BORROWER PREFERENCES IN THE AGRICULTURAL CREDIT MARKET: A CONJOINT ANALYSIS

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Abstract

The purpose of this study is to identify the attributes that farm borrowers value in the credit relationship as well as the trade-offs in those attributes. Agricultural borrowers prefer a lender who can provide them with competitive interest rates, quick decisions on a loan request, an adequate loan amount, and knowledge of the agricultural industry. Farm borrowers do not place a priority on customized terms, but they do expect a competitive interest rate and are unwilling to pay a higher interest rate in exchange for other attributes such as faster loan decisions or specialization in agricultural lending.

Keywords: Lender attributes, borrower preferences, competitive interest rates, time to loan decision, conjoint analysis

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Introduction

Deregulation and the expansion of financial products and service offerings have prompted many changes in agricultural credit delivery and have impacted the competition for the slow growth agricultural credit market. The primary product for agricultural lenders has traditionally been financing for operating expenses and capital items. However, these lenders now often provide other financial services where the "purchase" decision is not always based on price alone. In addition, there are now many sources of agricultural credit from which agricultural borrowers can choose, including equipment dealers and input suppliers, as well as traditional credit sources.

The increased menu of products and services offered by commercial banks and other financial institutions and the increased competition have forced the market participants to evaluate how they can differentiate their products and services from their competition. If a lender can determine what is and is not important to a customer, he/she has the potential to become more competitive by segmenting the market and providing the desired products and services to the segmented customers.

Understanding exactly what modern agricultural borrowers require or desire from their credit providers is a challenge for many lenders. Little research has been done on the importance agricultural borrowers place on the various attributes involved in the provision of financial services. Some studies have shown that lender traits such as the lender-borrower relationship, interest rates, interest rate adjustments for things such as credit risk, knowledge of agriculture, and timely access to funds are important to agricultural borrowers (Daugherty; Moss, et al; Doane Agricultural Services Co.). However, it is rare that customers receive products or services possessing all the attributes they desire. Therefore, knowing the relative importance of credit product attributes, in addition to what credit attributes are important to a farmer, can help lenders provide the desired services and be more competitive.

The purpose of this study is to identify the attributes that farm borrowers value in the credit relationship as well as the trade-offs in those attributes. We proceed by first reviewing the previous studies conducted on customer preferences for financial services. Then the analysis procedure (conjoint analysis) and the survey design are described. Finally the results and implications are discussed.

Agricultural Borrower Preferences

Research on financial services attributes has been primarily conducted in non-agricultural commercial and consumer lending and financial services. One dimension of financial services that has been analyzed is the lender-borrower relationship (Gwin and Lindgren; Kelley, et al.; Hanson, et al; Petersen and Raghuran, 1994 and 1995). These studies looked at the importance of the lender-borrower relationship compared to other attributes such as loan rates, fee structure, innovations, convenience, deposit rates, and loan amount. Gwin and Lindgren report that personal relationships and the quality of customer service in retail banking are often of greater importance to customers than interest rates, fee structure, innovations, and convenience. Kelley, et al. found that the better a relationship with the financial institution, the harder it is for the borrower to switch lenders; therefore, the less the lender has to worry about competing with other credit sources. The survey conducted by Hanson, et al. revealed that if a customer has a friendly relationship with a bank, the interest rate on deposited funds needs to increase by 74 basis points before the customer switches institutions. However, Petersen and Raghuran (1995) report that the switching costs for borrowers have decreased due to the greater competition in the credit market.

Several studies report that the quality of the lending relationship affects the quantity, not the price, of the credit extended to a borrower by traditional lenders. The primary benefit of building close ties with an institutional creditor is that the availability of financing increases, and the effects on the price of credit are much smaller (Petersen and Raghuran, 1994). In a survey by Moss, et al., bankers responded that borrowers were more concerned with their relationship to loan officers than with the availability of non-loan products or services.

These studies provide some information about the importance of specific attributes of the experience of attaining financial services. These attributes are usually rated independently of other attributes of the product or service. However, a borrower considers multiple attributes when making a decision about a potential lender, and little is known about the multi-dimensional aspect of the borrowing decision.

Analytical Procedures

Conjoint Analysis

To analyze borrower's preferences for various lender attributes, the analytical procedure of conjoint analysis is used. Conjoint analysis has been used quite extensively (and effectively) in attribute analysis in other industries, but its use in agricultural sector studies has been limited. It is generally agreed that Luce, a mathematical psychologist, and Tukey, a statistician, mark the initial development of conjoint analysis in 1964 (Luce and Tukey). However, Green and Wind of the Wharton School are usually credited as the pioneers in applying it to marketing studies. Green and Srinivasan (1978) discuss the application of conjoint analysis specifically in consumer research. Marriott used this technique in a famous study of the development of Courtyard by Marriott (Wind, Green, Shifflet, and Scarborough), and later in development of the Fairfield Inn, to determine the precise attributes preferred by hotel guests. Conjoint analysis has been widely used in the field of marketing to evaluate new products and product attributes (Green and Srinivasan, 1990); it has gained widespread acceptance because of its predictive ability and its value in providing an understanding of the structure of consumers' preferences.

Conjoint analysis is one of several trade-off analysis tools. In general, trade-off analysis methods measure respondents' relative preferences for various product or service features. In conjoint analysis, respondents are asked to consider alternatives and state a likelihood or preference for each alternative. As the respondent continues to make choices, a pattern emerges which can be analyzed as to the individual features that contribute most to the purchase preference. The importance or influences contributed by the component parts are measured in relative units called "utility weights".

To use conjoint analysis for revealing preferences, the product or service is described by a "profile". The profile is a composite, or a possible combination of "attributes" with each attribute having associated "levels". For example, a profile for a money market account might be made up of three attributes: interest rate, fees, and minimum balance required. The associated levels for the minimum balance attribute could be $500, $1,000, and $1,500. The objective of conjoint analysis is thus to identify the specific attributes that contribute the most in the purchase decision. Figure 1 illustrates the relationship between profiles, attributes, and levels of those attributes.
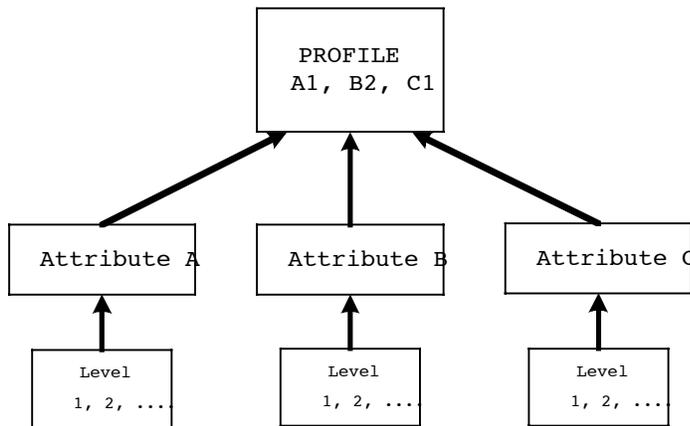

Figure 1. The relationship between Profiles, Attributes and Levels of Attributes

The utility weights can be referred to as "part-worth" utilities defined for the relevant characteristics or attributes of the product (Baker and Crosbie). The underlying theoretical model used for conjoint analysis is based on multi-attribute utility that assumes the decision-making or utility is affected by the set of product attributes on which the consumer places value. Researchers have measured the total utility derived from a good or service using one of two approaches – compositional and decompositional. The compositional approach measures the total utility for a multi-attribute product with a weighted sum of the product's perceived attribute levels and associated value ratings. This is accomplished using self-explicated models.

Conjoint analysis is based on the decompositional approach where respondents react to a set of "total" profile descriptions, and the part-worths for the individual attributes, given some type of composition rule (e.g., an additive one), are estimated. In other words, an individual's utility for a product or service is decomposed into some combination of part-worth utilities defined for the relevant characteristics, or attributes, of the product. For a choice alternative described in terms of a set of characteristics, $z_k=(z_1,....z_k)$, the utility function for an individual is specified in terms of a combination rule, W, and a set of functional forms, w_k, (one for each of the attributes) as $W(w_1,(z_1),.......w_k(z_k))$.

The combination rule, W, for the utility function is generally a choice between additive and quadratic models. An additive model captures only the main effects of the attributes, while the quadratic form additionally captures two-way interaction effects between attributes (Baker and Crosbie). The underlying functional form for the utility of the individual product characteristics, $w_k(z_k)$, can be linear (vector), quadratic (ideal-point), or piecewise linear (part-worth). The part-worth model, $w_k(z_k) = w_{z_k}$, estimates a particular utility level for each attribute level and is the most flexible choice. The choice of functional form depends on the relationship between a particular attribute's different levels. Often a mixture of models across a product's attributes is required.

Green and Srinivasan (1978) outline the methodology for conducting conjoint analysis. The steps involved are:

1. Selection of the preference model (the combination rule or underlying functional form)
2. Design of the experiment – this includes identifying the data collection method, and determining the attributes and attribute levels to analyze, the manner in which the product profiles are presented, and the measurement scale of the dependent variable.
3. Selection of the estimation method for the part-worth utilities and thus the overall utility.

Experimental Design

The experimental design component of conjoint analysis involves selecting the method by which the data will be attained. Variations of two basic methods are usually employed: the two-attributes-at-a-time procedure, and the full-profile approach. The full-profile approach utilizes the complete set of attributes by showing the respondent a hypothetical product possessing all the attributes to be analyzed in the study. The full-profile approach is used in this study.

The next step is to select the stimulus set of construction; in other words, the key attributes of the "product" or "service" and the attribute levels are identified. There are many attributes that customers use as a basis of comparison and as standards when choosing a service or product. It is impossible to define all relative attributes that consumers use in making purchasing decisions, but it is important to identify the key attributes that are homogeneous across large segments of the consumer population.

Gloy and Akridge attempted to segment the commercial agricultural producer market with respect to their behavior in buying agricultural inputs such as equipment, fertilizer and chemicals, seed, and feed. Their study used survey responses to segment the population according to the importance of different factors farmers considered when selecting an input supplier. The buying behavior variables included in their work were convenience/location, customer service/information, personal factors including trust, price, product performance and support services. At least two studies of buyer preferences (Stanford, et al., Baker and Crosbie) verified that the preferences could be grouped into the factors proposed by Gloy and Akridge.

Based on these works and those referenced earlier concerning the important dimensions of providing financial services, a pre-survey was presented to a number of agricultural producers and used to identify key attributes in the borrowing experience. The key attributes identified were:

1. Time it takes for the lender to make a decision about the loan;
2. Commitment of the relationship manager to continue lending to the borrower;
3. Annual interest rate;
4. Lender's willingness to provide the needed loan amount;
5. Creativity of lender to provide the borrower with specific terms and solutions; and
6. Lender's knowledge of and specialization in agriculture.

The number of attributes and attribute levels used for the analysis has significant implications for the data collection part of conjoint analysis. The attributes need to address the appropriate dimensions of the product or service, and the attribute levels need to be varied enough to generate differentiation in responses; however, if too many attributes and attribute levels are considered, the number of possible product profiles becomes very large and infeasible for a participant to answer. Instead of including all the possible combinations of attribute levels in the experiment, a version of fractional factorial designs is usually employed.

In this study each respondent was presented with a limited set of full-attribute profiles. These stimulus profiles were drawn from a much larger master design (usually ranging from 64 to 81 combinations) that permits orthogonal estimation of all main effects (and selected two-way interactions if the researcher wants to include some inter-attribute interaction effects). The respondent then evaluates each profile on some kind of "intention to buy" rating scale. Ultimately, the model's parameters are estimated by means of multiple regression.

To provide additional verification of borrowers' ratings of the attributes, a self-explicated component was also included in the survey. The respondents were asked to rate the importance of the attributes individually. In addition, they were shown j sets of attribute levels, one at a time, and asked to rate each attribute level in terms of its desirability.

The questionnaire used to obtain borrower attitudes about lender attributes consisted of three sections:

ß   Section I – Attribute importance rating (zero-to-six scale).
ß   Section II – Attribute level desirability or acceptability rating (zero-to-six scale).
ß   Section III – Lender profile evaluation (zero-to-six scale).

Sections I and II were for the self-explicated analysis. The respondents were presented with the attributes (Section I) and various levels of these attributes (Section II) and asked to rate them on a scale of "0" to "6"; 0 signifies a very undesirable attribute or attribute level, a rating of 3 means that the respondent is indifferent to the attribute or attribute level, and 6 signifies a very desirable attribute or attribute level. Table 1 identifies the specific attributes and the associated attribute levels included in Sections I and II of the survey.

Section III of the survey instrument contains forty-eight profiles consisting of specific levels of the six attributes. The respondents were presented the profiles as if they were potential borrowers and were asked to rate the profiles on their likeliness to borrow from the lender. Again, the respondents rated the profiles using a scale of zero to six; a rating of "6" suggested that the respondent was very likely to borrow from a lender with that specific profile, a "3" meant that they were indifferent to borrowing from the lender, and a rating of "0" inferred that the respondent was very unlikely to borrow from the lender. Two levels for each attribute were used in the profile analysis – except for interest rate, which had three levels (Table 2). The number of levels was decreased from the self-explicated analysis to reduce the number of

possible profiles to be evaluated. This was intended to reduce survey respondent fatigue. By providing three levels for the interest rate, a more complete understanding of the borrower's tradeoff of the interest rate attribute and other attributes was determined.

Empirical Model

The part-worth utilities, and thus the overall utility, can be estimated with numerous econometric methods. Ordinary least squares (OLS) is a frequent method employed for the analysis, and the conjoint model can be specified as:

$$V_{i_1,i_2...i_J} \cong \sum_{j=1}^{J} v_{i_j} + \sum_{j<j'} t_{i_j i_{j'}} \quad (1)$$

where V_h = denotes the respondent's overall evaluation of a stimulus profile with level i of attributes $1, 2, ..., j$ and $\cong$ denotes least squares approximation, v are the main effects, and t are the two-way interaction effects.

OLS was used to estimate the part-worth utilities for this analysis. The data were transformed to dummy variable format. For the five attributes with two levels, "1" represented the level with the a priori expectation of being more favorable. For example, for the attribute "Time" there were two levels, "5 or less" and "6 or more". If the profile contained the level "5 or less", a "1" represented that it was present in the profile. A "0" indicated "6 or more" days for the time-to-loan decision. The interest rate dummy variables of "1" indicated the presence of the attribute level in the profile.

The resulting OLS regression equation was as follows:

$$Y_i = \beta_0 + \beta_{i_1} LT5_{i_1} + \beta_{i_2} COMT_{i_2} + \beta_{i_3} IRGT_{i_3} + \beta_{i_4} IRLT_{i_4} +$$
$$\beta_{i_5} AMT_{i_5} + \beta_{i_6} TERM_{i_6} + \beta_{i_7} AGSP_{i_7} + \beta_{i_{13}} IRG5_{i_{13}} +$$
$$\beta_{i_{23}} IRGCO_{i_{23}} + \beta_{i_{36}} IRGTE_{i_{36}} + \beta_{i_{37}} IRGSP_{i_{37}} + \beta_{i_{14}} IRL5_{i_{14}} +$$
$$\beta_{i_{24}} IRLCO_{i_{24}} + \beta_{i_{46}} IRLTE_{i_{46}} + \beta_{i_{47}} IRLSP_{i_{47}} + \varepsilon_i$$

Where:

Y_i is the overall utility of the ith profile (i=1),

β_0 is the intercept,

β_{i1} through β_{i7} are the coefficients for main effects,

β_{i13} through β_{i47} are the coefficients for the 2-way effects,

LT5 represents the "five days or less to make loan decision" attribute,

COMT represents the "commitment level" attribute,

IRGT represents the "interest rate 1-2% greater than competition" attribute,

IRLT represents the "interest rate 1-2% less than competition" attribute,

AMT represents the "100% of loan amount" attribute,

TERM represents the "customizes terms" attribute,

AGSP represents the "specializes in agricultural loans" attribute,

IRG5 represents the interaction of "interest rate 1-2% greater than competition" and "five days or less to make loan decision" attributes,

IRGCO represents the interaction of "interest rate 1-2% greater than competition" and "commitment level" attributes,

IRGTE represents the interaction of "interest rate 1-2% greater than competition" and "customizes terms" attributes,

IRGSP represents the interaction of "interest rate 1-2% greater than competition" and "specializes in agricultural loans" attributes,

IRL5 represents the interaction of "interest rate 1-2% less than competition" and "five days or less to make loan decision" attributes,

IRLCO represents the interaction of "interest rate 1-2% less than competition" and "commitment level" attributes,

IRLTE represents the interaction of "interest rate 1-2% less than competition" and "customizes terms" attributes,

IRLSP represents the interaction of "interest rate 1-2% less than competition" and "specializes in agricultural loans" attributes

As the equation indicates, there are eight interaction terms in addition to the seven main attribute terms. The purpose of the interaction terms is to determine if a combination of main attributes interact to form a more or less attractive attribute bundle. These interaction terms allow us to examine the trade-off between one attribute and another. For example, timeliness may be an important attribute and a faster time-to-loan decision is preferred to a slower time; but if the respondent is confronted with a faster time-to-loan decision and a higher interest rate, the respondent may trade a slower decision-making period for a lower interest rate.

Two price levels – price less than competition and price greater than competition – were specified as interaction variables with all other attributes, with the exception of the amount of the loan. Other interactions or trade-offs between attributes could also have been included in this analysis. However, due to the small number of data points (48) and thus limited degrees of freedom, the price attribute was judged to be the most interesting and warranted detailed trade-off analysis.

Results

The sample of farmers used for the survey was from a farmer survey panel maintained by Farm Research Institute (FRI) in Savoy, Illinois. FRI provides professional research and analytical services to the agricultural industry, and as part of its services, a panel of Midwestern agricultural producers regularly respond to mail surveys conducted by FRI. The survey was sent to 350 FRI panel members, with 175 surveys sent to Indiana producers and 175 to Illinois producers. The total response rate was 237 or 68%. However, nine were left completely blank, due to the fact that they did not borrow any money. Also, eleven respondents did not complete one or more sections of the survey. Therefore, valid responses totaled 217, for a 62% response rate.

Demographic Characteristics

Table 3 presents information on the gross farm income, education, business structure, source of operating credit, farm type, and age of the survey participants. Seventy-two percent of the respondents had a gross farm income of more than $100,000. Forty-eight percent of the respondents had a high school education and 50% had college courses. The majority of the

respondents (78%) were sole proprietors of their operation. Fifty percent of the respondents did not make use of operating credit, while commercial banks were the most common source of operating credit for those who borrowed. Also, the majority of the respondents had field crop operations, and more than 74% of the respondents were over the age of 50.

Self Explicated Preferences

Sections I and II of the questionnaire were the "Self-Explicated" response portion of the analysis. As noted earlier, this part of the questionnaire asks the respondents to rate their preferences for the given attributes and associated levels of the attributes. Section I of the questionnaire listed the six attributes with a brief description of each. Table 4 presents the summary statistics for Section I of the questionnaire. These results indicate that with ratings ranging from 4.8 to 5.2, all six attributes are important to the respondents. A standard t-statistic test was performed on the responses to test for statistical significance; no attribute was found to be statistically different from the others, in terms of rating, at the 95% confidence level.

In Section II of the questionnaire, the respondents were asked to rate their preferences for specified levels of the attribute using the same scale of 0 to 6. The difference in the ratings for each level as shown in Table 5 reflect clear and expected preferred and least preferred levels for each attribute [1]. For the time attribute, a loan decision made after 15 days is clearly the least acceptable level. A greater interest rate than competition is the least preferred level for the interest rate attribute. Receiving 100% of the loan amount is clearly the most preferred level for the loan amount attribute. A customized solution appears to be the most preferred level in lending terms; it also received the highest overall preference score for any attribute and attribute level. In addition, a specialization in agriculture is preferred to the other levels in the lenders' specialization in agriculture.

Profile Analysis – Main Effects

Conjoint analysis provides information on each individual's preferences. The results for each respondent were treated as an individual observation; however, since marketing is typically targeted to segments of the overall consumer population, the individual preferences are aggregated. The individual preferences were aggregated by averaging the responses for each of the 48 profiles from all survey respondents. This created an "average" individual. Table 6 summarizes the profile results for the "average" survey respondent for the main effects. The coefficients represent a positive or negative change in the participants' preference rating in relation to the "comparison level". For example, the 1.165 coefficient for "5 or less" means that this affects the rating by 1.165 on a 6 point scale in comparison to "6 days or more". Thus, if the rating was 3.0 with a product profile where a loan decision is made in "6 days or more", the profile rating would increase to 4.165 if a loan decision was made in "5 days or less" level (while the other product attributes remain the same).

Table 6 displays several interesting results for the "average" individual. For the time to loan decision attribute, "5 days or less" was found to be positive and significant in comparison to "6 days or more". As to the relationship manager's willingness to lend to the borrower, "always helpful" was positive and significant in comparison to being "less helpful". Loaning "100% of the requested loan" amount and "specialization in agricultural lending" were both found to be positive and significant in comparison to lending "70-90% of the loan" amount and having "some agricultural lending" knowledge, respectively. The "customized terms" attribute level

was not significant in comparison to the "typical terms" which is offered by the lender. This result is counter to the earlier results of the self-explicated preferences and emphasizes the importance of the profile evaluation step of conjoint analysis. For those attribute levels that are positive and statistically significant, the preference ratings are increased by approximately 1.0 to 1.3 preference ratings on a six point scale if the lender offers or has the preference attribute or characteristic identified.

The interest rate information provides particularly interesting results. An interest rate of 1-2% greater than the competition is not significantly different than an interest rate equal to competition in terms of an attribute borrowers value in assessing a preferred lender. However, an interest rate of 1-2% less than the competition is significant compared to an interest rate equal to competition, and this attribute level has a positive coefficient. This means that a lower interest rate is preferred to an equal interest rate. It is reasonable that interest rates less than competition would be preferred over an interest rate that is equal to the competition. However, it is also noted that an interest rate that is greater than competitors' is not significantly different than an interest rate equal to the competition -- and thus is not a major deterrent to being a preferred lender. In addition, the lower interest rate coefficient is the largest of the six main effects coefficients, thus indicating that a lower price is the most important attribute.

Interaction terms

Further insight can be obtained by analyzing the interaction terms to determine the respondents' preferences when deciding the importance of one attribute over another. Table 7 presents the coefficients and significance level of the interest rate interaction terms. When analyzing the results presented in Table 7, significant interaction effects are noted. The interaction between a lower interest rate and the selected attribute levels of "five days or less," "always helpful", and "specialization in agricultural lending" are positive and statistically significant. The interaction effect between "customizes terms" and the lower interest rate has a positive coefficient, but is not statistically significant. The interaction effects between a greater interest rate and the selected attribute levels resulted in negative coefficients (except customized terms), but the effects are not statistically significant.

Evaluating the interaction matrix of Table 7 provides some significant rate trade-off information. A time-to-loan decision of "five days or less" and a lower interest rate has a coefficient of 1.92; this indicates that a lender with a time-to-loan decision of five days or less and offering a lower interest rate would have a 1.92 point higher rating on a scale of 0 to 6. If the borrower could obtain a faster loan decision but had to pay a higher interest rate, the results of Table 7 indicate that the average borrower would not pay the higher rate. Thus, a borrower is not willing to exchange a shorter time to loan decision for a higher interest rate.

The interaction terms permit comparison of the non-interest rate attributes while the interest rate is held constant. When the interest rate is lower than a competitor's rate, the most important attribute (of those attributes evaluated) is the time-to-loan decision; it has the highest coefficient of the four attributes. It appears that in this case, time in which a loan decision is made is more important than lender commitment, loan terms, and lender knowledge of the industry. On the other hand, when the interest rate is higher than a competitor's rate, none of the other four attributes have a significant impact on altering a borrower's rating of the financial service of a higher interest rate and the other attribute (e.g., commitment level).

The results of the interaction terms provide additional evidence that a lower interest rate than a competitor's rate has significant impact on a borrower's preference for the financial service of taking out an operating loan. In addition, the findings further support the conclusion that the interest rate results are not symmetric -- a higher interest rate does not influence borrowing preferences, given the presence of the other attributes.

Demographic Segment Responses

In order for a lender to target a specific segment of the market, it is useful to know whether the same preferences hold true for the different demographic segments of the survey respondents as for the entire population. An analysis of variance (ANOVA) was performed on the responses segmented by age, gross farm income, operating credit supplier, and education to test whether there were significantly different responses between each demographic segment. The results of this analysis indicated no statistically significant differences; this suggests that the preferences for the attributes analyzed are similar across these demographic characteristics.

Conclusions and Implications

Farmer respondents indicated that the time-to-loan decision, the amount of the loan provided, the interest rate and specialization in agriculture were key attributes they prefer in their lender. The shorter time-to-loan decision, the full loan amount, a lower interest rate in comparison to competitors and specialization in agricultural lending were the most preferred levels of the key attributes. In the self-explicated section of the questionnaire, respondents rated "customizes terms" as the most desirable (having the highest overall average rating) of all levels of all attributes, scoring an average response of "5.47" on a six point scale. However, in the conjoint analysis, only 2% of the respondents felt that the ability to offer customized terms was significantly better than offering the typical terms for the industry. These results illustrate the value of a trade-off analysis procedure such as conjoint analysis forcing respondents to perform relative preference ratings that results in more accurate measures of preferences.

Interaction effects between the interest rate attribute and other attributes were also included in the profile analysis. The results of this analysis confirmed that borrowers were not willing to trade a higher interest rate for other attributes (time-to-loan decision, commitment level, loan terms, and specialization in agricultural lending). When the interest rate attribute is held constant at a lower rate than the competitors, the most important attribute is the time-to-loan decision. Further analysis of interest rate level preferences indicated that preferences were not symmetrical – borrowers preferred a lender with lower interest rates than ones equal to the competition, but a lender with a higher rate than the competition did not have a statistically significantly different preference rating.

Demographic differences in preferences were also analyzed; the results indicate that the attributes agricultural borrowers desire of their lenders are basically homogenous across the demographic dimensions of age, education, farm size, and credit supplier.

Agricultural borrowers prefer a lender who can provide them with competitive interest rates, quick decisions on a loan request, an adequate loan amount, and knowledge of the agricultural industry. Farm borrowers do not place a priority on customized terms, but they do expect a competitive interest rate and are unwilling to pay a higher interest rate in exchange for other attributes such as faster loan decisions or specialization in agricultural lending.

Table 1. Attributes Used in Section I and Levels of Attributes Used in Section II of Questionnaire

Attribute 1.	**Time to loan decision—Time it takes for lender to make a decision about the loan**

Levels*

a. How acceptable would you find a lender who could get you approved for a loan in 5-14 days?
b. How acceptable would you find a lender who could get you approved for a loan in 15 days or more?
c. How acceptable would you find a lender who could get you approved for a loan in 4 days or less?

Attribute 2.	**Commitment level—Commitment of your relationship manager to continue lending in good and bad times**

Levels

a. The relationship manager is willing to help you whenever you approach him/her for a loan, regardless of financial situation.
b. The relationship manager shows a lot of commitment in providing you a loan when you have had financial difficulties.
c. The relationship manager is willing to try to help you when you have approached him/her for a loan, more so when you are financially stable.

Attribute 3.	**Interest rate—Annual interest rate**

Levels

a. How acceptable is the lender who has an interest rate equal to competitors' rate?
b. How acceptable is the lender who has an interest rate 1-2% greater than competitors' rate?
c. How acceptable is the lender who has an interest rate 1-2% less than competitors' rate?

Attribute 4.	**Loan amount—Lender's willingness to provide you with an adequate operating loan amount**

Levels

a. The lender provides 30% of the needed loan amount.
b. The lender provides 60% of required loan amount.
c. The lender provides 100% of the required loan amount.

Attribute 5.	**Loan Terms—The ability of the lender to create ways to provide you with the loan and adapt terms to your situation**

Levels

a. The lender provides you with loan terms that are standard for anybody in any industry.
b. The lender provides you with loan terms that are typical to individuals in your industry.
c. The lender provides you with loan terms that are customized to your specific situation.

Attribute 6.	**Specialization in agriculture—The lender's knowledge of agriculture**

Levels

a. The lender has worked with a few other agricultural loans in the past.
b. The lender specializes in agricultural loans.
c. The lender has no specific knowledge of agricultural loans.

* Specific attribute levels used in the profile analysis

Table 2. Attributes and Attribute Levels used in Section III of the Questionnaire

Attribute	Level	Definition
Time to Decision	5 days or less	It takes 5 days or less for the lender to approve your loan
	6 days or more	It takes 6 days or more for the lender to approve your loan
Commitment Level	Always helpful	The relationship manager (RM) is always willing to help you get approved for a loan
	Less helpful	The RM is less willing to help you in the bad times than in the good times
Interest Rate	1-2% greater	The interest rate is 1-2% greater than the competitor's rate
	Equal	The interest rate is equal to the competitor's rate
	1-2% less	The interest rate is 1-2% less than the competitor's rate
Loan Amount	100%	The lender is able to provide 100% of the requested loan amount
	70-90%	The lender is able to provide 70-90% of the requested loan amount
Loan Terms	Customizes terms	The lender customizes the loan term to your specific situation
	Typical terms	The lender provides you with loan terms that are typical to individuals in your industry
Ag Specialist	Specializes	The lender specializes in agricultural loans
	Some knowledge	The lender has worked with a few agricultural loans in the past

Table 3. Selected Demographics of Respondents

Demographic	Percentage of Sample
Gross Farm Income:	
>$500,000	12%
$250K - 499K	20%
$100K - $249K	28%
$40K - $99K	23%
$20K - $39K	9%
$10 - $19K	6%
<$10K	2%
Education:	
Less than 12 yrs	2%
12 yrs	48%
Less than 16 yrs	22%
16 yrs	20%
More than 16 yrs	8%
Business Structure:	
Sole Proprietor	78%
Partnership	11%
Corporation	11%
Operating Credit:	
None	50%
Commercial Bank	33%
Farm Credit Services	11%
Farmers Home Admin.	0%
Dealer/Manufacturer	2%
Insurance Company	0%
Private Individual	2%
Combination of Above	1%
Farm Type	
Field Crop	80%
Livestock	10%
Dairy	3%
Non-farm Income	6%
Age	
40 and younger	4%
41-50	27%
51-60	27%
61-70	23%
71-80	18%
81 and older	1%

Table 4. Summary Statistics for Rating of Attributes

Statistics	Decision Time	Commitment Level	Interest Rate	Loan Amount	Loan Terms	Agricultural Specialization
Mean	4.8	5.2	5.2	5.2	5.0	5.1
Mode	5	6	6	6	6	6
Standard Deviation	1.174	1.065	1.181	1.027	1.121	1.191
Minimum	0	1	1	1	1	0
Maximum	6	6	6	6	6	6

Table 5. Level of Acceptance for Attribute Levels

	Decision Time[1]			Commitment Level[2]			Interest Rate[3]		
	≤ 4	5-14	≥15	Always	A lot	Some	<	=	>
Average	5.3	4.1	2.5	4.8	5.0	4.1	5.5	4.7	2.3

	Loan Amount[4]			Loan Terms[5]			Ag Specialization[6]		
	30%	60%	100%	Standard	Typical	Customized	None	Few	Spec.
Average	1.5	2.8	5.6	3.2	4.2	5.5	1.6	3.1	5.3

[1] Time-to-loan decision (less than 4 days, 5-14 days, 15 days or greater)
[2] Commitment Level (Always helpful, less helpful, and somewhat helpful)
[3] Interest rate (Less than, equal to, and greater than competition)
[4] Loan amount (30%, 60%, and 100% of requested loan amount)
[5] Loan terms (Standard, typical, and customized)
[6] Specialization in agricultural lending (No experience, few agricultural loans, and specialization in ag. loans)

Table 6. Profile Analysis of the Main Effects

Attribute level	Coefficient	P-value
5 days or less	1.16537*	0.00014
Always helpful	1.18152*	0.00025
Greater interest rate	-0.2191	0.55824
Lesser interest rate	1.32298*	0.00034
100% of requested loan	1.27977*	0.00006
Customizes terms	0.50716	0.10656
Specializes in ag lending	1.00758*	0.00092

* Significant at the 0.05 level

Table 7. Interaction Effects between Interest Rates and Other Attributes

	Level of Interest Rates			
	Less than Competition		Greater than Competition	
Attribute Levels	Coefficients	P-Value	Coefficients	P-Value
Five days or less	1.92196*	0.00007	-1.4056	0.10986
Always helpful	1.70458*	0.00084	-0.1653	0.83146
Customized terms	0.74067	0.14700	0.0957	0.91355
Specialization	1.60168*	0.00069	-0.9747	0.29289

* Statistically significant at the 0.05 level

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Endnotes

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[1] The wording for the service level attribute levels in Section II of the survey instrument in retrospect was not sufficiently definitive to enable the respondents to delineate accurately among the various levels; therefore, the results for this attribute's levels are not meaningful or accurate.