Determinants of Farmer-to-Consumer Direct Market Visits by Type of Facility: A Logit Analysis

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This study identifies several socioeconomic and demographic characteristics of individuals who visited farmer-to-consumer direct markets in New Jersey. The analysis was performed for each type of direct marketing facility: pick-your-own farms, roadside stands, farmers' markets, and direct farm markets. Logit analysis results indicate that various factors affect visitation to each type of facility. Factors examined include consumer's consumption and variety of fruits and vegetables, price expectation, purpose of buying, age, sex, education, race, income, urbanization, and presence of home garden.

Farmer-to-consumer direct markets have gained importance in the recent past, primarily for two reasons. First, producers can receive a better price directly from consumers, and second, consumers can get fresh, high-quality produce for a better-than-supermarket price. Farmer-to-consumer direct markets also have other advantages, such as recreational activities, preservation of agricultural lands, and community development (Henderson and Linstrom 1982; Linstrom 1978; Govindasamy 1996a). Some direct markets are also now involved with federal nutrition programs (e.g., the WIC Farmers' Market Nutrition Program and the Food Stamp Program).

The most common farmer-to-consumer direct markets are pick-your-own operations (PYO), roadside stands, farmers' markets, and direct farm markets. PYO operations are farms where consumers harvest their own agricultural products from farmers' fields; roadside stands are temporary structures erected by farmers to sell seasonally grown farm produce; farmers' markets are places where farmers bring their produce to be sold to consumers; and direct farm markets are permanent structures erected at farms to sell their own pro-

duce. Items frequently sold through direct markets are fruits, vegetables, bakery products, flowers, nursery products, eggs, and dairy products (Nayga et al. 1995; Govindasamy 1996b).

A recent study conducted in New Jersey indicates that average gross sales were roughly $221,000 per operation and that the direct marketing industry is valued at approximately $189 million (Nayga et al. 1994). The gross retail sales per operation ranged from under $10,000 to over $5 million. The survey also indicates that most of the markets are in the "growth" stage and will be expanded.

Despite the rapid growth of farmer-to-consumer direct markets and their increasing importance (Beierlien and Connell 1986; Beierlien, Vroomen, and Connell 1986; Connell, Beierlein, and Vroomen 1986; Cartier 1994; Eastwood, Orr, and Brookers 1986; Eastwood, Brooker, and Gray 1995; Rhodus, Schwartz, and Hoskins 1994; Schooley et al. 1989; Govindasamy and Nayga 1996), scant information is available concerning the type of consumers who visit various types of direct marketing operations. Visitations to each of the direct market types may vary by location and various consumer economic and demographic characteristics. For instance, a consumer may patronize a roadside stand for its convenience in location, while a family may drive miles to a PYO operation for its recreational qualities. Low-income persons may be looking to get the most out of each dollar spent on food by shopping at a farmers' market rather than a supermarket, while high-income individuals could view their patronage of a

direct farm market as a way to keep in touch with farm life.

The purpose of this paper is to provide an overview of the consumer characteristics affecting visitation to various types of farmer-to-consumer direct marketing operations in New Jersey. It is hypothesized that various socioeconomic and demographic variables influence the consumer's decision to purchase at a particular type of direct marketing facility. No known study in the past has analyzed the determinants of consumers' direct market visitations by type of facility.

Conceptual Framework

A logit framework is used to estimate the probability of a customer visiting one of the four direct marketing facilities: PYO farms, roadside stands, farmers' markets, and direct farm markets. The logit technique is preferred over other categorical variable estimation techniques (Maddala 1983) and is a better procedure for capturing the magnitude of the independent variable effects for qualitative dependent variables than are probit models (Amemiya 1983). In logit modeling, the likelihood of visiting a direct marketing facility is a function of a set of predetermined variables. Qualitative choice models are used in the analysis because the dependent variable is binary. The logit model is estimated using maximum likelihood estimation as it results in large-sample properties of consistency and asymptotic normality of the parameter estimates.

The model assumes that the probability of visiting a direct market, P_i, depends on a vector of independent variables $(X_{ij}s)$ associated with consumer i, and variable j and a vector of unknown parameters β. A dichotomous random variable y_i, for which $y_i = 1$ if the consumer visited a direct market facility in the past five years and $y_i = 0$ otherwise, was defined. For the logit model, this probability is determined by:

$$(1) \quad P_i = F(Z_k) = F(\alpha + \beta X_{ij})$$
$$= 1 / [1 + \exp(-Z_i)]$$

where:

$F(Z_i)$ = the value of the cumulative logistic function associated with each possible value of the underlying index Z_i;

P_i = the probability that an individual will visit a direct marketing facility or not, given the knowledge of demographic characteristics of individuals, $X_{ij}s$;

exp = the base of natural logarithms;

Z_i = the underlying index number or βX_{ij}; and

α = the intercept.

The underlying index number, βX_{ij} is a linear combination of independent variables. Thus,

$$(2) \quad Z_i = \log[P_i / (1 - P_i)] = \beta_0 + \beta_1 X_{11}$$
$$+ \beta_2 X_{12} + \ldots + \beta_n X_{1n} + \epsilon$$

where

i = 1, 2, ..., I are individuals;

j = 1, 2, ..., n are independent variables;

Z_i = the unobserved index level or the log odds of choice for the ith observation;

X_{ij} = the j th explanatory variable for the ith individual;

β = the parameters to be estimated;

ϵ = error term or disturbance term.

The dependent variable in the above equation is the logarithm of the odds a particular choice will be made. The parameters themselves do not directly represent the change in the independent variables. Such probability changes depend on the original probability and thus on the initial values of all the independent variables and their coefficients. For the logit model, the change in probability that $Y_i = 1$ (P_i) brought about by a change in the independent variable X_{ij} is given by:

$$(3) \quad (\partial P_i / \partial X_{ij}) = [\beta_j \exp(-\beta X_{ij})] / [1 + \exp(-\beta X_{ij})].$$

However, when the independent variables are qualitative, as is the case for most of the explanatory variables in this model, $(\partial P_i / \partial X_{ij})$ does not exist in that X_{ij} is discrete and thus cannot vary continuously. In this case, probability changes must be obtained by evaluating P_i at the alternative values of X_{ij}. Thus,

$$(4) \quad (\partial P_i / \partial X_{ij}) = [P(Y_i|X_{ij} = 1) - P(Y_i|X_{ij} = 0)] / [1 - 0].$$

Four logit models corresponding to the four types of direct markets are developed. The models are specified as:

$$(5) \quad \text{Prob}_i = \beta_0 + \beta_1 \text{ fruits} + \beta_2 \text{ vegetables}$$
$$+ \beta_3 \text{ variety} + \beta_4 \text{ price}$$
$$+ \beta_5 \text{ consumption} + \beta_6 \text{ canning}$$
$$+ \beta_7 \text{ age35} + \beta_8 \text{ age36–65}$$
$$+ \beta_9 \text{ female} + \beta_{10} \text{ highschool}$$
$$+ \beta_{11} \text{ college} + \beta_{12} \text{ caucasian}$$
$$+ \beta_{13} \text{ income1} + \beta_{14} \text{ income2}$$
$$+ \beta_{15} \text{ urban} + \beta_{16} \text{ garden}$$

where

Prob$_i$ = 1 if individual visited direct marketing type i and 0 otherwise (four models corresponding to i = PYO farms, roadside stands, farmers' markets, and direct farm markets);

fruits = 1 if consuming a wider variety of fruits than five years ago and 0 otherwise;

vegetables = 1 if consuming a wider variety of vegetables than five years ago and 0 otherwise;

variety = 1 if individual expects variety to be same as or better than in supermarkets and 0 otherwise;

price = 1 if individual expects price to be same as or higher than in supermarkets and 0 otherwise;

consumption = 1 if bought for fresh consumption and 0 otherwise;

canning = 1 if bought for canning, freezing, or preserving and 0 otherwise;

age35 = 1 if age is less than or equal to 35 and 0 otherwise;

age36–65 = 1 if age is between 36 and 65 and 0 otherwise;

female = 1 if sex is female and 0 otherwise;

highschool = 1 if education is less than or equal to twelfth grade and 0 otherwise

college = 1 if education is some college and 0 otherwise;

caucasian = 1 if ethnicity is Caucasian and 0 otherwise;

income1 = 1 if income is below 39,999 and 0 otherwise;

income2 = 1 if income is between 40,000 and 59,999 and 0 otherwise;

urban = 1 if neighborhood is considered urban or suburban and 0 otherwise;

garden = 1 if individual has a fruit or vegetable garden at home and 0 otherwise.

For estimation purposes, one classification was eliminated from each group of variables. The base group of individuals consists of those who satisfy the following description: those who do not consume a wider variety of fruits than they did five years ago; those who do not consume a wider variety of vegetables than they did five years ago; those who expect fewer varieties at direct markets than in supermarkets; those who expect lower prices than in supermarkets; those who do not buy for fresh consumption; those who buy for commercial purposes; those who are older than sixty-five; males; college graduates; non-Caucasians; those with incomes of $60,000 or more; those whose residence is considered rural; and those who do not have a fruit or vegetable garden at home.

Data Description

In 1994, a survey of New Jersey consumers was conducted to collect information on various characteristics of consumers visiting direct markets. The questionnaire was developed by the Department of Agricultural Economics and Marketing in conjunction with the Rutgers Cooperative Extension, New Jersey Agricultural Experiment Station, New Jersey Department of Agriculture, New Jersey Farm Bureau, and New Jersey Farmers' Direct Marketing Association. The Rutgers Cooperative Service maintained a database or list of consumers who had asked for information about direct markets in the state. Since this list included consumers from all parts of New Jersey, it was used as the sampling frame for the survey. Consequently, the questionnaires were mailed to 500 consumers around the state. Of the 500 questionnaires, 198 were returned. Seventeen of these 198 questionnaires were returned because the address was incorrect or the consumer moved with no forwarding address. After the compilation and analysis of the data had begun, two questionnaires were received; these were not included in the analysis. Therefore, the number of usable completed questionnaires was 179.

Table 1 provides the descriptive statistics of the variables used in the logit analyses. In the case of dependent variables, about 79% of respondents visited PYO operations, 84% visited roadside stands, 72% visited farmers' markets, and 72% visited direct farm markets. About 80% of the customers stated that they were consuming a wider variety of fruits and vegetables than they did five years ago. About 60% of the customers expected a wider variety at direct markets than in supermarkets. About 25% of the consumers thought that the prices at direct markets were equal to or higher than prices in supermarkets. About 93% of the customers bought produce mainly for fresh consumption, and about 43% used produce for canning, freezing, and preserving. About 25% of the consumers were below age thirty-five, about 62% were between thirty-six and sixty-five, and the rest

Table 1. Descriptive Statistics of the Variables Used in Analysis

Variable	Mean	Std Deviation
Dependent variable		
Pick-your-own	0.79	0.4061
Roadside stand	0.84	0.3695
Farmers' market	0.72	0.4526
Direct farm market	0.72	0.4526
Consuming a wider variety of fruits (fruits)		
Yes	0.80	0.3977
No[a]	0.20	0.3977
Consuming a wider variety of vegetables (vegetables)		
Yes	0.80	0.4020
No[a]	0.20	0.4020
Variety expectations compared with supermarkets (variety)		
Same or higher	0.60	0.4906
Lower[a]	0.40	0.4906
Price expectations compared with supermarkets (price)		
Same or higher	0.25	0.4318
Lower[a]	0.75	0.4318
Bought for fresh consumption (consumption)		
Yes	0.93	0.2602
No[a]	0.07	0.2602
Bought for canning, preserving, and freezing (canning)		
Yes	0.42	0.4948
No[a]	0.58	0.4948
Age		
Less than 35 (age 35)	0.25	0.4350
36–65 (age 36–65)	0.62	0.4881
More than 65[a] (age 65)	0.13	0.3417
Sex (female)		
Female	0.71	0.4553
Male[a]	0.29	0.4553
Education		
Up to high school (highschool)	0.17	0.3795
Some college (college)	0.49	0.5013
College graduate[a] (graduate)	0.34	0.4734
Caucasian (Caucasian)		
Yes	0.75	0.4350
No[a]	0.25	0.4350
Income		
$39,999 or less (income1)	0.21	0.4101
$40,000–$59,999 (income2)	0.25	0.4318
$60,000 or more[a] (income3)	0.54	0.4996
Urban or suburban (urban)		
Yes	0.89	0.3089
No[a]	0.11	0.3089
Garden at home (garden)		
Yes	0.46	0.4996
No[a]	0.54	0.4996

[a]Refers to the omitted category in the analysis.

were above sixty-five. About 71% of the respondents were female and 75% were Caucasian. About half of the respondents had some college education, and about 54% earned more than $60,000 per household. About 89% lived in an urban or subur-

ban area, and 46% had a fruit or vegetable garden at home. Data on quantity or expenditure of purchase from direct markets were not collected in the survey.

Since the response rate was around 36%, non-response bias could be a concern. However, despite the low response rate, which is reasonable for a mail survey, and the use of the Rutgers Cooperative Extension database as the sampling frame, the demographic profile of the respondents seems representative of the state, except for the overrepresentation of females.

Empirical Results

Pick-Your-Own Operations

The maximum likelihood estimates for the pick-your-own farm logit analysis are shown in table 2. The results indicate that those who expect more variety at the PYO operation than in supermarkets are more likely to visit than are those who expect fewer varieties. The results also indicate that those who expect the same or higher prices at PYO operations than in supermarkets are more likely to visit a PYO farm. This may be because most con-

Table 2. Maximum Likelihood Estimates of the Logit Model for Pick-Your-Own Farms

Variable	Estimate	SE	Change in Probability[a]
Intercept	0.0906	1.320	0.0118
Fruits	−0.1921	0.644	−0.0235
Vegetables	0.3779	0.663	0.0462
Variety	1.0644[b]	0.441	0.1301
Price	1.0083[b]	0.575	0.1233
Consumption	0.5695	0.754	0.0696
Canning	1.6880[b]	0.526	0.2064
Age 35	0.9475	0.795	0.1159
Age 36–65	−0.0227	0.682	−0.0028
Female	0.6986	0.463	0.0854
Highschool	−1.2013[b]	0.666	−0.1469
College	−0.7469	0.517	−0.0913
Caucasian	−0.0445	0.527	−0.0054
Income1	−0.8425	0.643	−0.1030
Income2	−0.8447[b]	0.522	−0.1033
Urban	−0.2608	0.777	−0.0319
Garden	−0.1338	0.477	−0.0164
McFadden's R^2	0.21		
Ratio[c]	0.79		

[a]Equal to the product of the parameter estimates times the value of the logistic density function ($B*F(z)$). At the sample means, the value of this density function [$F(z)$] is 0.1223, while the value of z is 1.7938.
[b]Indicates statistical significance at the 0.10 level.
[c]Ratio of nonzero observations to the total number of observations.

sumers expect the same prices at PYO farms as in supermarkets, and only a few individuals think that the prices at PYOs are higher than in supermarkets. Even if the prices are the same, one can not only get fresher produce but also derive recreational benefit from a PYO visit. Individuals who buy fruits and vegetables for canning, freezing, or preserving are more likely to visit PYOs than are commercial buyers. PYO operations often involve more consumer time for transactions than do other forms of direct marketing.

The results indicate that those with high school educations are less likely to visit PYOs than are college graduates. This result is supported by the fact that persons with incomes of $60,000 or above are more likely to visit PYO operations than are those with lower incomes.

The extent of prediction success is shown in the classification table (table 3). Approximately 78% of the individuals in the sample were correctly classified as either visiting a PYO operation or not visiting a PYO operation using the logit specification.

Roadside Stands

The maximum likelihood estimates for the roadside stand logit model are presented in table 4. The results indicate that those who consume a wider variety of fruits than they did five years ago are more likely to visit roadside stands than are others. The results also indicate that those who buy fruits and vegetables for fresh consumption are more likely to visit roadside stands than are others.

Individuals who are sixty-five years old or less are more likely to visit roadside stand operations than are those over sixty-five. Female customers are more likely to visit roadside stands than are males. As in the case of PYOs, individuals with high school education are less likely to visit roadside stands than are more educated people. Moreover, those with some college education are less likely to visit roadside stands than are college graduates. Those whose incomes are under $60,000 are more likely to visit roadside stands

Table 4. Maximum Likelihood Estimates of the Logit Model For Roadside Stands

Variable	Estimate	SE	Change in Probability[a]
Intercept	−3.4219[b]	1.578	−0.3129
Fruits	1.0249[b]	0.637	0.0937
Vegetables	0.2337	0.654	0.0214
Variety	−0.6244	0.532	−0.0571
Price	0.3206	0.553	0.0293
Consumption	2.1708[b]	0.801	0.1985
Canning	0.6013	0.509	0.0550
Age 35	1.7819[b]	0.859	0.1629
Age 36–65	1.4428[b]	0.739	0.1319
Female	0.9764[b]	0.513	0.0893
Highschool	−2.1802[b]	0.804	−0.1993
College	−1.5713[b]	0.666	−0.1437
Caucasian	0.6831	0.554	0.0625
Income1	1.3058[b]	0.726	0.1194
Income2	1.6389[b]	0.704	0.1498
Urban	0.4769	0.807	0.0436
Garden	0.2753	0.520	0.0252
McFadden's R^2	0.23		
Ratio[c]	0.84		

[a]Equal to the product of the parameter estimates times the value of the logistic density function ($B*F(z)$). At the sample means, the value of this density function [$F(z)$] is 0.0914, while the value of z is 2.1775.
[b]Indicates statistical significance at the 0.10 level.
[c]Ratio of nonzero observations to the total number of observations.

than are those whose incomes are $60,000 or above. The PYO visitors often derive other benefits, such as getting in touch with the farming community and visits to nature, which are not derived by roadside stand customers.

The goodness of fit for the roadside stand model is shown by a McFadden's R^2 of 0.23. The extent of prediction success is demonstrated in the classification table for roadside stands (table 5). Approximately 83% of the individuals in the sample were correctly classified as either visiting a roadside operation or not visiting a roadside operation using the logit specification.

Farmers' Markets

The results from likelihood estimates of farmers' market logit analysis are presented in table 6. The

Table 3. Prediction Success of the Logit Model for Pick-Your-Own Farms

		Predicted	
		0	1
Actual	0	8	10
	1	29	132

Number of right predictions = 140
Percentage of right predictions = 78.2

Table 5. Prediction Success of the Logit Model for Roadside Stands

		Predicted	
		0	1
Actual	0	5	7
	1	24	143

Number of right predictions = 148
Percentage of right predictions = 82.7

Table 6. Maximum Likelihood Estimates of the Logit Model for Farmers' Markets

Variable	Estimate	SE	Change in Probability[a]
Intercept	-1.8510^b	1.158	-0.3480
Fruits	0.2611	0.536	0.0491
Vegetables	0.8399^b	0.523	0.1579
Variety	0.1769	0.390	0.0333
Price	-0.4541	0.419	-0.0854
Consumption	0.8240	0.686	0.1549
Canning	0.1075	0.395	0.0202
Age 35	0.5745	0.697	0.1080
Age 36–65	0.2189	0.615	0.0412
Female	0.4037	0.407	0.0759
Highschool	-1.2137^b	0.559	-0.2282
College	-0.4293	0.431	-0.0807
Caucasian	-0.8189^b	0.502	-0.1540
Income1	1.0554^b	0.576	0.1984
Income2	0.4655	0.471	0.0875
Urban	1.4064^b	0.584	0.2644
Garden	0.2884	0.405	0.0542
McFadden's R^2	0.14		
Ratio[c]	0.72		

[a]Equal to the product of the parameter estimates times the value of the logistic density function ($B^*F(z)$). At the sample means, the value of this density function [F(z)] is 0.1880, while the value of z is 1.0932.
[b]Indicates statistical significance at the 0.10 level.
[c]Ratio of nonzero observations to the total number of observations.

Table 7. Prediction Success of the Logit Model for Farmers' Markets

		Predicted	
		0	1
Actual	0	11	15
	1	40	113

Number of right predictions = 124
Percentage of right predictions = 69.3

Direct Farm Markets

The maximum likelihood estimates of direct farm market logit analysis are presented in table 8. As was true for most other direct markets, individuals who buy fruits and vegetables for fresh consumption are more likely to visit direct farm markets. The results indicate that female customers are more likely to visit direct farm markets than are males. Those who own vegetable or fruit gardens are more likely to visit direct farm markets than are those who do not have gardens.

Table 9 provides the prediction of success for direct farm markets. Approximately 67% of the individuals in the sample were correctly classified

results are somewhat similar to the roadside stand estimates. These results indicate that individuals who consume a wider variety of vegetables than they did five years ago are more likely to visit farmers' markets. This may be because more varieties of vegetables are available at farmers' markets, where a number of farmers participate, than at PYO operations. Individuals with high school education are less likely to visit farmers' markets than are individuals with some college education and college graduates. Caucasians are less likely to visit farmers' markets than are African Americans and people of other ethnicities. Individuals whose incomes are less than $40,000 are more likely to visit farmers' markets than are those in other income groups. In addition, those who reside in urban or suburban areas are more likely to visit farmers' markets than are those who live in rural areas.

The goodness of fit is indicated by a McFadden's R^2 of 0.14. The extent of prediction success is shown in the classification table for farmers' markets (table 7). Approximately 69% of the individuals in the sample were correctly classified as either visiting a farmers' market or not visiting a farmers' market using the logit specification.

Table 8. Maximum Likelihood Estimates of the Logit Model for Direct Farm Markets

Variable	Estimate	SE	Change in Probability[a]
Intercept	-0.9899	1.129	-0.1912
Fruits	-0.1239	0.536	-0.0239
Vegetables	0.3903	0.528	0.0754
Variety	-0.0341	0.378	-0.0066
Price	0.4255	0.444	0.0822
Consumption	1.0439^b	0.651	0.0212
Canning	-0.1185	0.391	-0.0229
Age 35	-0.7930	0.655	-0.1532
Age 36–65	-0.1300	0.605	-0.0251
Female	0.9365^b	0.394	0.1809
Highschool	-0.6844	0.556	-0.1322
College	-0.2320	0.417	-0.0448
Caucasian	0.1872	0.421	0.0362
Income1	0.2526	0.520	0.0488
Income2	0.4953	0.466	0.0957
Urban	0.0416	0.620	0.0080
Garden	0.6714^b	0.401	0.1297
McFadden's R^2	0.10		
Ratio[c]	0.72		

[a]Equal to the product of the parameter estimates times the value of the logistic density function ($B^*F(z)$). At the sample means, the value of this density function [F(z)] is 0.1938, while the value of z is 1.0375.
[b]Indicates statistical significance at the 0.10 level.
[c]Ratio of nonzero observations to the total number of observations.

Table 9.   Prediction Success of the Logit Model for Direct Farm Markets

		Predicted	
		0	1
Actual	0	6	15
	1	45	113

Number of right predictions =   119
Percentage of right predictions = 66.5

as either visiting a direct farm market or not visiting a direct farm market using the logit specification.

Sensitivity Analysis

Visits to farmers' markets are positively influenced by consumption of a wider variety of vegetables, and visits to roadside stands are positively influenced by consumption of a wider variety of fruits than five years ago. Those who consume a wider variety of vegetables than they did five years ago are 16% more likely to visit farmers' markets than are those who do not consume a wider variety of fruits. Those who consume a wider variety of fruits than they did five years ago are 9% more likely to visit roadside stands than are those who do not consume a wider variety of fruits. Visits to PYO operations are positively influenced by variety expectations and price expectations compared with supermarkets. Those who expect the same or more varieties at direct markets than in supermarkets are 13% more likely to visit a PYO operation.

Visits to roadside stands and direct farm markets are positively influenced by the use of produce for fresh consumption. Those who buy for fresh consumption are 20% more likely to visit roadside markets but only 2% more likely to visit direct farm markets than are those who do not buy for fresh consumption. The results indicate that individuals up to age sixty-five are more likely to visit roadside stands than are those above sixty-five. In particular, individuals under thirty-five years are 16% more likely to visit roadside stands, and those between thirty-five and sixty-five are only 13% more likely to visit roadside stands than are those above sixty-five. Female customers are 9% more likely to visit roadside stands, and 18% more likely to visit direct farm markets, than are males. In terms of education, those with only high school diplomas are 14% less likely to visit PYOs, 20% less likely to visit roadside stands, and 23% less likely to visit farmers' markets than are college graduates.

Unlike the case in PYO operations, people whose incomes are under $60,000 are more likely to visit roadside stands than are those whose incomes are $60,000 and above. Those customers whose incomes are between $40,000 and $59,999 are 10% less likely to visit PYOs, and 15% more likely to visit roadside stands than are those whose incomes are $60,000 and above. Those who reside in urban and suburban areas are more likely to visit farmers' markets than are those who live in rural environments. In particular, those who reside in urban areas are 26% more likely to visit farmers' markets than are those in rural areas. The reasons for these results may be that the farmers' markets are often located in urban/suburban areas and that consumers have to travel longer distances to visit PYO operations and roadside stands.

Concluding Comments

The farmer-to-consumer direct marketing industry is vital to New Jersey farmers' livelihood and to the state's major goal of preserving agricultural lands. Despite the increasing importance of this industry, however, little attention has been paid to determining consumer characteristics affecting visits and purchases at these market facilities. This study represents a first attempt at examining some of the characteristics affecting consumer visits to various types of direct marketing facilities. No similar studies, either regional or national, are known.

To keep up with the recent trends in consumer demand, the direct marketing industry must continually find new ways to appeal to specific consumer tastes and preferences. It is, therefore, imperative that the demographic and socioeconomic profile of individuals who have visited various types of direct marketing facilities be known by the industry. The results generally indicate that a unique set of factors affects each type of facility. This finding further justifies conduct of the analysis by type of direct marketing facility.

The results indicate that those who buy produce for fresh consumption are 20% more likely to visit roadside stands than are those who do not buy for fresh consumption. Unlike the case in PYO operations, individuals who are sixty-five years old or less are more likely to visit roadside stands than are those above sixty-five. Female customers are 18% more likely to visit direct farm markets than are male customers. Those whose incomes are under $40,000 are more likely to visit roadside stands and farmers markets. Those whose incomes are between $40,000 and $59,999 are less likely to visit

PYO operations but are more likely to visit road-side stands. The results also indicate that those who reside in urban and suburban areas are more likely to visit farmers' markets.

The identification of consumers more likely to visit a particular type of direct market is essential in analyzing consumption behavior and developing specific marketing programs. In terms of advertisements, the industry can target a segment of population to attract customers. For example, customer visits to roadside markets can be enhanced by developing promotional programs specifically targeting a population subgroup that has the following characteristics: ages from thirty-six to sixty-five, female, college graduates, and household incomes up to $59,999. Given the preferences of customers at direct markets compared with those at supermarkets, the direct marketing industry can also target its resources to attract supermarket customers. Moreover, although the data used in this study pertain to New Jersey, the results of these analyses might be of significant interest to direct marketers not only in New Jersey but also elsewhere in the country (e.g., Northeast states with a similar industry structure). Further research is needed to analyze the characteristics of direct market customers for a wider geographical area such as the Northeast or the United States.

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