The Role of Goal Structure in Enterprise Selection in U.S. Agriculture

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Abstract

Farmers are likely to be motivated by alternative goals besides profit maximization. Goal structure is highly influential in farmer enterprise selection decisions. This paper addresses the roles of goal structure, location, financial situation, and socio-demographic variables and their influence on farmers' farm enterprise selection decisions. This study uses the 2003 Agricultural Resource Management Survey (ARMS), a national farm-level data, and Tobit method to examine the impacts of goal structure and resource availability on enterprise choice. Results indicate that goal structure significantly influences enterprise selection. Farmers who indicated their primary reason for becoming a farm operator was to "Take over operation of the farm from a family member or another person," relative to "Develop a business to generate additional income," were more likely to receive higher percentages of farm income from beef, dairy, or crop production and lower percentages of income from broiler production. These results suggest the important role of farm succession in beef, dairy, and crop production, contrasted with its lesser role in broiler production relative to generating additional income.

Keywords: Goal structure, enterprise selection, cattle farming, crop production, family farm, real estate, retirement activity, outdoor activity

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It is common in agricultural economic analyses to assume that farmers are profit maximizers, sometimes also considering the role of risk in decision making. While these analyses provide insight into how factors such as recently developed technology, policy, or industry structural changes would influence one dimension of utility, this use of normative theory tends to be less adept at explaining actual decision-making. This is at least partially attributed to farmers having multiple, often competing, goals that influence their decisions. This paper addresses the roles of goal structure, location, financial situation, and socio-demographic variables and their influence on farmers' farm enterprise selection decisions.

The multidimensional nature of farmers' decisions has been established. For example, one study showed the importance of improving quality of life among family and agricultural goals of New Mexico small farm and ranch operators (Harper and Eastman). What has received less attention has been the influence of goal structure on specific actual farm decisions. Among the most basic and important decisions made by farmers is what to produce given limited resources. Though resource base and relative output prices are likely to be of importance in this decision, goal structure is also likely to be influential. Enterprises have different associated management and labor requirements. Furthermore, individuals with an interest in operating a hobby farm rather than a full-time operation are unlikely to choose one of the more management-intensive enterprises unless its profitability greatly exceeds that of less management-intensive enterprises. If goal structure were found to influence enterprise choice decisions, this could provide insight in explaining industry evolution and efforts in the agricultural policy arena, as well as in developing strategies for future paths the industries might pursue.

Farmer Enterprise Selection with Multiple Goals

Production Economics Theory and Enterprise Choice

Enterprise selection studies conducted by economists have traditionally utilized the concept of the production possibilities frontier and the isorevenue line. Profit is maximized at the combination of enterprises where the isorevenue line's northeasterly parallel shift results in its being tangent to the production possibilities set. This allows the firm to maximize the productivity of its limited resources to their greatest economic return. Linear programs of form (1) have been useful in modeling this type of problem:

(1) Maximize $f(x) = c'x$

Subject to: $Ax \leq b$

$x \geq 0$

Profit *f(.)* associated with enterprises *x* is maximized subject to membership in the constraint set represented by vector *b*, given prices, *c*. This type of normative analysis is useful in determining how farmers will utilize limited resources, provided they are profit maximizers. What these studies do not address is why farmers do not always produce the profit-maximizing combination on the production possibilities set, which is the corresponding objective function value of the linear programming model. Studies considering multidimensional goal structure can provide insight on why the profit-maximizing combination of enterprises is not always chosen.

Establishing Farmer Decision Making as Multi-Dimensional in Nature

Previous studies have shown that farmers are likely to be motivated by alternative goals besides profit maximization. Walker and Schubert sorted farmers into two groups including environmentally effective farmers and efficient entrepreneurs, contrasting their goal structures. Kliebenstein et al. found that, of 29 Missouri farmers, the greatest concern was with being their

own bosses. Smith and Captstick found that, of 111 Arkansas producers evaluating 10 goals, staying in business was the most important, while increasing farm size was the least.

Patrick, Blake, and Whitaker showed that, of 91 Indiana farmers evaluating eight goals, avoiding the inability to meet loan payments and/or avoiding foreclosure, and attaining a desirable level of family living were the two most important. Van Kooten et al. found that goal structures of 24 Saskatchewan producers differed by demographics. What has emerged from these studies is that, while maximizing income and/or profit is generally among the important farmer goals, they are not always the most important and cannot fully explain decision-making. Favored, or even dominant, goals such as those dealing with "quality of life" or family succession would have the potential to influence enterprise choice.

Establishing the Link Between Goals and Decision-Making

Goal programming has been used to extend the linear programming framework in numerous studies to determine optimum decisions considering goal structure, with Romero and Rehman discussing its usefulness. While these studies have attempted to enter the realm of the more comprehensive positive versus normative analysis, they have not linked goal structure with actual decisions.

Two studies linking goal structure with actual decisions include Willock et al. and Bergevoet et al. With 245 Scottish farmers, Willock et al. elicited goal importance measures in five categories using 5-point Likert-scale responses to questions posed under each of the categories. Results showed that attitudes and objectives were significant determinants of farmer behavior. Bergevoet et al. found that, among 257 Dutch farmers, goal structure significantly influenced the chosen size of dairy farm. Measures of importance for the nine goals considered were elicited using 5-point Likert-scales for each goal.

The Willock et al. study utilized the Theory of Reasoned Action (Fishbein and Ajzen), which explores the roles of attitudes and goals on behavior. This theory suggests that individuals' decisions are influenced by their intentions, which are influenced by attitudes. The Bergevoet et al. study utilized the Theory of Planned Behavior, also developed by Fishbein and Azjen, but later extended by Azjen and Madden. This theory establishes the roles of attitudes, subjective norms, behavioral intentions, and perceived behavioral control on decision making, assuming that individuals are rational decision makers. These theories have also been used to explain decisions such as adoption of environmentally-friendly practices (e.g., Pample and van Es).

The Role of Goals in Enterprise Choice

The authors are aware of only two previous studies linking goal structure with enterprise choice. Gillmor, a geographer studying Irish farmers' goals and comparing them with those from a previous study of English farmers, showed that economic, physical, and socio-personal factors influenced enterprise choice. Among his recommendations were that, "There should be investigations of the links between motivation and overt behavior in terms of farm enterprise practices and land use patterns." Basarir and Gillespie used fuzzy pair-wise comparisons among six goals to show that, among Louisiana beef and dairy producers, goal structure differed by demographics and enterprise, with beef producers indicating greater concern over maintaining and conserving land and dairy producers indicating greater concern for economic goals such as maximizing profit and avoiding years of loss or low profit.

Why would goal structure be expected to influence enterprise choice? Consider the goals that were analyzed by Basarir and Gillespie, including maximize profit, maintain and conserve land, increase net worth, avoid years of loss / low profit, have time for other activities, and

increase farm size. The Louisiana State University Agricultural Center provides annual costs and returns estimates and associated labor requirements for major enterprises in the state (e.g., Paxton; Salassi and Breaux; Boucher and Gillespie). It is recognized that region has a key influence on suitability of land for production, and thus profit. However, examination of labor requirements shows that labor required per acre for beef cattle, dairy, and crop enterprises varies greatly, with the dairy enterprise requiring the greatest labor requirement per acre. Fixed investment per acre differs as well, with the dairy and crop enterprises holding the greatest investment requirements per acre. The farmer with fixed acreage wishing to maximize profit will likely choose either the dairy or a crop enterprise. Alternatively, the part-time farmer wishing to have time for other activities may choose the less labor-intensive beef enterprise.

While previous studies have established the multidimensionality of goals and that goals influence farmer decision-making, the authors are aware of no other comprehensive study has established the role of goal structure on enterprise choice and diversification among relatively large samples of producers over diverse landscapes. The present study uses a nationally-collected database that is representative of the U.S. farm population to analyze the impact of goal structure on the selection of five alternative enterprises.

Data and Methods

Data from the 2003 Agricultural Resource Management Survey (ARMS), conducted by USDA-Economic Research Service, is used for this study. In that survey of 18,459 producers from across the United States, the following question was asked: "What was the primary reason for becoming a farm operator?" Respondents were to indicate one of the following responses:

1. Take over operation of the farm from a family member or another person,
2. Develop a business to generate additional income,

3. Investment in real estate,

4. Live in a rural area,

5. Retirement residence / activity,

6. Growing crops and/or livestock that provide outdoor activity, and

7. Other reason (list).

In contrast with simple pair-wise comparisons (Thurstone), the analytic hierarchy process (Saaty), fuzzy pair-wise comparisons (e.g., van Kooten et al.), and magnitude estimation (Stevens), responses to this question do not provide full rankings or ratings of each of the goals for each individual, but rather the highest ranked goal. Because these alternative goal hierarchy elicitation methods that provide full goal rankings or ratings require extensive questioning, they are unlikely to be feasible for lengthy nationwide surveys such as ARMS that must elicit detailed information on a wide array of subjects. Pair-wise comparisons over seven goals, for example, would require the respondent to make $\sum_{i=1}^{7} i - 1 = 21$ comparisons among the goals, comparisons that can require rather extensive cognitive processes especially in the case of fuzzy pair-wise comparisons or use of the analytic hierarchy process. Thus, the selected methodology was used and considered appropriate for analyzing the impact of goal structure on enterprise choice, considering the large number of observations available and the extensiveness of the questionnaire.

Response options are interpreted by the authors as follows. Farmers indicating (1) will generally have had previous experience with agriculture and be attracted to the prospect of future farm ownership and/or management. In cases where the operation has been inherited or sold to the operator at less than its fair market value, it is expected that enterprises requiring greater initial investment can be adopted. Of the seven responses, (2) is most likely to approximate the

goal, maximize profit, as it pertains to the business and economic aspects of the operation. Farmers motivated primarily by profit are likely to enter into the enterprise combination with the greatest net return. Farmers indicating (3) are likely to have entered into farming primarily for speculative reasons. They are likely to gravitate toward enterprises that provide adequate cashflow and allow for low-cost maintenance of the real estate investment.

Goals (4), (5), and (6) are lifestyle goals, with (4) concentrating on the advantages of rural life, (5) concerning the provision of post-retirement work, and (6) pertaining to the advantages associated with outdoor work. The authors expect that farmers selecting any of these as primary goals, especially (5), would select enterprises that provide greater flexibility and leisure time, while avoiding enterprises requiring extensive management.

Determining the Impact of Goal Structure on Enterprise Choice

Five tobit models are developed to examine the impacts of goal structure and resource availability on enterprise choice. The dependent variable is the portion of farm income received from the enterprise in question: beef, dairy, crops, hogs, and broilers. For Farm *k*, it is calculated as:

$$(1) \qquad Incportion_{jk} = \frac{Income_{jk}}{\sum_{i=1}^{n} Income_{ik}}$$

where $Incportion_j$ refers to the portion of income coming from enterprise *j*, $Income_j$ refers to the income from enterprise *j*, and there are *n* enterprises on the farm. This dependent variable measures not only the portion of income from the enterprise in question, but also provides an indication of the importance of other enterprises on the farm. Large numbers of "0" values are expected for each $Incportion_j$ model, as the majority of the surveyed farms would not be

producing a particular enterprise. The tobit model is appropriate for this type of dependent variable. As shown by Greene, the tobit index function is:

$$y_i^* = \beta' x_i + \varepsilon_i ,$$

(2) $$y_i = 0 \text{ if } y_i^* \le 0 ,$$

$$y_i = y_i^* \text{ if } y_i^* > 0 .$$

where y_i^* is the latent variable, β is the estimate, x_i are independent variables, and ε_i is the error term. Independent variables in the analysis are of the following categories: (1) goal structure, (2) demographic and financial, and (3) locational.

Goal structure variables include *Takeover Family Farm*, *Invest in Real Estate*, *Live in Rural Area*, *Outdoor Activity*, and *Other*, indicating "Take over the operation of the farm from a family member or another person," "Investment in real estate," "Live in a rural area," "Retirement residence / activity," "Growing crops and/or livestock that provide outdoor activity," and "Other reason," respectively. Each of these variables takes the value of "1" if selected as the primary reason for becoming a farm operator and "0" otherwise. The base goal is "Develop a business to generate additional income."

Though previous research provides little insight into expected signs on the goal variables, Basarir and Gillespie's results suggest that goals other than developing a business to generate additional income would be relatively more important to beef producers than to dairy producers. Given the relatively high capital investment and labor requirement associated with hog and broiler operations, it is expected that generating income would be among the most important goals of producers in those industries.

Demographic variables include *Age*, *Female*, *College*, and *Farm Raised*, indicating the farmer's age, gender, whether a 4-year college degree is held, and whether the farmer was raised on a farm. The influences of *Age*, *Female*, and *College* are investigated in this study.

Financial variables include *Debt-asset Ratio*, *Off-farm Job*, and *Large Farm*, indicating the farmer's debt-asset ratio, whether or not an off-farm job is held, and whether the farmer operates >1,000 acres, respectively. Given the lower capital investment and labor requirements associated with cow-calf production, it is expected that those with lower debt-asset ratios and holding off-farm jobs are more likely to select beef relative to other enterprises. Debt-asset ratio is not only a measure of relative debt load, but may also be used as a proxy for risk preference. *Large Farm* is a proxy for farm size. It is expected that those operating larger acreages will select enterprises that are more land-intensive, such as cattle grazing and crops.

Locational variables include *Northeast*, *Appalachia*, *Southeast*, *Delta*, *Southern Plains*, *Northern Plains*, *Lake States*, *West*, and *Pacific*, with the base region as the *Corn Belt*[1]. These variables account for different suitability of land and other resources for alternative enterprises, and are the 10 crop production regions of the United States as used by USDA-Economic Research Service in models such as the United States Mathematical Programming Model. These variables serve as proxies in considering the profit maximizing enterprise combinations by region, as the shape of the production possibilities curve is influenced by region due to soil type, climate, etc. Likewise, the isorevenue line is influenced by region, as commodity prices differ by region; for instance, hog price is generally lowest in the Corn Belt. *Distance from Town* measures the distance of the farm to the nearest town of population 10,000 or more. It is expected that farms closer to towns are less likely to select confined animal feeding operations,

such as hog, broiler, and dairy production, and feedlot operations. This is due to associated environmental issues such as smell and water quality.

Of the 18,459 observations, 12,926 had missing values for one or more variables; thus, the number of observations used was 5,533. Of these, 3,016 were involved in beef production, 771 in dairy production, 3,146 in crop production, 204 in hog production, and 408 in broiler production.

Results

Results of this study show that goal structure, demographic, financial, and locational variables have influences on enterprise selection and percentage of farm income coming from the enterprise. Table 1 presents these results. In discussing each of the variables, we simplify the discussion by only indicating whether a variable influences the percentage of farm income coming from that enterprise, recognizing that the variable also influences whether or not the enterprise was chosen.

Goal structure significantly influences enterprise selection. Farmers who indicated their primary reason for becoming a farm operator was to "Take over operation of the farm from a family member or another person," relative to "Develop a business to generate additional income," were more likely to receive higher percentages of farm income from beef, dairy, or crop production and lower percentages of income from broiler production. These results suggest the important role of farm succession in beef, dairy, and crop production, contrasted with its lesser role in broiler production relative to generating additional income.

Farmers who indicated their primary reason for becoming a farm operator was "Investment in real estate," relative to "Develop a business to generate additional income," were more likely to receive higher percentages of farm income from beef or dairy production, and

lower percentages from broiler production. This suggests that those farming for land investment purposes relative to generating income tend to enter into lower-input grazing enterprises, such as beef production. The greater propensity of these producers to enter dairy production might be further investigated to determine whether those with this goal structure tend to be lower-input grazers relative to technologically-advanced conventional dairy producers. It is, however, recognized that dairy production frequently occurs in areas that are relatively close to urban areas, often explained by the bulkiness and perishability of fluid milk. Broiler producers were less likely to have entered into farming for real estate investment purposes than for generating additional income. These areas often experience rapid land value increases as their opportunity costs for development increase.

Three "quality-of-life" goals were "Live in a rural area," "Retirement residence / activity," and "Growing crops and/or livestock that provide outdoor activity." Farmers who indicated their primary reason for becoming a farm operator was to "Live in a rural area," relative to "Develop a business to generate additional income," were more likely to generate greater percentages of their farm income from beef production and lower percentages from crop or broiler production. Farmers who indicated their primary reason for becoming a farm operator was "Retirement residence / activity" relative to "Develop a business to generate additional income," were more likely to generate higher percentages of farm income from beef production and lower percentage from dairy or broiler production. Farmers who indicated their primary reason for becoming a farm operator was "Growing crops and/or livestock that provide outdoor activity" relative to "Develop a business to generate additional income," were more likely to generate higher percentages of farm income from cattle production and lower percentages from hog or broiler production. These results show the prevalence of farmers with "quality of life"

goals entering into beef production and the lesser tendency of these producers to enter into the other enterprises. This is likely explained by the relative low-input nature and smaller economies of size associated with cow-calf production.

Other goals not included in the list of six influenced the percentage of farm income being received from dairy and crop production. Other goals not included were less likely to have been the primary influence relative to generating additional income with broiler production.

Demographic variables influenced enterprise selection, with older producers more likely to receive greater percentages of farm income from broiler production; females more likely to receive lower percentages of farm income from dairy, crop, and hog production; college graduates more likely to receive greater percentages of farm income from hog production and lower percentages from beef, dairy, crop, and broiler production; and producers having been raised on a farm more likely to receive greater percentages of farm income from beef, dairy, and hog production.

Financial variables influenced enterprise selection. Producers with higher debt relative to assets were more likely to receive lower percentages of farm income from beef or crop production, and more likely to receive greater percentages of farm income from dairy, hog, or broiler production. Farmers holding off-farm jobs were more likely to receive greater percentages of farm income from beef production and more likely to receive lower percentages from dairy, crop, hog, or broiler production. Larger land holders were more likely to receive greater percentages of farm income from crop production and lower percentages from dairy, hog, or broiler production.

As expected, locational variables influenced enterprise choice, with farmers located closer to towns of population 10,000 or more being more likely to receive higher percentages of

farm income from beef or broiler production and lower percentages from dairy or crop production. Region also influenced enterprise selection, with Appalachian, Southeastern, Delta, Southern Plains, Northern Plains, and Western farmers receiving greater percentages of farm income from beef relative to Corn Belt farmers; Northeastern, Lake States and Pacific farmers receiving greater percentages and Southeastern farmers receiving lower percentages of farm income from dairy production than Corn Belt farmers; Northeastern, Appalachian, Southeastern, Delta, Southern Plains, Western, and Pacific farmers receiving lower percentages of farm income from crop production than Corn Belt farmers; farmers in all regions other than the Corn Belt receiving lower percentages of farm income from hog production than Corn Belt farmers; and Appalachian, Southeastern, Delta, and Southern Plains farmers receiving greater percentages and Lake States farmers receiving lower percentages of farm income from broiler production than Corn Belt farmers.

Conclusions

Goal structure is highly influential in farmer enterprise selection decisions. While this overall result cannot be described as surprising, its implications are illuminating, providing compelling evidence to support conclusions economists have drawn based upon economic theory.

Cattle farmers, the majority of which are relatively low-input cow-calf or stocker producers, are more likely to have entered into and receive higher percentages of their income from farming due to taking over the family farm, investing in real estate, or “quality of life” goals relative to generating additional income. Cow-calf production is particularly attractive to the farmer further from a town, of low debt, not holding a college degree, having been farm-

raised and holding an off-farm job. Cow-calf production appears to be particularly well suited for a retirement activity or recreational activity for the farmer holding an off-farm job.

For dairy farmers, on the other hand, generating additional income is neither the most nor the least important goal in the hierarchy, with those taking over farms from family members or another person and investing in real estate more likely to enter into dairy production relative to generating additional income, but less likely to have entered into dairy production as a retirement activity relative to generating additional income. Dairy production is particularly attractive to smaller landholders located closer to towns, and males without college degrees who have farm backgrounds and do not hold off-farm jobs. Many of the milk production firms appear to be operated by traditional, full-time farmers who are involved in farming for a variety of reasons, including income generation and family tradition.

Like dairy farmers, generating additional income is neither the most nor the least important in the goal hierarchy of crop farmers. Those selecting crop production were more likely to have entered farming to take over the operation from a family member or another person, and less likely to have done so to live in a rural area, relative to generating additional income. Crop producers were larger landholders, located closer to towns, holding lower debt relative to assets, males, held college degrees, and did not hold off-farm jobs. Like dairy farmers, crop production farms appear to be operated by traditional, full-time farmers who are involved in farming for a variety of reasons, including income generation and family tradition.

Hog farmers were less likely to have entered production for outdoor activity than for generating additional income. They held higher debt relative to assets, and were more likely to be males, college educated, farm-raised, and to not hold an off-farm job.

The most important goal for broiler producers was generating additional income, with all other goals being significantly less likely to be selected. These farmers operated smaller acreages, were located further from towns, held higher debt relative to assets, and were less likely to hold college degrees or off-farm jobs. Income generation appears to be the most important goal for these producers who hold relatively high debt and depend largely on income from farming.

It is noted that the enterprise with the highest degree of vertical coordination, broilers, has producers with the greatest concern for developing a business to generate additional income. On the other hand, the enterprise associated with an industry that is less vertically coordinated relative to other livestock enterprises, beef, has producers who are more likely to choose any of the listed goals over the income generation goal. Dairy and crop production, both of which have associated government price support mechanisms, have producers who are more mixed in their goal structures, with income generation as important goals along with other "quality-of-life" and family goals.

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Tobit Results for Percentage Value of Livestock or Crop Enterprise on the Farm.

Variable	Beef Production		Dairy Production		Crop Production	
	ß	Std. Err.	ß	Std. Err.	ß	Std. Err.
Intercept	-0.2653**	0.0690	-1.4138**	0.1868	0.5418**	0.0742
Takeover Family Farm	0.0689**	0.0265	0.3392**	0.0801	0.0808**	0.0301
Invest in Real Estate	0.1193*	0.0679	0.4638**	0.2004	-0.0361	0.0810
Live in Rural Area	0.1504**	0.0344	0.0400	0.1131	-0.1091**	0.0411
Retirement Activity	0.2632**	0.0629	-0.7535**	0.2841	-0.0995	0.0775
Outdoor Activity	0.2024**	0.0334	0.1031	0.1040	-0.0208	0.0391
Other	0.0107	0.0337	0.2110**	0.0966	0.1151**	0.0379
Large Farm	0.0128	0.0225	-0.6461**	0.0693	0.3159**	0.0252
Age	-0.0000	0.0000	-0.0001	0.0001	-0.0000	0.0000
Distance from Town	0.0035**	0.0004	-0.0032**	0.0001	-0.0038**	0.0005
Debt-asset Ratio	-0.3256**	0.0406	0.4764**	0.0920	-0.0954**	0.0432
Female	-0.0231	0.0401	-0.2983**	0.1327	-0.1351**	0.0477
College	-0.1016**	0.0216	-0.3062**	0.0651	0.1364**	0.0239
Farm Raised	0.0902**	0.0242	0.4133**	0.0786	-0.0061	0.0277
Off-farm Job	0.2059**	0.0197	-1.0163**	0.0756	-0.0700**	0.0232
Northeast	0.0398	0.0407	1.1886**	0.1037	-0.2686**	0.0445
Appalachia	0.2377**	0.0372	0.0512	0.1091	-0.3742**	0.0415
Southeast	0.1723**	0.0393	-0.5390**	0.1340	-0.4523**	0.0446
Delta	0.1375**	0.0396	-0.1913	0.1230	-0.4088**	0.0442
Southern Plains	0.5279**	0.0392	-0.1141	0.1306	-0.6241**	0.0462
Northern Plains	0.1917**	0.0442	-0.2563	0.1569	-0.0196	0.0484
Lake States	-0.0513	0.0400	0.8530**	0.1029	-0.0651	0.0424
West	0.3360**	0.0404	0.0980	0.1254	-0.4246**	0.0460
Pacific	0.0112	0.0401	0.4435**	0.1063	-0.1019**	0.0423
Sigma	0.5911**	0.0083	1.0883**	0.0338	0.6849**	0.0096

Tobit Results for Percentage Value of Livestock or Crop Enterprise on the Farm, Cont'd.

Variable	Hog Production		Broiler Production	
	ß	Std. Err.	ß	Std. Err.
Intercept	-1.7320**	0.3732	-5.5167**	1.7253
Takeover Family Farm	-0.0741	0.1105	-0.6114**	0.1074
Invest in Real Estate	-0.4831	0.4170	-1.3667**	0.4414
Live in Rural Area	-0.0622	0.1525	-0.3873**	0.1351
Retirement Activity	-0.0355	0.2980	-0.5235**	0.2447
Outdoor Activity	-0.2889*	0.1541	-0.7807**	0.1458
Other	-0.0764	0.1453	-0.5812**	0.1414
Large Farm	-0.1583*	0.0949	-1.4780**	0.1773
Age	0.0001	0.0002	0.0016*	0.0009
Distance from Town	-0.0003	0.0020	0.0082**	0.0025
Debt-asset Ratio	0.5615**	0.1279	0.9271**	0.1425
Female	-0.7763**	0.3209	-0.2029	0.1635
College	0.1851**	0.0898	-0.3453**	0.1086
Farm Raised	0.2687**	0.1270	-0.1305	0.0975
Off-farm Job	-0.2101**	0.0894	-0.4176**	0.0903
Northeast	-0.8115**	0.1583	-0.3927	0.3100
Appalachia	-0.3717**	0.1183	1.2889**	0.2183
Southeast	-0.8719**	0.1615	2.0817**	0.2218
Delta	-1.3658**	0.2276	1.8651**	0.2224
Southern Plains	-1.3268**	0.2311	1.2250**	0.2296
Northern Plains	-0.5861**	0.1617	-2.2230	1.5194
Lake States	-0.2268**	0.1146	-0.7595**	0.3738
West	-1.5689**	0.2896	-2.6680	1.7778
Pacific	-1.6364**	0.2604	-0.3082	0.2871
Sigma	1.1096**	0.0691	1.3394**	0.0582