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The Demand for Agritourism in the United States

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Abstract

Data from a 2000 National Survey on Recreation is used to determine the effect of different factors affecting customers' decisions to participate in agritourism. The estimates of the own price and income elasticities are -0.13 and 0.06, respectively. The total consumer surplus from the agricultural landscape was estimated in 22 billion dollars.

Keywords: Agritourism, Farm Recreation, Count Regression, Consumer Surplus

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The Demand for Agritourism in the United States

Introduction

In addition to producing food and fiber, farms provide other rural amenities to the public. Some of these amenities can be marketed as private goods, whereas others are public goods and do not have a market. One of the marketed amenities is on-farm recreation, also called agritourism or agrotourism. Besides the market goods or services obtained at the farm operations, visitors to farms also obtain benefits from the scenic beauty generated by the rural landscape.

The objectives of this study are two-fold: 1) To determine and quantify the effects of different factors influencing customers' decisions to visit farms, and 2) To provide an estimate of the recreational value of the rural landscape in the United States.

Previous studies about agritourism have mainly focused on the motivations of farmers to start agritourism enterprises. The literature on the subject of demand for farm recreation is limited; therefore, there is a need for further research in this area. The assessment of the nonmarket benefits of the rural landscape in the United States has not received much attention neither. Most of the work in this area has been done for a small region and has focused exclusively in the benefits received by rural residents. The focus of this study is the recreational value of the rural landscape to farm visitors.

Agritourism: Definition and Trends

Agritourism refers to those activities that include visiting a working farm or any agricultural operation to enjoy, to be educated or to be involved in what is happening on the operation. Examples of agritourism activities are pick-your-own produce, christmas tree sales, hayrides, children's educational programs, petting zoos, and on-farm festivals.

The recent growth in agritourism is both demand and supply driven. On the supply side, economic pressures have forced farmers and ranchers to augment their income through diversification, both within agriculture itself, and through non-agricultural pursuits. On the demand side, people's interest in farm activities has increased in the last years.

It has been estimated that 62 million Americans visited farms one or more times in 2,000, which corresponds to almost 30% of the population (Barry and Hellerstein, 2004). Several factors are believed to be increasing the demand for agritourism. First, the demand for outdoor recreation in general is rising due to increases in discretionary income. Trends and future projections indicate continued increases in the number of participants, trips, and activity days for outdoor recreation as well as the increase of multi-activity but shorter trips (English et al., 1999). Second, people are doing more traveling as a family, traveling by car and looking for more activities involving experiences (Randall and Gustke, 2003). Finally, there is evidence of a growing concern by the public to support local farmers (Govindasamy, Italia and Adelaja, 2002).

Several factors have led farm families to explore the viability of alternative economic strategies in an effort to preserve the family farm, among others: a declining labor force, poor agricultural commodity prices, rising production costs, the encroachment of suburban development, loss of government-supported agriculture programs, and the elasticity of commodities markets (Fleischer and Pizam, 1997).

Income from agritourism provides farmers with approximately \$ 800 million per year. Even though the percentage of farms with income from agritourism at the national

level is only about 2%, in some Midwest states 7% of farms receive income from this activity (Barry and Hellerstein, 2004).

Previous studies about agritourism have mainly focused on the motivations of farmers to start agritourism enterprises. This study focuses on the factors affecting the demand for agritourism in the United States. This information can be helpful to farmers considering an agritourism enterprise as well as to development planners who are considering agritourism as an option to promote regional economic development.

The Non-market Value of Rural Landscape

The public environmental amenity benefits of rural land have long been recognized. These amenities include wildlife habitats, open spaces, aesthetic scenery and cultural preservation (Fleischer and Tsur, 2000). However, given their characteristics of nonexclusivity (available to the general public) and nonrivalry (consumption by one person does not affect consumption by another person), rural land amenities escape adequate consideration by private markets (Bergstrom et al., 1985). Therefore there might be the need for some sort of policy intervention which, in turn, requires measurement of the value of this public good.

Several researchers have assessed the nonmarket benefits of rural land in the United States, Canada and Europe. Most of these studies have focused on the valuation of the rural landscape by residents (e.g., Bergstrom et al., 1985). For example, Bowker and Didychuck (1994) estimate the nonmarket benefits of land retention in Eastern Canada using the contingent valuation method. The extra-margin benefit of retaining farmland were estimated in about \$97 per acre or about 6 to 16 percent of land price. Bergstrom et al. (1985) estimated the willingness to pay for the environmental amenity benefits of

agricultural land in Greenville County, South Carolina. Aggregate amenity benefits of prime agricultural land were estimated at approximately \$ 13 per acre.

The valuation of the nonmarket benefits of the rural landscape to rural visitors has received less attention. Fleischer and Tsur (2000) measured the recreational use value of agricultural landscape for two regions in Israel combining the travel cost (TC) method with contingent based information regarding the influence of the agricultural landscape in the visitation decisions. These authors found that the landscape value of farmland is higher than the returns to farming. In the United States, Rosenberger and Loomis (1999) studied the benefits to tourists associated with ranch open space in a resort area in Colorado. These authors found that there was no net effect from not converting the existing ranchland to urban and resort development uses.

Economic Framework

The decision making behavior of individuals visiting farms can be analyzed using a two stage framework. The first stage is the decision to visit farm operations. The second stage involves the number of subsequent visits to farms. The decision to visit or not farms can be analyzed using a random utility model. Under this framework the observed choice between two alternatives is the one providing the higher level of utility (Greene, 2003).

For farm visitors, the demand for farm trips can be formulated using the TC method. This method specifies the demand for trips as a function of travel costs, income and other socio-demographic characteristics of the individual. The demand for visits to farms can be represented by a general travel cost model:

$$ntrips = f(Tc, y, d, q) \quad (1)$$

where n_{trips} is the number of trips to farms with recreational purposes, T_c is the implicit price or travel cost to the farms, y is the household income, d is a vector of demographic characteristics of the group or its representative, and q is a vector of characteristics of the site.

Value of the Rural Landscape

The method used to value the rural landscape follows closely the method proposed by Fleischer and Tsur (2000). Specifically, this procedure allows measuring the recreational use value of the rural landscape. Other use and non-use values of the rural landscape are not considered in this paper. The following assumptions are necessary in this procedure:

- 1) Different levels of the rural landscape can be represented by an index R_q . This index can be thought of as representing a weighted sum of the shares of land covered by different landscapes characteristics (e.g., land in pasture, farmsteads, orchards, residential areas, etc.).
- 2) The rural landscape affects the demand for farm trips as a demand curve shifter. Therefore, the recreational use value can be defined and measured by changes in consumer surplus associated with varying levels of the agricultural landscape index R_q .

Econometric and Empirical Model

An econometric specification that allows to model farm visitors' behavior in the proposed two part decision process is the hurdle count model. The hurdle count data model combines a dichotomous model for the binary outcome being above or below the

hurdle, and a truncated count model for outcomes above the hurdle. In our application the hurdle is the visit or not to farms during the last year. For the outcomes above the hurdle a count model is necessary because the discrete nature of the number of trips to farms (Winkelmann, 2003). The general formulation of a hurdle count model assumes that $f_1(0)$ is the probability of a zero outcome, and that $f_2(k)$, $k=1,2,3,\dots$ is the probability function for positive integers. The probability function of the hurdle-at-zero model is given by:

$$\begin{aligned} P(Y = 0) &= f_1(0) \\ P(Y = k) &= (1 - f_1(0)) \frac{f_2(k)}{1 - f_2(k)} \quad k = 1, 2, \dots \end{aligned} \quad (2)$$

The term $\frac{f_2(k)}{1 - f_2(k)}$ corresponds to the truncation of $f_2(k)$ at zero since most of the count data distributions have support over the nonnegative integers. In our application we use the univariate probit model to model the probability of the binary outcome (visit vs. non-visit) and a Poisson model for the number of trips. The probability function of a Poisson distribution is:

$$P(Y = k) = \frac{\exp^{-\lambda} \lambda^k}{k!} \quad \lambda \in R^+, k = 0, 1, 2, \dots \quad (3)$$

Since the distributions are conditional on the explanatory variables, a common assumption in the context of the Poisson regression model is to make the parameter λ a function of the explanatory variables. The most common formulation for λ is the loglinear model (Greene, 2003):

$$\ln \lambda = x' \beta \quad (4)$$

where x is the vector of explanatory variables and β is a parameter vector. The probability function of the probit-poisson regression model is then:

$$P(Y_i = 0 | x_i) = \Phi(x_i' \beta)$$

$$P(Y_i = y_i | x_i) = (1 - P(Y_i = 0 | x_i)) \frac{\exp(-\exp(w_i' \theta)) (\exp(y_i w_i' \theta))}{y_i! (1 - \exp(-\exp(w_i' \theta)))} \quad y_i = 1, 2, \dots \quad (5)$$

where x_i is the vector of covariates explaining the binary choice and β is the corresponding parameter vector, w_i is the vector of covariates determining the conditional probabilities in the Poisson process and θ is the corresponding parameter vector. The subscript i is included to indicate that the observation corresponds to the i th household. $\Phi(\cdot)$ is the cumulative density function of a standard normal distribution.

Tables 1 present the description of the variables included in the binary choice model for the decision to visit or not farms and the variable considered in the Poisson model for the annual number of trips to farms. The demographic variables are the same for both models. However, given that no information is available about farm trips for non-visitors the variables related to farm trips are not included in the binary choice model. The specification of the mean in the probit model can be interpreted as a reduced form of a model in which prices represent quality differences caused by heterogeneous commodity aggregation and the household characteristics are a proxy for household preferences over unobservable quality characteristics (e.g., Davis and Wohlgenant, 1993).

The log-likelihood function for the probit-poisson regression model is given by:

$$L(\beta, \theta | x_i, w_i) = \sum_{i=1}^N d_i \ln \Phi(x_i' \beta) + (1 - d_i) \ln[1 - \Phi(x_i' \beta)]$$

$$+ (1 - d_i) [-\exp(w_i' \theta) + y_i w_i' \theta - \ln(y_i!) - \ln(1 - \exp(-\exp(w_i' \theta)))] \quad (6)$$

where $d_i = 1 - \min\{y_i, 1\}$. The first two terms correspond to the log-likelihood of the hurdle step and the third term is the log-likelihood for positive counts. Therefore, this log-likelihood is separable and maximization can be simplified by maximizing the probit model log-likelihood using all observations, and then the log-likelihood for the truncated variable using the subset of observations for which the counts are possible.

Consumer Surplus

The consumer surplus per trip equals $-1/\beta_{TC}$ where β_{TC} is the parameter corresponding to the total cost of the trip variable (Creel and Loomis, 1990). This is a measure of the benefit of the recreational trips to the farms as a whole, of which only part originates from the rural scenery. If the consumer surplus per trip is multiplied by the predicted number of trips per year (ntrips), we obtain the predicted consumer surplus per visitor per year. The predicted mean of number of trips can be calculated by aggregating over all individuals and calculating the average count.

The calculation of the benefit derived from the rural scenery requires the evaluation of the demand without (or at different levels) of the rural landscape. However, the loss of the agricultural landscape is a future contingency for which no actual visitation data are available. Therefore, we follow Fleischer and Tsur (2000) and use a hypothetical question regarding the importance of the rural landscape in the decision to visit farms. The question asked to farm visitor was “In general, when deciding to visit the farm, how important was to enjoy the rural scenery around the farm?” (such as the variety of animal life, the mixture of crops, or the appearance of farm barns and silos). The interviewees had to select between “important,” “somewhat important,” and “not at all important.” Hence, we define the variable $V_{ij}=2$ if the individual response was “important,” $V_{ij}=1$ if

the individual response was “somewhat important,” and $V_{ij}=0$ if the answer was “not at all important.” The component in (4) corresponding to the effect of the rural landscape in the demand for trips can then be written as $V_{ij}Rq\beta_{Rq}$, where Rq is the rural landscape index as explained previously and β_{Rq} is the corresponding parameter. Without loss of generality we can use the normalizing assumption that the level of the rural landscape is a number between 0 and 1. The actual level of the rural landscape can be set to 1, i.e., $Rq=1$ and the index can be set to zero when the rural landscape vanishes¹.

The effect of the rural landscape on the decision to visit can be measured by the effect on the predicted mean of the number of trips and consequently on the consumer surplus per visitor per year. This can be done by calculating the predicted mean at the current level and the predicted mean assuming that the rural landscape vanishes, i.e., $Rq=0$ for all the observations. The change in the consumer surplus under the two assumptions can be seen as a measure of the benefit of the rural landscape.

Data

The data for the estimation of the model come from the 2000 National Survey on Recreation and the Environment (NSRE). The NSRE’s main purpose is to describe and explore participation in a wide range of outdoor recreation activities by people 16 years or older in the United States. More information about the survey can be found in Cordell (2004).

The NSRE is one of the few nationwide surveys that includes information about Americans visiting farms. Out of the 25,010 NSRE respondents 7,820 reported visiting a

¹ This is a first approximation to the value. In practice, every state and even every region will have a different value for the index of the agricultural landscape.

farm which represents about 31% of the sample. Of the 7,820 “farm visitors”, 1,604 were interviewed about farm recreation.² A very detailed presentation of the results of the survey can be found in Barry and Hellerstein (2004).

The random sample of farm visitors who were interviewed about agritourism comprises only 21% of the total of respondents reporting visiting farms the previous year, therefore for the probit analysis a proportional random sample was obtained from the non-visitors group. A total 1,524 visitors and 3,411 non-visitors were included in the probit analysis. For the count regression model only a subsample of 1,033 individuals was used for the analysis. The observations excluded from this subsample included observations with missing values and observations of individuals who traveled more than 500 miles and spent more than a \$ 1,000 during the trip. These observations were deleted to ensure that the travel was done by car.

The total cost variable (T_c) includes the monetary costs of the trip plus the opportunity cost of time. The opportunity cost of time variable was obtained dividing the distance traveled by an average speed of 55 miles/hour and multiplying this value by one third of the hourly wage (annual family income divided by 1,800 hours) (Phaneuf and Smith, 2004, p. 29). Travel costs were estimated by multiplying the distance traveled times the per mile cost of traveling by car. The AAA estimated that in 2,000 the average cost per mile of driving a car was 49.1 cents.

Results and Discussion

Probit Model

Table 1 presents the summary statistics of the variables used in the probit analysis. Even though we have not tested for statistical difference, the values of the

² Our numbers differ slightly with those presented by Barry and Hellerstein (2004).

variables in the farm visitors and non visitors groups are very similar. When comparing the average farm visitor and the average non-visitor, the average farm visitor is more educated, has a higher family income, is younger and belongs to a household with more family members than the average non-visitor. The group of farm visitors included a higher percent of visitors that were white, males, living in the rural area, employed and with children under six years old.

Table 2 presents the results of the probit analysis which models the decision to visit or not a farm. Table 2 did not include years of education since it is highly correlated with family income. When the two variables are included together in the model, only years of education is statistically significant. In the probit model, the coefficients are not the marginal effects. Table 2 also displays the marginal effects of the explanatory variables in the probit model. The marginal effects of the parameters corresponding to dummy variables are the effects in relation to an individual with characteristics of the dummy variables not included in the model (unemployed; race other than white, black and Hispanic; female; living in the rural area; with no children under 6 years old; and which is not student, retired or homemaker). Relative to this type of respondent a respondent who is white is almost 10% more likely to visit farms. On the other hand a customer who is Hispanic is 13% less likely to visit farm operations. Someone living in the urban area is 5% less likely to visit a farm. Finally, the presence of children under six years old makes a household 4% more likely to visit a farm.

The marginal effects of the continuous variables represent the change in the probability of choosing an alternative for a one unit change in the variable. Each additional person in the household increases the probability that the person will visit

farms by about 1%. An increase in one year in the age of the respondent decreases the probability of visiting farms by only 0.2%. The marginal effect corresponding to income implies that a 1% increase in income increases the probability of visiting a farm in around 0.07%. The marginal effects of the other variables included in the model are not statistically significant, nor are they economically important.

Count Regression Model

Table 1 also presents the summary statistics of the variables used in the count regression model of the number of trips to farms. The average number of trips to farms by visitors is 10.32 with an average cost of about \$41.5 per trip and an average distance traveled to the farm of 61.8 miles.

Table 3 shows the results of the Poisson count regression model. As expected, the cost of the trip has a negative effect in the number of trips. The effect of the travel cost variable expressed in elasticity terms indicates that a 1% increase in travel costs causes a 0.13% reduction in the number of trips.

The marginal effect of income translated to elasticity indicates that a 1% increase in income increases the average number of trips in around 0.06%. Age and years of education have a quadratic effect on the number of trips. This indicates that the number of trips increases as the age and years of education increases, reaches a maximum and then the number of trips decreases with further increases in age or years of education. The age at which the number of trips is maximum is 40 years and the years of education at which the number of trips is maximum is 14 years of education.

The variable corresponding to the importance of rural landscape indicates that people who consider the rural landscape as an important factor when deciding to visit a

farm operation make more trips to farms than people who considers the rural landscape unimportant. Specifically, people who consider enjoying the rural scenery around the farm as “somewhat important” makes in average 0.8 more trips per year than people who think that enjoying the rural scenery is “not at all important.” People who consider enjoying the rural landscape as “important” makes in average 1.6 more trips compared to the latter group of people.

The marginal effects of the parameters corresponding to dummy variables in this model are also the effects in relation to an individual with characteristics of the dummy variables not included in the model (unemployed; race other than white, black and Hispanic; female; living in the rural area; with no children under 6 years old; and which is not student, retired or homemaker). Relative to this type of respondent a respondent who is white will make 3.7 more trips whereas than a respondent who is Hispanic will make 2.4 less trips. People living in the rural area will make in average about 7 more trips to farms than those living in urban areas. Male respondents make in average 3.5 more trips than females. Retired people make in average almost 2 more trips to farms. Being student and homemaker have also a positive effect on the number of trips relative to the baseline respondent, making around 1 more trip to farms compared to the baseline respondent. Other variables were not statistically significant nor economically important, except for the dummy variable for black respondent which indicates than in average black visitors make 2 trips less than the baseline respondent.

Consumer Surplus

The results of the calculations of consumer surplus are presented in Table 4. The calculated average consumer surplus per customer per trip is estimated in \$ 312.5/trip, of

which \$34.5 is due to the rural landscape. This value indicates that around 12% of the consumer surplus would be generated by the rural landscape. In Israel, Fleischer and Tsur (2000) estimated values of \$167 and \$49 for the per trip agricultural landscape induced-surplus in two regions of that country.

Using the estimated 62 million visitors to farm operations and the predicted 10.32 visits per individual, the total consumer surplus derived from the rural landscape was estimated in 24.6 billions dollars per year. This value is more than half of the last 10 year average total net farm income in the United States estimated in around 50 billion dollars. Fleischer and Tsur (2000) and Drake (1992) found that the landscape value of farmland is far in excess of returns to farming in Israel and Sweden, respectively.

As explained previously this estimates correspond to the economic value of the rural landscape for people who visit farms with recreational purposes. The economic value of farmland for residents and the economic value for non-visitors have not been considered in this study.

Robustness of Results to Model Assumptions

A critical assumption of the surplus calculations is that the calculated trip costs are average costs of all the trips to farm operations. The survey only asked respondents about the distance traveled for the last recreational trip to a farm. The sensitivity of the surplus calculations to this assumption requires further investigation. An alternative econometric procedure might take into account the measurement error in the trip cost variable. For example, the formulation for the parameter λ in the Poisson model could be specified as

$$\ln \lambda = x'\beta + \varepsilon \quad (7)$$

where ε represents the measurement of the cost variable and which can be assumed to follow for example a normal distribution with mean zero and variance σ^2 . This type of model is very similar to models proposed to account for unobserved heterogeneity in count data models. In our specific application, this would require the estimation of a truncated Poisson regression model with the parameter λ specified as in equation (7). We have not estimated such a model yet. However, a model including γ in a regular Poisson regression model framework yielded parameter estimated very similar to the ones presented in Table 3.

The robustness of the socioeconomic variables was evaluated estimating models with and without the trip costs variables. Most of the parameter estimates were robust to the exclusion of the trip costs variables.

The survey also included a question where people were asked if they would change the number of trips taken to the farm if the cost of the trip were to increase by a given amount (different values for different respondents). They were given the option to choose between: no change, 1 less trip, 2 less trips, taken no trips and other. An estimate of the change in the number of trips taken by a dollar increase in the trip cost can be obtained by dividing the stated change in the number of trips by the assumed change in the trip costs. Mathematically this can be expressed as follows:

$$\Delta \text{ in the \# of trips by a dollar increase in trip costs} = \frac{\Delta \text{ Number of Trips Taken}}{\Delta \text{ Cost of the trip}} \quad (8)$$

The calculated average of this variable was estimated in 0.030, which is very similar to the estimated marginal effect of travel costs in the travel cost demand model.

Summary and Conclusions

Using data from the 2000 National Survey on Recreation and the Environment this study has explored two main issues: the factors affecting American population visits to farms and the economic value of the rural landscape for farm visitors.

The analysis of the factors influencing people's decision to become farms' visitors found race and location of residence as the most important characteristics explaining this decision. The number of farm recreational trips visits was determined to be not very sensitive to change in its own price (elasticity of -0.13). The income elasticity was estimated in 0.06. Location of residence, race and gender were found to be important determinants of the number of farm trips. This information might be useful to farmers considering to start an agritourism enterprise and also to development planners who are considering agritourism as an option to promote regional economic development.

Given their characteristics of nonexclusivity and nonrivalry, rural land amenities escape adequate consideration by private markets. This might cause a loss of farmland beyond of what is socially optimum. Therefore, there could be the need for some sort of policy intervention which, in turn, requires measurement of the value of this public good. Previous studies about rural amenities have mainly focused on the economic value for residents. In this study we estimate the economic value of the rural landscape to farm visitors. The calculated average consumer surplus per customer per trip is estimated in \$312.5/trip, of which \$38.4 is due to the rural landscape. The total consumer surplus generated from the agricultural landscape was estimated in 24.6 billion dollars, which is about half of the last 10 year US net total farm income average, which is calculated in around 50 billion dollars.

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Table 1. Summary Statistics of the Variables used in the Study

Variable	Probit Analysis		Count Regression
	Visitors (n=1,524)	Non-Visitors (n=3,411)	(n=1,033)
Number of trips	-	-	10.32 (15.43)
Cost of the trip	-	-	41.47 (63.56)
Distance to the farm	-	-	61.83 (91.63)
Years of education	14.05 (2.62) ¹	13.61 (2.75)	14.16 (2.58)
Black	0.05 (0.21)	0.08 (0.27)	0.04 (0.19)
White	0.93 (0.25)	0.89 (0.32)	0.94 (0.24)
Hispanic	0.05 (0.22)	0.08 (0.28)	0.04 (0.20)
Male	0.45 (0.50)	0.42 (0.49)	0.46 (0.50)
Age	42.84 (15.50)	46.05 (17.65)	42.77 (14.95)
Family Income	58,014 (34,525)	53,879 (34,897)	56,645.46 (34,560.40)
Live in Urban Area	0.62 (0.49)	0.67 (0.47)	0.60 (0.49)
Household size	2.89 (1.53)	2.64 (1.54)	2.95 (1.53)
Presence of children under 6 years	0.23 (0.42)	0.16 (0.37)	0.26 (0.44)
Student	0.09 (0.29)	0.09 (0.29)	0.08 (0.26)
Retired	0.16 (0.37)	0.23 (0.42)	0.16 (0.36)
Homemaker	0.17 (0.37)	0.19 (0.39)	0.18 (0.38)
Employed	0.70 (0.46)	0.63 (0.48)	0.71 (0.45)

¹ Numbers in parenthesis are standard errors

Table 2. Results of the Probit Analysis for the Decision to Visit Farm Operations with Recreational Purposes

Variable	Parameter		Marginal Effect	
	Coefficient	Std. Error	Coefficient	Std. Error
Intercept	-0.600***	0.162	-0.210***	0.056
Employed	0.074	0.062	0.026	0.021
Black	-0.095	0.141	-0.032	0.047
White	0.303**	0.121	0.098***	0.036
Hispanic	-0.408***	0.079	-0.128***	0.021
Male	0.220	0.040	0.008	0.014
Age	-0.006***	0.002	-0.002***	0.000
Family Income (\$1,000)	1.114*	0.573	0.389*	0.200
Live in Urban Area	-0.130***	0.040	-0.046***	0.014
Presence of children under 6 years	0.114**	0.579	0.040*	0.021
Household size	0.034**	0.015	0.012**	0.005
Student	-0.104	0.079	-0.036	0.026
Retired	-0.019	0.079	-0.006	0.027
Homemaker	-0.006	0.061	-0.002	0.021

Table 3. Results of the Poisson Regression for the Number of Recreational Trips to Farms

Variable	Parameter		Marginal Effect	
	Coefficient	Std. Err.	Coefficient	Std. Err.
Intercept	-0.231	0.291	-2.371	3.240
Trip Cost	-0.003***	0.000	-0.032***	0.001
Importance of Rural Landscape	0.076***	0.018	0.785***	0.199
Family Income (\$1,000)	0.001***	0.000	0.011***	0.038
Years of Education	0.246***	0.039	2.525***	0.000
Years of Education ²	-0.009***	0.001	-0.088***	0.015
Employed	0.002	0.034	0.025	0.383
Black	-0.185*	0.103	-1.905	1.166
White	0.356***	0.076	3.654***	0.880
Hispanic	-0.235***	0.058	-2.411***	0.633
Male	0.341***	0.021	3.501***	0.292
Age	0.035***	0.004	0.357***	0.052
Age ²	0.001***	0.000	-0.005***	0.001
Live in Urban Area	-0.666***	0.020	-6.837***	0.395
Presence of children under 6 years	-0.050*	0.027	-0.515*	0.307
Household size	- 0.004	0.008	0.040	0.092
Student	0.093**	0.045	0.951*	0.514
Retired	0.171***	0.047	1.752***	0.534
Homemaker	0.083**	0.032	0.852**	0.370

Table 4. Consumer Surplus of Farm Trips

Average consumer surplus (\$ per visitor)	312.5
Average consumer surplus due to rural landscape only (\$ per visitor)	38.4
Estimated number of visits to farms during the year (millions)	640
Total consumer surplus due to rural landscape (billions \$ per year)	24.6
Total net farm income (1990-2000 average) (billions \$ per year)	48.2