# An Analysis of Farmers' Policy Attitudes and Preferences for Free Trade

## Terry L. Kastens and Barry K. Goodwin[*]

*Abstract*

This study evaluates the attitudes of U.S. (Kansas) farmers regarding "free-trade" and "free-market" policy environments. In contrast to earlier studies, non-specific policy attitudes are evaluated. A direct measure of farm program benefits is also included. Attitudes vary significantly with farm and operator characteristics. Support for free trade was shown to decrease with education and experience, to increase for farms with relatively more rented land, and to increase as total farm wealth increased. Support for free-trade was also higher for crop farms. Farms receiving more government payments are less likely to favor a free-trade policy environment.

**Key words: agricultural policy, producer attitudes, international trade.**

Farmers' policy preferences have been given considerable empirical attention in a number of recent studies. These studies have typically used survey data to evaluate farmers' opinions and preferences for current and alternative policy environments. Policy preferences have been shown to vary significantly with differences in farm and farm operator types.

The international policy environment has faced a number of new issues in recent years. After seven years of intense negotiation and debate, the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) was successfully concluded on December 15, 1993. The seven years of negotiation were marked by bitter disagreements between the U.S. and the European Community over internal farm support and export subsidy programs. At the same time, the U.S., Canada, and Mexico negotiated a North American Free Trade Agreement (NAFTA). After an intense debate, NAFTA was approved by the U.S. Congress on November 17, 1993. The notion of "free-trade" and policies which inhibit or promote trade have received a great deal of attention during this period. In addition, coverage of free-trade issues has been heavy in the popular press and in farming magazines. In this light, most farmers are currently quite cognizant of international policy issues. In addition, a number of concerns regarding the effects of NAFTA, GATT, and other policy measures intended to promote free-trade have been raised in the farm sector.

Recent analyses of policy survey responses include a 1987 survey by Edelman and Lasley, a 1987 survey by Orazem, Otto, and Edelman, a 1989 Kansas survey analyzed by Barkley and Flinchbaugh, and a 1986 nationwide survey of citizens by Variyam, Jordan, and Epperson. While these survey reports concentrate primarily on domestic agricultural policy, two of the reports involved questions related specifically to international policy.

Edelman and Lasley examined correlation coefficients between several socioeconomic variables and the "degree of support of free-trade"

response for Iowa farmers. The correlation coefficients reported suggest that support for free-trade is positively correlated with both education and farm size, but negatively correlated with age and farming experience.

Barkley and Flinchbaugh (pg. 230) used a logistic multiple regression model to study the agree/disagree response of Kansas farmers in 1989 to the statement: "The U.S. should continue the export enhancement program (EEP) established by the 1985 farm bill and other government export subsidies." Unlike Edelman and Lasley, Barkley and Flinchbaugh found that older farmers may be more inclined to support free-trade (i.e. disagree with the statement) than younger farmers. Also in contrast to the results of Edelman and Lasley, Barkley and Flinchbaugh found that larger farms (those with higher sales) were less inclined to support free-trade. In addition they found that livestock producers were more inclined to support free-trade than grain farmers. This result is not particularly surprising given the grain-specific nature of the EEP. Policies which are perceived to raise grain prices would normally be expected to enhance grain farmers' profits while increasing costs to livestock producers.

In contrast to the surveys of farmers, Variyam, Jordan, and Epperson surveyed the agricultural policy preferences of citizens. They found strong support among citizens for a free-market environment for farmers. In particular, over 44 percent of the survey respondents agreed that farmers should compete in a free market without government support. Their results indicated that support for government involvement in agriculture tended to fall with higher incomes, urban residence, higher education, older age, residence in the West, and political activity.

There exists considerable disagreement in the literature concerning farmers' perceptions of a free-trade policy environment. One explanation is that it depends upon the way questions are framed. If the question deals with a specific government policy, which likely affects a certain class of farmers negatively or positively, then the self-interest or profit-maximizing motive will significantly influence the farmers' responses. For example, survey results reported by Orazem, Otto

and Edelman showed that wealthier farmers did not support decoupling. Most government payments are on a *per bushel* or *per acre* basis. Decoupling would have restructured payments more on a *per farmer* basis which clearly would be disadvantageous to the wealthier (larger) farmers.

An alternative view of farmers' policy preferences has been developed in the rural sociology and anthropology literature. Barlett discusses attitudinal differences between family-type farms (which she terms "agrarian") and modern, industrial farm enterprises. Barlett (pp. 250-51) argues that large, industrial farms receive a disproportionately large share of policy benefits and that thus that their policy attitudes differ from farms fitting the "agrarian" model.

The objective of this paper is to evaluate preferences and attitudinal differences among Kansas farmers for a free-trade and free-market policy environment. In contrast to most earlier studies, the survey does not address specific policy characteristics, but rather evaluates general opinions regarding operating a farm enterprise in a "free-trade" and "free-market" environment. The analysis uses a survey of 1,963 Kansas farmers that was conducted in the fall of 1992. An analysis of current farmer attitudes is of particular importance in light of the significant policy changes of international relevance (for example, the NAFTA) that have occurred in the years following the surveys evaluated in earlier studies. In addition, several variables that represent conceptually important determinants of policy preferences that were not considered in earlier studies are evaluated.

## Survey Results

A survey of 1,963 members of the Kansas Farm Management Association was administered in the fall of 1992. Survey responses were matched to a detailed set of farm management records for each farm enterprise. The survey collected information on demographic characteristics of farmers (age, experience, risk preferences, and education) as well as policy preferences. The survey produced 572 responses, implying a 29.1 percent response rate. Of the 572 responses, 512 usable surveys were produced.[1]

Two non-specific policy statements were included on the survey:

(1)     Free, unrestrained international trade (without the interference of national governments) is good for the U.S. farmer.

(2)     U.S. farmers should compete in a free-market without government support.

A five point Likert-type response scale allowed the following responses: Strongly Agree, Agree, Uncertain, Disagree, Strongly Disagree. For the first question, 10.7 percent indicated strong agreement, 38.5 percent indicated agreement, 27.8 percent were unsure, 16.8 percent indicated disagreement, and 6.3 percent indicated strong disagreement. For the second question, 7.8 percent indicated strong agreement, 25.2 percent indicated agreement, 24.0 percent were unsure, 31.1 percent indicated disagreement, and 11.9 percent indicated strong disagreement.

In addition to the two preference variables, the survey and corresponding farm management data included a range of variables that represent characteristics of the farm and the farm operator. These variables allow an evaluation of relationships between policy preferences and characteristics of the farm and farmer. Table 1 contains explanatory variable definitions and summary statistics. To evaluate the representativeness of the sample, state averages (where available) are also presented in Table 1. The average farmer included in the survey had over 14 years of education, 29 years of farming experience, lived 7 miles from town, and had a risk preference rating of 4.8 (on a scale from 1 to 10).[2] Over 62 percent of the farms in the survey were principally crop producing enterprises. Alternatively, 8.1 percent of the farms were principally livestock (cattle) enterprises and 14.9 percent were combination cattle/crop farms. The remaining 15 percent of the sample represented highly diversified general farm enterprises, poultry enterprises, sheep enterprises, swine enterprises, and dairies. The average farm was 1,559 acres in size, 63 percent of which was rented acres, and had a net worth of 349 thousand dollars in 1991. A variable thought to be important to policy preferences is the farm's total receipts of government payments (from crop subsidy programs, disaster relief, etc.). The average farm received 18.9 thousand dollars in government payments in 1991.

In comparison to the average Kansas farm, the sample farms were larger and had significantly greater debt loads, as revealed by the debt-to-assets ratio. This finding does not represent survey nonresponse biases but rather reflects the fact that the Kansas Farm Management Association farms are typically larger than the average Kansas farm. In a comparison of the Kansas Farm Management Association farms to the USDA's 1986 Farm Costs and Returns Survey, Featherstone, Griebel, and Langemeier found that the Association's farms were an average of 210 percent larger in size (total acreage) than the average Kansas farm. However, their results and an equivalent comparison with the 1987 *Agricultural Census* indicate that the Association's farms are reasonably representative of commercial farming enterprises in Kansas, which account for the largest share of agricultural output in Kansas.[3]

## Empirical Analysis of Free-Trade Preferences

The five possible responses to the two policy questions described above represent a polychotomous random variable with five levels ($Y, = 0, ..., 4$) corresponding to the five possible responses. The analysis of policy preferences was conducted in two stages. In the first stage, the "Unsure" responses were dropped from the analysis in order to focus the empirical analysis on those farmers who had definite opinions. This resulted in a polychotomous dependent variable with four possible responses. In the second stage, the "Unsure" responses were maintained and the analysis was repeated for the entire sample.

The responses to the two policy attitude questions are of an ordered nature, which allows use of an ordered multinomial logit (or probit) model. The ordered multinomial logit regression model is chosen to model farmer attitudes toward the two policy statements. Although there are subtle differences, the multinomial logit and probit specifications typically yield nearly identical results and thus are difficult to distinguish from one another statistically (Amemiya).

**Table 1.** Variable Definitions and Summary Statistics

| Variable | Definition | Mean | Std. Dev. | State Mean |
|---|---|---|---|---|
| Debts/Assets | Debt to Asset Ratio | 0.4230 | 0.4154 | 0.1842[b] |
| Education | Years of Education | 14.0218 | 2.0989 | N/A |
| Experience | Years of Farm Experience | 29.0664 | 12.5066 | N/A |
| Miles | Miles of farm from nearest incorporated town | 7.0588 | 4.8788 | N/A |
| Risk Preference | Preference for risk as revealed on a scale of 1-10 (where 1 = most risk averse and 10 = most risk preferring) | 4.7780 | 1.9544 | N/A |
| Rent Proportion | Proportion of farm's total acres that are rented | 0.6349 | 0.3002 | 0.5458[c] |
| Crop Type[a] | Dummy variable with value of 1 if over 70 percent of farm's labor is used in crop production, 0 otherwise | 0.6224 | 0.4853 | N/A |
| Livestock Type[a] | Dummy variable with value of 1 if over 70 percent of farm's labor is used in livestock production, 0 otherwise | 0.0809 | 0.2730 | N/A |
| Combination Type[a] | Dummy variable with value of 1 if over 70 percent of farm's labor is used in livestock production, 0 otherwise | 0.1494 | 0.3568 | N/A |
| Total Acres | Total farm acres | 1559.2075 | 1256.9583 | 680.9442[c] |
| Government Payments | Total receipts of government payments in 1991 (thousand dollars) | 18.9136 | 15.7970 | 13.7806[c] |
| Net Worth | Net worth of farm (thousand dollars) | 348.9925 | 356.7546 | 352.9250[b] |

[a]The default category of farms is comprised of other farming enterprises, including highly diversifies general farm enterprises, poultry enterprises, and swine enterprises.

[b]State means taken from 1991 *Kansas Agricultural Statistics*.

[c]State means taken from 1987 *Kansas Agricultural Census*.

The logit specification assumes that the probability of operator $j$ selecting survey response $Y_i$ ($P_i^j$) is a function of farm and operator characteristics:

$$P_i^j = \exp(X_j\beta) / \Sigma_{i=1}^I \exp(\mu_i + X_j\beta) , \qquad (1)$$

where $I$ is the number of possible categorical responses, $X_j$ is a matrix of observable farm and operator characteristics related to policy attitudes, and $\beta$ is a vector of parameters. The cumulative distribution function representing $P_i^j$ is the transformed logistic distribution.

The logit parameter estimates indicate the direction of the effect of an explanatory variable on the response probabilities but do not directly represent the actual probability changes. Greene shows that the change in the probability of

observing response $i$ from a change in the $k$th explanatory variable is given by:

$$\partial P_i^j / \partial X_k = [F(\mu_{i-1} - \beta'X_j) - F(\mu_i - \beta'X_j)]\beta_k , \qquad (2)$$

where $\mu_i$ is the intercept shifting term corresponding to the ith categorical response.

Logit parameter estimates and implied marginal probability responses for the probability of a "Strongly Agree" or "Agree" response to each of the statements are presented for the sub-sample of farmers with stated opinions in Table 2. Parameter estimates and probability responses for the entire sample are presented in Table 3. Attitudes regarding the free-trade policy environment appear to be more strongly related to observable farm and operator characteristics than are free-market policy attitudes. Each model has a significant likelihood

**Table 2.**  Logit Regression Results for Analysis of Kansas Farmers' Attitudes Regarding Free Trade and Free Market Policy Environments (Excluding Unsure Responses)

| Variable | Free-Trade Attitudes | | Free-Market Attitudes | |
| --- | --- | --- | --- | --- |
| | Parameter Estimate | Probability Change[a] | Parameter Estimate | Probability Change[a] |
| Constant | 0.0692 (1.1220)[b] | | 1.8444 (1.0420) | |
| $\mu_1$ | 2.8771 (0.1963)** | | 2.1044 (0.1794)** | |
| $\mu_2$ | 4.4802 (0.2546)** | | 4.0140 (0.2215)** | |
| Debts/Assets | -0.1267 (0.2435) | 2.5864 | -0.2049 (0.3048) | 5.0498 |
| Education | 0.1185 (0.0622)* | -2.4202 | 0.0567 (0.0541) | -1.3982 |
| Experience | 0.0343 (0.0116)** | -0.7012 | 0.0068 (0.0094) | -0.1683 |
| Miles | 0.0381 (0.0264) | -0.7777 | -0.0306 (0.0233) | 0.7554 |
| Risk Preference | -0.1476 (0.0562)** | 3.0127 | -0.0996 (0.0524)* | 2.4562 |
| Rent Proportion | -1.1276 (0.4830)** | 23.0250 | -0.6685 (0.4356) | 16.4787 |
| Crop Type | 0.6016 (0.3549)* | -12.2836 | 0.5248 (0.3505) | -12.9365 |
| Livestock Type | 0.7460 (0.5100) | -15.2333 | 0.4330 (0.9340) | -10.6734 |
| Combination Type | 0.7796 (0.4168)* | -15.9171 | 0.3094 (0.4007) | -7.6281 |
| Total Acres | -0.0001 (0.0001)[b] | 0.0030 | -0.0001 (0.0001) | 0.0003 |
| Government Payments | 0.0244 (0.0096)** | -0.4987 | 0.0304 (0.0089)** | -0.7498 |
| Net Worth | -0.0010 (0.0004)** | 0.0214 | -0.0008 (0.0004)** | 0.0190 |
| Log Likelihood | -367.9244 | | -439.2394 | |
| Model Chi-Square | 55.1651** | | 34.5848** | |
| McFadden's $R^2$ | 0.0697 | | 0.0379 | |

[a]Change in probability of "Strongly Agree" or "Agree" response caused by a marginal change in explanatory variable.

[b]Numbers in parentheses are standard errors. Single and double asterisks indicate statistical significance at the $\alpha = 0.10$ and $0.05$ levels, respectively.

ratio test statistic (model chi-square), indicating that a significant proportion of the variation in responses is explained by the explanatory variables. For the sub-sample that excludes "Unsure" response, McFadden's $R^2$ has values of 0.07 and 0.04 for the free-trade and free-market policy statements, respectively. For the entire sample, McFadden's $R^2$ is somewhat lower, with values of 0.04 and 0.03,

respectively. In every case, the model chi-square tests indicate that the $R^2$'s are significantly greater than zero and thus that the parameters are jointly significant.

Several farm operator characteristics appear to be significantly related to policy environment attitudes. One might hypothesize that farmers with

**Table 3.**      Logit Regression Results for Analysis of Kansas Farmers' Attitudes Regarding Free Trade and Free Market Policy Environments (Including Unsure Responses)

| Variable | Free-Trade Attitudes | | Free-Market Attitudes | |
|---|---|---|---|---|
| | Parameter Estimate | Probability Change[a] | Parameter Estimate | Probability Change[a] |
| Constant | 1.5535 (0.8569)[b] | | 2.0224 (0.8684)** | |
| $\mu_1$ | 2.2261 (0.1534)** | | 1.9029 (0.1662)** | |
| $\mu_2$ | 3.6426 (0.1818)** | | 2.9761 (0.1825)** | |
| $\mu_3$ | 5.0859 (0.2400)** | | 4.6224 (0.2182)** | |
| Debts/Assets | 0.0223 (0.2019) | -0.5568 | -0.1770 (0.2530) | 3.8930 |
| Education | 0.0545 (0.0471) | -1.3619 | 0.0505 (0.0447) | -1.1120 |
| Experience | 0.0286 (0.0086)** | -0.7148 | 0.0112 (0.0080) | -0.2458 |
| Miles | 0.0325 (0.0201) | -0.9177 | -0.0208 (0.0186) | 0.4565 |
| Risk Preference | -0.1355 (0.0439)** | 3.3853 | -0.0851 (0.0443)* | 1.8714 |
| Rent Proportion | -0.7579 (0.3811)** | 18.9303 | -0.5272 (0.3577) | 11.5986 |
| Crop Type | 0.2677 (0.2675) | -6.6860 | 0.3828 (0.2790) | -8.4209 |
| Livestock Type | 0.1434 (0.3898) | -3.5813 | 0.2803 (0.3753) | -6.1651 |
| Combination Type | 0.2646 (0.3203)[b] | - 6.6102 | 0.1608 (0.3234) | -3.5377 |
| Total Acres | -0.0002 (0.0001)* | 0.0050 | 0.0001 (0.0001) | 0.0001 |
| Government Payments | 0.0203 (0.0076)** | -0.5079 | 0.0286 (0.0072)** | -0.6302 |
| Net Worth | -0.0008 (0.0003)** | 0.0193 | -0.0008 (0.0003)** | 0.0186 |
| Log Likelihood | -653.2888 | | -704.9352 | |
| Model Chi-Square | 55.1315** | | 37.4646** | |
| McFadden's $R^2$ | 0.0405 | | 0.0259 | |

[a]Change in probability of "Strongly Agree" or "Agree" response caused by a marginal change in explanatory variable.

[b]Numbers in parentheses are standard errors. Single and double asterisks indicate statistical significance at the α = 0.10 and 0.05 levels, respectively

higher levels of educational attainment would be more open to a policy environment that integrates the domestic U.S. farm economy with the world economy. Alternatively, as is noted by Barkley and Flinchbaugh, comprehension of farm programs may increase with education due to the sophisticated nature of the programs. More highly-educated farmers may be better able comprehend the programs' complex regulations and resulting

benefits and thus may be more resistant to policy liberalization. More highly-educated farmers may also be less suspicious of governmental programs and thus may be less inclined to favor liberalization.

As was found by Barkley and Flinchbaugh, the popularity of a liberalized policy environment falls as educational attainment rises. Specifically, for farmers expressing an opinion, the probability of

agreement falls 2.4 percent for each additional year of education. A similar negative effect is revealed for the full sample, although the effect is not statistically significant. A similar result is verified for the years of farm experience.[4] In each model, an additional year of experience lowers the probability of agreement by 0.7 percent. A similar negative correlation between age and support for free-trade or free-market policy environments was found by Edelman and Lasley. Education and years of experience did not have a significant influence on free-market policy attitudes. A farmer's subjective risk preference rating was found to be positively correlated with their support of both free-trade and free-market policy environments. That is, farmers who were less averse to risk were more likely to support the riskier marketing conditions offered by liberalized policy environments. This effect was verified for both the subsample of farmers with stated opinions (Table 2) and the entire sample (Table 3).

Farm characteristics had important influences on the policy attitudes revealed by the two statements. Farms with a greater proportion of rented land were more likely to support a free-trade policy environment. However, the proportion of rented land did not have a significant effect on free-market policy attitudes. For the subsample of farmers with stated opinions, crop farms and combination crop/livestock operations were significantly less likely than general (highly diversified) enterprises to favor a free-trade policy environment. Specifically, crop farms were 12.28 percent less likely to favor free-trade and combination crop/livestock farms were 15.92 percent less likely to favor free-trade. Although the effects are similar when the unsure responses are included in the analysis, the farm type variables are not statistically significant. The farm type variables are not significantly related to farmers' revealed attitudes regarding a free-market policy environment in either case. Farm size, as reflected in total acres, is not significantly related to either of the policy statements in the model considering only those farmers with stated opinions. However, when the entire sample is considered, larger farms show more support for policy liberalization. Each additional 100 acres increases the probability of a positive response by 0.5 percent.

Previous studies of farm policy preferences (Barkley and Flinchbaugh; Orazem *et al.*) have noted that factors that are hypothesized to be related to greater involvement in (and thus greater benefit from) farm programs are strongly related to policy preferences. In contrast to these earlier studies, this analysis measures this benefit directly. That is, the total amount of government farm program receipts received by each farm in 1991 is included in the regression model. In each case, government payment receipts are significantly correlated with policy preferences. For the subsample of farmers with stated opinions, an additional thousand dollars of government payments lowers the probability of agreeing with a free-trade policy environment by 0.50 percent. Likewise, an additional thousand dollars of government payments lowers the probability of agreement with the free-market statement by 0.75 percent for the subsample with stated opinions. Results for the entire sample are similar. An additional thousand dollars of government payments lowers the probabilities of agreement with the free-trade and free-market statements by 0.51 percent and 0.63 percent, respectively. This suggests that farmers recognize that government programs inhibit international trade and thus that changes to improve trade conditions would necessarily result in lower direct program benefits. Further, the results indicate that the effect of direct government benefits on attitudes regarding a free-market policy environment are considerably larger than on attitudes regarding a free-trade environment. Finally, a farm's wealth, as measured by net worth, is a significant determinant of policy attitudes regarding both free-trade and a free-market environment. Specifically, for each additional hundred-thousand dollars of net worth, the probabilities of agreement rise by 2 percent for the free-trade statement and 1.9 percent for the free-market statement. This effect is confirmed in both models.

Overall, the results are consistent with a self-interest view of agricultural policy preferences. Farmers that receive more government payments are more likely to be resistant to a liberalized policy environment that promoted free-trade and free-markets. Support for free-trade and free-market policies falls with education, perhaps suggesting that more highly educated producers perceive greater benefits from government programs. Larger farms

with more net-worth are to be more accepting of free-trade and free-markets. Because of limitations on program benefits for individual farms, large, industrial-type farmers may perceive greater benefits from free-trade and free-market policy environments. Such policy changes may enhance scale advantages and thus be beneficial to large farms at the expense of smaller farm enterprises. If farmers' perceptions are correct and are indeed based upon self-interests, these results may suggest that free-trade and free-market oriented policy changes may increase farm sizes while decreasing the number of farms.

## Concluding Remarks

This study evaluates producer attitudes regarding "free-trade" and a "free-market" policy environment. The study differs from earlier survey analyses in that it addresses a non-specific policy environment. While it may be straightforward to predict a farmer's response to a specific policy change by making an appeal to profit maximization, more germane issues may be implicit in the underlying beliefs and motivations of farmers. Such factors may give a more accurate representation of the acceptance of alternative policy environments not yet put forth.

This study also makes use of a variable (total farm government payments) that directly measure the benefits of farm programs. In contrast, earlier studies have used variables such as farm size and farm type to reflect the benefits of participation in farm programs. The study indicates that attitudes regarding free-trade differ widely among farms with different attributes. In particular, support for free trade was shown to decrease with education and farm experience, to increase for farms with a greater proportion of rented land, and to increase as the total wealth of a farm increased. Support for free-trade was also shown to be higher for crop farms. An important finding was that farms receiving more government payments are less likely to favor a free-trade policy environment. Attitudes regarding a free-market policy environment were not found to be as strongly related to observable farm and operator characteristics. The strongest significant influence on free-market policy attitudes was revealed for the measure of direct policy benefits, government farm program receipts.

## References

Amemiya, T. "Qualitative Response Models: A Survey." *J. Econ. Literature* 19(1981):1483-1536.

Barkley, A.P., B.L. Flinchbaugh. "Farm Operator Opinion and Agricultural Policy; Kansas Survey Results." *North Cen. J. Agr. Econ.* 12(1990): 223-239.

Barlett, P. F. *American Dreams, Rural Realities: Family Farms in Crisis.* Chapel Hill, NC: The University of North Carolina Press, 1993.

Edelman, M.A. and P. Lasley. "An Analysis of the Agricultural and Trade Policy Preferences of Iowa Farm Operators." *North Cen. J. Agr. Econ.* 10(1988): 243-254.

Featherstone, A.M., J. C. Griebel, and L. N. Langemeier. "A Comparison of the Farm Management Association Data to the USDA Farm Cost and Return Survey Data." Farm Management Association Newsletter, Department of Agricultural Economics, Kansas State University, April 1992.

Greene, W. H. *Econometric Analysis.* New York: MacMillan Publishing Co., 1990.

Kansas Agricultural Statistics. *Kansas Agricultural Statistics 1991.* Kansas State Board of Agriculture, Topeka, Kansas, 1992.

Orazem, P.F., D.M. Otto, and M.A. Edelman. "An Analysis of Farmers' Agricultural Policy Preferences." *Amer. J. Agr. Econ.* 71(1989):837-846.

U.S. Department of Commerce. *1987 Agricultural Census, Kansas.* Bureau of the Census, Washington, D.C.

Variyam, J. N., J. L. Jordan, and J. E. Epperson. "Preferences of Citizens for Agricultural Policies: Evidence from a National Survey." *Amer. J. Agr. Econ.* 72(1990):257-67.

**Endnotes**

1. Surveys were omitted from the analysis because of nonresponse on certain questions.

2. Care must be exercised in interpreting the risk preference variable since, by construction, the variable represents an ordinal risk preference ranking. Alternative qualitative variables were also considered and were found to yield qualitatively identical results to those presented below.

3. The 1987 *Agricultural Census* indicates that, although 37 percent of Kansas farms were 180 acres or less, these farms accounted for less than 14 percent of the total value of output.

4. Years of experience and age are highly correlated. Use of age instead of experience gave very similar results.