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Identifying Target Markets for Landscape Plant Retail Outlets

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Introduction

The landscape plant industry has experienced a boom over the past fourteen years. Receipts have grown from approximately $7.0 billion or 11 percent of all cash crop receipts in 1988 to $14 billion in 2001. As with any industry of this magnitude, retailers have several challenges to address. One challenge retailers face is to develop a method to effectively identify and market to consumers likely to buy their products. By developing an efficient marketing strategy that focuses on a retailer's target market, a retailer not only cuts costs in its marketing program, but can also increases revenue through attracting new buyers.

An efficient marketing strategy focus can cut a retailer's costs. A retailer with a good focused marketing plan will spend less money on large-scale ad campaigns that reach everybody, including people non-buying consumers. An efficient marketing program can also increase revenue, through attracting new buyers that otherwise would not have been contacted.

The foundation of any good marketing strategy lies in market segmentation. After segmentation, a firm targets, which is the identification of an individual who is likely to patronize a particular type of retail outlet or to consume a particular type of product. By successfully identifying target markets, landscape plant retailers are able to make informed decisions, not only about advertising, but also about pricing and store location.

A retailer can segment its market by any number of variables. Any unique group, whether the distinction is by personal characteristics, such as age or race, by ideology, such as liberal and conservative, or by location, can be targeted as a market. The only qualification for a target market is that it has a propensity to consume the good being marketed. Generally, demographic and geographic characteristics are the most commonly used variables in market segmentation (Percy 2001).

This study seeks to aid in the identification of target markets for the landscape plant industry in Georgia. By using data collected over the years in a poll of Georgians, this study will determine what types of people are purchasers of plants at a particular type of retailer. Using the results, retailers and industry groups can develop marketing strategies designed to reach those who are most likely to buy landscape plants. By doing so, the industry positions itself to continue increasing it's sales and to take advantage of and promote the explosive growth in demand for landscape plants.

Literature

Previous research dealing with market segmentation has focused on socioeconomic and demographic variables to identify target markets. Morrison suggests a logit regression to identify potential customers. Though this general analysis is a valid approach, landscape plant buyers have the option to buy their plants from different types of retailers. A logit regression would only identify likely purchasers of plants, not the type of retail outlet they are likely to patronize.

A 1988 study conducted by Turner, *et. al.*, examined the retail outlet choice of where Georgia consumers bought their landscape plants based on such factors as income, home value, race, age, sex, and educational levels. The different outlet choices were mass merchandisers such as Wal-mart, large garden centers such as Pike's, and local garden centers. By identifying the characteristics of consumers most likely to buy at a particular type of outlet, Turner, *et. al*., was able to suggest marketing strategies that would benefit each type of outlet.

Turner, *et. al*., found that all variables, with the exception of educational level, were significant for at least one type of outlet or another. The mass merchandisers' consisted of younger to middle aged populations in low to middle income socioeconomic groups, especially

minorities. Large garden centers captured the upper income single consumers, while local garden centers were favorite among married white females.

This study evolved from Turner's, *et. al*., study, but is unique in several ways. Turner, *et. al*., conducted his study with cross-sectional data covering the year 1988. In the ensuing 14 years, this data set has been expanded. The result is an unique panel data set that captures consumer purchasing habits and the changes in those habits over the past fourteen years. This study seeks to determine if the target markets for landscape plants Turner, *et. al*., identified in 1988 have remained static over the past fourteen years.

Data and Empirical Methods

The data from this study comes from the Georgia Poll conducted by the University of Georgia's Survey Research center. The Georgia Poll is a random telephone survey of adult residents in Georgia conducted each year. From 1988 to 2002, the Georgia Poll contained questions relating to the landscape plant purchasing behavior of respondents. Together with demographic and socioeconomic characteristics, those questions constitute the variables under study. The pooled data this study uses was compiled from cross-sectional data from each year's poll. The descriptions for all variables can be found in Table 1 and the summary measures in Table 2.

This study assumes the percentage of landscape plants purchased at a particular retailer is a function of several different socioeconomic and demographic variables. Socioeconomic and demographic variables examined are age, race, education, marital status, sex, income, and home value.

The demographic variables are divided into dummy variables representing a particular characteristic. The race variables included in the model are white and black. To avoid perfect collinearity, hispanic, asian, and an "other" racial category were included in the intercept of the model. For marital status, married and single were included, while divorced, separated and widowed were left in the intercept. Under education, high school graduate and college graduate were represented in the model and all other education attainment levels were left in the intercept. Finally, a dummy variable for gender, with a value of one for females and zero for males was included. The socioeconomic variables are home market value and household income levels. Each was measured as a categorical measure. The complete pooled data set had approximately 7500 observations. After elimination of all observations with missing values and invalid responses, the data set contained 3394 valid observations.

The target markets for three major types of landscape retailers are of interest: mass merchandisers such as Home Depot, large garden centers, and local garden centers. Three other types of retail outlets were included in the survey, but the market share of these three outlets compared with the outlets under study were relatively small, and thus omitted from study. Separate functions are estimated for each type of outlet to identify the characteristics of consumers that are most likely to purchase plants at that type of outlet.

The dependent variable for each model is the percentage of landscape plants that each observation bought at that particular outlet. Values for these variables can take on any value between 0% and 100%, and the sum of the values over all the variables cannot exceed 100% for any single respondent.

Finally, to study the changes in target markets over time, the entire data set was divided into three periods. The first period covers five years from 1988-1992, the second spans the years

1993-1996, and the last period lasts from 1997-2002. A time dummy representing each period was then interacted with the other explanatory variables. Thus, the general model can be written as:

$$y_i = \alpha_1 T_1 + \alpha_2 T_2 + \alpha_3 T_3 + T_1 X_i \beta_1 + T_2 X_i \beta_2 + T_3 X_i \beta_3 + \varepsilon_i$$

where y_i is the percentage of plants bought at the particular retailer under study, T_1-T_3 are time dummies representing the three time periods of the study period, X_i is the vector of demographic and socioeconomic variables, $\beta_1 - \beta_3$ are vectors of the corresponding regression coefficients and ε_i is a random error term. To examine the changes between time periods themselves, the intercept was suppressed. Three equations were estimated, one for each type of retail outlet. A Wald test was used to test for structural changes between time periods. The null hypotheses for the tests were that the coefficients for a variable were the same in two consecutive time periods.

Since this analysis examines the percentage of landscape plants that a consumer purchases, ordinary least squares is not the best estimation procedure. Often, a consumer will not purchase any plants from a particular type of outlet and no consumer can purchase a negative amount of plants. Therefore, the resulting data on purchase percentages is truncated at zero. For such equations, ordinary least squares results in biased estimates. In this case, a tobit procedure yields unbiased estimates.

Results

The first evidence of a shifting target market comes from examination of Figure 1. Figure 1 shows the market share for the major types of retailers through the study period. It shows how mass merchandisers have expanded their market share at the expense of every other type of retailer. Such a shift in market share almost certainly indicates a shift in target markets.

The overall shift in market share is confirmed by the results of the tobit regression for mass merchandisers, found in Table 3. A large shift in intercepts between the first and second period partially captures the effect seen graphically in Figure 1. This is the unexplained portion of the shift in average market share. Another portion of the shift in market share seen in Figure 1 can be attributed to shifts in target markets for the retailers.

The regression reveals several significant shifts in target markets for mass merchandisers. A list of coefficients that shifted significantly can be found in Table 4. To begin the study period, both socioeconomic variables, home value and household income, were shown to have a significant negative effect. As the study period progressed, significant shifts upward in both coefficients indicate that the mass merchandisers target market has shifted from low income to higher income demographics. Though there has been a shift upward, home market value still shows a negative sign, while household income is insignificant.

Demographically, the age coefficients both showed a significant change from the first period. While each was significant in the first period, they both became insignificant in the following periods. The white coefficient shows the opposite behavior, moving from insignificant in the first period to significant and negative in the next periods. The black coefficient moves from significance in the first two periods to insignificance in the last period. Finally, the regression shows a gradual move upward in importance of high school graduates, who not only move into significance, but also show stronger coefficients in each subsequent period.

In the first period, the mass merchants' target markets were lower to middle income earners, the middle aged, and African-American. These were precisely the groups that Turner, *et. al*., identified in 1988. Over the course of fourteen years, this target market has changed only slightly. Target market income levels have risen slightly, although the regression still shows that

the target market is lower to middle income earners. Reinforcing this result is the addition and growing importance of high school graduates in this retailer's target market. Minorities in general, not just African-Americans, are still part of the target market. Finally, age has ceased to be a factor for the mass merchants.

The large garden centers' target market in the first period, as can be seen in Table 7, was younger and well educated upper income females. This group is similar to the group that Turner, *et. al*., identified in 1988. Through the study period, the target market experienced some significant shifts. A general intercept shift occurred between both time periods one and two and time periods two and three. The intercept shifted from insignificant in the first period to negative and significant in the following periods.

Demographically, the large garden centers experienced several shifts in their target market between periods one and two. Older people tended to buy more plants from these retailers as did whites and blacks. In period three, the only significant shifts in coefficients were as the race variables became reduced in their effects. However, all demographic variables dropped out of significance for the last period.

Home market remained very important in the calculation of the large garden centers' target market throughout the study period. Household income was important in the first two periods, but shifted into insignificance in the final period. The only significant variable in the third period was home market value.

Thus, higher socioeconomic class was still an important indicator of the large garden centers' target market. However, education, age, and gender are no longer significant indicators of this target market. This could be due to the erosion of market share that the large garden

centers have experienced at the hands of mass merchants. As the large garden centers' market gets smaller, their target markets shrink as well.

The target market for local garden centers in period one was found to be single or married male high school graduates. This group is slightly different from the target market that Turner, *et. al*., identified in 1988. The only significant shift in coefficients for this retail outlet type was for the high school graduate coefficient between periods one and two, and was a shift from a positive effect to a negative effect. However, this variable also dropped out of significance at this point, and therefore does not indicate that better educated people became a part of this target market.

The only significant variable in the third time period for this retailer was the white racial variable. Over the study period, this racial group became increasingly important to the formulation of this target market. Insignificant in the first period, the coefficient for this variable became more significant over the duration of the study period.

The dearth of significant variables in the third period for this type of retailer could indicate that local garden centers are becoming a niche retailer. As mass merchants have taken over the major share of the market, local garden centers have seen their market share rapidly dwindle. To compensate, local retailers could be beginning to concentrate on consumer's specialty needs and other unique services not offered by mass merchants.

Discussion

Target markets for all three retail types have changed over the past fourteen years. Although some change is expected, the reduction in the number of target markets for large and

local garden centers is dramatic. Each went from having a target market consisting of several different types of characteristics, to each having a target market identified by a single demographic or socioeconomic variable.

As large and local garden centers have seen their target markets diminish, they have also seen their market share shrink. However, the situation for large garden centers is not as dire as that for local garden centers. Fortunately for the large garden centers, their target market is the most economically potent. By exploiting the large amount of disposable income of their target market, large garden centers can buffer the effects of their shrinking market share. Thus, the large garden centers are better able to compete directly with the mass merchants. However, mass merchants still have considerable advantages over their competitors.

Mass merchants have access to considerably more resources than their competitors. They are better equipped to handle adverse economic conditions and can expand more easily. At the beginning of the study period, mass merchants were a budding sector with resources similar to those of large garden centers. During the study period, the mass merchants experienced explosive growth. For example, Home Depot grew from only 96 total stores in 1988 to 1,532 with over $58 billion in sales in 2002 (Website 2003a). This growth gave the mass merchants the ability to market landscape plants more efficiently than either large or local garden centers. The resulting expansion of market share and target markets for the mass merchant is not surprising.

Implications

As their target markets shrink, large and local garden centers need to explore new marketing strategies to remain in this market. Directly competing with mass merchants, while an

option early in the previous decade, is no longer a viable alternative. Although the mass merchants may seem to have every possible advantage due to their size and resources, there are several avenues that garden centers could pursue.

Local garden centers have an unlikely advantage. Since mass merchants are large and generally centralized organizations, they can not respond quickly to consumers' needs or overly specialize in an particular type of landscape plant. Local garden centers, because of their small size, are able to cater to unique and atypical consumer demands. By offering plants that are not readily found at the mass merchants, local garden centers could fill a niche market and will be able to thrive as a complement, not a substitute, to the mass merchants.

Otherwise, local garden centers can focus on rural markets. As mentioned above, mass merchants are not able to sustain themselves in these markets, whereas a smaller operation would be able to survive. As with offering more exotic plants, local garden centers in rural areas fill the market gaps left by mass merchants. By not directly competing with the mass merchants, local garden centers should be able to maintain a significant share of the landscape plant market.

Large garden centers are at a greater disadvantage than local garden centers. Large garden centers have an organizational structure similar to that of the mass merchants. Therefore it is less feasible for them to pursue niche markets like their smaller counterparts. However, large garden centers can take advantage of their target market of upper income individuals by borrowing a technique actually developed by one of their mass merchant competitors, Lowes.

Lowes primary business is supplies and material for do-it-yourself home improvement, but recently it has begun to offer professional installation services also. Large garden centers can differentiate themselves from mass merchants by offering professional landscaping and gardening services in addition to their regular inventory. By packaging the entire landscaping

process, from planning to planting, large garden centers could appeal to upper income consumers who may not have the time or inclination to create a garden, but do have the disposable income for a service to do it.

Mass merchants, as mentioned above, have access to several resources not available to the other two types of retailers. As a result, they have seen their market share grow and their target markets expand. Interestingly, as the mass merchants have expanded their market share and their target markets, they have successfully maintained their original target markets. This indicates a strong and efficient marketing strategy.

Mass merchants can continue to further expand their markets by expanding their marketing efforts to consumers who may come to their stores to buy other goods, not landscape plants. By bundling complement goods with plants and offering in-store discounts on plants, mass merchants can market to people who normally associate mass merchants with landscape hardware, not the actual plants, and to people who otherwise would not consider buying plants.

Conclusion

Landscape plant retailers have experienced a boom in business over the past fourteen years. With that boom comes the need for retailers to market more efficiently. The first step in developing an efficient marketing system is to identify a target market and then implement strategies to reach that target market. Additionally, knowing how and why a market became their target allows a retailer to strategically place themselves in an industry to take advantage of past and future changes.

Using fourteen years of data collected on Georgian's plant buying habits, this study conducted a tobit analysis on the target markets for three different types of landscape plant

retailers. This analysis not only examined the current target markets for those retailers, but also how those target markets have changed over time.

The analysis revealed that the target markets for mass merchandisers has not changed much from lower income minorities over the study period. This suggests that mass merchants are effectively and consistently reaching the same group and thereby retaining their patronage. Even the change in their target markets suggests an expansion, indicating that the mass merchants have successfully targeted groups outside of those who normally buy plants from them.

Target markets for large and local garden centers have suffered at the expense of this expansion. Large garden centers have seen their target markets shrink to include only upper income individuals and local garden centers have seen their target markets dwindle to include only the Caucasian racial group.

To combat this market share reduction, large and local garden centers need to consider alternative strategies to directly competing with mass merchants. Only by doing so will they be able to retain their current target markets and possibly begin expanding their markets once again. Failure to find ways to compete with the mass merchants will marginalize these retail type in the landscape plant market.

References

Greene, W.H. (1993) *Econometric Analysis*. Macmillian, New York.

McCoy, Miles. "Mareting Matters." *American Nuseryman*, 195(11): 50-53.

Morrison, J. S. (1995-1996) "Target Marketing with Logit Regression." *Journal of Business Forecasting Methods and Systems*, 14,10-13.

Palmer, Adrian. (2000) "Segmentation and Targeting." *Principles of Marketing,* 59-90.

Percy, Larry, J.R. Rossiter, R. Elliot. (2001) "Target Audience Considerations." *Strategic Advertising Management*. 65-91.

Turner, S.C., J.H. Dorfman, S.M. Fletcher. (1990) "Target Markets for Retail Outlets of Landscape Plants." Southern Journal of Agricultural Economics. July, 177-183.

U.S. Department of Agriculture. (2002) *Floriculture and Environmental Horticulture Yearbook*, May.

Website, (2003a) http://www.homedepot.com/HDUS/EN_US/corporate/about/docs/timelinepage.pdf.

Website, (2003b) http://www.lowes.com/lkn?action=pg&p=CustServ/InstallationService&rn=RightNavFiles/rightNavWeInstall.

Figure 1: Market Share for Retailers

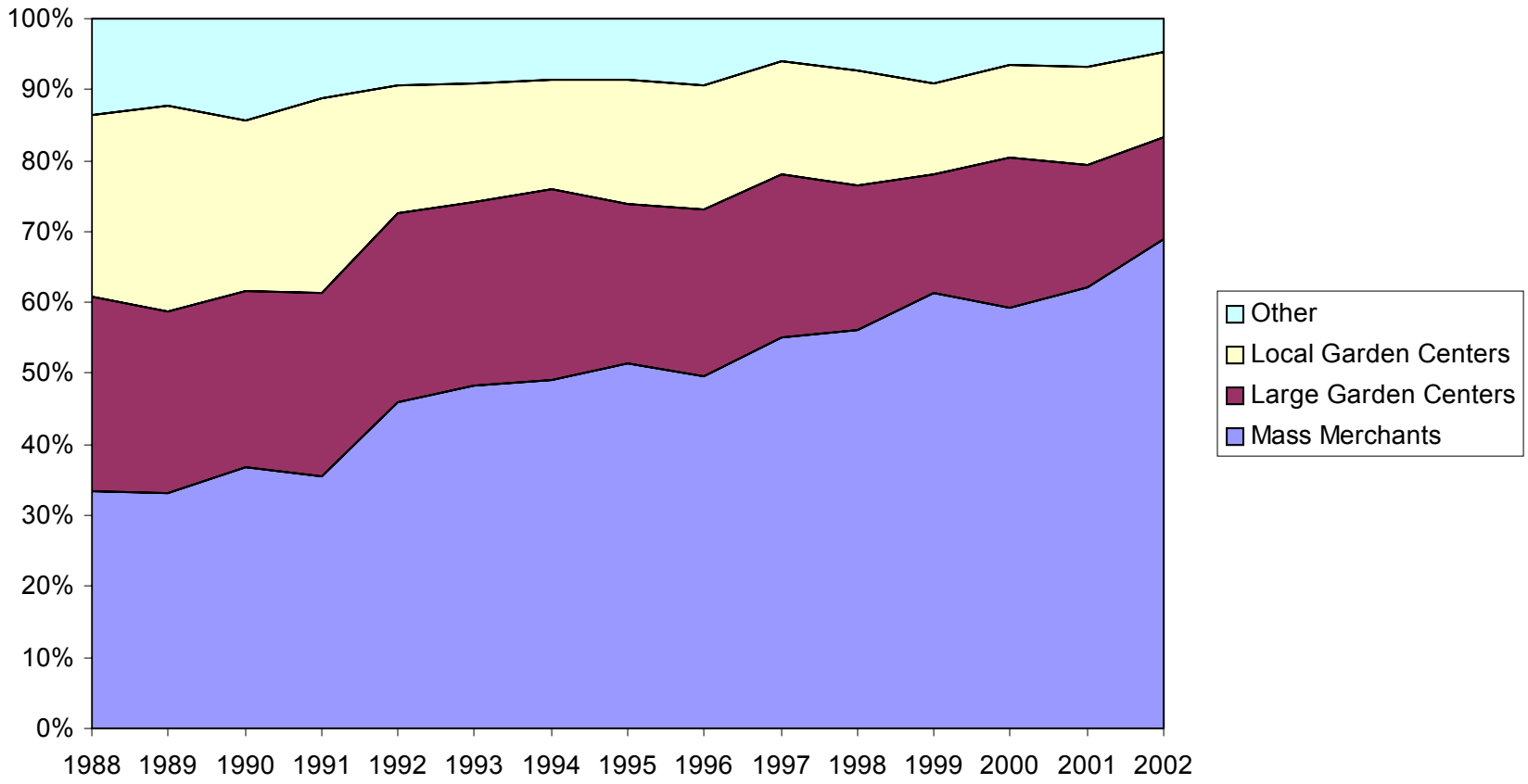

Table 1: Variable Descriptions

Variable	Description
MM	Percentage of plants purchased at Mass Merchandisers
LAGC	Percentage of plants purchased at Large Garden Centers
LOGC	Percentage of plants purchased at Local Garden Centers
T1	1 for time period one; 0 otherwise
T2	1 for time period two; 0 otherwise
T3	1 for time period three; 0 otherwise
HMV1	Home Market Value in time period one
HMV2	Home Market Value in time period two
HMV3	Home Market Value in time period three
INC1	Household Income in time period one
INC2	Household Income in time period two
INC3	Household Income in time period three
AGE1	Age in time period one
AGE2	Age in time period two
AGE3	Age in time period three
AGES1	Age Squared in time period one
AGES2	Age Squared in time period two
AGES3	Age Squared in time period three
WHITE1	1 for Caucasians in time period one; 0 otherwise
WHITE2	1 for Caucasians in time period two; 0 otherwise
WHITE3	1 for Caucasians time period three; 0 otherwise
BLACK1	1 for African-Americans in time period one; 0 otherwise
BLACK2	1 for African-Americans in time period two; 0 otherwise
BLACK3	1 for African-Americans in time period three; 0 otherwise
FEMALE1	1 for Females in time period one; 0 otherwise
FEMALE2	1 for Females in time period two; 0 otherwise
FEMALE3	1 for Females in time period three; 0 otherwise
MAR1	1 if Married in time period one; 0 otherwise
MAR2	1 if Married in time period two; 0 otherwise
MAR3	1 if Married in time period three; 0 otherwise
SING1	1 if Single in time period one; 0 otherwise
SING2	1 if Single in time period two; 0 otherwise
SING3	1 if Single in time period three; 0 otherwise
HIGH1	1 for High School Graduate in time period one; 0 otherwise
HIGH2	1 for High School Graduate in time period two; 0 otherwise
HIGH3	1 for High School Graduate in time period three; 0 otherwise
BA1	1 for College Graduate in time period one; 0 otherwise
BA2	1 for College Graduate in time period two; 0 otherwise
BA3	1 for College Graduate in time period three; 0 otherwise

Table 2: Descriptive Statistics

Variable	Mean	Standard Devation	Minimum	Maximum
MM	48.2395183	40.6675470	0	100.0000000
LAGC	24.2272941	34.4751470	0	100.0000000
LOGC	21.2534366	34.1769696	0	100.0000000
T1	1.0000000	0	1.0000000	1.0000000
T2	1.0000000	0	1.0000000	1.0000000
T3	1.0000000	0	1.0000000	1.0000000
HMV1	3.7719610	1.9066995	1.0000000	7.0000000
HMV2	4.1664954	1.9951169	1.0000000	7.0000000
HMV3	4.8919861	2.0195214	1.0000000	7.0000000
INC1	5.5937238	2.1250667	1.0000000	8.0000000
INC2	5.9073584	2.0311123	1.0000000	8.0000000
INC3	6.7159512	1.7641640	1.0000000	8.0000000
AGE1	43.2031769	16.4601722	18.0000000	86.0000000
AGE2	44.2526124	15.7820316	18.0000000	90.0000000
AGE3	43.9563622	15.7224282	18.0000000	90.0000000
AGES1	2137.35	1595.00	324.0000000	7396.00
AGES2	2207.25	1548.87	324.0000000	8100.00
AGES3	2179.26	1506.37	324.0000000	8100.00
WHITE1	0.7633700	0.4250911	0	1.0000000
WHITE2	0.7745098	0.4179979	0	1.0000000
WHITE3	0.7300955	0.4439983	0	1.0000000
BLACK1	0.2135531	0.4098899	0	1.0000000
BLACK2	0.1813725	0.3854124	0	1.0000000
BLACK3	0.2070064	0.4052408	0	1.0000000
FEMALE1	0.5791209	0.4937906	0	1.0000000
FEMALE2	0.5614973	0.4963143	0	1.000000
FEMALE3	0.5853659	0.4927573	0	1.0000000
MAR1	0.4809524	0.4997286	0	1.0000000
MAR2	0.6122995	0.4873342	0	1.0000000
MAR3	0.6015127	0.4896842	0	1.0000000
SING1	0.2582418	0.4377478	0	1.0000000
SING2	0.1836007	0.3872445	0	1.0000000
SING3	0.2085987	0.4063878	0	1.0000000
HIGH1	0.2981685	0.4575377	0	1.0000000
HIGH2	0.2312834	0.4217472	0	1.0000000
HIGH3	0.2460191	0.4307756	0	1.0000000
BA1	0.1073260	0.3095840	0	1.0000000
BA2	0.1755793	0.3805467	0	1.0000000
BA3	0.1994427	0.3996610	0	1.0000000

Table 3: Mass Merchandisers' Target Market Model

Variable	Coefficient	Standard Error	T-value	P-value
T1	6.124921557	25.742222	0.238	0.8119
T2	160.0093546**	27.849382	5.746	0.0000
T3	131.7438659**	26.212654	5.026	0.0000
HMV1	-7.849827949**	1.6348307	-4.802	0.0000
HMV2	-2.226352463	1.6600561	-1.341	0.1799
HMV3	-4.985140796**	1.5775795	-3.160	0.0016
INC1	-6.535088846**	1.5425120	-4.237	0.0000
INC2	-5.016887099**	1.5566238	-3.223	0.0013
INC3	0.1922188633	1.9026746	0.101	0.9195
AGE1	3.681443287**	0.99194153	3.711	0.0002
AGE2	-0.2969562398	1.0019615	-0.296	0.7669
AGE3	-0.2742560067	0.91703401	-0.299	0.7649
AGES1	-0.4501780642E-01**	0.10605126E-01	-4.245	0.0000
AGES2	-0.3490271876E-02	0.10353258E-01	-0.337	0.7360
AGES3	-0.1654620142E-02	0.93896890E-02	-0.176	0.8601
WHITE1	7.797204211	15.263554	0.511	0.6095
WHITE2	-60.43224386**	15.070681	-4.010	0.0001
WHITE3	-28.30898610**	12.425376	-2.278	0.0227
BLACK1	32.34698577**	15.960854	2.027	0.0427
BLACK2	-39.09666886**	16.216992	-2.411	0.0159
BLACK3	-4.274980777	13.322003	-0.321	0.7483
FEMALE1	1.355597998	4.3339689	0.313	0.7544
FEMALE2	-0.1913296281	4.4575547	-0.043	0.9658
FEMALE3	2.853128094	4.3362408	0.658	0.5106
MAR1	10.20085452*	6.1508543	1.658	0.0972
MAR2	10.33878803	6.8626979	1.507	0.1319
MAR3	-3.542925340	6.3861837	-0.555	0.5790
SING1	12.33202578*	6.8733886	1.794	0.0728
SING2	-2.484804756	9.3806134	-0.265	0.7911
SING3	4.856179959	8.6410622	0.562	0.5741
HIGH1	5.518006522	4.7612364	1.159	0.2465
HIGH2	9.931997330*	5.5218877	1.799	0.0721
HIGH3	17.54789984**	5.4851972	3.199	0.0014
BA1	4.359103989	6.9728242	0.625	0.5319
BA2	-1.650617650	5.6297496	-0.293	0.7694
BA3	3.552009776	5.2404722	0.678	0.4979

**Significant at the 5% level.
*Significant at the 10% level.
Log-Likelihood: -11384.96
Psuedo-R^2: 0.1414

Table 4: Mass Merchandisers' Market Shift Over Time

Variable Shift	Coefficient	Standard Error	T-statistic	P-value
T1-T2	-153.8844331	37.943761	-4.056	0.0001
HMV1-HMV2	-5.623475486	2.3290981	-2.414	0.0158
INC2-INC3	-5.209105963	2.4581857	-2.119	0.0341
AGE1-AGE2	3.978399526	1.4099502	2.822	0.0048
AGES1-AGES2	-0.4152753455E-01	0.14818388E-01	-2.802	0.0051
WHITE1-WHITE2	68.22944807	21.453613	3.180	0.0015
WHITE2-WHITE3	-32.12325776	19.522375	-1.645	0.0999
BLACK1-BLACK2	71.44365462	22.760333	3.139	0.0017
BLACK2-BLACK3	-34.82168808	20.986954	-1.659	0.0971
HIGH1-HIGH3	-12.40504499	7.9843286	-1.680	0.0930

Table 5: Large Garden Center's Target Market Model

Variable	Coefficient	Standard Error	T-value	P-value
T1	0.1970282020	29.346483	0.007	0.9946
T2	-190.1634252**	34.714099	-5.478	0.0000
T3	-67.62661076**	32.195546	-2.100	0.0357
HMV1	8.821826247**	1.9232049	4.587	0.0000
HMV2	5.678652526**	1.9880090	2.856	0.0043
HMV3	10.18725432**	2.0549485	4.957	0.0000
INC1	8.900205311**	1.8165418	4.900	0.0000
INC2	5.919934312**	1.8913563	3.130	0.0017
INC3	-0.9456284549	2.3489842	-0.403	0.6873
AGE1	-3.164722549**	1.0949327	-2.890	0.0038
AGE2	2.434682979**	1.1948067	2.038	0.0416
AGE3	0.3249886318**	1.1397442	0.285	0.7755
AGES1	0.3057995177E-01**	0.11596467E-01	2.637	0.0084
AGES2	-0.1944747327E-01	0.12306228E-01	-1.580	0.1140
AGES3	-0.4613537392E-02	0.11676505E-01	-0.395	0.6928
WHITE1	-9.405626619	17.409187	-0.540	0.5890
WHITE2	56.66220533**	19.633514	2.886	0.0039
WHITE3	9.238765195	14.647073	0.631	0.5282
BLACK1	-15.91135649	18.358610	-0.867	0.3861
BLACK2	50.64349934**	20.925849	2.420	0.0155
BLACK3	5.242220251	15.826564	0.331	0.7405
FEMALE1	11.65563364**	4.9908834	2.335	0.0195
FEMALE2	8.246268705	5.2555092	1.569	0.1166
FEMALE3	-2.547725652	5.2886672	-0.482	0.6300
MAR1	-26.25073840**	6.9525735	-3.776	0.0002
MAR2	-6.353127440	8.1621568	-0.778	0.4364
MAR3	-3.062532131	7.8012946	-0.393	0.6946
SING1	-23.23756006**	7.7781060	-2.988	0.0028
SING2	8.632915151	11.129414	0.776	0.4379
SING3	0.2482827269	10.548539	0.024	0.9812
HIGH1	-11.92874802**	5.5669042	-2.143	0.0321
HIGH2	-0.2496754818	6.6129793	-0.038	0.9699
HIGH3	-9.026068440	6.8661206	-1.315	0.1887
BA1	0.3991323495	7.8393610	0.051	0.9594
BA2	12.01485512*	6.5123324	1.845	0.0650
BA3	-1.067078358	6.3011578	-0.169	0.8655

**Significant at the 5% level.
*Significant at the 10% level.
Log-Likelihood: -8713.973
Psuedo-R^2: 0.0711

Table 6: Large Garden Center's Market Shift Over Time

Variable Shift	Coefficient	Standard Error	T-statistic	P-value
T1-T2	190.3604534	45.411052	4.192	0.0000
T2-T3	-122.5368144	47.212473	-2.595	0.0094
INC2-INC3	6.865562767	3.0157772	2.277	0.0228
AGE1-AGE2	-5.599405528	1.6219063	-3.452	0.0006
AGES1-AGES2	0.5002742504E-01	0.16918614E-01	2.957	0.0031
WHITE1-WHITE2	-66.06783195	26.246490	-2.517	0.0118
WHITE2-WHITE3	47.42344013	24.492943	1.936	0.0528
BLACK1-BLACK2	-66.55485582	27.843644	-2.390	0.0168
BLACK2-BLACK3	45.40127909	26.235759	1.731	0.0835
MAR1-MAR2	-19.89761096	10.719099	-1.856	0.0634
SING1-SING2	-31.87047521	13.581984	-2.347	0.0189

Table 7: Local Garden Center's Target Market Model

Variable	Coefficient	Standard Error	T-value	P-value
T1	-30.19839163	33.275660	-0.908	0.3641
T2	-35.08951564	39.719159	-0.883	0.3770
T3	-82.82968197**	40.224670	-2.059	0.0395
HMV1	0.4521113686	2.1501677	0.210	0.8335
HMV2	-2.781818349	2.4481691	-1.136	0.2558
HMV3	-2.738629752	2.4277993	-1.128	0.2593
INC1	2.019655384	2.0084947	1.006	0.3146
INC2	6.072868286**	2.2830567	2.660	0.0078
INC3	1.713700002	3.0933913	0.554	0.5796
AGE1	-1.109247566	1.2474048	-0.889	0.3739
AGE2	-2.289806927	1.4233776	-1.609	0.1077
AGE3	0.2319372930	1.3943677	0.166	0.8679
AGES1	0.1578381768E-01	0.13171602E-01	1.198	0.2308
AGES2	0.2698210442E-01*	0.14636940E-01	1.843	0.0653
AGES3	0.1756058172E-02	0.14170016E-01	0.124	0.9014
WHITE1	10.28953160*	20.338752	0.506	0.6129
WHITE2	38.41297288**	22.279842	1.724	0.0847
WHITE3	48.07733537**	19.245959	2.498	0.0125
BLACK1	-23.69990147	21.438573	-1.105	0.2690
BLACK2	-3.816735731	24.316644	-0.157	0.8753
BLACK3	16.98024599	20.846598	0.815	0.4153
FEMALE1	-13.42121757**	5.6532219	-2.374	0.0176
FEMALE2	-10.10599130	6.4962336	-1.556	0.1198
FEMALE3	-3.259878159	6.6231186	-0.492	0.6226
MAR1	27.47680777**	8.2535414	3.329	0.0009
MAR2	6.258608141	10.173163	0.615	0.5384
MAR3	8.396066175	9.9490578	0.844	0.3987
SING1	19.17261915**	9.1467413	2.096	0.0361
SING2	21.73570707	13.678799	1.589	0.1121
SING3	-2.792209040	13.456246	-0.208	0.8356
HIGH1	16.20935759**	6.1779786	2.624	0.0087
HIGH2	-9.971923641	8.1735994	-1.220	0.2225
HIGH3	-9.063638906	8.4444403	-1.073	0.2831
BA1	-8.588523313	9.2933827	-0.924	0.3554
BA2	-12.83949220	8.2853067	-1.550	0.1212
BA3	-1.487161489	7.9489250	-0.187	0.8516

**Significant at the 5% level.
*Significant at the 10% level.
Log-likelihood: -7313.529
Psuedo-R^2: 0.0597

Table 8: Local Garden Center's Market Shift Over Time

Variable	Coefficient	Standard Error	T-value	P-value
HIGH1-HIGH2	26.18128123	10.250350	2.554	0.0106