Factors Influencing the Decision to Join a Community Supported Agriculture Farm (CSA)

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Abstract

Community support agriculture (CSA) is a form of direct marketing of agricultural products that can be an important facet of a more sustainable, locally based food system. This study estimates the probability of becoming a CSA member using a bi-nomial logit regression model. Data were collected through phone interviews with members, ex-members, and non-members of three CSA farms in Vermont. Results indicate that price, productivity shifters, consumer beliefs, and awareness impact the probability of membership. Suggestions for target marketing to increase CSA membership are included.

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Key Words: community supported agriculture (CSA), logit, direct marketing, membership

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Introduction

There is a movement in this country and around the globe to reconnect people and their food supplies. For reasons such as food security, our impact on the environment, nutrition, and the psychological and emotional importance of food in our lives, activists are trying to circumvent the industrial food system by encouraging the development of more locally based "foodsheds" (combining the concept of a watershed and a food system). Buying locally produced food items and buying directly from the farmer are ways to facilitate the creation of foodsheds. This research investigates the factors that influence the probability an individual will join a Community Supported Agriculture (CSA) farm. This information can help farmers, consumers, and policy makers evaluate the potential role of CSA in the creation of a more sustainable food/agriculture system.

Community supported agriculture (CSA) is a form of direct marketing of agricultural products which connects farmers and consumers. Some of the risk of farming is distributed back onto the consumer, and in return the consumer has a chance to become more involved in the process of growing his or her food, and may feel more connected to both the food system and the natural environment. Consumers generally pay an up-front fee which allows the farmer to purchase seed, fertilizer, and equipment and gives him or her a guaranteed salary for the season. The consumer receives a share of weekly harvest and may be asked to help with weeding or harvesting at some point in the season (Smith, 1994).

The CSA movement began concurrently in Europe and Japan about 30 years ago as a result of farmer and consumer concern for the sustainability and safety of food. The birth of the movement in the U.S. occurred in 1986 when two CSAs were begun independently in New England. Jan Vander Tuin in Massachusetts and Trauger Groh in New Hampshire created the first CSAs based on their experience with European models. It is now estimated that there are at least 566 CSA projects in the U.S. and Canada, and

hundreds more around the world (Bio Dynamic Farming, 1996).

CSA results in an economic relationship which includes values other than just cheap food and profit maximization. It affords farmers a security which is not often achievable without large-scale operations, and offers consumers greater contact with the producers of their food and with the process itself. As one tool to be used in an attempt to address the negative aspects of our current food system, CSA seems to have promise.

Review of Literature

Most of the literature concerning Community Supported Agriculture is descriptive, anecdotal, or instructional in nature, as can be seen in the annotated bibliography on CSA published by the National Agricultural Library (Demuth, 1993). The research that has been done or is in progress includes two masters' theses and a SARE-funded project, as well as a study done by the Rodale Institute Research Center.

Suput's (1992) master's thesis included five case studies of the CSAs existing in Massachusetts in 1992, and investigated the benefits of CSA as well as the economic barriers to its long-term viability. She suggests that in order to determine drawbacks to CSA, research would have to be done on non-members or ex-members of the CSA (Suput, 1992). Laird (1995) administered a mail survey to all of the identifiable CSAs in North America, receiving 73 usable completed surveys. The most popular reason given for why consumers join CSAs was organic food, followed closely by fresh food. Supporting local agriculture and knowing who grew their food were often given as second and third most important reasons. Farmers reported that the main reason members did not rejoin was inconvenience.

Kelvin ((1994) of the Rodale Institute Research Center performed a survey of 11 CSAs in the northeast as well as a survey of 15 members of one of the CSAs. The member survey found many of the same results as the Suput and Laird studies. Organic, fresh produce grown by a local farmer were the main reasons people joined the CSA. Members indicated that the growers were best at providing tasty, fresh,

seasonal foods, and worst at providing "a good variety of food throughout the season." Convenience of pickup location and time/days were services consumers had most problems with.

In 1995, the Northeast Sustainable Agriculture Research and Education program (SARE) funded a three-pronged CSA project which is currently on-going:

1/ Steve Gilman of Stillwater NY is coordinator of the CSA Farm Network, an attempt to create a listing of all of the CSAs in the northeast, as well as to compile some basic statistics about those farms;

2/ Cathy Roth of the University of Massachusetts Cooperative Extension and Robyn VanEn of CSA of North America are conducting CSA troubleshooting sessions throughout the Northeast over a two-year period; and

3/ Resource economists Dan Lass and Joe Moffitt of the University of Massachusetts are performing an economic analysis of 50 CSAs in the Northeast over 3 years in order to evaluate their viability.

The research that has been done gives helpful indications of what motivates people to join CSAs. However, very little research has examined consumer demand for CSA membership. Using the literature as a guide, this research develops and estimates a multivariate model to determine factors that affect the decision to join a CSA farm.

Methodology

Conceptual Model

Based on the literature review, the following conceptual model describes the hypothesized relationships of various characteristics to a household's decision whether to join a CSA.

FIGURE 1 ABOUT HERE

The hypotheses below arise from the model above and the literature reviewed.

1. Increases in income increases the probability of becoming a member.

It is hypothesized the membership is a normal good. As with food in general, as income levels of a household increase, demand will increase.

2. Decreasing the price of a share will increase the probability of becoming a member.

The law of demand states that a decrease in price will lead to a demand for increased quantity of a good.

3. Increasing household productivity will increase the probability of becoming a member.

Household production involves the allocation of resources among several activities with the expectation that the outcomes will be found to be satisfying; that is, the outcomes will enhance the well-being of household members (Bryant, 1992). Greater utility can be gained from spending time in more productive household activities. This shift depends to some extent on the magnitude of substitution and income caused by a change in productivity in certain activities. Gronau (1977) points out that "an increase in the productivity of work at home is associated with an increase in real income and an increase in leisure, but its effect on work at home and work in the market is indeterminate." We test the hypothesis that increases in the productivity of household activities will increase the probability of becoming a member of a CSA, since membership inherently involves using household production time to pick up, clean, and put away produce.

4. Preferences that indicate a concern for the household's impact on the environment will increase probability of becoming a member.

The literature about and the history of CSA indicates that such values are an integral aspect of this form of agricultural production/marketing (Smith, 1994). In addition, preferences that indicate an emphasis on

convenience and cost in food shopping will decrease the probability of being a member because CSAs are often more expensive than conventional produce.

Data Collection and Variable Creation

Survey questions were developed with the input of the farms involved, and reference to Frey's Survey Research by Telephone (1989). The surveys were pretested on the members of a CSA which did not participate in the study, and a random sample of non-members. Input from the pretesting process was used to revise the surveys.

Non-members were found to be closely representative of the population of Vermont in terms of income, age, and education. Median income in Vermont was $36,614 in 1989. This survey found the median to be between $30,000 and $45,000 (data were collected as a category). The median age of adults in VT is about 40, our median age for non-member respondents was 42. The median education level for Vermonters 25 and older is a high school diploma, while our median number of years of education was 15 (U.S.Bureau of the Census, 1995).

The data used in this study were collected via phone survey during October of 1995. Members of three CSAs in Vermont were surveyed. The population of members was 277; 184 usable responses gave a response rate of 66%. Non-member phone numbers from the regions surrounding each CSA totaled 1137 and the number of useable responses was 238 which would indicate a response rate of 21%. The non-member phone lists contained a number of non-working and business numbers, so the response rates for that category is actually somewhat higher. The farms were chosen to represent different regions, rural/urbaness, and sizes of CSAs within the state. Member phone numbers were obtained from the farms, and non-member phone lists were randomly generated by Genesys Sampling Systems, Fort Washington, PA. Data were collected using the CI2 Computer Assisted Telephone Interviewing(CATI) system (Sawtooth Software).

Information gathered in this survey related specifically to the model proposed in Figure 1 and

included information about income, prices, household productivity shifters, and preferences. Income was measured as total family income. Price was calculated on a per-person in the household basis. Productivity shifters included information on number and ages of children in the household, information on socially responsible household behaviors, and indicators as to the extent of food preparation done in a household. Preference shifters included demographic characteristics and information about shopping behaviors. How an individual learned about the CSA was another piece of information collected.

Empirical Model

To operationalize the conceptual model put forth in Figure 1, bi-nomial logit is used. Logit is a regression type estimation procedure that is used when the dependent variable (in this case joining a CSA farm) is measured using two choice categories (in this case member versus non-member). The log odds that an individual will join a CSA farm is written:

$$(1) \quad \log \frac{\text{Probability of joining}}{1 - \text{Probability of joining}} = \beta_1 + \beta_2 Z_2 + \ldots + \beta_k Z_k$$

where the Z's represent attributes of individuals who may join a CSA farm. The equation used to obtain an estimation of the probability of joining a CSA is:

$$(2) \quad \mathbf{memcsa} = B_0 + B_1 \mathbf{percap} + B_2 \mathbf{cost} + B_3 \mathbf{kids12} + B_4 \mathbf{teens} + B_5 \mathbf{buylunch} + B_6 \mathbf{eatout} +$$

$$B_7 \mathbf{space} + B_8 \mathbf{compost} + B_9 \mathbf{recycle} + B_{10} \mathbf{shopper1} + B_{11} \mathbf{shopper2} + B_{12} \mathbf{shopper3} + B_{13} \mathbf{shopper4}$$

$$+ B_{14}\ \mathbf{shopper5} + B_{15} \mathbf{shopper6} + B_{16} \mathbf{shopper7} + B_{18} \mathbf{educat} + B_{19}\ \mathbf{age} + B_{20}\ \mathbf{heardwom} + B_{21}$$

$$\mathbf{heardfly} + \mathbf{Error}$$

Percap is created using the median income value for the income category each household fell within, divided by the number of persons in the household. It is used to measure the price of an individuals time. **Cost** refers to per person cost of membership (as reported by respondents); non-members obviously did not report such an amount, so cost was imputed based on the number of people in the household and the cost of membership of the CSA they were near.