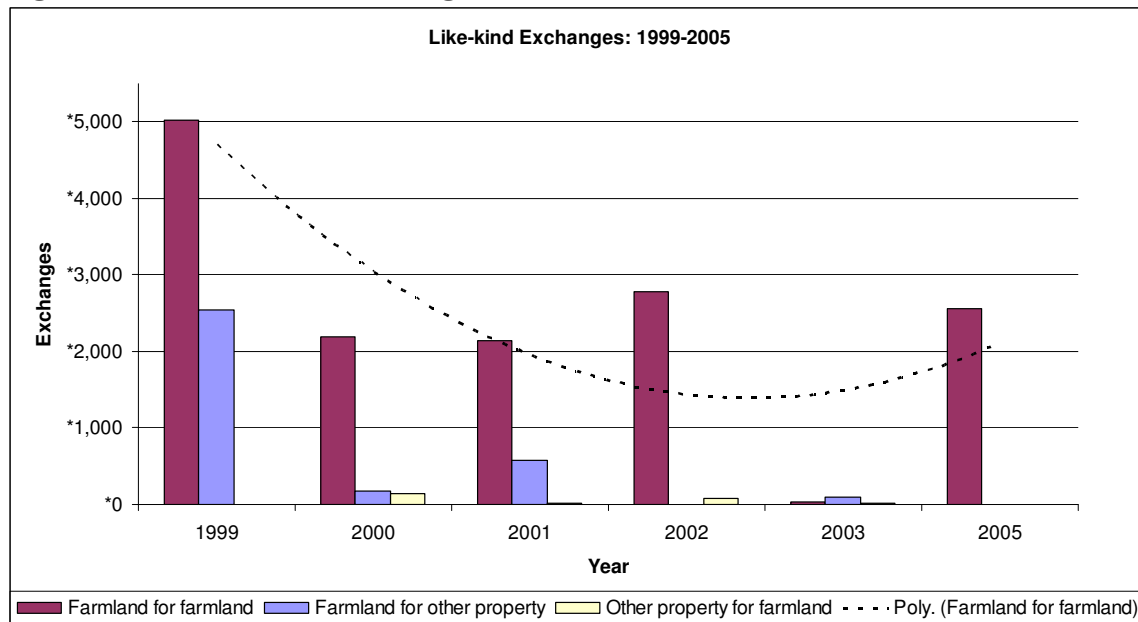
Source: Statistics of Income, Sales of Capital Assets Panel Study.
Note: Data not available for 2004. For tax year 2005, only data for farmland-to-farmland exchanges are shown.

Sale of farm real property outnumbered exchanges by a wide margin in every year of the study

To provide perspective on the size of exchanges, Table 2 presents long-term and short-term gains involving farmland. Clearly, the sale of farmland is the primary method for disposition of farmland. In 1999, for every exchange involving farmland, nearly 7 sales took place.

Table 2
Counts of sales involving farmland

	1999	2000	2001	2002	2003	2005
Long-term net gains	40,149	43,398	39,707	53,922	53,567	n.a.
Short-term net gains	9,077	4,958	5,635	2,227	2,812	n.a.
Total	49,226	48,356	45,343	56,149	56,379	n.a.

Source: Statistics of Income, Sales of Capital Assets Panel Study.
Note: n.a.=not available.

The average value of an exchange was greater than average value of a sale.

While the number of farmland exchanges has increased it is important to keep in mind that the number of like-kind exchanges conducted during this period was a small fraction of all dispositions of real farm property. In most years, like-kind exchanges only accounted for about 5% of all real property dispositions.

Table 3
Fair market value of exchanges involving farmland

Type of exchange	1999	2000	2001	2002	2003	2005
Farmland exchanged for other property	834,692 [328.81]	178,731 [1010.18]	105,640 [185.92]	16,611 [3169.96]	139,666 [1475.92]	n.a.
Farmland exchanged for farmland Average value	4,030,358 [802.57]	387,983 [176.53]	311,036 [145.07]	379,971 [136.45]	134,342 [4185.12]	1,160,440 [452.94]
Other property exchanged for farmland Average value	7,399 [1412.00]	206,316 [1496.24]	31,851 [1701.44]	26,958 [362.14]	17,499 [1199.42]	n.a.

Source: Statistics of Income, Sales of Capital Assets Panel Study.
Note: Values are in thousands of dollars. Average values per exchange are in brackets. n.a.=not available.

Table 4
Value of gains from farmland sales

	1999	2000	2001	2002	2003	2005
Long-term net gains						
	1,416,890	1,841,149	1,240,430	2,409,368	1,063,414	n.a.
(average)	[47.13]	[50.34]	[9.57]	[34.38]	[19.20]	
Short-term net gains						
	280,078	26,406	85,278	14,504	24,197	n.a.
(average)	[30.85]	[5.33]	[15.13]	[6.51]	[8.61]	

Source: Statistics of Income, Sales of Capital Assets Panel Study.
Note: Values in thousands of dollars. n.a.=not available. Average values per sale are in brackets. Long-term net gains from sales reported on Schedule D and Form 4797 Part I, II, and III. Short-term net gains from sales reported on Schedule D.

More nonfarmers exchange farmland but farmers defer more gains

Table 5 presents the number and value of like-kind exchanges made by farmers and nonfarmers in tax year 2005. Taxpayers are classified as farmers if they reported income from farming, for example, reported a profit or loss from farming on Schedule F (Form 1041), or reported farming as their occupation on Form 1040. The first notable feature of the table is that nonfarmers engaged in far more like-kind exchanges involving real farm property. The second feature of the table that strikes the reader is that the potential tax-deferred value of the exchange is much greater for farmers, that is, the fair market value of the property received was much higher than the property relinquished, particularly when the exchange involved farmland and other types of real property. Nonfarmers, however, have much more deferrable gains because they represent the majority making the exchanges.

Table 5
Farmers and nonfarmers, exchanges in 2005

Type of exchange	Number of exchanges	FMV of Property Received[1]	Adjusted basis of Property Relinquished[1]	Recognized gain[1]	Deferred gain[1]
Farmers					
Farmland for farmland	624	572,820 [917.98]	106,339 [170.42]	479,688 [768.73]	466,481 [747.57]
Nonfarmers					
Farmland for farmland	1,938	587,620 [303.21]	358,922 [185.20]	32,636 [16.84]	261,685 [135.03]
Total	2562	$1,160,440	$465,261	$512,324	$728,166

Source: Statistics of Income, Sales of Capital Assets.
Notes: Average values per exchange are in brackets. Dollar in thousands.

Nonfarmers conducted a majority of like-kind exchanges, regardless of whether the exchange exclusively involved farmland or not. In 2005, non-farmers made 1,938 farmland-for-farmland exchanges, while farmers reported 624 such exchanges. There are far more nonfarmers in the workforce, so in a relative sense, farmers made a relatively large amount of exchanges compared with the rest of the US population. In 2004, the latest year for which the data are available, there were 2.1 million principal farm operators (USDA 2007) out of a civilian labor force of 139 million (USBLS 2007). Despite making up less than 2% of the workforce, farmers conducted 24% of the farmland-for-farmland exchanges. Depending on the orientation, the difference in the number of exchanges conducted by farmers and nonfarmers might be surprising. From the point of view of an economic or business interest, on the other hand, we might expect farmers to own a majority of the farmland in the US and therefore exchange most of the farmland, particularly when the exchange is farmland-for-farmland. Based on evidence from the 1999 Agriculture and Economics Land Ownership Survey, non-operators owned

51% of the 434 million acres of cropland in the US (ERS 2003). Though the data on land ownership and land rental are not available to further describe nonfarmers, many are likely non-operators that do not participate in the farm operation or report farm income and would not be considered farmers for tax purposes.

Nonfarmers (non-operators) on average are more likely to hold farmland as an investment. Thus, the average value of farmland-for-farmland exchanges was smaller for nonfarmers, which would suggests that smaller amounts of farmland were exchanged. In an average exchange, nonfarmers received land worth about $303,000, while farmers received land worth $918,000 on average.

The value of Section 1031 is much greater for farmers than nonfarmers. Farmers likely exchanged more in terms of acreage, and the spread between the FMV of the received property and the adjusted basis of the property relinquished was also much larger. Despite the fact that nonfarmers conducted more than three times the farmland-for-farmland exchanges, farmers deferred nearly twice as much gain. Farmers deferred $466 million in 2005 for farmland-for-farmland exchanges, while nonfarmers deferred $261 million. The average deferred gain for farmers was $747,566 compared to an average deferred gain of $135,121 for nonfarmers.

The gains recognized by taxpayers in an exchange generally include any cash received, as well as the fair market value of other property received plus any net liabilities assumed by the other party, all reduced by incurred exchange expenses. In farmland-for-farmland exchanges, gains recognized by farmers were slightly larger than the gains they deferred; nonfarmers recognized much less in gains than they deferred. On

average, farmers and nonfarmers recognized gains of $768,731 and $16,840, respectively.

The Fiscal Year 2010 President's Budget calls for changes to the ordinary income and long-term capital gains tax rates

The President's budget for 2010 consists of three amendments to the Code that would have practical effects for parties who wish to sell or exchange like-kind property. First, the President's budget extends tax law changes enacted in 2001[10] and 2003[11], which means retaining the 10%, 25%, 28%, and part of the 33% tax brackets for individual income rates. Second, the budget sunsets ordinary income rates from 2001 for taxpayers in the top two brackets, 33% and 35%. After the sun-set, the marginal rates return to pre-EGTRRA levels of 36% and 39.6%. Finally, the budget creates a new 20% marginal rate for capital gains for taxpayers who would otherwise be in the 36% and 39.6% ordinary income brackets.

In table 6 we consider changes to the ordinary income and capital gain tax changes and the associated incremental value (net present value) of an exchange. We have labeled the incremental value as the "exchange premium" and the difference between the premiums is reported below.

Table 6
Effect of the President's 2010 Budget on the incremental value of an exchange

Current Tax Rates		Proposed Tax Rates		Change in the Exchange Premium Per Acre
Income	Capital Gains	Income	Capital Gains	
33%	15%	36%	20%	$93
35%	15%	39.6%	20%	$193

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[10] Economic Growth and Tax Relief Reconciliation Act of 2001 (EGTRRA).
[11] Jobs and Growth Tax Relief Reconciliation Act of 2003 (JGTRRA).

We assume the relinquished property growth rates are γ=4 and α=2, and the holding period of the replacement property is 15 years. From the table, we can see that the exchange premium increases in each scenario—taxpayers would be better off exchanging land than conducting a sale-purchase transaction. A taxpayer who initially faces a top marginal income rate of 33% and a capital gains rate of 15%, will benefit by $93 per acre by engaging in an exchange if the proposed tax rates are enacted. The premium increases to $193 for taxpayers currently in the 35% ordinary income tax bracket.[12]

CONCLUSION

Section 1031 of the Internal Revenue Code permits the nonrecognition of gains or losses from the sale of real property if the seller engages in an exchange of 'like kind' property. Important characteristics of the policy have potential consequences for the market for farmland, including requirements that a replacement property be identified within 45 days of the sale of the previous property and that the exchange is completed within 180 days. In this article we address some of these concerns to the extent the data allow us. We present a theoretical model of like-kind exchange that we adapt from a common formulation, for example, like that of Ling and Petrova (2008). Our equation states the differential value of an exchange versus a sale-purchase strategy as the discounted value of rent streams plus the tax-value of the deferral offered by the Section.

We also present the first national analysis of tax data for like-kind exchanges deferring capital gains under Section 1031. Using data from the IRS's Sales of Capital

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[12] The taxable income amount for the 33% rate for taxpayer filing a joint return in 2008 was $195,850 to $349,700. The taxable income amount for the 35% rate for a joint return in 2008 was $349,700 or greater.

Assets Panel Study, we examine like-kind exchanges and total farm land sales for the years from 1999 to 2005. We present a time-series of exchange volume as well as data on the characteristics of the exchange including the value of assets involved and the value of gains deferred. Further, because of the detail of the tax data, we are able to examine the extent to which famers are participating in Section 1031 like-kind exchanges.

Our analysis of the tax data provides several important facts about the use of 1031 provision. First, exchanges involving farmland made up a small minority of all exchanges between 1999 and 2005. Despite the continued growth in the use of the provision, exchanges involving farmland accounted only 1% of the total exchange volume. However, when an exchange involved farmland, the most dominant form was the exchange where farmland was traded for other farmland. At its highest point, the farmland-for-farmland exchange accounted for 97% of such exchanges. Active farmers were also the minority of exchangers, even when the exchange involved farmland. Nonfarmers conducted three times the farmland-for-farmland exchanges as farmers. Despite the larger difference in volume, farmers tax-deferral value of the exchange was far greater for farmers.

Our research provides evidence of the value of the IRC's Section 1031 provision. Based on simulations of our theoretical model using plausible assumptions about asset growth, we show how proposed tax changes will affect the tax value of the deferral. We show that taxpayers, especially farmers, conduct exchanges that have relatively large tax deferral values. Future research needs to address this issue with microdata, perhaps, by further exploiting the panel aspect of the SOCA data. To address policy issues concerning

the ability of farmers to continue to own farmland, further research is needed to address

ownership and sales of real farm property sales.

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