Farm families:

Issues related to farmer succession and land transfer intentions

by

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TABLE OF CONTENTS

CHAPTER 1. INTRODUCTION 1

CHAPTER 2. LITERATURE REVIEW 6

CHAPTER 3. DATA AND METHODS 20

CHPATER 4. FINDINGS 30

CHAPTER 5. DISCUSSION AND CONCLUSION 42

REFERENCES CITED 47

APPENDIX: ADDITIONAL TABLES 52

CHAPTER 1
INTRODUCTION

While the need to protect and save family farmers has been a recurring theme in American politics throughout this century, limited empirical research has been done examining the actual process by which family farming persists across generations. This thesis examines several facets of farm succession within Iowa farm families to gain a better understanding of this process.

As a concept, succession is not strictly defined or precise. Succession and inheritance have often been used interchangeably in the literature and are often indistinguishable terms (Fennel, 1981), although some have made the distinction that inheritance is the actual transfer of property and succession is the transfer of management (Weston, 1977). Salamon's (1986) research of succession within family farming considers both land and management transfer. Further, she elaborates upon the issue of succession by noting that the process requires both the transmission of the farming occupation to one or more of the children and the successful transfer of the operation and/or land. This is a significant elaboration as it brings into focus the actual succession process of farming rather than the succession of property between generations.

This thesis elaborates upon this process of succession considering the myriad of factors which may result in property and occupational succession between generations. Since there are several different facets to the succession process, the thesis examines several different issues, particularly farm operators' intentions for his/her land upon retirement and the likelihood of an adult farm child engaged in farming. A necessary condition for farm succession within the family is the eventual transfer of land from operator to children, which

the examination of farm operator intentions addresses. Another requisite for farm succession within the family is the existence of a child engaged in farming, an issue directly considered by this thesis. Cultural and structural characteristics of the farm family and the farm operation are considered as possible influences upon these two dimensions of farm succession.

A better understanding of farm succession and factors influencing it are quite relevant, if not urgent, in light of current local, federal and state efforts to encourage the transfer of farmland from one generation to the next. Knowledge of the conditions leading to transmission of the farming occupation between generations and an understanding of issues affecting the actual transfer of property may contribute to the successful succession of one generation of family farmers to another. Such an understanding may be useful to the citizens of Floyd County, Iowa, who have developed a program to match retired or retiring farmers with young or aspiring farmers, in the hopes of creating a younger generation of farmers in the county (Muhm, 1993). Recognizing that the current age structure of farmers may result in a shortage of future farmers, Floyd County residents fear the continued erosion of farm numbers, which have declined from 1,144 in 1978 to 882 in 1992.

National and state statistics show their fear is not unfounded or unique. Census of Agriculture data indicate that nationwide the number of farmers declined 43.1 percent from 1959 to 1987 (see Table 1). The decline has not been uniform across all age groups. The number of farmers 55 and older declined 33.6 percent, while those under 55 declined by 49.1 percent. In 1959, 38.7 percent of U.S. farmers were 55 or older, in 1987, 45.2 percent were over 55.

The trend in Iowa is similar and more dramatic. For the period 1959 to 1987, the number of farmers declined 39.4 percent (see Table 2). Similar to the national data, the decline has not been equally felt within all age groups. From 1959 to 1987 the number of farmers 55 and over decreased 23.4 percent while the decline of farmers under 55 was much

Table 1. Age of U.S. and Iowa farms, 1959, 1978, 1987

	1959		1978		1987		Change 1959--1978		Change 1978-1987		Change 1959-1987	
	Number (000)	%	Number (000)	%	Number (000)	%	Number (000)	%	Number (000)	%	Number (000)	%
24 or Younger	62	1.7	79	3.2	36	1.7	+17	+27.4	-43	-54.4	-26	-41.9
25-34	403	11.0	323	13.0	243	11.6	-80	-20.0	-80	-24.8	-160	-39.7
35-44	806	22.0	485	19.6	411	19.7	-321	-39.8	-74	-15.2	-395	-49.0
45-54	980	26.7	596	24.0	455	21.8	-384	-39.2	-141	-23.7	-525	-53.6
55-64	803	21.9	588	23.7	496	23.8	-215	-26.8	-92	-15.6	-215	-26.8
65 or Older	617	16.8	408	16.5	447	21.4	-209	-33.9	+39	+9.6	-170	-27.6
Average Age	50.5		50.1		52.0							
Totals	3,671	100	2,479	100	2,088	100	-1192	-32.5	-391	-15.8	-1491	-40.6

Table 2. Age of U.S. and Iowa farms, 1959, 1978, 1987

	1959		1978		1987		Change 1959--1978		Change 1978-1987		Change 1959-1987	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
24 or Younger	3,955	2.2	6,339	5.2	2,852	2.7	+2,384	+60.3	-3,487	-55.0	-1,103	-27.9
25-34	27,892	16.1	19,205	15.8	17,458	16.6	-8,687	-31.1	-1,747	-9.1	-10,434	-37.4
35-44	43,113	24.9	23,918	19.7	21,282	20.2	-19,195	-44.5	-2,636	-11.0	-21,831	-50.6
45-54	43,934	25.3	30,341	25.0	21,744	20.7	-13,593	-30.9	-8,597	-28.3	-22,190	-50.5
55-64	35,010	20.2	28,959	23.9	25,287	24.1	-6,051	-17.3	-3,672	-12.7	-9,723	-27.8
65 or Older	19,640	11.3	12,577	10.4	16,557	15.7	-7,063	-36.0	+3,980	+31.6	-3,083	-15.7
Average Age	47.7		47.5		49.3							
Totals	173,544	100	121,339	100	105,180	100	-52,205	-30.1	-16,159	-13.3	-68,364	-39.4

more dramatic, declining 46.7 percent. Farmers 55 and over accounted for 31.5 percent of all operators in 1959 and 39.8 percent in 1987. Perhaps even more striking is the fact that since 1978 the total number of farmers 65 and over has actually increased. In 1978, 12,577 Iowa farmers (10.4 percent of all farmers) were 65 or older. In 1987, 16,557 Iowa farmers (15.7 percent of all farmers) were 65 or older. For the time period 1978-1987 this was a net increase of 31.6 percent. At the other end of the age spectrum, the number of Iowa farmers 24 or younger decreased 3,487 for the time period, or by more than 55 percent (Goudy and Lasley, 1989). This decrease in the number of young farmers and the increase in the number of older farmers gives rise to concern about the continuation of family farmers in the state.

The impacts of these demographic changes on the structure of U.S. and Iowa agriculture have not been thoroughly addressed. There is some research linking these demographic changes to the 1980s farm crisis (Lasley, 1994; Goudy and Lasley, 1989; Lasley, 1992). Younger farm families were squeezed out of farming by high debt and changing federal policies, while tough financial times caused some older operators to postpone retirement. Further, the farm crisis of the 1980s discouraged many young people on the prospect of farming. Harl (1990) is quite direct in pointing out that young farmer's were disproportionately affected by the crisis.

Grassroots initiatives such as the "Foster Farm Plan" in Floyd County, Iowa, or statewide programs such as "Farm On," an Iowa State University Extension Service program seeking to link beginning farmers and landowners without children (Looker, 1992), are attempts to encourage a younger generation of family farmers to take possession of the land which is currently concentrated in the hands of older farmers. This thesis will hopefully contribute to making these initiatives more effective.

The organization of the thesis will be as follows, a review of relevant literature and theoretical perspectives of intergenerational transfer, a description of methods, an analysis of the data, and a conclusion with recommendations for further research and action.

CHAPTER 2

LITERATURE REVIEW

Introduction

Although there is no integrated body of literature which specifically considers the issues of farm succession discussed in the introduction, there are several veins of sociological inquiry that may be useful. The following literature review molds these research areas together to build a framework within which to more fully consider farm succession. The discussion begins by providing empirical support for the assumption that the farming occupation is closely linked to being part of a farming family. A review of the European succession research is followed by the examination of two different types of influences which have been considered in regard to related succession research; ethnic or cultural influences and ecological or structural influences. Finally, research of the 1980s farm crisis is included which anticipated future difficulties of succession because of the severe impact of the farm crisis upon younger generations of farmers. At the end of this review a model is described which more clearly illustrates the contributions of this literature to understanding farm succession.

Routes into Farming

According to folklore, the best route to becoming a farmer is by either being born into a farm family or marrying into one. Beale (1979) estimates that 80 percent of all farmers are the offspring of farmers. Lyson (1984) reaches a similar conclusion noting that almost 90 percent of early entrants, 65 percent of late entrants, and 68 percent of part-time farmers come from farming families. Lyson found that new recruits into farming generally come from farm backgrounds, are male, they rent or purchase land from a relative, and they have some formal training in an agriculture subject. Consistent findings exist in other research linking the

expectation to farm to a farming father and the potential to inherit or other family financial support (Molnar and Dunkelberger, 1981; Straus, 1964).

Lyson (1984) identifies four factors that serve as barriers to those desiring to enter farming. The concentration of land ownership in a small number of hands, high start up costs, tax policies which restrict supply of land for non-farm related new entrants, and credit policies which favor expansion of existing farms and encourage nonfarm investors. The limited availability of farmland for new entrants into farming is made clear by USDA data (USDA, 1981) indicating that less than 3 percent of farmland changes hands each year. Less than 50 percent of this land will make it to the open market as nearly half of all the land transferred in any given year is either purchased from a relative, inherited, or received as a gift. Of the remaining land transferred to nonfamily members, a large portion are sales to friends and neighbors that are not publicly advertised. Finally, taking into account the attraction of land to institutional investors, the reality is that access to land by those outside of farming is very limited.

Before moving on, it is worth mentioning one vein of research, the agricultural ladder, which has attempted to more accurately describe the route into farming. The agricultural ladder was a perspective initially held in the early 1900s to describe the vertical mobility of early generations of midwestern agricultural settlers (Slocum, 1962). The first rung of the ladder began with the aspiring farm boy working as an unpaid laborer, then as paid labor on the home farm. Eventually a paying job on a neighboring farm was obtained, allowing the development of savings which could be used to rent land. Further savings led to the final outcome rung, farm ownership. The explanatory power of this labor-tenancy-ownership ladder was never great, in fact recent research has debunked the utility of the ladder at explaining the rise to ownership (Kloppenberg and Geisler, 1985). This research shows that empirically the ladder did not culminate with farm ownership, but succeeded in ideologically

(the Jeffersonian/agrarian tradition) justifying the growing number of part-owner operations that became more prevalent at mid-century.

Relevant to the research linking farm family membership to achieving farm owner-operator status, a revision of the agricultural ladder was described after World War II (Harris, 1950). This ladder recognized the importance of family connections and the regular movement of farm sons from home farm project efforts (e.g. 4-H projects) to partnerships with parents to transfer of land and full ownership. The neighboring farm laborer and tenancy rung were eliminated. Harris notes that there is no absolute agricultural ladder but several different ways to ascend it, but he does point out that increased mechanization and increased size and scale of operations made this new ladder more popular than the pre-war concept. A crucial limiting facet of this new ladder was the inability of small farms to support two families. This type of agricultural ladder may be more fully appreciated in the contemporary research described in the Land and Development Cycles section to be considered later in this chapter.

Farm Succession Concerns of the European Community

Knowing the likeliest route into agriculture does not translate into an assurance that there will be someone there to take over the farm operation when the operator retires. European studies have recognized that farm succession has significant implications for production and price policy, land use policy, and the overall structure of agriculture (Fennel, 1981; Symes and Appleton, 1986; Symes, 1990). Fennel's (1981) review of European succession literature refers to a European Commission study of the late 1960s which found a low percentage of older farmers with successors working on farm. Further, national studies in Belgium, France, the Netherlands, Ireland and the United Kingdom agree in finding that a high proportion of farmers do not have heirs. The evidence from these countries suggest that about half of the existing middle aged and elderly farmers lack direct heirs (Fennel, 1981).

Ten years later, Symes (1990) found little attention had been paid to the problems pointed out by Fennel. Despite the historical success of inheritance and succession in England and Wales, Symes suggested the convergence of several factors that threaten current methods of inter-generational transfer. Demographic trends such as earlier marriages, smaller numbers of children, longer life expectancies, and the ability to farm until an older age significantly lengthen the overlap between generations, further mitigating succession. These trends can deter succession or result in the successor receiving control of the farm at a later date than that of earlier generations.

Besides demographic changes within the family, increased levels of education may increase occupational opportunities of farm reared youth, further reducing the pool of potential young farmers (Fennel, 1981; Symes and Appleton, 1986). In the United Kingdom, the migration of young adults from agriculture to industry has left the countryside in the hands of an aging generation, perhaps even more reluctant to retire for lack of a direct heir (Anderson and Hepworth, 1980). Survey research in France of elderly farmers found a link between a farmer's intentions to retire and knowledge of a successor. Their data suggest that those with a known successor are more likely to be thinking of retirement, while those with no known successor are likely planning to continue farming (Fennel, 1981).

Fennel's review (1981) notes the importance of the farm's ability to provide an adequate income as an important consideration of a prospective heir. This income potential can be reflected by either size of the operation or the intensity of production. Empirically, various European Community nation studies have found that the existence or knowledge of an heir was less important on smaller farms than on larger ones.

A historical analysis of farm succession in Ireland (Kennedy, 1991) goes beyond simply the existence of an heir and points out the influence of the potential heir's awareness of the costs and benefits of pursuing a farm career. The potential heir, aware of the likely date of

farm transfer, the current economic climate, the productive capability of the land, and its ability to generate income, assesses the cost and benefits of farming, and only then chooses a course of action as to whether to become a farmer.

The European succession literature has largely been descriptive. There has been little effort to systematically view succession issues within a theoretical or conceptual framework to get at possible fundamental explanations. Although the issue among U.S. researchers has not been farm succession specifically, there are useful concepts in frameworks such as human ecology, particularly in the literature concerning migration.

Human Ecology and the Decision to Migrate

The literature examining individual career-planning processes and occupational attainments in a status attainment/human capital framework, relies heavily on social psychological process (Sewell, et al., 1969; Otto and Haller, 1979), and has been found useful in predicting occupation choice. But this aspirations/attainment analysis has been criticized by many who believe structural circumstances are more important influences upon career decisions of young adults (Lyson, 1986). Lyson concludes that both individual human capital and the particular structural character of an environment condition adult attainment and outcomes.

Human ecology provides a useful framework for considering structural influences. When considering the importance of environmental conditions, Albrecht and Murdock (1990) suggest the importance of considering the fixed quality of the environment, which is not easily altered in the present and limits, conditions, or predisposes certain behavior. The data illustrating the importance of access to land clearly reflects a crucial environmental limitation affecting the farm career choice. Generally, human ecology focuses upon the relation between people and their environment (Hawley, 1950; Duncan, 1959) The key variables of this perspective have been referred to as the ecological framework, consisting of population,

organization, environment, and technology (POET) (Duncan and Schnore, 1959; Albrecht and Murdock, 1990). While organization has tended to be the dependent variable and population, environment, and technology the independent variables in much human ecological research, such a convenient approach does not accurately reflect the interrelatedness of the ecological complex, as all four variables are acting upon and being acted upon by one other. Despite the recognized interrelations of the ecological complex, sociology is mostly interested in social organization (Gibbs and Martin, 1959).

According to Duncan and Schnore (1959), "organization is assumed to be a property of the population that has evolved and is sustained in the process of adaptation of the population to its environment..." (p. 136). Gibbs and Martin (1959) are more explicit referring to the key characteristic of organization, its sustenance activities, which are highly regular, repetitive and enduring and are the means by which the population maintains a livelihood. The human ecological explanation of part-time farming (Albrecht and Murdock, 1984) reflects how organization makes use of the range of sustenance activities available given the existing technological and environmental conditions.

The human ecological migration literature is particularly relevant to the discussion of farm succession. One obvious and well documented trend since the 1940s has been the steady increase in farm size and the correlated decrease in the number of farm operations, resulting in large numbers of rural residents leaving rural areas (Yoesting and Bohlen, 1968; Albrecht and Murdock, 1990). From a human ecological perspective, migration is seen as a response through which a population maintains an equilibrium between its size and sustenance organization (Sly, 1972; Sly and Tayman, 1977; Albrecht and Murdock, 1990). Hawley (1950) conceived this as an issue of balance between population size and the number of opportunities to make a living. The land sustains varying population levels depending upon the organization of agricultural production. Increased agricultural productivity, resulting from

technological innovation, and the absorption of many traditional agricultural tasks by industry has led to the steady population decline in agricultural regions as fewer farmers are needed. Hawley notes that overpopulation is a condition of all migration. Excess population might be the result of excessive natural population increase or an abrupt reduction of food, or it may be a response to market conditions, i.e. availability of jobs. Hawley notes that this last situation is a dynamic one possibly resulting in underpopulation once market conditions stabilize.

There appear to be several applications of a human ecological framework to the issue of farm succession. Given that there is a limit to the number of farm operations that can exist because of environmental conditions, as land is a fixed condition, and since technological change has increased productivity, the basic sustenance organization (the family farm) is forced to adapt or cease to exist. The ongoing decline of farm population and the number of farms suggests that the dynamic changes in agriculture have not yet reached an equilibrium. Specific to the questions of farm succession raised by this thesis, is whether the existence of an heir within a farming family may be related to the availability and accessibility of a sustenance niche (a means to get a living) for that potential heir. If such a niche is not available in farming, the obvious option is to find an alternative niche outside of farming. Similarly, the desires and intentions of the farm operator concerning succession may be moderated by the need to provide sustenance for both his family and the additional family(ies) of the child's (children).

Family Factors and Intergenerational Succession

To attribute farm succession decisions solely to structural conditions is to neglect the importance of the agrarian tradition of family farming. One of the most significant contemporary research projects considering the importance of family values and traditions in relation to family farming has been conducted by Sonya Salamon (Salamon and O'Reilly, 1979; Salamon, 1980; Salamon, et al. 1986).

Salamon's studies of ethnic communities have considered several characteristics of intergenerational succession within relatively homogenous communities (Salamon, 1980; Salamon, 1984; Salamon, et. al., 1986). This research has found that ethnic beliefs may not be highly conscious or apparent but have an important affect upon farm survival. Sibling cooperation, or lack of cooperation, can confound the transfer of the farm. Salamon contrasts Swedish American and Yankee families (et, al, 1986) and German-American and Irish-American families (1986). Salamon notes that Yankee and Irish-American families lack strong attachments to the land which result in little concern with keeping a specific tract of land in the family. Thus, within these ethnic families there is a great deal of turnover. Swedish and German-American families have strong attachments to the land, and have less land turnover. Salamon notes that while the Irish lack a family identity with the land, the Germans feel farming is the best way of life, and are very proud to be farmers.

Salamon deals at length with the impact of culturally determined inheritance practices, such as using partible (holdings passed on to a single heir) or impartible (holdings divided among more than one heir) inheritance. These practices surely create obstacles for a son or daughter acquiring the necessary means for making a living at farming, but for this research the key point of Salamon's ethnic research is the influence of cultural attitudes about farming as an occupation. The connection of strong family attachment to the land and the high esteem of farming as an occupation to the continuation of family members in farming may be significant factors affecting the likelihood of there being a successor. Further, Salamon's finding that total landholdings of Irish-American farmers diminished over time while German-American holdings increased, two contrasting cultural orientations toward the land, suggest that these orientations toward farming and agriculture impact farm succession and are reflected in the structure of agriculture.

Another facet of Salamon's ethnic farm community research has identified development cycles of farm families. Salamon and O'Reilly (1979) identified an ideal development cycle for successful intergenerational transfers. This ideal cycle begins with socialization of all children to become farmers along with the accumulation of sufficient land to allow each child an adequate land base. Children begin farming right after high school on land rented from parents. Eventually the land is transferred from parents to the child at marriage. The parents retire at 55, move to town, allowing one child to take over the homeplace. The remaining land in the hands of the parents is gradually transferred, with about 100 acres retained for their retirement support (p. 530). Given this ideal development cycle, Salamon and O'Reilly identify four variations that exist within their communities of interest. Each of these variations develop land holdings differently. The expander fits the ideal cycle closely, having a strong sense of devotion to farming and expanding their operation over the duration of their involvement in farming. The conservator families also have a sense of the past but are much more conservative, expanding very little. They sell to their kids rather than transfer holdings since they need the money for retirement. Pragmatist families are not as strongly attached to the land as expanders, they are less willing to go into debt and rent most of their land as opposed to purchasing it. Converter families do not expand land holdings and often encourage children to consider other avenues of employment. Land is an investment and retired converters often rent to pragmatists or sell to expanders.

Salamon and O'Reilly attempt to identify these types of farmers by the age of first land purchase. Expanders make their first purchase early, while conservators often purchase late from siblings after the parents death. Pragmatists are difficult to identify, but may make their limited purchases while in the middle years from siblings to secure the homeplace or residence. Of particular interest in this vein of Salamon's research are her observations concerning

orientations toward farming and her characterization of varying methods of handling land succession between generations.

The contrasting ethnic orientations and the varying development cycles partly reflect differences between what Vidich and Bensman called "traditional" and "rational" farmers (Vidich and Bensman, 1958). In this dichotomy, rational farmers conceive of farming as a business, where reason rather than sentiment or tradition guide actions. A characteristic of rational farmers is the continual expansion and reinvestment into the operation. For traditional farmers, farming is a way of life, capital investment and expansion is minimal. These farmers maintain a high level of independence and, to the envy of rational farmers, make themselves somewhat invulnerable to fluctuations in the market by keeping operating costs low.

Rohrer and Douglas (1969) elaborate on the "traditional" and "rational" farmer theme. Their comparisons between two regions of Kansas lead them to suggest alternative conceptions of the farming occupation, venture and refuge. Refuge farming is a last resort occupation which provides a basic subsistence, a livelihood. Venture farming is more likely where there are an increasing number of employment opportunities and farming is perceived as a productive enterprise capable of yielding financial rewards. Rohrer and Douglas's research indicates that areas with a declining economy (locales of refuge farming) will have fewer young people entering the labor force and more older citizens who continue in the roles they have had all of their adult life. They attempt to explain farming orientations in a larger context where other economic opportunities exist besides farming rather than rely solely upon traditional/rational orientations. Applied to farm succession it may be that the farm crisis and the depressed economic condition of rural areas lowered expectations of the financial rewards of farming, thus reducing the likelihood of their being an heir desiring to enter the farming

occupation. Further, where farming is not considered a venture enterprise, it persists as a refuge for an aging rural population.

1980s Farm Crisis Concerns

Prior to the farm crisis of the 1980s, an expansionary approach to agriculture was the best farm management technique (Brooks, et al., 1987). The attractiveness of farming during this time resulted in many farm youths choosing farming as their occupation and forcing many families to expand their farming operation or invest in new farms for their children. (Brooks, et al.). Following the crisis of the early 1980s, the data shows that those impacted severely by the crisis were younger, better educated operators of larger units, (Bultena, et al., 1986). In contrast, those most likely to survive the crisis were those of more conservative orientations or lacking in financial resources to expand during the 1970s (Hoiberg and Lasley, 1986). These farmers tended to be on smaller, less capital-intensive units and were found to be older.

The farm crisis of the 1980s may continue to influence farm management decisions of the 1990s, particularly farm succession intentions. The literature suggests that the rational/venture orientations to farming suffered the greatest during this period, while the traditional/refuge orientations persisted. The legacy of this is readily observed in the census data offered in the introduction showing a sharp decrease in the number of young farmers and a steady increase of older farmers as a percentage of all farmers. Thus, in any discussion of farm succession it is important to consider the potential lasting influence of the farm crisis upon the decision by both the farm child to choose farming as an occupation and the farm operator's intention for the land.

A Succession Model

Based upon the reviewed literature, two general types of conditions are believed to be significant influences upon the succession process. Social/cultural influences, such as family orientation to the land and strongly held positive beliefs about the farming profession may

influence both the farm operators intentions and the actual decision of a child to enter farming. Ecological/structural influences are also likely influencing decisions to enter farming and the plans of farm operators. Although Salamon's research has focused upon ethnic characteristics, her findings generally support the idea that orientations toward the land and agriculture play an important part in the succession process. The human ecological literature suggests that the choice to enter farming may be related to the farm's ability to provide sustenance for the entering farmer. In addition, family/respondent characteristics are important considerations in light of the clear relationship between access to land and being part of a farming family. Further, the differentiated impact of the farm crisis upon operators of various ages has been anticipated as impacting farm succession.

Figure 1 illustrates a possible multivariate model for explaining the relationship between the operator's desires for a farming heir and the types of influences described above. Although cultural/social influences, ecological/structural influences, and farm characteristics have not been linked to farm succession issues collectively, it is likely that each influences the farm succession outcome. A starting place for examining the succession process is consideration of the operator's intentions for the land at retirement. For there to be a possible succession of management and ownership it is integral that the parent/operator act (selling or willing land to a child) in a manner permitting succession to occur. Positively held cultural beliefs in the goodness of the farming occupation likely influence the decision to pass farmland on to children. Further, there is reason to believe that structural issues play a role in the farmer's intentions, i.e. larger operations are such to allow for the coexistence of heir and operator prior to the actual transfer of ownership. Further, family/operator characteristics, such as younger farmers who survived the farm crisis, likely influence plans for the operation also.

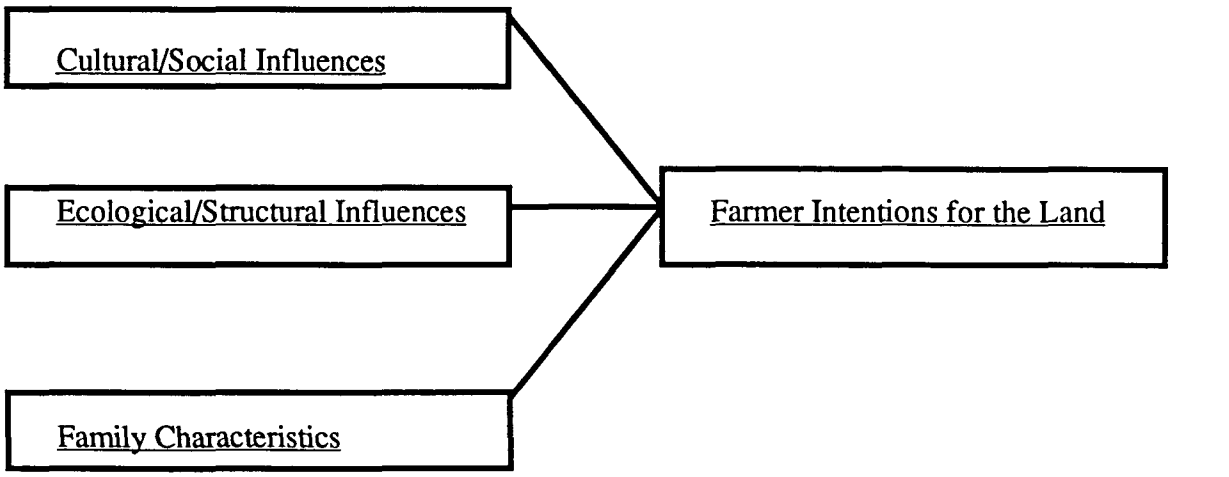

Figure 1: Model for operator's desires

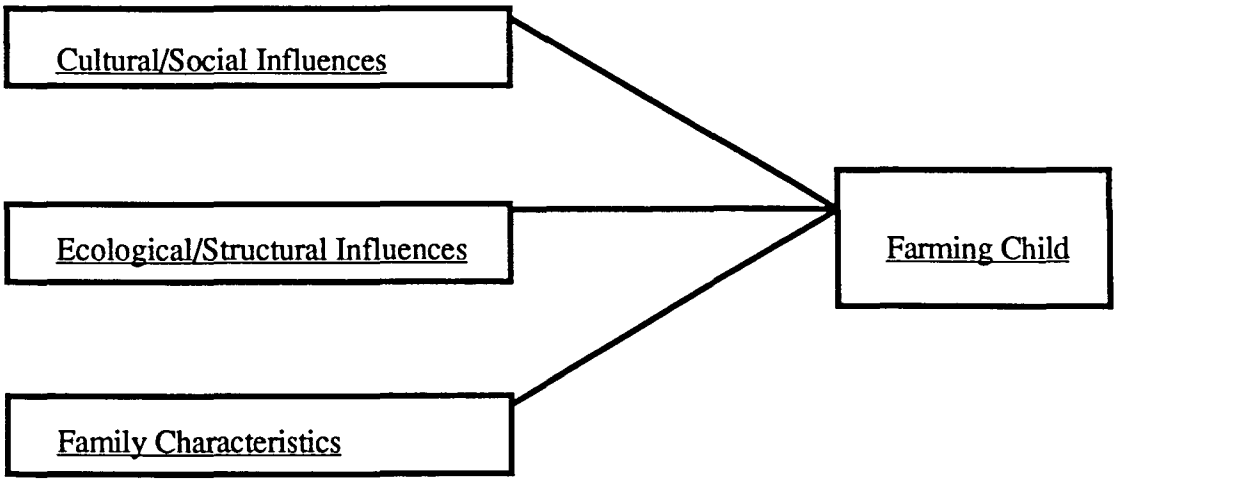

Figure 2: Model for existence of farming child

Figure 2 illustrates a possible model of the multivariate relationship between the actual existence of a farming child and the three types of influences previously described. This model is structured exactly as the one concerning the operator's desire. Generally the justification of the relationship between the farming occupation and the social/cultural influences, ecological/structural influences, and family characteristics is similar to the previous model. Just as it is important that the farm operator pass the land onto a child, it is important that their be a farming child to take control of the land to insure continuation of the operation, thus completing farm succession.

Initial Expectations

In light of the above described multivariate models, several general expectations are posited from which specific hypothesis will be drawn later in this discussion.

1) Both social/cultural and structural/ecological factors influence succession at all junctures of the process.

2) Structural/ecological factors are stronger influences than social/cultural factors, especially in relation to the existence of a farming child.

3) The farm crisis has impacted the plans of younger farm operators to pass the farm on to child and it has impacted younger generations entry into farming.

CHAPTER 3

DATA AND METHODS

Sample

The data for this thesis come from the Iowa Farm and Rural Life Poll, an annual statewide panel survey of Iowa farm operators. Data from the 1990, 1991, 1992, and 1993 polls are used for this analysis. Only those operators who participated in each of these four annual surveys are used in the analysis.

The sample is drawn from the master list of Iowa farm operators maintained by the Iowa Department of Agriculture and Land Stewardship, Division of Statistics. This list is annually updated to include new farm operators, while those who have left agriculture are removed. The sample size is approximately 3,500 and the average response rate for each of the four surveys used in this thesis is 65 percent.

Because the Iowa Farm and Rural Life Poll is a panel study, it is important to consider the sampling technique in more detail to determine its representativeness. As previous research using data from this poll has pointed out (Geller, 1987), several concerns regarding representativeness must be considered. Attrition and maturation of the sample over time may lead to an unrepresentative sample. Further, failing to include new entrants into the population may also result in an unrepresentative sample. To address both of these concerns, a supplemental sample is drawn from the Department of Agriculture's master list each year. Each year's sample includes everyone who responded the previous year, those who responded two years earlier but did not respond the previous year, and the supplemental sample, bringing the total sample to approximately 3,500.

The sampling procedure described has resulted in a relatively representative sample on a yearly basis. Because the sub-sample used for this analysis included only the 1,067

respondents who responded each year from 1990 to 1993, it is necessary to more closely examine these respondents. To assess the representativeness, operator and farm characteristics of the 1,067 respondents are compared to the 1987 Census of Agriculture for Iowa and available data from the 1992 Census of Agriculture. The comparison is shown in Table 3. There are several notable differences. The average age of the sample respondents is greater than the population (56 years versus 49.3 years). This difference is more clearly illustrated when a comparison is made across age categories. Only 2.9 percent of the sample operators were under the age of 35, while 19.3 percent of the population's operators were under this age. Part of the differences in age can be attributed to the nature of the panel data, because the respondents must have been part of the Iowa Farm and Rural Life Poll more than four years ago, no one who has entered farming in the last four years is included in this analysis. Further, preliminary 1992 Census of Agriculture findings for Iowa show there has been a further increase in the age of Iowa farm operators (Pins, 1994).

This comparison also illustrates a difference between both the size and sales of sample respondents and the statewide population. The small number of farms under 50 acres and the small number with sales less than $10,000 included in the sample may be a result of the Census Bureau's definition of a farm operation. Any enterprise, regardless of size, that sells $1,000 of agricultural products is classified as a farm. This definition includes many small, part-time or hobby enterprises whose owners may not consider themselves farmers and thus choose not to respond to the Iowa Farm and Rural Life Poll. Despite the few small farms included in this sample, the average farm size of the sample was only 25 acres larger than the average farm size in Iowa reported by the 1992 Census of Agriculture, 351 acres versus 325 for the 1992 population. It may be concluded that the sample is relatively representative, albeit somewhat older because of methodological factors.

Table 3. Demographic statistics

	Sample	Population[a]
Operator Age (1993)[b]	56	49.3
Operators by Age (1993) (%)		
24 or younger	0.0	2.7
25 to 34	2.9	16.6
35 to 44	16.1	20.2
45 to 54	24.1	20.7
55 to 64	32.4	24.1
65 or Older	24.5	15.7
Farm Tenancy (1992) (%)		
Full Owner	39.0	45.8
Part Owner	46.5	33.5
Tenant	14.5	20.7
Farm Size (1992)	351	325
Farms by Size (1992) (%)		
1 to 9 acres	.7	7.4
10 to 49 acres	6.2	10.7
50 to 179 acres	30.3	25.4
180 to 499 acres	40.1	35.3
500 to 999 acres	18.7	16.4
1,000 or more	3.5	4.9
Farm Sales (1992) (%)		
Less than $2,500	1.0	7.9
$2,500 to $9,999	4.9	12.2
$10,000 to $49,999	29.2	29.7
$50,000 to $99,999	22.4	18.2
$100,000 or more	31.1	32.0

[a]Age and tenancy data are from the U.S. Bureau of the Census: 1987 Census of Agriculture (1989) while the size and sales data are from the 1992 Census of Agriculture (Goudy and Lasley, 1994).

[b]Year in parenthesis is when information was requested.

Measurement of Dependent Variables

The variety of approaches to issues of farm succession within the literature reflect the multiple dimensions of farm succession. This analysis focuses upon two important issues, farmers intentions for the land at retirement and the child's choice of the farming occupation.

Farming Child: Children's occupational category was determined by asking the farm operator for the occupation of each family member 18 or older. The occupational categories provided were: farmer, housewife, student, unemployed, white collar worker (manager, sales, etc.), blue collar (skilled or unskilled labor), professional (teacher, doctor, nurse, etc.), self-employed business operator, and other. For this analysis, only the farmer category is of interest. For the 651 respondents (61 percent of the sample) who had at least one non-student adult child, 26 percent had at least one child who was a farmer.

Operator Intentions: Another question posed to farm operators concerned future plans for their farm operation. Operators were asked "What do you think will happen to your farm when you retire?" Seven response categories were provided. These categories were: one of my children will probably take it over and eventually inherit it; I will probably sell it to one or more of my children; I will probably cash rent to a tenant; I will probably rent it to someone on a cropshare basis; I will probably sell it to a non-family member; I don't have any idea what will happen to the farm; Not applicable, most (or all) of the land I farm is owned by others. Table 4 presents the response frequencies. Two categories, children inheriting and selling to children, were collapsed into one category reflecting the general intention of children receiving the land. Salamon's work suggests inheritance and sale of land are characteristic of different development cycles, but because the issue of interest is the intention for children to receive the land versus not, this collapsed category allows focused analysis of this outcome. For similar reasons, the cash rent and cropshare responses were collapsed as these two categories represent options where children do not receive the land. Later in the analysis, the cash

Table 4. Frequency of farm operator intentions

Response Category	Number Responding	Percent
Child will inherit	236	23.1
Child will buy	122	11.9
Cash rent to tenant	144	14.1
Cropshare with someone	142	13.9
Sell to non-family member	83	8.1
No idea	176	17.2
N/A, rent most land	120	11.7

rent/cropshare category will be expanded to include all the categories where children do not receive the land.

Measurement of Independent Variables

The independent variables can be broken down into three types, social/cultural, structural/ecological, and family characteristics.

Cultural: Salamon's work within ethnic communities suggests that orientations to the land and satisfaction with farming as an occupation have an affect upon the choices of farm family members. Consideration of farm operators agrarian orientations may be one useful indicator of orientations to farming. To measure this, Flinn and Johnson's (1974) agrarian scale was replicated[1]. This 11 item index was measured with a summated Likert-type technique. Respondents chose from five response categories: Strongly Agree; Agree; No Opinion; Disagree; Strongly Disagree. A weight of five was assigned to the response

[1] Respondents were asked the following questions: Agriculture is the most basic occupation in our society and almost all other occupations depend on it; A depression in agriculture is likely to cause a depression in the entire country; Farming involves understanding and working with the laws of nature; therefore, it is a much more natural occupation than others; One reason we hear so much about crime and corruption today is because our nation is becoming so urbanized; Farming should be an occupation where farmers are completely independent with respect to economic conditions; A farmer should be proud if he can say he owes money to no one; Farmers ought to appreciate farming as a good way of life and be less concerned about their cash income; Farmers should raise all of the crops and livestock possible as long as there are hungry people; Lawlessness and lack of respect for authority are major problems in the U.S. today; The replacement of family farmers by large scale farmers using hired labor would have undesirable consequences for the nation; ; If the economic situation for farmers continues like it is now, in a few years the family farm will be replaced by large farms run by hired labor.

category most pro-agrarian, while a weight of one was assigned to the response category least agrarian.

The farm operator's job satisfaction was elicited from a series of seven questions. Each operator was asked to indicate the "level of satisfaction with each of the following dimensions of [his/her] job as a farmer." The 5 response categories ranged from very satisfied to very dissatisfied. The items were coded 1-5, with the very satisfied coded 5 through the very dissatisfied which were coded 1. Because it was thought these seven items were perhaps tapping the same underlying dimension(s) of job satisfaction, factor analysis was conducted to reduce the number of items through the identification of any interpretable, underlying factors. A maximum likelihood factor extraction with varimax rotation identified two interpretable factors (see Table 5 for results). Five items loaded heavily on the first factor. These items are

Table 5. Factor analysis of job satisfaction

Item	Factor 1 Job Satisfaction	Factor 2 Income Satisfaction
Having adequate income	0.14	**0.99**[a]
Freedom to make own decisions	**0.46**	0.33
Ability to work outdoors	**0.66**	0.13
Staying out of debt	0.26	**0.53**
Non-routine work schedule	**0.70**	0.13
Time spent with family	**0.53**	0.19
Knowing you are doing something worthwhile	**0.64**	0.26
Eigenvalue	1.77	1.66
Variance explained (Total variance=48.9)	25.3	23.6

[a]Bold, underlined items included in scale. Item must have loaded greater than .4 to be retained.

specific to the farming occupation and are identified as general job satisfaction. These items are satisfaction with: freedom to make own decisions; ability to work outdoors; non-routine work schedule; time spent with family; and, knowing you are doing something worthwhile. Two items loaded high on the second factor. These two items concerned financial aspects of the farm operation, identified as income satisfaction. These two items are having adequate income and staying out of debt.

Farm operator's desire for an heir was measured by a question asking "If you have children would you like one of them to take it over when you retire?" The response categories were: Yes, definitely; Yes, probably; Undecided; Probably Not; and Definitely Not. This item was coded from 1 to 5 with the most affirmative response coded 5 and the most negative response coded 1.

Farm operators were also asked to assess the quality of their life. They were asked to complete the statement "during the past five years, has the quality of life for your family:" Response choices included: become much better; become somewhat better; remained the same; become somewhat worse; become much worse. The item was coded such that the most positive perception of quality of life was coded five and the most negative response was coded one.

Ecological farm structure: Several items included in the analysis measured the structural character of the farm operation. The human ecological literature suggests that structural characteristics are important indicators of whether a viable niche for an aspiring farming child exists.

To determine farm size, respondents were asked to indicate the number of acres they owned and the number of acres they rented. Total acres farmed was determined by adding these two categories together. Tenancy is an important structural variable, but because many of the respondents rented and owned some land, it was not possible to classify farmers as

strictly owner operator or tenant. Instead, a tenancy ratio was created, this item is the ratio of acres owned to total acres farmed.

The number of hogs and cattle raised was determined by asking respondents to indicate the actual number of each species he\she owned. Because of the existence of several extremely large hog operations, the raw hog numbers were recoded into ten response categories ranging from none to greater than 1000[2].

Two additional structural considerations are debts and assets. Respondents were asked to indicate their total assets and total debts in two separate items. A debt-to-asset ratio was created from this information by dividing debts by assets. Respondents were also asked to indicate their gross farm income and total family income.[3] Finally, respondents indicated the percent of their income from the farm in an open ended question.

Family Characteristics: Finally, farm operators were asked to respond to a series of questions related to their personal and family characteristics. They were asked their age, education, and family size. In addition, from data collected concerning the farm operators children, a variable was created reflecting the number of children living within 50 miles of the farm operation. To test the influence of the farm crisis on farmers at different stages of family development, a dichotomous variable was created separating farmers into two groups, those 50 and under and those older than 50. This break was done to separate farmers under 50 who may have younger children who had not yet entered the workforce ten years ago during the height of the crisis from those farmers over 50 with children who had likely already chosen careers. Thus, this dichotomous variable may reflect perceptual and intention differences of two age groups who were at different stages of their family life cycle during the mid-1980s.

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[2] The exact response categories are: none (0); less than 50 (1); 50 to 99 (2); 100 to 174 (3); 175 to 299 (4); 300 to 399 (5); 400 to 499 (6); 500 to 699 (7); 700 to 999 (8); and more than 999 (9).

[3]Gross farm income and total family income are both categorical variables. Gross farm sales (9 categories) ranged from "less than $2,500" (1) to "$500,000 or more" (9). Total family income (7 categories) ranged from "less than $2,500" (1) to "$75,000 or more" (9).

A summary of the independent variables is contained in Table 6. This summary includes mean, standard deviation, high and low response categories, and Cronbach's Alpha for any scales.

Hypotheses

At the end of Chapter 2, three general expectations concerning the influences upon the succession process were provided. The following hypothesis are more specific articulations of the expected relationship between the independent variables just described and the two facets of the succession process which serve as dependent variables for this analysis (farmer intentions for the land and the existence of a farming child).

1) The social/cultural variables, agrarianism, job satisfaction, income satisfaction, quality of life, and desire for a farming child, are greater for farmer's intending to pass the land on to a child (or children) and also greater on operations where a farming child exists.

2) Ecological/structural variables, such as total acres farmed, owned and rented; tenancy; head of hogs and cattle; gross farm income, total family income, and percent of income from the farm; and assets, are greater for farmer's intending to pass the land on to a child (children) and on operations where a farming child exists.

3) Existence of a farming child is more likely for farmers who intend to pass their land on to children.

4) Farmers 50 and under (comparison of potential differentiated impacts of the farm crisis), are less likely to anticipate passing the farm on to a child and are less likely to have a farming child.

5) The multivariate analysis will find that structural/ecological variables are stronger influences upon farmer intentions and the existence of a farming child than social/cultural variables.

Table 6. Summary statistics for independent variables

Independent Variable	Mean	St. Dev.	Range		Scale Reliability
			High	Low	
Social/Cultural					
Agrarianism	39.72	4.71	51	23	.587
Job Satisfaction	21.30	2.85	25	8	.748
Income Satisfaction	6.54	2.21	10	2	.718
Quality of Life	3.14	0.85	5	1	
Structural/Ecological					
Total Acres Farmed (acres)	351	386	5,519	6	
Total Acres Owned (acres)	167	185	1,900	0	
Total Acres Rented (acres)	184	321	5,000	0	
Tenancy (% land owned)	.61	.39	1.00	0.00	
Hog Producers (%)	38.6				
Head of Hogs	5.0	2.5	9	1	
Cattle Producers (%)	46.1				
Head of Cattle	94	131	1,200	1	
Gross Farm Income	5.73	1.79	9	1	
Total Family Income	4.6	1.38	7	1	
Assets ($)	418,764	402,016	4,131,915	2,500	
Debt ($)	101,024	163,324	2,327,259	0	
Debt/Asset Ratio	.24	.25	1.00	0.00	
Personal					
Respondent's Age	56	11.4	90	26	
Under 50 (%)	33.6				
Respondent's Education	12.6	2.44	21	0	
Family Size (# of children)	2.65	1.97	15	0	
# Children living near by	1.00	1.43	12	0	

CHAPTER 4

FINDINGS

Farm Intentions

The first facet of farm succession to be analyzed is the farm operator's intentions for his/her land upon retirement. Table 7 provides comparisons[4] of the five response categories of farmer's intention. The detailed information in Table 7 illustrates the various intentions the operator has for his/her land. This analysis reflects what previous literature anticipates, that there are many different ways for operators to handle their land. The next couple paragraphs compares and contrasts these various intentions. Each respective intention is identified by a letter from A to E.

Group A, farmers who expect that the child will buy or inherit the land, are clearly distinct from the other four groups. These farmers have the highest income satisfaction and desire for a farming child. They own more acres than the other groups and rent more than all the other groups except those who only rent land (group E). These farmers appear to be the most diversified, with a larger proportion reporting that they own hogs. These farmers rely quite heavily on the farm for their livelihood, reporting over 75 percent of their income is from the farm. They also report the greatest amount of assets. Finally, one-third of these farmers indicate they have a farming child, nearly four times as likely as any of the other groups.

In sum, these farmers are the most positively oriented toward the farm socially/culturally; these farmers are the largest structurally; and a great number of these farmers indicate a child already engaged in farming. These "venture" operators are likely engaged in farming as a potentially profitable economic enterprise. The operation's size allows a child to enter farming, which is desired. Thus it appears that both social and structural factors are related to these farmers' intentions.

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[4] Significant differences between groups is determined by a Least-significant difference (LSD) test.

Table 7. Farmer intentions by category

Variable	Child buys or inherits (A) N=358	Rent to others (B) N=286	Sell to outsider (C) N=83	No idea (D) N=176	N/A, rent most land (E) N=120	Statistically Significant Differences
Agrarianism	39.6	40.0	40.3	39.7	39.3	N.S.*
Job Satisfaction	21.5	21.5	20.8	20.5	21.3	AB/CD E/D
Income Satisfaction	6.8	6.6	6.0	6.3	6.2	AB/C A/DE
Quality of Life	3.2	3.2	3.0	3.1	3.1	A/C
Desire Farming Child	4.6	3.9	2.8	3.7	3.6	A/B/DE/C
Total Acres Farmed	421	307	206	295	424	AE/BCD
Total Acres Owned	221	175	123	142	27	A/B/C/E A/D/E
Total Acres Rented	200	132	83	153	396	E/A/BC E/D
Tenancy (% land owned)	64	69	78	66	7	C/AD/E B/E
Hog Producers (%)	48	28	33	40	33	**
Head of Hogs	5.4	4.6	4.7	4.7	4.7	A/B
Cattle Producers (%)	51	40	53	49	38	**
Head of Cattle	112	89	100	66	92	A/D
Gross Farm Income	6.2	5.6	5.0	5.4	5.8	A/EB/C A/D
Total Family Income	4.6	4.7	4.5	4.5	4.5	N.S.
Income from Farm (%)	76.6	72.0	64.1	68.4	71.2	A/CDB B/C
Assets($)	545,624	393,778	319,016	385,964	182,585	A/BCD/E
Debt($)	125,599	72,127	113,666	119,885	68,135	AD/EB
Debt/Asset Ratio	.24	.19	.28	.26	.30	ACDE/B E/A
Respondent's age	56	56	55	56	56	N.S.
Under 50 (%)	33	32	41	33	35	N.S.
Respondent's education	12.7	12.6	12.6	12.6	12.5	N.S.
Married (%)	89	91	89	91	92	N.S.
Family Size	2.9	2.6	2.6	2.5	2.5	A/DE
Childless (%)	13	18	22	21	18	N.S.
Farming child (%)	33	5	5	9	8	A/BCDE
Child living near by	.8	.8	1.1	.6	.6	C/ADE B/E

*No statistically significant findings (N.S.)
**Chi-Square significantly different at .05

Group B consists of those farmers who plan on renting their land to others when they retire. These farmers indicate a relatively strong desire for a farming child and income satisfaction. These operators are not as large as group A, but own more land than the other three groups. These farmers are the least likely to report owning hogs (28 percent). They also have the lowest debt/asset ratio. These farmers are unlikely to have a farming child, as

only five percent report having one. The lower level of diversification (only one quarter reporting they own hogs) and low debt/asset ratio of these farmers and their comparatively large landholdings suggest that these operators are not developing their operations as they could if they wanted to set a child up in farming. Renting to others appears a logical outcome for the type of operation these farmers report having.

The farm operators who indicated they will sell to an outsider (Group C) are the least likely to indicate the desire for a farming child, they farm the least number of acres, own the highest percent of the land they farm, have the smallest gross farm income and the least amount of assets of the four owner/operator classifications. It appears that these operators who anticipate selling to an outsider match Salamon and O'Reilly's (1979) converters, who do not expand land holdings and encourage other avenues of employment for their children. The negative desire for a farm child is consistent with this classification. The low gross farm income in comparison with the other groups, the comparable total family income, and the lowest percent of income from the farm suggests that these farmers have some form of off-farm employment. Further, although the chi-square for the dichotomous "under 50" variable was not significant, it may be that any aggressive or expansionary tendencies of this group were cut short by the 1980s farm debt crisis.

Nearly 18 percent of the farm operators indicated they had no idea (group D) what their intentions were for the land when they retired. Compared to the other four groups, these operators were moderate in size, in both acres and assets, and many had livestock. These operators indicated positive job satisfaction, although lower than the other groups. These operators also expressed a positive desire for a farming son, but not as strongly as groups A and B. Only nine percent of the operators indicated the existence of a farming son, which was much less than the operators who expected their children to inherit or buy the land (group A). This group is difficult to characterize other than to note that these generally represent the

middle on many of the characteristics. Because a limited number of these operators that have farming children while also being of comparable age to the other four groups, it might be anticipated that these operators will end up renting or selling to outsiders when they retire.

Over ten percent of the operators rent most of their land (group E). There will probably be no succession of land ownership for these farmers, as they rent rather than own. These operators indicate a positive, although relatively low desire for a farming child. These farmers are some of the largest operators, farming over 400 acres. They report the lowest amount of assets. Despite not owning much land (only 27 acres on average) eight percent had a farming child. Salamon and O'Reilly (1979) might refer to these farmers as pragmatists, farmers who lack strong attachments to the land, are less willing to go into debt, and rent most of their land. Despite the lack of financial resources, these are large-scale farm operations who likely play a role in the succession process by serving as renters for families without successors or heirs.

For comparative purposes specific to this research's interest in influences upon the intention to transfer the land to children versus not transferring, the five categories of intentions are further refined. First, a specific issue of interest is transfer of land, those operators who indicated they rented most of their land are dropped from this analysis. Further, the three response categories which indicate a child or children will not acquire the land or don't know what will become of the land are collapsed into one group. Since for nearly all of the independent variables, farmers who intended the children buy or inherit the land had characteristics that were notably higher than the other categories the degree of clarity lost should not be great with this reduction. Further, since the owners who indicated they rented most of their land are dropped from this comparison, the notable exception (size and acres rented) to the buy/inherit category's polar position is removed from distorting the clarity of the dichotomy.

The two groups are contrasted in Table 8. As with the earlier finding, the group of farmers intending to pass the farm on to a child have the greatest desire for a farming child, operate the largest farms, report the most assets, and the highest gross farm income. Further, this group of farmers indicate the highest job satisfaction, income satisfaction, are more likely to produce hogs, have the most children, and are the least likely to be childless.

Before conducting multivariate analysis, the correlation's among all of these indicators are considered to allay any concerns of multicollinearity. Total acres farmed was found to be highly correlated with total acres owned (.56), total acres rented (.88) gross farm income (.53), assets (.63) and debt (.65). Further, total acres owned was significantly correlated with assets (.80) and debt (.50). Debts and assets were also significantly correlated (.65) (the complete correlation matrix is found in table A1 of the appendix). Because of the high correlation among several of the structural characteristics only assets was included in the multivariate analysis, as assets is deemed the best indicator of farm operation size. To address concern that high debt counters assets, the debt/asset ratio is included. Further, the high correlation between family size and a child living near by (.54) led to only family size being included in further multivariate analysis. This latter correlation may be a direct linear function of an increasing number of children in a family resulting in an increasing number of children living nearby.

Regression analysis is conducted with a dichotomous dependent variable, farmer's intention that the child buy or inherit is coded as 1 and the other category is coded 0. Logistic regression is a recommended technique for considering dichotomous dependent variables(Morgan and Teachman, 1988, Aldrich and Nelson, 1984), although with moderately large sample sizes and a distribution of the dependent variable that is not skewed, ordinary least squares (OLS) regression has been found to adequately represent the relationship among the variables (Cleary and Angel, 1984). Because the sample for this analysis is relatively large,

Table 8. Child receives contrasted with other collapsed categories

Variable	Child buys or inherits N=358	Other N=545
Agrarianism	39.6	39.9
Job Satisfaction	21.5*	21.1
Income Satisfaction	6.7*	6.4
Quality of Life	3.2	3.1
Desire Farming Child	4.6*	3.7
Total Acres Farmed	419*	289
Total Acres Owned	220*	158
Total Acres Rented	199*	131
Tenancy (% land owned)	64*	69
Hog Producers (%)	48**	33
Head of Hogs	2.5*	1.5
Cattle Producers (%)	51	45
Head of Cattle	57*	37
Gross Farm Income	6.2*	5.4
Total Family Income	4.7	4.6
Income from Farm (%)	76.6*	69.6
Assets($)	545,624*	377,974
Debt($)	125,599*	93,130
Debt/Asset Ratio	.24	.22
Respondent's age	56	56
Under 50 (%)	33	34
Respondent's education	12.7	12.6
Married (%)	89	91
Family Size	2.9*	2.6
Childless (%)	12.8**	19.8
Farming child (%)	33	6
Child living near by	.80	.82

*Difference significant at .05 level

**Chi-square significant at .05 level

the split of the dichotomous variable is 40:60, and because linear regression is more easily interpreted, OLS regression is conducted and interpreted. To mitigate concern that logistic analysis is the more appropriate technique, this type of analysis was conducted and these results are provided in the appendix for comparative purposes.

The independent variables considered include agrarianism, job satisfaction, income satisfaction, quality of life, desire for a farming child, gross farm income, total family income, percent of income from the farm, assets, debt/asset ratio, tenancy, head of hogs, head of cattle, a dummy variable representing farmer age 50 and under (1) and over 50 (0), family size, and a dummy variable representing at least one farming child (1) or none (0). All variables were entered into the analysis at once and the results are presented in Table 9. Only three of the independent variables considered were found to be significantly related. The operator's desire for a farming child and the actual existence of a farming child (standardized beta of .345 and .310 respectively) were both relatively strong influences upon the farmer's intention to pass the land onto a child. Additionally, head of hogs was found to be a statistically significant influence, although relatively weak in comparison to the other significant variables (standardized beta of .101). Interestingly assets was not found to be a significant influence. The logistic regression results were comparable, with the same variables found to be significant and of similar magnitudes (see Table A2 in appendix).

These findings indicate that both the existence and desire for a farming heir are important influences upon a farm operator's intentions for the land at retirement. Structural considerations, such as size of the operation are not significant in relation to other factors. The finding that head of hogs was a significant influence is likely a reflection of the type of operation, a diversified one with both crop and livestock involving more labor, rather than indicating a direct relation between hog numbers and intentions.

Table 9. Multivariate analysis: operator intentions with variables of interest

Independent variables	Unstandardized regression coefficient (B)	Standard Error	Standardized regression coefficient (beta)
1. Agrarianism	-.0048	.004	-.046
2. Job Satisfaction	-.0023	.007	-.013
3. Income Satisfaction	.0146	.011	.065
4. Quality of Life	.0013	.024	.002
5 Desire Farming Child	.1792	.020	.345*
6. Assets	2.95×10^{-8}	4.94×10^{-8}	.025
7. Debt/Asset Ratio	.1427	.085	.070
8. Income from Farm	.0002	.001	.014
9. Tenancy	-.0655	.055	-.046
10. Head of Hogs	.0161	.006	.101*
11. Head of Cattle	1.13×10^{-4}	1.88×10^{-4}	.023
12. Under 50	-.0330	.038	-.032
13. Farming Child	.3900	.049	.310*
14. Family Size	-.0184	.010	-.073
Adjusted R^2	.2690		

*Significant at the .05 level

The finding that assets are not a significant influence in relation to other variables upon farmer intentions is contrary to the expectation that both structural and cultural factors influence the succession process at all junctures. A possible explanation is that different dimensions of the succession process are influenced by different issues, as there are several parties involved in the process this seems a logical expectation. The importance of a farming child upon farmer intentions is quite reasonable. A question that might be posed is what are the factors contributing to a child taking up farming. To consider this dimension of the farm succession process, the same independent variables as previously described are again considered. Table 10 provides the univariate comparison of the dichotomous variable of

Table 10. Univariate comparison of farming child

	Farming Child N=170	No Farming Child N=481
Agrarianism	38.9*	40.2
Job Satisfaction	21.1	21.5
Income Satisfaction	6.7	6.7
Quality of Life	3.2	3.1
Desire Farming Child	4.4*	3.9
Total Acres Farmed	489*	281
Total Acres Owned	275*	148
Total Acres Rented	214*	133
Tenancy (% land owned)	.70	.66
Hog Producers (%)	51**	36
Head of Hogs	2.7*	1.5
Cattle Producers (%)	51	45
Head of Cattle	65*	37
Gross Farm Income	6.3*	5.5
Total Family Income	4.7	4.6
Income from Farm (%)	79.9*	69.9
Assets($)	648,648*	379,080
Debt($)	148,135*	74,213
Debt/Asset Ratio	.21	.20
Farming Parent's age	57	57
Parent Under 50 (%)	28	30
Farming Parent's education	12.8	12.5
Family Size	3.8*	3.3

*Significant at .05 level

**Chi-square significant at .05 level

having a farm child or not. Because the existence of a farming child requires the existence of adult children, this analysis includes only those respondents who have at least one adult child.

As with the farmer's intentions, structural characteristics such as total acres farmed, owned, rented, etc. are significantly larger for operations with a farming child. Operator's desire for a farming child is also significantly greater for operations with a farming child.

Operations with a farming child had statistically lower agrarianism responses, although qualitatively the difference is not great. The lower agrarianism score may be explained by Vidich and Bensman's (1958) traditional versus rational farmer dichotomy. Farmers who aggressively expand to make room for a child are less likely to hold some of the traditional, more conservative beliefs embodied in the agrarianism scale.

Multivariate analysis was conducted to determine the relationship among the independent variables of interest. Because this analysis includes a dichotomous dependent variable, concerns similar to those raised for the previous multivariate analysis exist. Again, because of the relatively large sample and the split of 26:74, OLS regression is conducted. The same independent variables were included in this multivariate analysis as the previous analysis. The same justifications are made for the exclusion of the highly correlated variables as provided previously. Table 11 contains the results of this analysis.

Assets were found to be significantly related. Also statistically significant and of similar magnitude was the operator's desire for a farming child (standardized beta of .219, .153 standardize beta for assets). No other variables were found to be significant. The logistic regression results were comparable, with the same variables found to be significant and of similar magnitudes (see Table A3 of the Appendix).

The Hypotheses Tested

Although many of the significant findings are noted and discussed in the above analysis, the following discussion of the specific hypotheses is provided as a concise summary.

1) Job satisfaction, income satisfaction and desire for a farming child were all greater for farmers who intended their children receive the land, although qualitatively the differences were quite small except for the desire for a farming child (4.6 versus 3.7). The agrarian orientation and quality of life perceptions were nearly the same for the farmers who intended their children to receive the land and those who had other plans.

Table 11. Multivariate analysis of farming child with independent variables of interest

Independent variables	Unstandardized regression coefficient (B)	Standard Error	Standardized regression coefficient (beta)
1. Agrarianism	-.0091	.005	-.094
2. Job Satisfaction	-.0126	.009	-.076
3. Income Satisfaction	.0071	.013	.034
4. Quality of Life	-.0117	.028	-.022
5. Desire Farming Child	.1012	.022	.219*
6. Assets	$1.51x10^{-7}$	$5.44x10^{-8}$	.153*
7. Debt/Asset Ratio	-.0494	.106	-.025
8. Income from Farm	.0009	.001	.060
9. Tenancy	.026	.063	.020
10. Head of Hogs	.0110	.007	.074
11. Head of Cattle	$4.09x10^{-4}$	$2.28x10^{-4}$	.088
12. Under 50	.0126	.046	.012
13. Family Size	.0189	.012	.075
Adjusted R^2	.1213		

*Significant at the .05 level

There was no difference between operations with or without a farming child for job satisfaction, income satisfaction and quality of life perceptions. Operators who had a farming child expressed a greater desire for a farming child (4.4 versus 3.9). The agrarian orientation of farmers who had a farming child was lower than those who did not (38.9 versus 40.2) which was not hypothesized. A possible explanation for this finding was offered earlier.

2) As expected, all ecological/structural variables were greater for operations where the farmer intended to pass the land on to a child (children). Only total family income was not found to be significantly higher.

Ecological/structural variables were also greater on operations where a farming child existed. Again, only total family income was not found to be significantly higher.

3) As previously noted, the percentage of farms with a farming child was much greater where the operator intended a child receive the land (33% versus 6% where there was no farming child).

4) The variable to test the possible influence of the farm crisis on different stages of the life cycle, farmers under 50, did not significantly differ for either dependent variable.

5) The multivariate findings do not support the hypothesis that structural/ecological variables are stronger influences upon farmer intentions and the existence of a farming child than social/cultural variables. In fact, the structural/ecological variable reflecting size was not found to influence farmer intentions to pass the land on to a child (children) in any way.

CHAPTER 5

DISCUSSION AND CONCLUSION

As mentioned at the outset of this endeavor, farm succession is not a simple process, having many facets and many potential influences. The findings of the previous chapter identify some of the more significant influences while illustrating the multidimensionality of the process.

The Expectations

Connecting these findings to the expectations posed earlier, it appears that both social/cultural and structural/ecological factors influence the succession process. It was anticipated that these influences would play a role at all junctures of the process, which is not necessarily the case. While the desire for a farming child was significantly related to the intentions and the existence of a farming child, multivariate analysis did not find the structural/ecological influences to be an important influence upon the intentions of the respondent. This finding does not lead to outright rejection of the importance of structural/ecological influences. Rather, the significant relationship between assets and a child engaged in farming, which was in turn significantly related to farmer intentions, raises questions about the simplicity of the models provided earlier.

A more appropriate model may be one which connects farmer intentions with the existence of a farming child which is in turn linked to the numerous independent variables identified as being important. In this more complex model it is likely that structural/ecological conditions indirectly influence farm operator intentions through the decision of the child to enter farming, which is in part based on the existence of a sustenance niche large enough to support both farmer and child. A more complex model integrating more than one dimension of the succession process would likely find both types of influences significant. Given the findings related to the two dependent variables of this research, a logical next step would be

an attempt to integrate these findings into a more complex model which builds on the identified significant influences.

The expectation that structural/ecological factors are stronger influences than social/cultural influences now appears to be a rather naive expectation. In all honesty, it was this author's expectation that the human ecological explanations of migration (Sly, 1972, Sly and Tayman, 1977) would be just as applicable to the farm succession process. What is overlooked by this expectation is the ability of the farm family to adopt tactics which make farm succession successful and likely. Interestingly, these findings suggest that Salamon's research (Salamon and O'Reilly, 1979; Salamon, 1980; Salamon, 1984; Salamon, et.al., 1986), which has been mostly specific to ethnic communities, may have broader applicability, particularly the variety of farm development cycles which the univariate findings (Table 7 of previous chapter) of this research support (Salamon and O'Reilly, 1979).

Finally, contrary to expectations, the impact of the farm crisis on differing life cycle stages was not related to the farm succession issues considered in this research. This is not to say that the farm crisis has had no influence upon farm succession since the measure to test this hypothesis was arguably weak. It is quite possible that the farm crisis affected farmers of all ages, particularly those who had high debt during the. Further, the impact of the farm crisis may not be as easily assessed by only considering current farm operators since it is likely that those most severely impacted have already left farming and are no longer part of the farming population.

Shortcomings

In the process of testing these three hypotheses, several inadequacies of this research project come to light. First, the literature review recommends several variables to be considered which are not covered by this thesis. From the operator's point of view, several social/cultural variables could be considered in future research, particularly length of family

land ownership, date of first family land purchase, specific attitudes related to family land, and elaborated attitudes concerning children's choice of farming or other occupations. Several structural/ecological variables could also be considered, such as perception of the labor requirements of the farm, the amount of hired help, and a better designed measure of overall farm size. One important respondent characteristic that ought to be included in future research is a more precise measure of off-farm employment. This variable may be viewed as an ecological consideration (Albrecht and Murdock, 1984).

This research also is limited by focusing on only the farm operator. A more thorough understanding necessitates consideration of the spouse and children. Adding the farming child's point of view would contribute a great deal to explaining what factors are important for this dimension of the succession process. Further, consideration of both farmer and child allows insight into the relationship factors that are likely important, such as whether parent and child get along.

Despite these shortcomings, this research indicates that the study of farm succession is possible. Future research should more thoroughly investigate the relationship among social/cultural influences, structural/ecological influences, and farm succession decisions.

Policy Implications

State and federal programs designed to link retiring farmers with entering ones, which provide low interest loans to entering farmers, or which provide incentives for older farmers to sell to younger farmers, all attempt to create an atmosphere conducive to succession of ownership, whether it be within or outside the family. An assertion this research can make concerning these programs is the need to consider issues beyond financial resources.

Because farming is an occupation that has traditionally drawn from within its own ranks for future farmers, a relevant concern is the adequacy of the number of entering farmers from the current family farm structure. The analysis discussed earlier indicates that availability of

adequate resources are not the only consideration influencing the existence of a farming child, farm operator desires for an heir are also important. Thus, some attention may be given to the socialization process of farming children toward farming. Further, another possible route for developing future generations of farmers may be consideration of the needs of possible entrants who are not connected to the family farm, who likely would need training and education in addition to resources.

The descriptive analysis indicating that approximately eight percent of the respondents had no idea what they would do with their land at retirement illustrates a type of farm operation which is moderate in size and intensity and likely lacking an on-farm successor. These farm operations will likely be absorbed by expansionary operators who have heirs, unless there is a pool of potential operators desiring a moderate size operation which may serve more as hobby (with off-farm employment) than income. For future policy consideration, it would be interesting to know what are the characteristics of operations assisted by governmental incentives encouraging succession. Whether these moderately sized operations persist with incentives has implications for rural main streets as well as agricultural suppliers. This research does indicate that the larger farm operations are large enough to have succession, regardless of incentives.

Another area of consideration for policy-makers concerns the issue of succession of ownership. As the descriptive results referred to previously show, there are a number of operators who farm relatively large tracts of land but do not own land. Additionally, a significant number of respondents indicated their intention to rent or cropshare their land at retirement. Although this research cannot claim any change in tenure, the age structure of current operators suggests that at some point the dam must burst and these operators will no longer be able to postpone retirement. When this does happen, it is quite possible that there will be an increase in the number of tenant farmers or an increase in the number of acres

farmed by these operators. For policy-makers, in light of the different tenure arrangements that can exists, the issue to consider is what sort of farm structure is desired and how to encourage that structure.

Conclusion

This research does not have a grand and final conclusion, but rather points toward some avenues of future consideration. Imagine, in the not too distant future, the social science researcher who may personally know all the state's farm population. Such a claim may be a little far fetched, but the truth is that the time is nearing when each exit from agriculture results in a statistically notable change in the structure, be it a percentage increase in the average farm size of a county or a percentage decrease of the number of farm operators of a county. With a significant number of families involved in agriculture, each with children ready to enter the farming occupation, the impact of each exit was notable but manageable because a pool of future operators existed. With continued farm population decline, such a pool of future operators may be proportionally the same, but despite technological improvements the amount of land to be absorbed may exceed these operators' ability to farm.

This research suggests that there are interpretable patterns to the farm succession decisions of many farm operators. This research also identifies possible influences upon the child's decision to enter farming. For the most part, family farming will persist simply because there continue to be families where the farming occupation is filled by succeeding generations of farm children, and which have the resources necessary to realistically achieve farm succession. This research also identifies family farm operations which will not persist beyond the current generation. This data provides interpretable reasons for this outcome, succession of both land and occupation, is unlikely for both structural and social reasons. The question thus arises, who will farm this land? That question remains for future consideration, but is an imperative next step.

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APPENDIX

ADDITIONAL TABLES

Table A1. Model Variables: Bivariate Correlation Matrix

Variable	Variable Number 1	2	3	4	5	6	7	8	9	10	11	12
Social/Cultural												
1. Agrarianism	1.00											
2. Job Satisfaction	.03	1.00										
3. Income Satisfaction	-.03	.45[a]	1.00									
4. Quality of Life	-.14	.26	.39	1.00								
5. Desire Farming Child	.08	.19	.09	.11	1.00							
Structural/Ecological												
6. Total Acres Farmed	-.16	.00	-.03	.03	.13	1.00						
7. Total Acres Owned	-.11	-.01	.09	-.03	.16	.56	1.00					
8. Total Acres Rented	-.13	.01	-.09	.05	.07	.88	.10	1.00				
9. Tenancy	.07	-.01	.15	-.04	.00	-.31	.33	-.56	1.00			
10. Head of Cattle	-.05	-.03	.04	.01	.03	.08	.13	.02	.01	1.00		
11. Head of Hogs	-.09	-.03	.01	.02	.08	.16	.16	.10	-.06*	.10	1.00	
12. Gross Farm Income	-.16	.04	-.01	.05	.18	.53	.47	.36	-.22	.26	.41	1.00
13. Total Family Income	-.14	.09	.21	.24	.07	.19	.21	.10	.00	.09	.04	.26
14. Income from Farm	.05	.05	.03	-.05	.11	.25	.27	.15	-.05	.12	.25	.48
15. Assets	-.21	.05	.13	.07	.18	.63	.80	.26	.16	.31	.27	.57
16. Debt	-.15	-.07	-.23	-.09	.08	.65	.50	.49	-.09	.22	.24	.44
17. Debt/Asset Ratio	-.07	-.15	-.45	-.18	.02	.21	-.04	.29	-.26	.01	.11	.20
Family Characteristics												
18. Operator's Age	-.02	-.05	-.05	.02	.04	.03	.05	.01	-.04	.08	.02	.06
19. Operator's Education	.03	-.01	.03	-.01	-.07	.02	.01	.01	.07	-.04	-.04	-.04
20. Under 50	.00	.03	-.02	.00	.05	-.04	-.04	-.03	-.06	-.01	.03	.00
21. Family Size	-.04	.02	-.05	.01	.10	.02	.03	.00	.00	.02	.12	.07
22. Nearby Child	.09	.02	-.01	-.03	.02	-.08	-.07	-.05	.08	-.03	-.03	-.10

[a]All correlations |.07| or greater are statistically significant unless otherwise noted

*Significant at .05 level

Table A1 (Continued)

Variable	Variable Number									
	13	14	15	16	17	18	19	20	21	22
13. Total Family Income	1.00									
14. Income From Farm	-.07	1.00								
15. Assets	.27	.28	1.00							
16. Debt	.00	.16	.65	1.00						
17. Debt/Asset Ratio	-.17	-.01	.01	.54	1.00					
Family Characteristics										
18. Operator's Age	.02	-.01	.06	.08	.06	1.00				
19. Operator's Cohort	.03	-.04	-.01	-.07	-.12	-.29	1.00			
20. Operator's Educ.	-.04	-.02	-.04	.03	.10	.26	-.81	1.00		
21. Family Size	.07	.02	.08	.07	.03	.00	.04	-.02	1.00	
22. Nearby Child	-.01	.00	-.06	-.06	-.08	-.03	.03	-.03	.57	1.00

Table A2. Logistic regression model for farmer's intention

Variable	b	b(P)(1-P)	SE	p
1. Agrarianism	-.031	-.007	.023	.192
2. Job Satisfaction	-.016	-.004	.041	.693
3. Income Satisfaction	.078	.019	.061	.203
4. Quality of Life	-.009	-.002	.135	.945
5. Desire Farming Child	1.180	.287	.151	.000
6. Assets	$2.5x10^{-7}$	$6.09x^{-8}$	$3.08x10^{7}$	.416
7. Debt/Asset Ratio	.862	.210	.490	.078
8. Income from Farm	.001	.0002	.004	.879
9. Tenancy	-.368	-.090	.312	.238
10. Head of Hogs	.092	.022	.035	.009
11. Head of Cattle	.001	.0002	.001	.509
12. Under 50	-.165	-.040	.219	.450
13. Farming Child	2.103	.512	.306	.000
14. Family Size	-.102	.025	.055	.063
Constant	-4.644			
Model Chi-Square	193.57			
df	14			

Table A3. Logistic regression model for having farming child

Variable	b	b(P)(1-P)	SE	p
1. Agrarianism	-.055	-.015	.028	.045
2. Job Satisfaction	-.081	-.021	.052	.125
3. Income Satisfaction	.039	.010	.075	.597
4. Quality of Life	-.092	.024	.163	.572
5. Desire Farming Child	.713	.188	.159	.000
6. Assets	$7.4x10^{-7}$	$1.95x10^{-}$	$3.18x10^{-}$	.020
7. Debt/Asset Ratio	.239	.063	.642	.139
8. Income from Farm	.006	.002	.005	.209
9. Tenancy	.206	.054	.394	.601
10. Head of Hogs	.064	.017	.040	.113
11. Head of Cattle	.002	.001	.014	.111
12. Under 50	.102	.027	.272	.707
13. Family Size	.109	.029	.063	.085
Constant	-1.61			
Model Chi-Square	66.82			
df	13			