

Variables that represent changes in household productivity include **kids12**, **teens**, **buylunch**, **eatout**, **space**, and to some extent **compost**, and **recycle**. The presence of children in a household increases household productivity by definition (Bryant 1992). However, the effect of having children on CSA membership is hypothesized to be negative, since children compete for time spent in CSA related activities. **Space** is coded as 1 if the respondent indicates he/she has adequate storage space for produce. **Buylunch** is a dummy variable that is coded 1 if the respondent buys lunch more than 50% of the time. **Eatout** is the number of times the respondent has eaten dinner in a restaurant or purchased take-out in the past thirty days. **Compost** and **recycle** are dummy variables which are coded as a 1 if the respondent composts or recycles as much as possible. These two behaviors indicate that a household engages in an increased amount of household production which may lead them to be more efficient in other forms of household production related to food preparation. These variables may also represent consumer preferences for socially responsible behaviors.

One question in the survey identified respondents who bought organic produce at least occasionally, and another identified the factor most important in their choice of winter produce shopping venue. The four factors were: location/convenience, selection, price, and other (political, economic, or desire for community). These two variables were combined to create the shopper categories, and 7 dummy variables represent them in the analysis. The left out category is "does not buy organic and location/convenience is most important factor".

Other preference shifters included **age** and years of education (**educat**) of the respondent. Two variables representing how a respondent heard about the CSA were also included to identify whether personal contact is an important influencer of membership. **Heardwom** was coded as 1 if a respondent had heard of the CSA through talking with an individual. **Heardfly** was coded 1 if the respondent heard of the CSA through a poster or flyer. Summary statistics are presented in Table 1. The data were analyzed using the Limdep econometric analysis program (Greene, 1986).

Estimation Results

Several variables had a significant impact on the likelihood of being a member of a CSA, as can be seen in the last column of Table 1. The per person cost of membership had a negative effect on membership. The presence of children or teens in the household both had negative effects on the likelihood of membership. Food shoppers who buy organic *and* felt that political/economic/social factors were most important in choosing a winter produce shopping venue are more likely to become members of a CSA farm. Although positive, recycling and composting were not significant. Having adequate storage space unexpectedly decreased the probability of being a CSA member. Increases in education increase the probability of becoming a CSA member. And, hearing about the CSA via word-of-mouth increases membership probability, whereas hearing about the CSA through posters and flyers was insignificant.

Using the means of the data, the calculated probability of becoming a CSA member is .067. An examination of some of the significant characteristics that influence the probability reveals the following. If an individual hears of the CSA by word of mouth, the probability of becoming a member increases to .091, a gain of about 35%. If an individual both buys organic and political reasons are important in choosing where to shop, the probability of joining a CSA is .077, a gain of about 15%. On the other hand, if there are children under age 12 in the household, the probability of becoming a member falls to .053, a loss of about 20%. If there are teens in the household, the probability of joining falls to .059, a loss of about 14%. A 10% increase in the cost per person to join a CSA results in a probability of joining of .054. Conversely, if the cost per person falls by 10%, the probability of joining increases to .078, an increase of 17.2%.

Discussion

The first hypothesis, which states that higher cost of share per person will lead to decreased

likelihood of being a member, is supported by the results. This is reassuring, as in any demand model we expect price and demand to be inversely related.

The second hypothesis is not supported. It appears that income does not influence the decision to join a CSA. There is an explanation for this result that is consistent with the fact that food, in general, is a normal good. Because we have not specifically allowed for the price of an individual's time to enter in the demand equation (we had no measure of hourly wage earnings), the coefficient on income actually includes both an income and substitution effect. The substitution effect indicates that an individual who has a higher price of time will spend less time in household production and more time in market work. Since belonging to a CSA requires that an individual spend more time in household production, the negative coefficient makes sense. However, the income effect portion of an increase in the price of time indicates that a person will purchase more market goods (through substitution of purchased goods for time), thus offsetting the negative effect of the price of time. In addition, there is another income effect at work for the portion of income that is not earned in the market (non wage income). Since food is a normal good, we expect that this effect will be positive on joining a CSA. On the other hand, since membership involves household production and an increase in non wage income will decrease time spent in household production, the effect may be negative on membership. Clearly, the coefficient on income is a conglomeration of all these effects. This study does not allow them to be disentangled, making the identification of the effect of income on membership indeterminate.

Hypothesis 3 predicted that increased household productivity would lead to increased likelihood of being a member, but for the most part the data did not support this prediction. Space had a negative coefficient and was not significant, which may be due to the fact that many people who have more storage space and bigger homes also have space to garden. Non-members who gardened had much higher rates of home food preservation behavior. In fact, earlier estimates indicated a high degree of collinearity between a variable representing whether an individual gardened and the space variable. Thus, no variable

representing gardening was included in the analysis. **Kids12** and **teens** both had negative and significant coefficients, which contradicts the expectation that greater household productivity (due to scale) will lead to an increased likelihood of spending more time in household production. It may be that this economic concept does not apply to decisions regarding segments of one's household production time. A parent who is very productive in the sense that he or she manages to take care of kids or a large household in the same 24 hour day that a single person takes care of him or herself may have to make the choice between spending time in child care or spending time in household production tasks related to CSA membership.

Hypothesis 4 regarding the effect of preferences on membership status was partially supported by the results. Only one of the shopper categories was significant, leading to the conclusion that it isn't only organic buyers *or* socially/politically aware individuals that join CSAs. It appears that an individual has to be *both* an organic shopper and hold particular values in order to increase the probability of membership.

Education level was found to be a very significant predictor of membership status, with members generally having a higher level of education. This is a common finding in literature regarding other socially responsible behaviors such as recycling and reduced solid waste generation. Uusitalo (1990) found that people with higher levels of education were more likely to value environmental protection as a social goal. A study by Epp and Mauger (1989) showed that highly educated people produced less trash, which concurs with Duggal, Saltzman, and Williams' (1991) finding that people with more education are more likely to recycle. Yard and garden waste reclamation programs also are more likely to be used by people with higher education levels (Leonas and Cude, 1991). Interestingly, once education is controlled for, the effects of recycling and composting, while positive, are insignificant in this study.

Conclusions

The way in which individuals hear about the CSA has a large effect on the probability of becoming a member. Personal contact has a significant, positive, and rather large effect on membership, while usual

methods of advertising, including posters and flyers, has an insignificant and negative coefficient.

The results of this analysis indicate that CSA farmers and core group members may want to target their marketing efforts and mold their operations in the following ways if they want to expand their membership. Although many other values are relevant in the decision to join a CSA, price is still very important, and therefore CSAs should try to keep share prices low, even if that means smaller shares. Since the presence of kids in the household has such a negative effect on membership, addressing the issue of child care during pickup or targeting single people and small families are options. Finally, word of mouth “advertising” appears to be more effective at influencing membership than are posters and flyers. This type of advertising has been said to be the most important form of advertising. CSAs wanting to increase membership might consider offering incentives to current members who bring in new members.

Figure 1. Conceptual Model Outlining the Decision to Join a Community Supported Agriculture Farm.

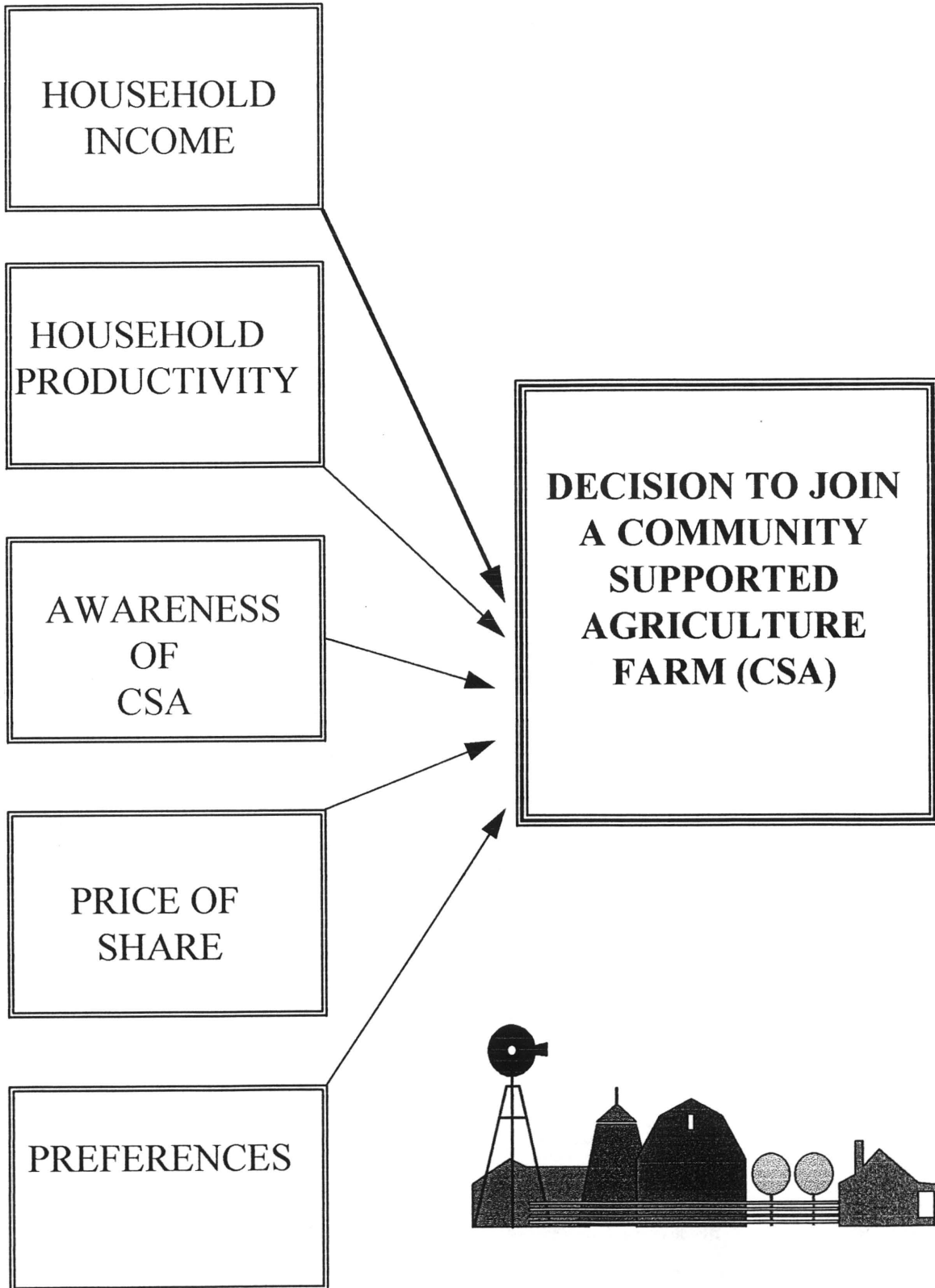


Table 1: Results of Probit, Membership Status as Dependent Variable

N=286

Variable	Definition	Mean(st.dev.)	Coefficient
intercept		na	-1.68
percap	household income divided by # people in household (\$)	18201(11416)	-.73E-05
cost	per person cost of share in CSA(\$)	92.3(36.9)	-.31***
compost	R composts kitchen and/or yard waste	0.497	0.40
recycled	R recycles as much as possible	0.605	0.253
buylunch	R buys lunch more than 50% of the time	0.706	-.59
catout	# of times household has eaten takeout or at a restaurant for dinner in past 30 days	5.01(5.06)	0.016
space	has adequate storage space for canning and freezing produce.	.657	-.285*
kids12	there are children 12 and under in household	0.371	-.93***
teens	there are children aged 13-17 in household	0.252	- 1.14***
age	age of primary food shopper in household (years)	42.3(13.0)	-0.02
educat	number of years of formal education(years)	15.7(2.7)	.26*
shopper2	R buys organic and selection is most important	0.140	.42
shopper3	R buys organic and price is most important	0.0140	1.70
shopper4	R buys organic and political economic reasons are most important	0.0699	1.74*
shopper5	R does not buy organic and selection is most important	0.231	.17
shopper6	R does not buy organic and price is most important	0.0629	-.34
shopper7	R does not buy organic and political economic reasons are most important	0.0559	0.91
heardwom	respondent had heard of the CSA near household through word of mouth	0.444	2.79*
heardfly	respondent heard of CSA near household via poster or flyer.	.23	-.95

Note: *indicates $p < .10$, *** indicates $p < .01$

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