Intergenerational Management Transfers in Family Farm Businesses

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Abstract

Family farm management is often transferred separately from farm ownership. This article determines the impact of variables affecting management transfer decisions. Agricultural Resource Management Survey data are used to investigate variable impacts. Results indicate operator demographics, business planning practices, and value of farm and non-farm assets impact management transfer decisions.

Key Words: family farm succession, intergenerational transfer, ARMS

JEL Classifications: Q10, Q12

The succession of a farm business is often a turbulent time for farm families. Insight into the factors affecting the transfer of managerial control of farm businesses will provide a better understanding of the preferred methods by which to plan and implement the succession process. This study utilizes a national farm-level database, the Agricultural Resource Management Survey (ARMS), to econometrically examine various aspects of family farm business structure and operator demographics which may impact the decision of how family farm operators decide to transfer managerial decision-making responsibility to a selected farm successor. While some research has examined the factors which influence the selection of a successor in family farms, factors specifically influencing the decision to transfer managerial control of family farm businesses in the United States have not been thoroughly examined. The objectives of this study are to identify variables affecting the transfer of managerial control of family farm businesses to a designated successor and determine the impact of these variables on the decision to transfer managerial power to the selected successor.

Literature Review

Family farm succession is an extremely complex topic. Economic and financial considerations related to the preservation of the business are obviously of great importance to the operator; yet, concerns regarding family communication and the preservation of family harmony during the transition are also paramount during the transfer decision-making process. Because a multitude of components compose the transfer process, family farm succession has been a topic of interest in multiple disciplines, such as agricultural economics, agricultural communication and education, human sciences, and financial planning.

The majority of United States farm businesses are family owned. The United States Department of Agriculture (USDA) Economic Research Service (ERS) estimates that

approximately 98 percent of U.S. farm businesses are family operations (Hoppe and Banker 2010). Many of these farm businesses have been owned by the same family for multiple generations. Oftentimes, families wish to continue the tradition of passing the farm on to other family members. The process of transferring a farm from one generation to another typically occurs over time, rather than both the management responsibilities and ownership of the business transferring to the incoming generation at one specific point in time. Often, the younger generation will become involved in some of the management decisions of the business years before the actual ownership of the business may be transferred.

The study of factors impacting the selection of a successor to the farm business has received considerable attention. Mishra, El-Osta, and Shaik (2010) found that farm operator age, farm operator education, off-farm work by the farm operator or the farm operator's spouse, expected farm operator household wealth, and geographic location were all significant indicators of the likelihood of the farm operator selecting a successor.

Other research has investigated issues surrounding the determination of an optimal time in which the older generation passes the farm business on to the successor. Kimhi (1994) found that optimal transfer time tended to be decreasing in parent age. Thus, parents tended not to transfer the farm until productivity began to decline. Additionally, the operator working at an off-farm job tended to increase the likelihood of the farm business being transferred to the successor (Kimhi 1994). Kimhi (1994) also found evidence that parents will act in altruistic ways when transferring the family farm in an effort to maximize family welfare. Pesquin, Kimhi, and Kislev (1999) examined how passing the family farm from one generation at an optimal time could produce financial security for the older generation in retirement.

Intergenerational Transfers

The transfer of family farming businesses to the next generation can be thought of as a special type of wealth transfer. Farm families often possess large amounts of wealth which are tied up in the assets of the farm business. Knowledge, human capital, and managerial power associated with a family farm can also be transferred from one generation to another by methods similar to the intergenerational transfer of wealth. The study of wealth transfers from one person to another has long been of interest to economists. Becker (1974) suggested that one person will transfer wealth to another because that individual cares about the welfare of the other. Because one person derives utility in part from the utility of another, the individual making the transfer is motivated by altruism.

Transfers between parents and children are often believed to be motivated by altruism. In instances where a parent has multiple children, and is motivated purely by altruism, the parent may make transfers to each child in order to equalize the children's well-being. Thus, the parent may transfer more wealth to the child who has the lowest income in an effort to equalize that child with other children who have higher incomes. Children with higher incomes will tend to receive less wealth through transfers.

In contrast to altruistic motivation for wealth transfers, others have proposed that transfers are exchange motivated. Bernheim, Shleifer, and Summers (1985) suggested that intergenerational transfers of wealth are actually compensation for some type of services rendered. In the case of parents and children, this suggests that parents will allocate wealth transfers based on some sort of services provided to the parent by the children. Services can include many things, but often, if the child provides for the parent during retirement or old age, it

is believed that the parent will allocate an appropriate proportion of wealth transfer to the child to compensate for the services provided.

Research suggests that exchange motivated parents tend to allocate an equal amount of wealth to be transferred to each child. Thus, exchange motivated transfers tend to be depicted by equal transfers to all persons, rather than one person receiving more or less than another (Bernheim, Shleifer, and Summers 1985; Cox 1987; Cox and Rank 1992).

Distributions in Intergenerational Farm Transfers

Partibility indicates how business assets are distributed among the successors in a family farm business. There are multiple types of partibility patterns. Strict impartibility occurs when the farm assets and land are passed on in entirety to one individual. Often this type of transfer is one of primogeniture, in which the oldest son receives all farm assets and land. This type of transfer is common in United Kingdom farm families (Gasson and Errington 1993).

In contrast to impartibility, partibility of assets includes other methods. In some cases, financial help provided by parents may be offered in order to help an heir purchase the farm from the parents, thus providing the parents with a source of retirement income. Alternatively, the farm may be passed on to one successor in exchange for that child providing for the parents during retirement. In some instances, the farm may be undervalued when the assets are being distributed to the successors. Another option is that the farm may be divided equally among multiple successors, but one is granted the opportunity to lease land from others. A final alternative may be that the owner possesses other types of financial assets which may be distributed to heirs that do not receive a portion of the farm business (Gasson and Errington 1993; Boehlje and Eisgruber 1972).

The degree to which a farm and its assets are partible or impartible depends on legal and financial situations both for the individual family as well as on a general level. Tax implications can have an enormous impact on the decisions of when and how to transfer the business to successors due to changing tax policies and potential tax benefits and burdens (Gasson and Errington 1993).

The transfer of farm management often occurs at a different time than the transfer of farm ownership. In many cases, management is transferred in increments as the younger generation assumes increasing amounts of management responsibility over time. Gasson and Errington (1993) and Errington (1998) examined this phenomenon and recognized it as a "succession ladder." The first management activities transferred from the older generation to the younger generation along the succession ladder tend to be short term day-to-day decisions. Next on the succession ladder is the transfer of longer term strategic management decisions. The third rung of the succession ladder is the transfer of personnel management decisions. The next step is the transfer of financial management decisions related to the farm business. The final step of the succession ladder is the transfer of the "control of the purse strings" (Errington 1998), or the authority to pay bills. This final transfer of managerial control often occurs considerably later than the transfer of other management decisions lower on the succession ladder. This could be due to the older generation feeling as though it continues to have a significant stake in the farm so long as it retains control of the business checkbook (Gasson and Errington 1993; Errington 1998).

Conceptual Framework

Based on the work of Cox (1987), Cox and Rank (1992), and Mishra, El-Osta, and Shaik (2010), an intergenerational transfer model integrating both altruistic and exchange motivation for family

farm management intergenerational transfers is introduced. Consider a farm family with two generations, an older generation (parent) and a younger generation (child). Assume the parent gives the transfer and the child receives the transfer. The parent's utility function is as follows:

$$U_p = U_p\left(C_p, s, V(C_k, s)\right), \tag{1}$$

where U_p represents the parent's utility, C_p represents the parent's consumption, s represents services that the child provides to the parent, V represents the child's utility, and C_k represents the child's consumption. Because the parent cares about the well-being of the child (i.e. the parent is altruistic), $\partial U_p/\partial V > 0$. The child provides services to the parent which includes providing company to the parent and performing various functions in a manner in which the parent approves. The child is assumed to dislike performing services for the parent, as this reduces the child's independence and infringes on the child's free time. Thus, $\partial V/\partial s < 0$. Parent utility with respect to parent consumption is assumed to be positive, $\partial U_p/\partial\, C_p > 0$, parent utility with respect to services provided by the child is assumed to be positive (i.e. the parent enjoys the services provided by the child), $\partial U_p/\partial s > 0$, and child utility with respect to child consumption is assumed to be positive, $\partial V/\partial C_k > 0$. Parent consumption and child consumption are assumed to be normal goods (Cox 1987; Mishra, El-Osta, and Shaik 2010).

The parent seeks to maximize (1) subject to the following budget constraints:

$$C_p \leq I_p - T, \tag{2}$$

$$C_k \leq I_k + T, \tag{3}$$

$$V(C_k, s) \geq V_0(I_k, 0) \tag{4}$$

where I_p represents parent income, I_k represents child income, and T represents managerial transfers from parent to child. $V_0(I_k, 0)$ represents the child's "threat point" utility level and indicates the utility the child would derive from consuming only out of his own income and not

providing any services to the parent (Cox 1987; Mishra, El-Osta, and Shaik 2010). Constraints (2) and (3) are assumed to be binding and can be substituted into (1) to generate the following Lagrangian function:

$$\mathcal{L} = U_p\left(I_p - T, s, V(I_k + T, s)\right) + \lambda\left(V(I_k + T, s) - V_0(I_k, 0)\right). \tag{5}$$

The parent desires to choose amounts of s and T that will maximize (1) subject to constraints (2)-(4). The Kuhn-Tucker conditions which yield the optimal amounts of s and T are:

$$\frac{\partial \mathcal{L}}{\partial T} = -U_c + U_v V_c + \lambda V_c \leq 0, T\frac{\partial \mathcal{L}}{\partial T} = 0, \tag{6}$$

$$\frac{\partial \mathcal{L}}{\partial s} = -U_s + U_v V_s + \lambda V_s \leq 0, s\frac{\partial \mathcal{L}}{\partial s} = 0, \tag{7}$$

$$\frac{\partial \mathcal{L}}{\partial \lambda} = V(I_k + T, s) - V_0(I_k, 0) \geq 0, \lambda\frac{\partial \mathcal{L}}{\partial \lambda} = 0, \tag{8}$$

where U_c represents the parent's marginal utility of consumption, $U_v V_c$ represents the child's marginal utility of consumption from the parent's perspective ($U_v = \partial U_p / \partial V$), U_s represents parent's marginal utility of services, and $U_v V_s$ represents the child's marginal disutility of services from the parent's perspective. Cox (1987) and Mishra, El-Osta, and Shaik (2010) note that the parent's marginal utility of consumption is associated with the child's marginal utility of consumption from the parent's perspective via transfer, T. Additionally, the value of services provided by the child is established when the parent's marginal utility of services corresponds to the child's marginal disutility of services from the parent's perspective.

The decision to transfer managerial control of the family farm business can be an unobserved, latent variable, *t**. The latent variable which determines the transfer decision can be expressed as:

$$t^* = \left(\frac{\partial U}{\partial C_k}\right) - \left(\frac{\partial U}{\partial C_p}\right). \tag{9}$$

Additionally, $T > 0$ iff $t^* > 0; T = 0$ otherwise. Because the marginal utility of consumption for both the parent and the child is assumed to be diminishing:

(10) $$\left(\frac{\partial t^*}{\partial I_k}\right) < 0 \, , \left(\frac{\partial t^*}{\partial I_p}\right) > 0.$$

The latent variable that establishes the transfer decision will be inversely related to child income level and positively related to parent income level (Cox 1987; Cox and Rank 1992; Mishra, El-Osta, and Shaik 2010).

A designated successor who participates in management activities provides the principal operator with the assurance that another capable person is available to assist with business operations. It also provides the successor with the satisfaction of being a business associate rather than simply hired labor. Thus, engaging a successor in the management activities of the farm business is in the best interest of both the older and younger generations. In the dataset used for the empirical analysis, the utility of the principal operator and the designated successor is not directly observable, but the principal operator's decision of whether or not to include the designated successor in the farm management activities is known.

Methods and Procedures

The dataset used for the empirical analysis consisted of national farm-level data from the Agricultural Resource Management Survey , which is conducted annually by the United States Department of Agriculture Economic Research Service . The data used in the analysis was from the 2001 ARMS, as this survey year queried farmers about succession planning. The ARMS survey has not inquired about succession planning since 2001. The total number of respondents who stated that a successor had been selected was 4090. Of those respondents who indicated that a successor had been selected, 750 specified that the successor participated in the management activities of the business. Because this analysis is specifically considering

managerial responsibility transferred to a successor rather than an explicit transfer of monetary wealth, the value of farm assets for which the successor could potentially be responsible for managing is considered in the transfer decision, rather than operator net worth. The value of operator non-farm assets, such as checking, savings, and retirement accounts and other non-farm financial assets is considered.

The dependent variable for the transfer decision was a binary variable which indicated whether the successor of the farm business did or did not participate in the management of the farm business. The explanatory variables included operator demographics, value of farm assets and inputs, and value of non-farm assets. A summary of these variables is presented in Table 1. A binary probit model was estimated in order to examine the effect of the explanatory variables on the decision for a designated successor to participate in the management activities of the farm business.

Results

The results of the binary probit analysis are presented in Table 2. The following variables were significant at the one percent level: successor being related to the operator (*FAMRELA*), the operator being retired or expecting to retire within five years (*OPRETIRE*), the operator intending to exit farm work for reasons other than retirement (*OPEXIT*), the legal status of the business (*LEGALSTAT*), operator age (*OPAGE*), operator education (*OPEDU*), operator risk tolerance (*OPRISKTOL*), the operator's use of financial statements in business planning (*FINSTATE*), expected government support (*GOVT*), whether the operator and the operator's spouse work off-farm (*OPOFFFARM* and *SPOFFFARM*), value of farm structures (*VALUFARMSTRUC*), value of orchards (*VALUORCH*), value of land (*VALULAND*), value of land rented from others (*VALURENTFROM*), value of land rented to others (*VALURENTTO*),

value of breeding livestock (*VALUBRSTOCK*), value of non-breeding livestock (*VALUNBRSTOCK*), value of production inputs owned and value of production inputs used (*VALUPRODINOWN* and *VALUPRODINUSED*), value of equipment (*VALUEQUIP*), value in farm credit systems and cooperatives (*VALUFCSCOOP*), the amount owed to the business (*AMTOWEDTO*), and the value of other farm assets (*VALUOTHERFASSETS*). The value of non-farm assets (*VALUNFASSETS*), such as cash, checking, savings, retirement accounts, stock, and non-farm related real estate, was significant at the ten percent level. Value of crops (*VALUCROP*) and value of vehicles (*VALUVEHICLES*) were not found to be significant. While many of the variables are found to be significant, some variables are of more interest than others. It is to be expected that value of farmland, farm assets, and inputs will have a significant impact on the decision to have a successor that participates in management. Additionally, demographic factors such as farm operator age and education as well as the designated successor being related to the principal operator are also expected to impact the management transfer decision.

Other variables that are of more interest in the farm management transfer decision include expected operator retirement plans, farm business legal status, operator risk tolerance, operator and operator's spouse off-farm work, and value of non-farm assets. Additional discussion of these variables follows.

The operator being retired or expecting to retire within five years negatively impacts the decision for a successor to participate in the management of the business. When the operator reaches retirement age, the designated successor may already have acquired his or her own farming business. Thus, the operator may decide to simply lease or sell his or her own farmland to another, non-family member as a way of generating retirement income.

The legal status of the farm business has a positive effect on the transfer decision. If the business is either a sole or family proprietorship, the likelihood of the successor participating in management is greater than if the business is another entity type. This could be due to sole or family proprietorships growing in size to a point where the operator needs to bring in additional managerial help and therefore incorporates the successor into the business activities. This type of arrangement may be a precursor to the farm business legal structure being changed to another type of agreement such as a legal partnership, limited liability company, or corporation.

Operator risk tolerance also positively affects the decision to bring the successor into the management of the business. Operators surveyed tended to be relatively risk averse. The appointment of a successor within the farm business can be seen as a way to minimize the risk of business management activities being unable to continue in the event that the operator becomes unable to maintain complete managerial control of the business. If the successor participates in the business management, this can provide some insurance that business operations can continue even if the operator cannot perform all management activities personally.

The operator working an off-farm job positively impacts the decision to involve the successor in management. If the operator is busy working off-farm, the successor taking over some managerial responsibilities may be crucial to ensuring that farm operations continue smoothly.

The operator's spouse working off-farm has a negative impact on the successor being involved in the management of the business. If the farm business is small, the operator and his or her spouse may need to supplement income via an off-farm job. In this case, the farm business may be sufficiently small enough that the operator can take care of all managerial activities by him or herself and the successor is not needed in a managerial capacity.

The value of the operator's non-farm assets negatively impacts the decision to have the successor participate in the management activities of the business. An operator with adequate non-farm assets may simply farm for enjoyment rather than monetary gain, thus requiring less managerial assistance.

Conclusions

Ensuring the continuity of family farm businesses is of great concern to many farm business owners. While other work in the area of farm succession has focused on determining factors which influence the selection of a successor, this article is unique in that it specifically considers factors which impact the decision to transfer managerial control of a farm business to a successor who has already been designated by the older generation. By placing the research emphasis on the transfer of managerial control, the succession process can be examined separately from operator retirement and farm ownership transfer.

By assessing the transfer of managerial control independent of operator retirement and ownership transfer considerations, the results can be better disseminated and applied in practice. Improved knowledge of the factors which are most important in the decision to include a successor in the management activities of the farm business will allow practitioners and financial planning professionals to provide better assistance to farm families constructing succession plans. Succession plans can often be put into action earlier than retirement or estate plans, and thus provide more time for a successful transfer to take place.

Some limitations in this article are due to a lack of data. Because the ARMS survey has not questioned farmers about succession since 2001, recent data are not available. Also, there is a lack of complete data specifically focused on the succession transition process. Other factors could also potentially affect the decision to transfer managerial control of a family farm business

to a successor, yet these factors are not included in the analysis due to a lack of data. These factors include, but are not limited to, geographic location of the farm businesses, presence of hired workers or managers who are not family members, multiple successors, successor age, successor location, and successor education.

Business planning professionals and financial advisors need to be aware of the factors that farmers consider when transferring farm management responsibilities to their successors. The information provided in this article will allow these consultants to better educate farm operators during the transfer planning process, thus improving the succession decisions that farm families make, and ultimately enhancing the opportunity for successful farm transfer.

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Table 1. Variable Names and Descriptions

Variable Name	Variable Description
FAMRELA	1 if successor is a member of the operator's family, 0 otherwise
OPRETIRE	1 if operator plans to retire from farm work within the next 5 years or is now considered to be retired, 0 otherwise
OPEXIT	1 if operator plans to exit from farm work within the next 5 years for any reason other than retirement, 0 otherwise
LEGALSTAT	1 if sole/family proprietorship, 0 otherwise
OPAGE	Age of operator on last birthday
OPEDU	1 if less than high school, 0 otherwise
OPRISKTOL	Operator risk tolerance measured by operator on scale from 0 to 10; 0=Avoid risk as much as possible, 10=Take risks as much as possible.
FINSTATE	1 if operator uses income and net worth statements to analyze business performance in relation to annual or longer term business plans, 0 otherwise
GOVT	1 if operator expects government support regardless of price developments during the next 4 years, 0 otherwise
OPOFFFARM	1 if operator worked off-farm for wages or salary during 2001, 0 otherwise
SPOFFFARM	1 if operator's spouse worked off-farm for wages or salary during 2001, 0 otherwise
VALUFARMSTRUC	Market value in dollars of all farm buildings and structures (excluding dwellings) as of December 31, 2001
VALUORCH	Market value in dollars of all orchard trees and vines, and trees grown for wood products as of December 31, 2001
VALULAND	Market value in dollars of all land (excluding dwellings, buildings, orchard trees and vines, and trees grown for wood products) as of December 31, 2001
VALURENTFROM	Estimated market value in dollars of land and buildings on acres rented FROM others as of December 31, 2001

Table 1. Continued

Variable Name	Variable Description
VALURENTTO	Estimated market value in dollars of land and buildings on acres rented TO others as of December 31, 2001
VALUCROP	Estimated market value in dollars for the farm share of crops owned as of December 31, 2001
VALUBRSTOCK	Estimated market value in dollars for the farm share of breeding livestock owned by and located on the operation as of December 31, 2001
VALUNBRSTOCK	Estimated market value in dollars for the farm share of non-breeding livestock owned by and located on the operation as of December 31, 2001
VALUPRODINOWN	Estimated market value in dollars for the farm share of production inputs owned by the operation as of December 31, 2001
VALUPRODINUSED	Estimated market value in dollars for the farm share of production inputs used by the operation as of December 31, 2001
VALUVEHICLES	Estimated market value in dollars for the farm share of trucks and cars owned by the operation as of December 31, 2001
VALUEQUIP	Estimated market value in dollars for the farm share of tractors, machinery, tools, equipment, and implements owned by the operation on December 31, 2001
VALUFCSCOOP	Estimated market value in dollars for the farm share of stock in Farm Credit System and other farm cooperatives on December 31, 2001
AMTOWEDTO	Amount owed in dollars to the operation for sales or production from 2001 and earlier years as of December 31, 2001
VALUOTHERFASSETS	Value code for the estimated market value in dollars for all other farm assets owned by the operation as of December 31, 2001
VALUNFASSETS	Value code for the total value of non-farm assets owned by the operator (including cash, checking, savings, retirement accounts, corporate stock, real estate not part of the farm, and all other non-farm assets) as of December 31, 2001

Table 2. Results of Binary Probit Analysis

Variable	Coefficient	Standard Error	Wald X^2
FAMRELA	2.5543***	0.0057	203,185.158
OPRETIRE	-0.1097***	0.0052	446.007
OPEXIT	0.2451***	0.0078	978.844
LEGALSTAT	0.3419***	0.0044	6096.476
OPAGE	0.0107***	0.0002	3268.145
OPEDU	0.0296***	0.0018	264.138
OPRISKTOL	0.0351***	0.0008	1729.130
FINSTATE	0.3634***	0.0043	7252.411
GOVT	0.0809***	0.0047	300.787
OPOFFFARM	0.0609***	0.0023	703.929
SPOFFFARM	-0.0830***	0.0017	2411.359
VALUFARMSTRUC	4.6260E-7***	1.2160E-8	1447.445
VALUORCH	2.0040E-8***	7.4000E-9	7.334
VALULAND	-3.3100E-8***	3.1090E-9	113.377
VALURENTFROM	-1.1500E-8***	1.8700E-9	38.076
VALURENTTO	3.4090E-7***	9.0950E-9	1404.925
VALUCROP	-1.1600E-9	1.6320E-8	0.005
VALUBRSTOCK	1.1260E-7***	9.1570E-9	151.176
VALUNBRSTOCK	-9.4400E-8***	2.5920E-8	13.273
VALUPRODINOWN	-6.0400E-7***	1.1910E-7	25.756
VALUPRODINUSED	-1.9000E-6***	1.0150E-7	352.110
VALUVEHICLES	4.8570E-8	9.7710E-8	0.247
VALUEQUIP	3.0050E-7***	1.7930E-8	280.768
VALUFCSCOOP	1.5560E-6***	7.1180E-8	477.770
AMTOWEDTO	-3.5600E-7***	3.9200E-8	82.310
VALUOTHERFASSETS	-0.0105***	0.0003	1265.890
VALUNFASSETS	-0.0004*	0.0002	2.816

Intercept: -4.0483
Wald X^2: 222,820.794 ($p < .0001$)
Percent Concordant: 93.7
Percent Discordant: 6.0
Percent Tied: 0.4
Pseudo R^2: .502

Note: *,**,*** denote statistical significance the 10%, 5%, and 1% levels, respectively.