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AN EXAMINATION OF THE RELATIONSHIP BETWEEN SOCIAL CHARACTER AND OWNERSHIP OF A HIGH PRICE CONSUMER DURABLE GOOD

by

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A dissertation submitted to the
Graduate Faculty in Business in
partial fulfillment of the
requirements for the degree
of Doctor of Philosophy

The City University of New York

This manuscript has been read and accepted for the Graduate Faculty in Business in satisfaction of the dissertation requirements for the degree of Doctor of Philosophy.

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Abstract

AN EXAMINATION OF THE RELATIONSHIP BETWEEN SOCIAL CHARACTER AND OWNERSHIP OF A HIGH-PRICE CONSUMER DURABLE COOD

by

Kevin McCrohan

Advisor: Professor Jay Finkelman

This research was designed to reveal (1) whether the behavioral and demographic profiles of purchasers of new automobiles differed among four prestige categories of automobiles, (2) if the variables defining the consumer profile could predict automobile purchase, and (3) if the concept of social character (Riesman, 1950), as measured by the I-O Social Preference Scale (Kassarjian, 1962), was an efficient discriminating variable when used with traditional demographic correlates of automobile purchase.

To test the hypotheses, a questionnaire was mailed to a national probability sample of 2,966 individuals who had registered a new automobile in the continental United States during October 1976. Three mailings, keyed to three-digit zip codes, were conducted to evaluate non-response bias. Chi-square analysis, ANOVA, and Duncan's Multiple Range Test were used on the first mailing to test the bivariate relationship between the independent variables (social character, social class, stage in family life cycle, and family income) and the dependent variable (High, Medium, Low, and Very-Low Prestige Automobiles).

The 622 usable questionnaires from the first mailing were split into an analysis sample and a validation sample. Four group discriminant analysis was used on the analysis sample. A normalized classification matrix based on the classification functions generated from the analysis sample was used on the validation sample to test the discriminatory power of the functions.

The study indicated that the behavioral and demographic profiles of the consumers were significantly different. Specifically:

> Purchasers of High Prestige Automobiles tend to be other-directed, wealthy, older, upper and upper-middle class people with dependent children.
>
> Purchasers of Medium Prestige Automobiles tend to be other-directed, middle income, older, middle class or above people without dependent children.
>
> Purchasers of Low Prestige Automobiles tend to be inner-directed, lower income, lower-middle or lower class who may have had recent increases in their discretionary purchasing, i.e., young marrieds whose youngest child is over six and older marrieds without dependent children.
>
> Purchasers of Very-Low Prestige Automobiles tend to be very inner-directed, lower income, young married or single, lower-middle or lower class people.

The independent variables predicted group membership significantly better than chance in both the analysis sample ($X^2 = 109.67$, d f = 1, $p < .001$) and in the validation sample ($X^2 = 59.89$, d f = 1, $p < .001$).

Social character was found to be an efficient discriminating variable. The chi-square analysis indicated a significant relationship between social character and

Prestige Category of Automobile Purchased (X^2 = 53.62, d f = 3, p < .0001). The ANOVA indicated that the group means were significantly different (F = 22.56, d f = 3,618, p < .0001). Duncan's Multiple Range Test at the .05 level of significance indicated that while purchasers of High and Medium Prestige Automobiles were not significantly different, purchasers of Low Prestige Automobiles were significantly more inner-directed than those groups and purchasers of Very-Low Prestige Automobiles were significantly more inner-directed than the Low Prestige Automobile Purchasers. The discriminant analysis indicated that social character was the second most powerful discriminating variable (change in Rao's V 67, p < .0001) behind family income in excess o $35,000.

ACKNOWLEDGMENTS

I wish to thank Professors Jay Finkelman, John Griffin, and Howard Gitlow for their many contributions to this research. Their assistance through all the phases of the dissertation process is greatly appreciated. Certainly, much of what I accomplish during my career will be due to my association with them.

I would like to add a special thanks to Professor I. Howard Kellar, who greatly assisted and inspired me throughout my graduate and doctoral studies.

Of course, my greatest thanks, and apologies, go to my wife, Ronni. For her help during the low points, for the numerous times I left her alone with two demanding infants, and for her belief that this, too, would come to pass.

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CHAPTER I

INTRODUCTION

Successful marketing of goods and services generally requires that the firm match its offerings to specific market segments. This process of market segmentation involves breaking down the total market into differentiated sub-groups for which unique marketing strategies are developed. Since any one company has limited resources to expend on its marketing effort, market segmentation is utilized as a strategic tool in market definition and resource allocation.

The concept as originally defined by Wendell Smith requires an "adjustment of product and marketing effort to (differences in) consumer or user requirements."[1] Although this seems to be basic, there is a great deal of difficulty in identifying and isolating these segments as they pertain to a particular product or service.

Additionally, there are several methods that the firm can use to segment the market for its products or

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[1] Wendell R. Smith, "Product Differentiation and Market Segmentation As Alternative Marketing Strategies," Journal of Marketing, Vol. 20, No. 3 (July, 1956), p. 7.

services. Among these are the use of social structure, demographics, personality, or some combination of the methods. Social structure can be used to analyze the effect of the geographic and ethnic subcultures within the United States on the consumption of a particular product. Social stratification, as measured by occupation, education, residence, and/or associates, focuses on the different attitudes and life styles among the classes as they effect consumption. Perhaps the most common method of identifying buyer groups has been by selected demographic variables. Those most frequently used include social class, income, and stage in the family life cycle. Another area in which marketers have shown a great deal of interest is in segmentation by personality. In the past, researchers turned to some well-established clinical tests for clues in this area. The Edwards Personal Preference Schedule, the Gordon Personal Profile, the California Personality Inventory, M.M.P.I., and Cattell's 16 Personality Factor Inventory, among others, have all been used in a marketing context with somewhat disappointing results.[2] In retrospect, this is not surprising since these instruments were originally designed to measure major personality traits that underlie such psycho-social phenomena as racial prejudice, marital incompatibility, or proneness to commit suicide.[3]

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[2] Harold H. Kassarjian, "Personality and Consumer Behavior: A Review," Journal of Marketing Research, Vol. 8, No. 4 (November, 1971), pp. 409-418.

[3] Nariman K. Dhalla and Winston H. Mahatoo, "Expanding the Scope of Segmentation Research," Journal of Marketing, Vol. 40, No. 2 (April, 1976), p. 34.

A further complication exists because of the effect of demographics on the purchase decision. Consumers with different personality traits may exhibit identical behavior due to similar incomes or family sizes. However, as Bell notes, there is almost an inescapable logic that seems to dictate that consumption of particular products or brands must be meaningfully related to consumer personality.[4] Although it may be logical to assume that personality and consumption are related, it is difficult to identify this relationship.

RATIONALE OF THE STUDY

The purchase of an automobile has received a great deal of attention in the marketing literature since the late 1950s. However, many of the studies center around questions of specific brand choice of similar automobiles -- i.e., Fords versus Chevrolets.[5] Others analyze personality variables (such as product-specific innovativeness), which are held by a small segment of a market.[6] Or they do not control for variance in purchase behavior which may be due to differences in demographic characteristics.[7]

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[4] Martin Bell, Marketing: Concepts and Strategy (New York: Houghton Mifflin Company, 1972), p. 199.

[5] Franklin B. Evans, "Psychological and Objective Factors in the Prediction of Brand Choices: Ford versus Chevrolet," Journal of Business, Vol. 32 (October, 1959), pp. 340-369.

[6] Eugene Jacobson and Jerome Kassoff, "Self-Percept and Consumer Attitudes Towards Small Cars," Journal of Applied Psychology, Vol. 47, No. 4 (October, 1963), pp. 242-245.

[7] James Donnelly and John Ivancevich, "A Methodology for Identifying Innovator Characteristics of New Brand Purchasers," Journal of Marketing Research, Vol. 9, No. 3 (August, 1974), pp. 331-334.

Since automobile consumer behavior has been investigated, no literature was found which examined the relationship between prestige categories of U.S. and foreign automobiles, a personality variable common to a wide segment of the U.S. population, and the major demographic variables of social class, stage in the family life cycle, and family income. One study was found which examined cultural values and demographic variables on ownership of automobiles.[8] However, this study did not deal with the new automobile market. Additionally, it analyzed automobile size as opposed to prestige categories.

An accurate profile of purchasers of new automobiles would appear to be of value, given the importance of the automobile industry to the U.S. economy. For example, the four domestic manufacturers account for approximately one-sixth of the nation's GNP. In addition, the recent energy conservation proposals, with their reliance on voluntary compliance with energy objectives, indicates the need for an updated profile of the U.S. new automobile purchaser.

OBJECTIVE OF THE STUDY

The purpose of this study is to determine a profile of the new automobile purchaser. To be more

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[8] Walter A. Henry, "Cultural Values Do Correlate with Consumer Behavior," Journal of Marketing Research, Vol. 13, No. 2 (May, 1976), pp. 121-127.

specific, the study examines the relationship between the personality variable "social character" and standard demographic correlates of automobile consumer behavior on the purchase of a new automobile from a specific prestige category.

The concept of "social character" was developed by David Riesman (1950). The theory states that the majority of the people in the United States are either "inner-directed" -- the person relies on his own internal standards and values to guide behavior -- or "other-directed" -- the person tends to rely on the values of his contemporaries.[9] It has been selected for inclusion in this study in that it has been shown to be related to the early acceptance of new products,[10] new brands,[11] and a preference for advertising appeals.[12]

These studies demonstrated the potential of "social character" as a market segmentation variable, but did not include socioeconomic variables which effect consumer purchases. This study tests a limited model of consumer

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[9] David Riesman, Nathan Glazer and Reuel Denny, The Lonely Crowd (New Haven: Yale University Press, 1950).

[10] James Donnelly, "Social Character and the Acceptance of New Products," Journal of Marketing Research, Vol. 7, No. 1 (February, 1970), pp. 111-113.

[11] Donnelly and Ivancevich, op. cit.

[12] Harold Kassarjian, "Social Character and Differential Preference for Mass Communication," Journal of Marketing Research, Vol. 2, No. 2 (May, 1965), pp. 146-153.

behavior which includes these variables. Specifically, the study examines the following equation:

$$Y = F(X_1, X_2, \ldots\ldots X_6)$$

where:

Y = purchase of a new automobile which was registered in the continental United States during October, 1976

= 1 = High-Prestige Automobiles (Lincoln, Cadillac, Mercedes-Benz, Jaguar)

= 2 = Medium-Prestige Automobiles (Chrysler, Oldsmobile, Buick, Pontiac, Dodge, Mercury, Volvo, Audi, Peugeot, Triumph, BMW, MGB, Checker)

= 3 = Low-Prestige Automobiles (Plymouth, Ford, Chevrolet)

= 4 = Very-Low-Prestige Automobiles (Volkswagen, Pinto, Renault, Opel, Datsun, Toyota, Mazda, Saab, Fiat, American Motors, Honda, Subaru)[13]

X_1 = Social Character (1 = other-directed; 2 = inner-directed)

X_2 = Social Class (1 = upper and upper-middle; 2 = middle; 3 = lower-middle and lower)[14]

X_3 = Income (1 = less than $13,999; 2 = $14,000-$20,999; 3 = $21,000-$34,999; 4 = more than $35,000)

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[13] The categories are adapted from a classification system used by A.E. Birdwell, "A Study of the Influence of Image Congruence on Consumer Choice," Journal of Business, Vol. 41, No. 1 (January, 1968), pp. 76-88.

[14] The Hollingshead Index of Social Position is used. Alfred B. Hollingshead and Frederick C. Redlich, Social Class and Mental Illness (New York: John Wiley & Sons, 1958), pp. 398-407.

X_4 = Stage in Family Life Cycle (1 = young single; 2 = young married without children; 3 = young married, youngest child under six; 4 = young married, youngest child over six; 5 = older married with dependent children; 6 = older married without dependent children; 7 = older single).[15]

X_5 = Employment Status of Wife (1 = wife works; 2 = wife doesn't work)

X_6 = Product Utilization (1 = purchased for use as second automobile; 2 = not purchased for use as a second automobile).

QUESTIONS EXAMINED

1. Are the profiles of the purchasers of the categories of new automobiles different?

2. Can the independent variables predict category membership better than chance?

3. Is "social character" a major discriminating variable for the prestige categories of automobiles?

RESEARCH DESIGN AND METHODOLOGY

The data base is generated from responses to a questionnaire mailed to a national probability sample of 2,966 people who registered a new automobile in the continential United States during October, 1976. The sample was purchased from R.L. Polk & Co. Cost considerations limited the sample size to less than 3,000 registrants.

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[15] Adapted from James F. Engel, David T. Kollat, and Roger D. Blackwell, Consumer Behavior, Second Edition (Hinsdale, Illinois: Dryden Press, 1973), pp. 193-196.

The automobiles were placed into one of four prestige categories. Pretests were conducted to validate the currency of the classification system and to add automobile brands.

Since the questionnaire promised anonymity to the respondent, they were not coded. Non-response bias was controlled by conducting three mailings to the sample keyed to three-digit zip codes. The first went to all 2,966 new automobile registrants in 354 three-digit zip codes. Vacant zip codes were then used to identify groups of non-respondents. The initial mailing went out on February 22-24, 1977, and was closed on April 11, 1977. Responses were received from 622 automobile registrants in 184 three-digit zip codes. The second mailing went to 1,429 new automobile registrants in 170 vacant three-digit zip codes on May 2, 1977. This mailing was closed on June 2, 1977. Responses were received from 109 automobile registrants in 64 three-digit zip codes. The third mailing went to 1,178 new automobile registrants in 142 vacant three-digit zip codes on June 9, 1977. This mailing was closed on July 8, 1977. Responses were received from 32 automobile registrants in 24 three-digit zip codes.

The Statistical Package for the Social Sciences was used for initial data analysis. The 622 usable questionnaires from the first mailing were divided into two groups (an analysis sample and a validation sample). Four group discriminant analysis using subprogram Discriminant of SPSS was used on the analysis sample. Discriminant is a stepwise

discriminant procedure. Independent variables were selected for entry into the analysis on the basis of their discriminating power. A normalized classification matrix based on the classification functions generated from the analysis sample is used on the validation sample to determine the predictive power of the discriminant functions. Chi-square analysis is used to determine if any significant differences exist between the early and late respondents.

ORGANIZATION OF THE DISSERTATION

The second chapter presents a review of the pertinent literature of consumer behavior and automobile brand selection, as well as the theory of "social character" and the development and use of the inner-other directed social preference scale.

The third chapter presents a discussion of the research model, the research hypotheses, the field study design, the definition of the variable, and the data analysis approach.

The fourth chapter presents an analysis of the data.

The fifth chapter presents a summary of the study and conclusions and recommendations for further research.

CHAPTER II

LITERATURE REVIEW

The purpose of this section is to present an overview of the literature reviewed for this dissertation. Three subject areas were considered to be of value to this study. These are the areas of the theory of social character, the development and use of the Inner-Other Social Preference Scale, and automobile brand choice and consumer behavior.

THE THEORY OF SOCIAL CHARACTER

Social character can be defined as that behavior pattern instilled in an individual by the socializing institutions of society. Through role fulfillment and need achievement, parents, peer groups, and schools channel behavior in those directions which guarantee the society's existence. Therefore, social character is that part of each individual's behavioral complexion which is learned. It establishes a "mode of conformity"[1] and it is the end product of society's attempt to control its members. As Riesman notes:

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[1] David Riesman, Nathan Glazer, and Reuel Denney, The Lonely Crowd (New Haven: Yale University Press, 1963), p. 5.

> Character, in this sense, is the more or less permanent socially and historically conditional organization of an individual's drives and satisfactions -- the kind of 'set' which he approaches the world and and people.[2]

In general, the theory states that human beings can be grouped into three major types of "social character." The society's degree of economic development determines the predominant type. Tradition-directed individuals are guided by class or caste membership and are oriented towards the traditional ways of their ancestors. Other-directed individuals are those whose behavior is guided by their contemporaries. Inner-directed individuals are guided by their own values and standards. Riesman noted that few, if any, individuals in the United States could be considered tradition-oriented and that the social character of the United States would be on a continuum from inner- to other-directedness.

Tradition-Directed

Tradition-directed behavior is a response to an environment characterized by a high growth potential. "In societies of this type, a high proportion of the population is young, life expectancy is low, and the turnover of generations is extremely rapid."[3] Life is so uncertain that

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[2] Ibid., p. 4.

[3] Ibid., p. 7.

alternative ways of living are beyond contemplation. The nature of this world can only be dealt with through collectivity. "Conformity is assured by inculcating in the young a near-automatic obedience to tradition, defined for the particular social role toward which the individual is headed."[4] In fact, the individual's behavior, goals, attitudes, and values are at one with those of his role, family, kinship group, tribe, village, and society. Although tradition-directed conformity is of little consequence in America, it is the dominant societal control mechanism throughout much of the developing world.

Inner-Directed

As a society moves into the transitional period of population growth and its members become more able to control their destiny, tradition no longer suffices as a societal control mechanism. The society must now allow for change and individual freedom of choice. As Riesman notes:

> Such a society is characterized by increased personal mobility, by a rapid accumulation of capital...and by an almost constant expansion: intensive expansion in the production of goods and people, and extensive expansion in exploration, colonization, and imperialism.[5]

The social character which provides this freedom and control is inner-direction -- "inner in the sense that it is

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[4] David Riesman and Nathan Glazer, Faces in the Crowd (New Haven: Yale University Press, 1965), p. 5.

[5] The Lonely Crowd, op. cit., p. 14.

implanted early in life by the elders and directed toward generalized but nonetheless inescapably destined goals."[6] These goals are as varied as the possibilities suggested by the growing complexity of society itself. However, what is important to Riesman is not the content of these goals but that they exist, are internalized, and that the individual's life is consumed with their attainment. This effort is guided by "...a set of values -- hard work, individualism, reliance on principles, the whole syndrome of traits that built the country." Inner-directed people are considered to be the driving force in American economic development. Riesman describes them as being materialistic, production-oriented,[8] and pursuing solitary recreational activities[9] -- people striving to differentiate themselves from others in both work and play.

Other-Directed

As the economy shifts from one of production scarcity to one of production surpluses and enters a period of population stabilization, control is achieved through the development and implantation of other-directedness.

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[6] Ibid., p. 15.

[7] Faces, op. cit., p. 270.

[8] Lonely Crowd, op. cit., p. 113.

[9] Ibid., pp. 120-123.

> What is common to all the other-directed people is that their contemporaries are the source of direction for the individual -- either those known to him or those with whom he is directly acquainted through friends and through the mass media.[10]

Where the individual was once production-oriented, he or she now becomes cunsumption-oriented. This is not consumption of the inner-directed type -- consumption for purposes of outward separation from others or individual identity. As opposed to this behavior, "the other-directed person, though he has his eyes so much in the external details as to keep up with them not so much in the external details as in the quality of his inner experience."[11] In fact, it is the quality of life in general which concerns the individual in a society of abundance. And only through a sensitivity to the wants and needs of others can this quality be achieved. People become the focal point of living, working, and playing. Success is measured by the perceived approval of others -- others that can be both near and far. Getting along with contemporaries is the key to success. And success depends less on what an individual does and knows than on what others think of him.[12] Other-directed persons value social relationships and their quality above all else. They are social groupees tuned

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[10] Ibid., p. 21.

[11] Ibid., p. 24.

[12] Harold H. Kassarjian, "Riesman Revisited," Journal of Marketing, Vol. 29, No. 2 (April, 1965), p. 55.

ever so finely to the vicissitudes of fashion, style, and taste. Their goals in life and living are determined by a "...veritable Milky Way of almost but not quite indistinguishable contemporaries."[13] They are, to a degree, anti-competitive and cooperative -- in essence, team players.

Social Character Conclusion

These are Riesman's character types. Because of the universal historical context upon which they are based, they appear to be a viable method of segmenting markets. As Riesman notes, "...within America other-direction has not yet become equivalent to 'the American way' and inner-directed types are still important."[14]

Since American society can be considered to be on a continuum from inner- to other-directed, only these social character types have been utilized. However, if the theory of social character is to be useful in developing segmentation strategies, it is necessary that a valid and reliable instrument exist to measure social character. The following section discusses the measure of inner/other-directedness used in this study.

DEVELOPMENT AND USE OF THE I-O SOCIAL PREFERENCE SCALE

The instrument used in this study, the I-O Social Preference Scale, has proven to be a valid and reliable

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[13] Lonely Crowd, op. cit., p. 138.

[14] Faces, op. cit., p. 7.

instrument in a number of studies. The purpose of this section is to discuss the development of the scale and the studies which have utilized it.

The I-O Social Preference Scale

The scale was developed by Waltraud Kassarjian[15] based on descriptive materials from Riesman's books.[16] The possible range of scores for any person is from 0 (complete other-direction) to 144 (complete inner-direction). Each item is assigned a -2 for a strong other-directed answer, a +2 for a strong inner-directed answer, and a 0 if the individual could not make a decision. Negative total scores are avoided by adding a constant of 72 to the total of the subject's score.[17]

There are 36 questions in the scale. The questions were selected for inclusion in the scale after extensive pretesting. The final testing of the I-O scale involved a sample of 150 undergraduate students and a sample of 96 graduate students (see Table 1 for results of this and other studies which have used the scale). Significant differences

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[15] Waltraud Kassarjian, "A Study of Riesman's Theory of Social Character," Sociometry, Vol. 25, No. 3 (September, 1962), pp. 213-230.

[16] Lonely Crowd and Faces in the Crowd, op. cit.

[17] W. Kassarjian, op. cit., p. 217.

were obtained between the undergraduate and graduate students' mean scores, 72.20 and 86.97 respectively.[18] These differences were thought to be due to age, the effect of graduate study on interests, or a possible relationship between the decision to begin graduate studies and inner-directedness.[19]

Reliability was evaluated by the test-retest method on a sample of 52 undergraduate students over a 4-week interval. The results of these tests yielded a reliability coefficient of .85. Validity was evaluated by administering the scale to pre-selected groups who, on the basis of Riesman's work, were felt to be either inner- or other-directed. Two samples (100 each) were selected at random from graduate students majoring in fields indicative of either inner- or other-direction. The inner-directed sample was drawn from fields such as archaeology and the natural sciences, while the other-directed was drawn from fields such as education or social welfare. The results were as follows:[20]

Predicted Social Character	Number of Responses	Mean	Standard Deviation
Other-directed	46	79.4	13.15
Inner-directed	50	93.9	15.85

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[18] Ibid.

[19] Ibid.

[20] Ibid., p. 219.

The means were significant at the .001 level of confidence and it was concluded that the two groups represented truly different segments on the inner/other-directed continuum.[21]

Validity was also established by a comparison between scores on the I-O scale and reports on actual behavior which was believed to represent the social character of the subjects.

An attempt was made to determine demographic correlates of inner- or other-directedness. Neither sex, age, marital status, race, religion, degree of self-support, father's occupation, nor number of years in college covaried with inner/other-directedness. It was concluded that it (inner/other-directedness) exists as an independent variable which can be measured reliably and validly by means of the I-O Scale.

The following sections discuss a number of studies which have used the scale.

Use of the I-O Social Preference Scale

Centers (1962) used the scale to determine the extent to which Riesman's social character types existed in the general population.[22] An analysis of the relationship between social character and occupation, education, age, socio-economic status, political affiliation, religion and

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[21] Ibid., p. 226.

[22] Richard Centers, "An Examination of the Riesman Social Character Typology: A Metropolitan Survey," Sociometry, Vol. 25, No. 3 (September, 1962), pp. 231-240.

place of birth was also part of this study.

Data was collected by personal interview using a cross-section sample of 1,077 adults in the Los Angeles metropolitan area. The questionnaire contained 25 of the most discriminating questions from the I-O Social Preference Scale.[23] In this study, the scoring was based on a 50-point scale with 0 meaning total other-direction and 50 meaning total inner-direction. The mean score of 28 on this survey equates a mean score of 80.6 on the 0-144 I-O Social Preference Scale. Inner/other-directedness, as measured by the I-O Social Preference Scale, was found to be normally distributed in the sample, without appreciable correlation with socio-economic indices -- although there was a slight tendency for higher-educated and older people to be more inner-directed.[24]

The study indicated that the general population was more inner-directed than the undergraduate students upon which it was developed.

Centers and Horowitz (1963) tested the hypothesis that other-directed individuals are more susceptible to the influence of others.[25] Three hundred and sixty-four undergraduate students were first administered the I-O Social

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[23] Ibid., p. 235.

[24] Ibid., p. 238.

[25] Richard Centers and Miriam Horowitz, "Social Character and Conformity: A Differential Susceptibility to Social Influence," Journal of Social Psychology, Vol. 60 (July, 1963), pp. 343-349.

Preference Scale and the F-Scale of the California Authoritarian Personality Study. Those whose I-O scores were plus or minus one standard deviation from the mean were divided into four groups -- inner-directed, control and experimental, and other-directed, control and experimental. The groups were then administered 24 items from the F-Scale of the California Authoritarian Personality Study. The experimental groups were told that well-known important people had taken the questionnaire and for the students' information their responses were noted by as asterisk.[26] The hypothesis that the other-directed persons would conform more to the views of "important people" was confirmed. The difference between F-Scale scores for the inner-directed groups was not significant, while it was for the other-directed groups.[27]

Harold and Waltraud Kassarjian (1965) investigated the relationship between occupational interests and inner-other-directedness.[28] Their hypothesis was that it would be difficult to identify a relationship between social character and occupation due to the myriad considerations which determine occupation. However, job preference, as

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[26] Ibid., p. 346.

[27] Ibid., p. 347.

[28] Harold Kassarjian and Waltraud Kassarjian, "Occupational Interests, Social Values, and Social Character," Journal of Counseling Psychology, Vol. 12, No. 1 (Spring, 1965), pp. 48-54.

measured by the Strong Vocational Interest Blank, might. Analysis of variance on the Strong profiles indicated significant differences (at the .001 level) between the inner- and other-directed subjects.[29] Occupations such as Vocational Agrilculture Teacher, Policeman, YMCA Physical Director, and Sales were preferred by other-directed subjects, while occupations such as Psychologist, Architect, Chemist, and Mathematician were preferred by inner-directed subjects.[30] The results of the study indicated a relationship between inner- and other-directedness, as measured by the I-O Social Preference Scale, and a number of occupations which could be theoretically predicted from Riesman's writings.[31]

Harold Kassarjian (1965) investigated the relationship between social character and preference for advertisements which had been developed to appeal to inner- or other-directed people.[32] For example, in a camera advertisement, the inner-directed appeal showed a man photographing the London Bridge above a slogan stating "For a lasting record", while the other-directed appeal showed a man photographing a woman in front of a building with European travel posters in the foreground above a slogan stating "Share your experiences with friends at home."[33] Two hundred undergraduate

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[29] Ibid., p. 49.

[30] Ibid., p. 51.

[31] Ibid., p. 48.

[32] Harold Kassarjian, "Social Character and Differential Preference for Mass Communication," Vol. 2, No. 2 (May, 1965), pp. 146-153.

[33] Ibid., p. 149.

students in business administration courses were administered the I-O Scale and then asked to select, from paired advertisements, the one which would be most effective. In this study, the mean on the I-O Scale was 76.5.[34] The results of the study indicated that inner-directed people prefer inner-directed appeals and that other-directed people prefer other-directed appeals.

Woodside (1968) attempted to demonstrate a relationship between social character and the rate of use of selected consumer products.[35] One hundred and twenty-two undergraduate students were administered the I-O Scale and asked questions concerning their use of cigarettes, mouthwash, headache remedies, magazines, and television. He found no apparent relationship between social character and usage rates of these products. The author concluded that this might be explained by the lack of importance of the purchases which would reduce the importance of interpersonal influence on the purchase. He recommended further research into the relationship between product use and social character, using products calling for more important expenditure outlays.[36]

Donnelly (1970) investigated the relationship between social character and the propensity to accept

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[34] Ibid., p. 149.

[35] Arch Woodside, "Social Character, Product Use and Advertising Appeals," Journal of Advertising Research, Vol. 8, No. 4 (December, 1968), pp. 31-36.

[36] Ibid., p. 34.

grocery product innovations.[37] One hundred and forty-two housewives in a suburban housing development were administered the I-O Scale and asked if they had tried any of the following products: pre-soak rinse, canned pudding, freeze-dried coffee, canned cake frosting, and freeze-dried fruit cereals.[38] The results indicated a positive relationship between inner-direction and the use of new food products.

Donnelly and Ivancevich (1974) conducted a longitudinal study of purchasers of new Ford Mavericks versus purchasers of new similar competing brands (Darts, Dusters, Novas, etc.). The time frame covered the first four model years. The study objective was to determine the relationship between social character and the purchase of an innovative product, the Maverick, and existing products.[39] Three hundred and thirty-two Maverick purchasers and 319 control group purchasers were administered the I-O Scale. The results indicated a positive relationship between inner-direction and early Maverick purchasers.[40] However, as the Maverick lost its newness -- i.e., entered the second, third, and fourth model years -- there was not a significant relationship

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[37] James Donnelly, Jr., "Social Character and the Acceptance of New Products," Journal of Marketing Research, Vol. 7, No. 1 (February, 1970), pp. 111-113.

[38] Ibid., p. 112.

[39] James Donnelly and John Ivancevich, "A Methodology for Identifying Innovator Characteristics of New Brand Purchasers," Journal of Marketing Research, Vol. 9, No. 3 (August, 1974), pp. 331-334.

[40] Ibid., p. 333.

TABLE I

RESULTS OF I-O SOCIAL PREFERENCE SCALE USE

Study	Sample	Mean	Standard Deviation	Range
Waltraud Kassarjian (1962)	Convenience sample of 150 undergraduate students at UCLA	72.20	16.93	22-109
	46 Graduate students at UCLA[b,d]	79.4	13.15	N.A.[a]
	Random sample of 50 graduate students at UCLA[c,d]	93.9	15.85	N.A.[a]
Richard Centers (1962)	Cross-section quota sample of 1,077 adults in Metropolitan L.A. area	80.64[e]	N.A.[a]	N.A.[a]
Waltraud & Harold Kassarjian (1965)	Convenience sample of 233 undergraduate students at UCLA	73.66	13.69	37-113
Harold Kassarjian (1965)	Convenience sample of 200 undergraduate students at UCLA	76.50	14.10	37-118
Arch Woodside (1968)	Convenience sample of 122 undergraduate students at Pennsylvania State University	71.21	N.A.[a]	28-116
James Donnelly (1970)	Convenience sample of 142 housewives in a housing development in College Park, Maryland	72.2	N.A.[a]	24-112
James Donnelly & John Ivancevich (1974)	Convenience sample of 651 purchasers of low-priced compact cars	72.6	N.A.[a]	26-114

[a] N.A. = information not available

[b] Sample Size = 100; respondents = 46

[c] Sample Size = 100; respondents = 50

[d] Combination of these two studies. Mean = 86.97; standard deviation = 17.85

[e] Based on 25-item I-O Social Preference Scale

between inner-direction and purchase of the Maverick.[41] Although this study demonstrated a significant relationship between social character and the purchase of an automobile, it did not deal with demographic correlates of automobile purchases.

Automobile Brand Choice and Consumer Behavior

Although prior studies had indicated a relationship between social character and consumer behavior, they had failed to consider the effect of demographic variables on the purchase of the particular product and one study (Woodside, 1968) had called for further research into the relationship between social character and consumer behavior using a product which was important to the consumer in terms of cost. The purchase of an automobile is certainly important to the consumer and a relationship has been shown between social character and automobile purchase (Donnelly and Ivancevich, 1974).

This section examines the literature dealing with automobile consumer behavior in order to determine the major demographic correlates of automobile purchase and to differentiate this study from existing studies. (See Appendix 9 for the sample sizes and statistical tests used in the automobile consumer behavior studies.)

One of the first attempts to relate psychological variables to automobile brand purchase was Evans (1959), who attempted to discriminate between owners of Fords and

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[41] Ibid., p. 333.

Chevrolets.[42] He used the Edwards Personal Preference Inventory, and found few statistically significant differences between the two groups. The effect of his demographic variables was difficult to determine because of the limited scope of his sample area, Park Forest, Illinois. He concluded that personality did not have much input into the purchase decision. This study differs from Evans' study in that brand choice is not the central concern of the study, but rather the effect of social character on the selection of very different types of automobiles.

Westfall (1962) took a slightly different tact in that he tested the relationship between psychological variables and type of car: either convertible, compact, or standard.[43] His study showed that differences did exist between the compact and standard owners on one hand, and the owners of convertibles on the other. It also isolated the psychological variables of active, vigorous, impulsive, and sociable to be the major characteristics which divided the two groups, with the convertible owners scoring higher on these variables. He concluded that the finding of personality differences between the owners of the two car types indicates that in some cases, measurable personality differences do

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[42] Franklin B. Evans, "Psychological Objective Factors in the Prediction of Brand Choice: Ford versus Chevrolet," Journal of Business, Vol. 32 (October, 1959), pp. 340-369. NOTE: The Psychological variables were achievement, deference, exhibition, autonomy, affiliation, intraception, dominance, abasement, change, aggression, and heterosexuality.

[43] Ralph Westfall, "Psychological Factors in Predicting Product Choice," Journal of Marketing, Vol. 26, No. 2 (April, 1962), pp. 34-40.

exist between owners of different products serving the same basic function.[44] This finding is of particular importance to the present study since the major premise of the study is that there are definite behavioral differences which effect preferences for automobiles. However, this study anticipates the use of the behavioral characteristic of social character rather than the Thurstone Temperament Schedule and includes variables which may effect the decision to purchase a particular brand of automobile (demographic characteristics and product utilization).

Jacobson and Kossoff (1963) studied consumer attitude towards small cars.[45] The study dealt with the newness of the small car and the consumers' willingness to accept innovation. The study was conducted in 1960 and highlights some of the changes which have occurred since the compact automobile was introduced. By 1978, the small car has become commonplace and the convertible (Westfall, 1962) is almost extinct. The Jacobson and Kossoff study had several limitations. It was based on a simulated purchase, the sample was restricted to Woodside, Long Island, and only the personality traits of willingness to accept challenge and innovation were tested.

Ito (1967) investigated the effect of attitudes towards an automobile's looks, warranty, trade-in value, and operational features on a consumer's decision to switch

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[44] Ibid., p. 40.

[45] Eugene Jacobson and Jerome Kossoff, "Self-Percept and Consumer Attitudes Toward Small Cars," Journal of Applied Psychology, Vol. 47, No. 4 (October, 1963), pp. 242-245.

brands.[46] Present owners of Ford and Chevrolet automobiles were administered a 9-question scale to determine their attitudes towards Fords, Chevrolets, and Plymouths and then questioned as to their intention to purchase a new 1964 Ford or Chevrolet. The author concluded that his attitudinal rating scale could discriminate between loyal buyers and brand switchers.

Bell (1967) investigated the relationship between self-confidence and persuasion in car buying.[47] He found that individuals with a high degree of generalized self-confidence tended to have a high degree of specific self-confidence in their car buying ability.[48]

Bell (1967) investigated the relationship between self-confidence and persuasibility, and post-purchase dissonance.[49] He found that customers who were easily persuaded to purchase the automobile, and had a high degree of generalized self-confidence, had a high degree of dissonance.[50]

Although these last two articles do not provide any insight into the demographic profile of the automobile

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46 Rikiema Ito, "Differential Attitudes of New Car Buyers," Journal of Advertising Research, Vol. 7, No. 2 (March, 1967), pp. 38-42.

47 Gerald D. Bell, "Self-Confidence and Persuasion in Car Buying," Journal of Marketing Research, Vol. 4, No. 1 (February, 1967), pp. 46-52.

48 Ibid.

49 Gerald D. Bell, "The Automobile Buyer After the Purchase," Journal of Marketing, Vol. 31, No. 3 (July, 1967), pp. 12-16.

50 Ibid., pp. 14-15.

purchaser, they do demonstrate that the new automobile purchaser can be differentiated on the basis of behavioral characteristics.

Birdwell (1968) studied the relationship between self-image and automobile purchase. He found that self-image and automobile image were closely related and that groups of owners had different images of other brands of automobiles.[51] His basic idea was that behavior is a function of self-image as well as the way in which he wishes others to see him. A 22-question scale was developed to measure the respondent's judgment of their own cars, the cars selected for the study, and themselves.[52] The following questions are an example of the scale:[53]

1.	Sophisticated	1	2	3	4	5	6	7	Unsophisticated
2.	Exciting	1	2	3	4	5	6	7	Dull

The automobiles used in the study were divided into the four following categories:[54]

Prestige Automobiles: Lincoln, Cadillac, Imperial

Medium Priced Automobiles: Chrysler, Oldsmobile, Buick, Pontiac

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[51] A.E. Birdwell, "A Study of the Influence of Image Congruence on Consumer Choice," Journal of Business, Vol. 41, No. 1 (January, 1968), pp. 76-88.

[52] Ibid., p. 78.

[53] Ibid., p. 79.

[54] Ibid., p. 79.

Low Priced Automobiles: Plymouth, Ford, Chevrolet

Economy Compact Automobiles: Volkswagen, Volvo, Renault, Corvair, Rambler, Falcon.

The sample for the study consisted of 100 car owners selected at random from all new car purchasers in Travis County, Texas.[55]

The results indicated a very close relationship between the car owners' perception of themselves and their automobiles, with the specific strength of the relationship falling as one moves from Prestige automobiles to Economy Compact automobiles.[56] The author concluded that this occurred because lower-income consumers would be restricted in their ability to purchase an automobile which was truly expressive of self.[57]

Evans (1968) criticized the Birdwell article on the following basis -- the data was collected after the purchase. The finding of different imagery on the other automobiles did not necessarily mean different perceptions but rather different stimulus. The way in which Birdwell grouped the respondents was incorrect. And that there were difficulties due to first versus second car owners which Birdwell ignored.[58]

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[55] Ibid.,

[56] Ibid., p. 81.

[57] Ibid.

[58] Franklin Evans, "Automobiles and Self-Imagery: Comment," Journal of Business, Vol, 41, No. 4 (October, 1968), pp. 484-485.

Birdwell (1968) replied to some of the criticisms. He considered the problem of the post-purchase evaluation to be minimal, noted that the stimulus had been the same for all respondents, and concluded that his study did illustrate a relationship between self-theory and consumer behavior.[59]

Evans (1968) replicated his original study, "Ford versus Chevrolet," in order to determine if his original conclusions concerning the ineffectiveness of personality variables as measured by the Edwards Personal Preference Schedule were still valid.[60] As in the original study, demographic factors such as family income, age, religion, and political affiliation were also included. He found that the results were similar to those of the first study.[61] Intuitively, one might think that differences between these two broad-appeal automobiles would be too minimal to be indicative of differences in consumer personality. The replication of the 1959 study would seem to bear this out. This is not to say that personality would have no effect on the type of car purchased, but that the automobiles selected for analysis were too similar.

May (1969) studied the effect of prior ownership experience with an automobile brand and the repeat purchase of that brand.[62] He found that there was a relation between

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[59] A.E. Birdwell, "Automobiles and Self-Image: Reply," Journal of Business, Vol. 41, No. 4 (October, 1968), pp. 486-487.

[60] Franklin Evans, "Ford versus Chevrolet: Park Forest Revisited," Journal of Business, Vol. 41, No. 4 (October, 1968), pp. 445-459.

[61] Ibid., p. 455.

[62] F.E. May, "Adaptive Behavior in Automobile Brand Choices," Journal of Marketing Research, Vol. 6, No. 1 (February, 1969), pp. 62-64.

past purchase of a particular brand of automobile and re-purchase of the same make.

Morrison (1970) attacked this conclusion on the basis that the sequences were too short (three purchases) and that the sample size was too small (42).[63]

May (1970) replied after retesting and concluded again that past purchase of a particular make influences the probability of a repurchase.[64]

Bennett and Mandell (1969) investigated prepurchase information seeking behavior in the purchase of a new automobile.[65] The study was limited to a sample of 148 from all new car registrations in the greater Harrisburg, Pennsylvania area between March 15th and April 14, 1967.[66] The study found that consumers tend to seek less information before purchase of an automobile make they have had prior satisfactory experience with.[67]

Ford Motor Company (1970) tested the relationship between the purchase of a Ford Pinto or a VW and consumer

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63 Donald Morrison, "Adaptive Behavior in Automobile Brand Purchase: A Reply," Journal of Marketing Research, Vol. 7, No. 1 (February, 1970), pp. 117-119.

64 F.E. May, "Adaptive Behavior in Automobile Brand Choice: Discussion," Journal of Marketing Research, Vol. 7, No. 1 (February, 1970), pp. 118-119.

65 Peter Bennett and Robert Mandell, "Prepurchase Information Seeking Behavior of New Car Purchasers - The Learning Hypothesis," Journal of Marketing Research, Vol. 6, No. 4 (November, 1969), pp. 430-433.

66 Ibid., p. 431.

67 Ibid., pp. 432-433.

innovativeness.[68] In the study, respondents were asked if they were willing to try new brands. The study was limited to the Columbus, Ohio area and was conducted by telephone. The study also dealt with post-purchase performance and external search for information. Pinto owners were found to be more willing to try new brands than VW owners were.[69]

Peters (1970) analyzed the effect of different levels of income within social class strata on the purchase of a particular class of automobile.[70] The classes of automobile were used car and new compacts, intermediates, foreign economy, medium and large car.[71] People without cars were also included in the study. The result of using what Peters called relative occupational class income over occupation and income alone as market segmentation variables was mixed.[72] The author felt that income and occupation alone were excellent variables for segmenting the medium-sized car market from the large and that relative occupational class income was more efficient for differentiating the intermediate size car market from the smaller cars.[73]

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[68] "Ford Motor Co. Grant to Ohio State University," in Engel et al., Consumer Behavior (New York: Holt, Rinehart & Winston, 1973), pp. 62-66.

[69] Ibid., p. 65.

[70] William Peters, "Relative Occupational Class Income: A Significant Variable in the Marketing of Automobiles," Journal of Marketing, Vol. 36, No. 2 (April, 1970), pp. 74-77.

[71] Ibid., p. 76.

[72] Ibid., p. 77.

[73] Ibid.

Peters (1970) noted that the use of demographics to predict consumer behavior had been less than satisfactory because the emphasis had been placed on attempting to predict individual buying behavior rather than group buying behavior.[74] He investigated the effect of a number of demographic variables such as family income, occupation, age, housing status (own or rent), age of children, number of income receivers, education, and distance from the center of a central city on the purchase of a new compact, intermediate, medium, large or foreign economy car.[75] The sample consisted of purchasers of new cars whose model year was 1963-1967 (n = 2,051).[76] The results indicated that lower income was positively associated with the purchase of compact and intermediate sized cars, younger car owners (age 25-34) tend to own more foreign economy cars, and upper income was positively associated with medium-sized and large cars.[77]

Huges and Guerrero (1971) investigated the relationship between self-image and congruity for automobile purchase.[78] Their findings suggested that in the case of a

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[74] William Peters, "Using MCA to Segment New Car Markets," Journal of Marketing Research, Vol. 7, No. 3 (August, 1970), pp. 360-363.

[75] Ibid., p. 360.

[76] Ibid.

[77] Ibid., pp. 362-363.

[78] G. David Huges and Jose L. Guerrero, "Automobile Self-Congruity Models Reexamined," Journal of Marketing Research, Vol. 8, No. 1 (February, 1971), pp. 125-127.

product such as an automobile, the brand purchased may not reflect the consumer's real image but rather the social image the consumer wishes to project. However, their analysis was based on the responses of only 58 businessmen to 12 semantic differential scales and the authors qualified the results by noting that their findings did not reject the concept of self-congruity.[79]

Wiseman (1971) investigated the differences between new and old model year new automobile purchasers.[80] The automobiles were divided into the three classes: intermediate, full-size low price, and full-size high price, creating six segments for the new automobile market. The independent variables consisted of product attributes such as warranty and prestige value, shopping patterns and usage expectations such as number of new cars seriously considered and number of new car dealers visited, socioeconomic and demographic variables such as stage in family life cycle and family income, and a modified version of the Thurstone Temperament Schedule.[81] The universe for the study was limited to the Buffalo, New York area and consisted of people who had purchased a new automobile during September and October 1969. Two hundred and ten respondents were selected from this universe.[82] The results indicated that

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79 Ibid., p. 125.

80 Frederick Wiseman, "A Segmentation Analysis on Automobile Buyers During the New Model Year Transition Period," Journal of Marketing, Vol. 35, No. 2 (April, 1971), pp. 42-49.

81 Ibid., pp. 43-44.

82 Ibid., p. 44.

the six market segments could be differentiated on the basis of income (1968 full-size low price, low income; 1969 intermediate, high income; 1969 full-size high price, high income), and life cycle (1968 intermediate, early stages; 1968 full-size low price, later stages; 1969 full-size high price, later stages), in addition to some of the other explanatory variables.[83]

Settle and Gibby (1972) investigated the image consumers had of the owners of three somewhat different automobiles.[84] They noted that Evan's failure to find significant differences between Ford and Chevrolet owners was due to the fact that they are mass-marketed and not very distinctive.[85] They found that the profiles of Ford Maverick owners differed from that of Toyota Corolla owners and the profile of Volkswagen Sedan owners from that of Toyota Corolla owners when they used a 22-item semantic differential scale.[86] Two of the items were:

Leader_ _Follower

Cooperative_ _Competitive[87]

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[83] Ibid., p. 48.

[84] Robert B. Settle and L. Bruce Gibby, "The Measurement of Attributed Image," California Management Review, Vol. 14, No. 4 (Summer, 1972), pp. 71-74.

[85] Ibid., p. 70.

[86] Ibid., p. 72.

[87] Ibid., p. 71.

Although their results are interesting, their sample size was small (66 students at UCLA) and the results may not be applicable to the general population.[88]

Newman and Staelin (1972) investigated the information seeking behavior of buyers of new automobiles and major household appliances.[89] They found that income, education, occupation, stage in family life cycle were all significant variables in determining the amount of information sought for the purchase of an automobile.[90]

Feldman and Armstrong (1975) investigated purchasers of an innovative automobile.[91] They compared rotary-engined Mazda buyers with buyers of conventionally-powered competitive products with regard to social, attitudinal and personality variables such as opinion leadership and venturesomeness; perceived product characteristics such as relative advantage and complexity; and demographic variables such as education, occupation, age, and family income.[92] The findings of the study are based on 2,028 responses to questionnaires mailed to early and later Mazda buyers in California and Midwest Mazda and Toyota buyers.[93]

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88 Ibid., p. 88.

89 Joseph W. Newman and Richard Staelin, "Prepurchase Information Seeking for New Cars and Major Household Appliances," Journal of Marketing Research, Vol. 9, No. 3 (August, 1972), pp. 249-257.

90 Ibid., pp. 254-255.

91 Laurence P. Feldman and Gary M. Armstrong, "Identifying Buyers of a Major Automotive Innovation," Journal of Marketing, Vol. 30, No. 1 (January, 1975), pp. 47-53.

92 Ibid., p. 49.

93 Ibid., p. 48.

The study found significant differences between the Midwest Toyota and Midwest Mazda buyer on all of the variables in the study with the exception of venturesomeness, personal competence, and family income, although venturesomeness and family income were significantly different between the early California Mazda buyer and the later California Mazda buyer.[94]

Peat, Gentry, and Brown (1975) commented on the Feldman and Armstrong (1975) article noting that the Mazda may not really be a truly innovative product and citing an unpublished study which found that, on the basis of demographics, early and late Mazda purchasers differed only in regard to age.[95]

Feldman and Armstrong (1975) replied to the Peat, Gentry, and Brown (1975) comments noting that data from their study indicated that consumers perceived the product as new and that the study cited in the comment explored demographic differences among 126 early and late buyers of Mazdas from the same dealer.[96] They conclude that given

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[94] Ibid., p. 50.

[95] Nancy C. Peat, James W. Gentry, and Thomas L. Brown, "Comment on Identifying Buyers of a Major Automotive Innovation," Journal of Marketing, Vol. 39, No. 4 (October, 1975), pp. 63-64.

[96] Laurence P. Feldman and Gary M. Armstrong, "A Reply to Peat, Gentry, and Brown," Journal of Marketing, Vol. 39, No. 4 (October, 1975), pp. 63-64.

this small and geographically concentrated sample, it is not too surprising that few significant differences were noted.[97]

Henery (1976) investigated the relationship between culture and demographics such as age and social class, on the purchase of full-size, intermediate, compact, subcompact, and sports cars.[98] He used a modified version of the Kluckhohn and Strodtbeck Measure of Value Orientation to measure cultural values.[99] Social class membership was measured by the Hollingshead Index of Social Position. This instrument measures social class membership on the basis of occupation which is presumed to reflect the skill and power a person possesses and education which is considered to reflect both knowledge and cultural tastes.[100] (See Table II for the Occupation and Education Scales.)

The Index of Social Position had been used in a previous Marketing study by Mathews and Slocum (1969) who investigated the relationship between social class and bank credit card usage.[101] They described the lower- and lower-middle class as tending to be oriented locally in outlook,

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97 Ibid., p. 64.

98 Walter A. Henery, "Cultural Values Do Correlate with Consumer Behavior," Journal of Marketing Research, Vol. 13, No. 2 (May, 1976), pp. 121-127.

99 Ibid., p. 123.

100 Alfred B. Hollingshead and Frederick C. Redlich, Social Class and Mental Illness (New York: John Wiley and Sons, 1958), pp. 398-407.

101 H. Lee Mathews and John W. Slocum, "Social Class and Commercial Bank Credit Card Usage," Journal of Marketing, Vol. 33, No. 1 (January, 1969), pp. 71-78.

TABLE II

THE INDEX OF SOCIAL POSITION:
OCCUPATION AND EDUCATION SCALES

Occupation

1. Executives and proprietors of large concerns and major professionals.

2. Managers and proprietors of medium-sized businesses and lesser professionals.

3. Administrative personnel of large concerns, owners of small independent businesses, and semi-professionals.

4. Owners of little businesses, clerical and sales workers, and technicians.

5. Skilled workers.

6. Semi-skilled workers.

7. Unskilled workers.

Education

1. Graduate professional training.

2. Standard college or university graduation.

3. Partial college training.

4. High school graduation.

5. Partial High school.

6. Junior high school.

7. Less than seven years of schooling.

Factor Weights

The index divides society into five class structures on the basis of assigning a weight of 7 points for occupation and 4 points for education. Scores of: 11-17 = upper class; 18-27 = upper-middle class; 28-43 = middle class; 44-60 = lower middle; and, 61-77 = lower.

Alfred B. Hollingshead and Frederick C. Redlich, Social Class and Mental Illness (New York: John Wiley and Sons, 1958), pp. 398-407.

having relatively short horizons and considerations, and being engaged in occupations such as taxi driver, car washer, or janitor.[102] The middle class was described as tending to be oriented towards a functional and pragmatic view, having a broader perspective and engaging in longer-range planning than is found in the lower classes, and having occupations such as bookkeeper and owners of small businesses.[103] The upper-middle and upper class was described as being concerned with achievement, utilizing a variety of means to satisfy their objectives, and engaging in occupations such as executives, lawyers, or doctors.[104] They found a significant relationship between social class and bank credit card usage. For example, lower and lower-middle class members used the cards for installment buying, while the upper-middle and upper class used them for convenience.[105]

The Henry study (1976) used a mail questionnaire sent to 1,605 families randomly selected from the Los Angeles County Registrar of Voters precinct lists. The analysis was based on 498 usable responses.[106] Owners of full-sized automobiles were found to be middle-age and middle-class families with incomes in excess of $18,000.[107]

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[102] Ibid., p. 422.
[103] Ibid.
[104] Ibid.
[105] Ibid.
[106] Henery, op. cit., p. 123.
[107] Ibid., pp. 124-125.

Owners of intermediate-sized automobiles were found to have incomes between $10,000-$17,999 or $25,000-$49,999 and a democratic orientation in their relations with others.[108] Ownership of compact automobiles was positively associated with an individualistic attitude toward relations with others and larger family size.[109] Ownership of sub-compacts was positively associated with early stages in the family life cycle and democratic orientations in their relations to others.[110] Ownership of sports automobiles was positively associated with persons less than 30 years old.[111]

LITERATURE REVIEW SUMMARY

Three areas within the general literature of marketing, psychology, and sociology were reviewed for this dissertation. A summary of the literature dealing with the theory of social character, the development and use of Inner-Other Directed Social Preference Scale, and automobile brand choice and consumer behavior is contained in the following sections.

The Theory of Social Character

Riesman (1950) forwarded a theory of social character which segmented society into three types of social

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[108] Ibid.

[109] Ibid.

[110] Ibid.

[111] Ibid., pp. 125-126.

character. Tradition-directed people are oriented by the traditional ways of their ancestors and are guided by class or caste membership. Inner-directed people are guided by internalized values which stress individualism. Such a person is described as being materialistic, production oriented, and engaging in solitary recreational activities. The other-directed person is guided by his contemporaries. He values his social relationships and is sensitive to the needs of others. Where the inner-directed type is production oriented, he is consumption oriented. He consumes to 'fit' into society, whereas the inner-directed type consumes for the purpose of outward separation from society. These differing behavioral types appear to be a viable method of segmenting markets.

I-O Social Preference Scale

The scale was developed by Waltraud Kassarjian based on Riesman's descriptions of inner- and other-directed behavior. It was tested on samples of undergraduate students, and the distribution was essentially normal. Validity was established by two methods. Use of an outside criterion, reports of actual social behavior of the subjects, and by comparing preselected groups. Reliability was established by means of the test-retest method. Kassarjian concluded that "inner-other-directedness exists as a relatively independent variable and can be measured reliably and validly by means of the present I-O Scale."

An attempt was made to establish demographic data convarying with inner-other-directedness. The results indicated that neither sex, marital status, religion, age, race, father's occupation, degree of self-support, nor year in college were factors covarying with inner-other-directedness.

Centers (1962), using twenty-five of the most efficient and discriminating items of the I-O Social Preference Scale, surveyed a cross-section of adults in the greater Los Angeles area. The intent of the study was to determine the distribution among the general population of the social character typology developed by Riesman.

The findings were similar to those of Kassarjian's. Inner-other directedness was found to be normally distributed. Additionally, it was not found to have appreciable correlation with socio-economic indices. However, the general population was found to be more inner-directed than the undergraduate population upon which the scale was developed.

Centers and Horowitz (1963) found that other-directed individuals were more susceptible to the influence of others.

Kassarjian and Kassarjian (1965) found that occupational interest, as measured by the Strong Vocational Interest Blank, is related to occupations which could be considered inner- or other-directed occupations on the basis of Riesman's writings.

Harold Kassarjian (1965) found that inner-directed people preferred inner-directed advertisements and

that other-directed people preferred other-directed appeals.

Woodside (1968) examined the relationship between social character and usage rates of consumer convenience goods and television. This is the only study which did not find a relationship between social character and consumer behavior.

Donnelly (1970) found a positive relationship between inner-direction and early trial of new consumer convenience goods.

Donnelly and Ivancevich (1974) found a positive relationship between inner-direction and purchase of an automobile considered to be more innovative than its competitors.

The scale has been used in a number of social science studies. These studies have demonstrated the acceptance of the scale to researchers in marketing, psychology, and sociology, as well as providing empirical support to Riesman's theory of social character.

Automobile Brand Choice and Consumer Behavior

The third area of interest to this study is the literature which deals with automobile purchase.

The first major study appears to have been Evans (1959) who attempted to discriminate between Ford and Chevrolet owners on the basis of personality and demographic variables. He found few statistically significant differences between the two groups.

Westfall (1962) found personality differences between owners of compact and standard automobiles.

Jacobson and Kossoff (1963) found that consumers with favorable attitudes towards small cars were more conservative than those who had less favorable attitudes.

Ito (1967) was able to distinguish between potential brand switchers and loyal buyers of Ford and Chevrolet on the basis of their attitudes towards various attributes of the automobiles.

Birdwell (1968) studied the relationship between a consumer's self-image and the image of prestige categories of automobiles. He found that self-image and automobile brand image coincided for the higher-prestige automobiles.

Evans (1968) replicated his earlier study and obtained similar results.

Peters (April 1970) investigated the effect of levels of income within social classes. He found that relative occupational class income was an effective segmentation variable for differentiating between purchases of intermediate-sized cars and smaller cars.

Peters (August 1970) found significant demographic differences among purchasers of different sizes of automobiles.

Wiseman (1971) found that substantial differences existed among new and old model year purchasers of three

different size classifications of automobile. The most important variable grouping for the six market segments were shopping patterns and usage expectations, socio-economic and demographic, and personality variables.

Settle and Gibby (1972) found that people have different images of owners of Ford Mavericks as opposed to owners of Toyota Corollas.

Feldman and Armstrong (1975) found personality and demographic differences between purchasers of Mazdas and Toyotas.

Henry (1976) found significant differences between cultural orientation and demographic variables and five size classifications of automobiles.

An analysis of studies which have included demographic variables in their research design indicates that the major correlates of automobile consumer behavior are social class (Peter, April 1970; Henry, 1970), occupation (Peters, April 1970 and August 1970; Wiseman, 1971; Newman and Staelin, 1972; Feldman and Armstrong, 1975), education (Peters, August 1970; Wiseman, 1971; Newman and Staelin, 1972; Feldman and Armstrong, 1975), family income (Evans, 1959 and 1968; Peters, April 1970 and August 1970; Wiseman, 1971; Newman and Staelin, 1972; Feldman and Armstrong, 1975; Henry, 1976) and stage in family life cycle (Wiseman, 1971; Newman and Staelin, 1972). Life cycle related variables such as age (Evans, 1959 and 1968; Peters, August 1970; Feldman and Armstrong, 1975; Henry, 1976) and number

of children (Evans, 1959 and 1968; Peters, August 1970; Henry, 1976) have also been used.

Literature Review Conclusion

Three areas within the general literature of marketing, psychology, and sociology were reviewed for this study.

A review of Riesman's theory of Social Character indicates that it would be a valuable behavioral characteristic for use in market segmentation in that it effects product ownership and is shared, to some degree, by the majority of consumers in the United States.

The test used to measure Social Character, the Inner-Other Directed Social Preference Scale, has been shown to be a valid and reliable instrument which has been used by researchers in both sociology and marketing.

Although the marketing literature is replete with studies attempting to relate personality dimensions with automobile brand purchase, only one study, Birdwell (1968), investigated the relationship between prestige rankings and automobile brand purchase and only one study, Donnelly and Ivancevich (1974), has used social character as a segmentation variable in a study dealing with automobile purchases. Their study indicated that social character (inner-directed) was related to the time of new product acceptance for the Ford Maverick. However, their study did not include the traditional demographic correlates of automobile consumer behavior.

The literature dealing with automobile consumer behavior indicates that behavioral variables can be used to segment the market for automobiles and that the major demographic variables effecting brand ownership are social class, family income, education, occupation, and stage in the family life cycle.

From the literature reviewed, it would seem that a study of the effect of social character and demographic variables on the purchase of prestige categories of automobiles has not been conducted. This study hopes to fill this gap in the literature.

CHAPTER III

RESEARCH DESIGN

The purpose of this chapter is to examine the following sections of the research design: 1. The Field Study; 2. The Data Analysis Technique; 3. The Operational Measure of the Variables; and 4. The Hypotheses Tested.

THE FIELD STUDY

This section discusses the sample frame, pilot studies which were conducted, and the pretest of the questionnaire.

Sample Frame

This study focuses on the purchase of prestige categories of new automobiles in order to determine a profile of the new automobile purchaser. The respondent group surveyed consisted of a national probability sample of new automobile registrants in the continental United States during October 1976.

The sample was purchased from R.L. Polk & Co. Budgetary constraints limited the sample size to less than 3,000 new automobile registrants.

The data base was generated from responses to a mail questionnaire. Since the questionnaire promised anonymity to the respondent, the questionnaires were not coded. Non-response bias was controlled by conducting three mailings to the sample keyed to three-digit zip codes. The first went to 2,966 new automobile registrants in 354 three-digit zip codes. Vacant zip codes were then used to identify groups of non-respondents. The initial mailing went out on February 22-24, 1977 and was closed on April 11, 1977. This mailing produced 622 usable questionnaires, 27 unusable questionnaires, and 53 questionnaires which were returned as undeliverable. The second mailing went to 1,429 new automobile registrants in 170 vacant three-digit zip codes on May 2, 1977 and was closed on June 2, 1977. This mailing produced 109 usable questionnaires and 12 unusable questionnaires. The third mailing went to 1,178 new automobile registrants in 142 vacant three-digit zip codes on June 9, 1977. This mailing was closed on July 11, 1977, and produced 32 usable questionnaires and 6 unusable questionnaires. In total, 763 usable questionnaires were received from 229 three-digit zip codes for a 25.72% response rate.

Pilot Studies

A pilot study was conducted at Roosevelt Field, Long Island, on November 8, 1975 to confirm the prestige categories of automobiles used as the dependent variable for this study. This pilot study was necessary because some of the automobiles presently on the market were not included in the

Birdwell (1968) study. Twenty-five persons were interviewed, 12 male and 13 female, all apparently between the early twenties to early sixties. The results appear in Table 3. (See Appendix 2 for an example of the questionnaire.)

A second study was conducted at Roosevelt Field, Long Island, on April 2, 1977 to add an additional ten automobile brands to the prestige categories. This study was necessary since 34 questionnaires had been received from people who had automobiles not classified by Birdwell or the previous pilot study. Twenty-five persons were interviewed, 12 male and 13 female, all apparently between their early twenties to early sixties. The results appear in Table 4. (See Appendix 3 for an example of the questionnaire and Appendix 1 for an example of the instructions for both pretests.)

Questionnaire Pretest

Two pretests were conducted to test the clarity of the cover letters and all of the questions on the questionnaire. The alternative selection set-up for the I-O Social Preference Scale was modified slightly as a result of these pretests. (See Appendix 4 for examples of the cover letters and Appendix 5 for an example of the questionnaire.) The subjects for the pretest were undergraduate and graduate students at the University of New Haven.

TABLE 3

RESULTS OF PRETEST TO UPDATE BIRDWELL'S CLASSIFICATION

Automobile	Number of Respondents Assigning Automobile to Each Group (1)	(2)	(3)	(4)	Number Could Not Classify Brand	Group Automobile Assigned To
Audi	3	18	1	0	3	2
Datsun	0	3	4	17	1	4
Dodge	0	23	2	0	0	2
Jaguar	25	0	0	0	0	1
Mercedes-Benz	25	0	0	0	0	1
Mercury	0	24	1	0	0	2
Opel	0	0	2	22	1	4
Peugeot	1	18	4	0	2	2
Pinto	0	0	2	23	0	4
Toyota	0	0	3	20	2	4
Volvo	2	19	3	1	0	2

NOTE: Group 1 = High Prestige Automobiles

Group 2 = Medium Prestige Automobiles

Group 3 = Low Prestige Automobiles

Group 4 = Very-Low Prestige Automobiles

TABLE 4

RESULTS OF PILOT STUDY TO CLASSIFY AUTOMOBILE BRANDS

Automobile	Number of Respondents Assigning Automobile to Each Group (1)	(2)	(3)	(4)	Number Could Not Classify Brand	Group Automobile Assigned To
BMW	2	17	4	0	2	2
Checker	0	16	7	1	0	2
Fiat	0	1	6	18	0	4
Honda	0	0	1	22	2	4
Mazda	0	0	0	21	4	4
MGB	0	19	5	0	1	3
Saab	0	0	0	19	6	4
Subaru	0	0	0	17	8	4
Triumph	0	19	5	0	1	2

NOTE: Group 1 = High Prestige Automobiles

Group 2 = Medium Prestige Automobiles

Grouo 3 = Low Prestige Automobiles

Group 4 = Very-Low Prestige Automobiles

The final questionnaire and cover letter was mailed to 100 residents of New York State in order to determine the approximate rate of return for the first mailing. This pretest indicated that a 22% response rate could be expected.

DATA ANALYSIS TECHNIQUE

The Statistical Package for the Social Sciences was used for data analysis because it offers an integrated system of computer programs which allow for the use of a wide variety of data analysis techniques.[1]

The analysis was broken down into two major components. First, the returns from the first mailing were analyzed to test the hypotheses and second, the returns from the latter mailings were compared to the returns from the first mailing to determine if any significant differences existed between the early respondents and the late respondents. These two components are discussed in the following sub-sections.

Analysis of the First Mailing

The first step of the analysis involved the generation of simple descriptive statistics for I-O Social Preference Scale Scores, brand of automobile purchased,

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[1] Norman H. Nie, C. Hadlai Hull, Jean H. Jenkins, Karen Steinbrenner, and Dale H. Bent, Statistical Package for the Social Sciences, 2nd Ed. (New York: McGraw-Hill Book Company, 1975).

education and occupation of registrant, social class, family income, stage in family life cycle, number of people purchasing the car for use as a second car, three-digit zip code, state, employment status of wife, prestige category of automobile, and number of individuals classified as inner- or other-directed using the sample I-O Social Preference Scale score mean as the dividing point.

The next step was to run cross-tabulations to determine which of the independent variables were related to the purchase of an automobile from one of the four prestige categories. Chi-square analysis at a .05 significance level was used to test the statistical significance of the relationships.

Subprogram DISCRIM was used for the four group discriminant analysis. Two approaches were considered for this analysis. Ideally, the first mailing was to have been divided into two equal groups to form analysis and validation sub-samples, the latter to be used to test the performance of the classification functions. However, the High Prestige Automobile Group contained only four very expensive automobiles. This meant that it was very possible that this group would be much smaller than the other three groups. Morrison (1969) noted that when the groups are of greatly unequal size, it's difficult to interpret the classification table and that regardless of sample size, the effective size as far as ability to

discriminate is concerned is governed by the smaller group.[2] Therefore, if there were too few respondents in the High Prestige Category, all of these responses would be used to compute the discriminant function and only the Medium, Low and Very-Low Prestige Categories would be included in the holdout sample. Since the High Prestige Category was only 4.7 percent of the entire sample, this latter approach was used.

The DISCRIM subprogram was used to test hypotheses dealing with differences among the four groups. The hypotheses and the particular statistical lists utilized are discussed in the hypotheses section of this chapter.

Analysis of Early and Later Respondents

The returns from the second (109) and third (32) mailings were combined and then compared to the returns from the first mailing (622) to determine what, if any, differences existed between the two groups.[3]

Chi-square analysis at an .05 level of significance was used to determine if the two groups differed on the basis of social character, stage in family life cycle, social class, family income, employment status of wife, automobile utilization, and prestige category of automobile purchased.

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[2] Donald Morrison, "On the Interpretation of Discriminant Analysis," Journal of Marketing Research, Vol. 6, No. 2 (May, 1969), p. 160.

[3] The later respondents are used as a surrogate for non-respondents. If there are no significant differences between the early and later respondents, the results of the study will be considered to be applicable to the entire sample.

Variable Measurement

The purpose of this section is to define the operational measure for each variable and note the reasons for their inclusion in the study.

The dependent variable used in this study is the purchase of a new automobile from one of the following prestige categories of automobile:

High-Prestige Automobiles:

Lincoln, Cadillac, Mercedes-Benz, Jaguar

Medium-Prestige Automobiles:

Chrysler, Oldsmobile, Buick, Pontiac, Dodge, Mercury, Volvo, Audi, Peugeot, Triumph, BMW, MGB, Checker

Low-Prestige Automobiles:

Plymouth, Ford, Chevrolet

Very Low-Prestige Automobiles:

Volkswagen, Pinto, Renault, Opel, Datsun, Toyota, Mazda, Saab, Fiat, American Motors, Honda, Subaru

The independent variables used in this study are social character, social class, family income, employment status of wife, stage in family life cycle, and whether or not the automobile was purchased for use as a second car. The operational measures for the variables are noted below.

The behavioral independent variable for this study is the respondents' social character as measured by the respondents' score on the I-O Social Preference Scale. The scores on this scale cover a range of 0-144. A score greater than the sample mean classifies the respondent as inner-directed. A score less than the sample mean classifies

the respondent as other-directed. The sample mean has been used as the dividing point between inner- and other-directedness in previous studies (Woodside, 1968; Donnelly, 1970; Donnelly and Ivancevich, 1974). Its use in the present study is a matter of operational convenience in that individuals are neither totally inner-directed nor totally other-directed. Rather, they are comparatively more inner- or other-directed than each other. Social character is a behavioral characteristic developed by Riesman (1950) who hypothesized that individuals can be placed into three categories:

1. Tradition-Directed: Behavior is guided by class or caste membership.
2. Other-Directed: Behavior is guided by contemporaries.
3. Inner-Directed: Behavior is guided by internal values.

Riesman noted that few, if any, individuals in the United States could be considered to be tradition-directed and that the social character of the United States would be on a continuum from other-directed to inner-directed.

The instrument used to measure social character (Waltraud Kassarjian, 1962) is a validated instrument that has been used in previous studies by Centers (1963), Centers and Horowitz (1963), Kassarjian and Kassarjian (1965), Kassarjian (1965), Woodside (1968), and Donnelly (1970). Donnelly and Ivancevich (1974) used the instrument in a study concerned with automobile consumer behavior.

Social class is included in the study since it

has been shown to be related to the purchase of an automobile (Peters, 1970; Henry, 1976).

The operational measure for social class is the two-variable Index of Social Position developed by Hollingshead which is based on occupation and education.

This instrument was also used by Mathews and Slocum (1969) to test the relationship between social class and use of commercial bank credit cards. Additionally, the two variables which make up the index have been used individually in a number of studies dealing with automobile consumer behavior. Occupation has been used by Peters (April 1970 and August 1970), Wiseman (1971), Newman and Staelin (1972), and Feldman and Armstrong (1975). Education has been used by Peters (August 1970), Wiseman (1971), Newman and Staelin (1972), and Feldman and Armstrong (1975).

The Hollingshead Index of Social Position divides society into five classes. A score of 11-17 equals upper class, 18-27 upper-middle class, 28-43 middle class, 44-60 lower middle, and 61-77 lower.

Income is included in the study because it has a great impact on the consumers' ability to purchase an automobile. The operational measure for income is total family income from all sources. This measurement for income has been used by Evans (1959, 1968), Peters (April 1970, August 1970), Wiseman (1971), Newman and Staelin (1972), Feldman and Armstrong (1975), and Henry (1976).

Four income categories are used in this study:

less than $13,999; $14,000 to $20,999; $21,000 to $34,999; and more than $35,000. These categories are based on those used in the 1970 census. They have been increased by 40% to reflect inflation rates between 1970 and 1976.

The family's life cycle is included in the study because the particular stage effects the purchasing power and product needs of the family. Additionally, expectations concerning the exit or re-entry of the wife into the labor force would effect their perceptions as to their relative financial position. For example, the arrival of the first child reduces family income, may cause the couple to move into their first home, and require the purchase of major appliances such as a washer and dryer. As the family grows older, the financial position should improve and the family may be in the market for different automobiles and appliances.

The operational measure for the stage in the family life cycle will be the following typology:

Stage 1: Bachelor; young single people not living at home.

Stage 2: Newly married couples; young, no children.

Stage 3: Young married couples with youngest child under six.

Stage 4: Young married couples with youngest child over six.

Stage 5: Older married couples with dependent children.

Stage 6: Older married couples, no children living with them.

Stage 7: Older single people.

Older couples are those in which the head of the household is 45 years old or more.

[4] Adapted from James Engel, David Kollat, and Roger Blackwell, Consumer Behavior (Hinsdale, Illinois: Dryden Press, 1973), pp. 193-194.

Family life cycle has been used by Wiseman (1971) and Newman and Staelin (1972) in the study of automobile consumer behavior. Additionally, various related variables have been used in a number of other automobile consumer behavior studies. Age of the registrant has been used by Evans (1959, 1968), Peters (August 1970), Feldman and Armstrong (1975), and Henry (1976). Number of children in the family has been used by Evans (1959, 1968), Peters (August 1970), and Henry (1976).

The employment status of the wife is included since this would effect both product needs and purchasing power. The operational measure for a working wife is that the wife's contribution to total family income is one percent or more.

The use to which the automobile is put is included since the considerations behind the purchase of a particular brand of automobile for use as a second car would be different than if the automobile were being purchased for use as the main automobile.

The operational measure for this variable would be that the respondent owned two automobiles and that the most recently purchased automobile is not the automobile that would normally be used for attending social occasions.

Hypotheses

The purpose of this section is to note the research hypotheses, the rationale for the hypotheses, and the statistical technique used to test the hypotheses.

1. A systematic relationship exists between the social character of the consumer and the prestige category of automobile purchased.

   H_0: Prestige category of automobile purchased is not related to social character.

   H_1: Prestige category of automobile purchased is negatively related to social character (that is, inner-directed consumers tend to purchase lower prestige automobiles and other-directed consumers tend to purchase higher prestige automobiles).

This hypothesis is based on previous studies which have shown a relationship between consumer behavior and social character. Donnelly (1970) found inner-directed to be positively related to the purchase of new food products and Donnelly and Ivancevich (1974) found inner-direction to be positively related to early purchase of the Ford Maverick.

The hypothesis will be tested by chi-square analysis at an .05 level of significance, ANOVA, and Duncan's multiple range test.

2. A systematic relationship exists between the social class of the consumer and the prestige category of automobile purchased.

   H_0: Prestige category of automobile purchased is not related to social class.

   H_1: Prestige category of automobile purchased is positively related to social class (that is, upper class consumers tend to purchase higher prestige automobiles and lower class consumers tend to purchase lower prestige automobiles).

This hypothesis is based on previous studies by Peters (1970) and Henry (1976) which have shown a relationship between social class and automobile consumer behavior.

The hypothesis will be tested by chi-square analysis at an .05 level of significance.

3. A systematic relationship exists between the consumer's stage in the family life cycle and the prestige category of automobile purchased.

   H_0: Prestige category of automobile purchased is not related to stage in family life cycle.

   H_1: Prestige category of automobile purchased is positively related to stage in family life cycle (that is, older families will tend to purchase higher prestige automobiles and younger families will tend to purchase lower prestige automobiles).

This hypothesis is based on previous studies by Wiseman (1971) and Newman and Staelin (1972) which have shown a relationship between automobile consumer behavior and stage in family life cycle.

The hypothesis will be tested by chi-square analysis at an .05 level of significance.

4. A systematic relationship exists between the consumer's family income and prestige category of automobile purchased.

   H_0: Prestige category of automobile purchased is not related to family income.

   H_1: Prestige category of automobile purchased is positively related to family income (that is, wealthier consumers tend to purchase higher prestige automobiles and poorer consumers tend to purchase lower prestige automobiles).

This hypothesis is based on previous studies by Evans (1959, 1968), Peters (April 1970, August 1970), Wiseman (1971), Newman and Staelin (1972), Feldman and Armstrong (1975), and Henry (1976) which have shown a relationship between automobile consumer behavior and family income.

The hypothesis will be tested by chi-square analysis at an .05 level of significance.

5. Group membership can be predicted by the following equation:

$$Y = f(X_1, X_2, \ldots\ldots X_6)$$

where:

Y = Purchase of a new automobile which was registered in the continental United States during October 1976.

- = 1 = > High-Prestige Automobiles

  (Lincoln, Cadillac, Mercedes-Benz, Jaguar)

- = 2 = > Medium-Prestige Automobiles

  (Chrysler, Oldsmobile, Buick, Pontiac, Dodge, Mercury, Volvo, Audi, Peugeot, Triumph, BMW, MGB, Checker)

- = 3 = > Low-Prestige Automobiles

  (Plymouth, Ford, Chevrolet)

- = 4 = > Very Low-Prestige Automobiles

  (Volkswagen, Pinto, Renault, Opel, Datsun, Toyota, Mazda, Saab, Fiat, American Motors, Honda, Subaru);

X_1 = Social Character ($\leq \bar{X}$ = other-directed; $\geq \bar{X}$ = inner-directed);

X_2 = Social Class (11-27 = upper and upper middle; 28-43 = middle; 44-77 = lower middle and lower);

X_3 = Income (1 = less than $13,999; 2 = $14,000-$20,999; 3 = $21,000-$34,999; 4 = more than $35,000);

X_4 = Stage in Family Life Cycle (1 = young single; 2 = young married without children; 3 = young married, youngest child under six; 4 = young married, youngest child over six; 5 = older married with dependent children; 6 = older married without dependent children; 7 = older single);

X_5 = Employment Status of Wife (1 = wife works; 2 = wife doesn't work); and

X_6 = Product Utilization (1 = purchased for use as second automobile; 2 = not purchased for use as a second automobile).

5a. The independent variable means are significantly different between at least two of the four groups.

H_0: $Mean_{1R} = Mean_{2R} = Mean_{3R} = Mean_{4R}$ for each independent variable R = 1-n

H_1: $Mean_{iR} \neq Mean_{jR}$ for any i and j and R

This hypothesis will be tested by a one-way ANOVA for equality of group means on a single discriminating variable at an .05 level of significance.

5b. The market segments for prestige categories of automobiles defined by the function $Y = f(X_1, X_2, \ldots X_6)$ are significantly different.

H_0: $M_1 = M_2 = M_3 = M_4$

H_1: $M_i \neq M_j$ for any Mi and Mj

where:

Mi = the group centroids for each of the prestige categories of automobile.

This hypothesis will be tested by a matrix of pairwise F ratios at an .05 level of significance. This

matrix consists of an F-ratio for each pair of groups. This F is the significance test of the Mahalonobis distance between the group and tests for the equality of pairs of centroids. These centroids are the mean discriminant scores for each group which represent the group location in reduced space.

5c. The equation $Y = f(X_1, X_2, \ldots X_6)$ predicts group membership better than chance.

H_0: The procedure does not classify better than chance.

H_1: The procedure does classify better than chance.

This hypothesis will be tested by the Press Q Statistic at an .05 level of significance on the classification results from the holdout sample.[5] The test statistic is expressed as follows:

$$Q = \frac{(N - nK)^2}{N\,(K - 1)}$$

where: N = number of observations

n = number of correct classifications

K = number of groups

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[5] S. James Press, Applied Multivariate Analysis (New York: Holt, Rinehart & Winston, Inc., 1972), pp. 382-383.

CHAPTER IV

RESULTS

The purpose of this chapter is to present the response rate, comparison of the early and late respondents, statistics for testing the hypotheses, and a summary of the results.

SAMPLE SIZE AND RESPONSE RATE

A total of 2,966 questionnaires were mailed to a probability sample of people who had registered a new automobile in the continental United States during October 1976. Some states[1] do not allow the sale of automobile registration information so registrations from these states were not included.

Three mailings were conducted to determine what, if any, differences existed between the early and late respondents on the bases of their distribution among the prestige categories of automobiles, number of inner- and other-directed respondents in each group, automobile utilization, social class, income, stage in the family life cycle, and employment status of wife. Table 5 shows the response rates that were obtained. The total response rate was 25.72%.

[1] Connecticut, Georgia, Maryland, New Jersey, Nevada, Ohio, Oklahoma, South Dakota, Vermont, and Washington.

TABLE 5

RESPONSE RATE

Mailing Number	Number of Questionnaires Mailed (#)	Number of Usable Questionnaires Returned (#)	(%)	Number of Three-Digit Zip Codes in Mailing (#)	Number of Three-Digit Zip Codes Responses Received From (#)	(%)
1	2,966	622	20.97	354	184	51.98
2	1,429	109	7.62	170	64	N.A.[a]
3	1,178	32	2.72	142	24	N.A.[b]
Totals	2,966	763	25.72	354	229	64.94

[a] Not Applicable. Returns were received from 28 new three-digit zip codes and 36 three-digit zip codes from which returns had previously been received.

[b] Not Applicable. Returns were received from 17 new three-digit zip codes and 7 three-digit zip codes from which returns had previously been received.

Originally, the analysis of non-respondents was to have been taken an additional step. U.S. Census data from non-responding three-digit zip codes was to be compared with demographic data on the respondents to determine if they differed significantly by age, marital status, occupation, education, income, or number of children. This could not be done because the U.S. Postal Service was in the process of converting to Area Processing Centers. These centers collect all the outgoing mail from many three-digit zip codes and process and sort it by machine. However, these centers did not go into operation, nor begin to service all their sub-stations, at the same time. For example, in Westbury, New York (Zip 115), mail collected between 9 A.M. and 3 P.M. is sent to Hempstead (also Zip 115); mail collected in the afternoon is processed at Westbury; and mail collected at night is processed at Hicksville (Zip 118). This occurred until October 1977 when a country-wide Area Processing Center opened at Mitchell Field, New York.[2]

As Table 5 indicates, the second and third mailings were caught up in this national changeover as later responses were received from zip codes which had not been mailed questionnaires. This limited the analysis of non-response bias to early respondents (the first mailing) and late respondents (the second and third mailings). The

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[2] Interview with Mr. Francis J. McInerney, Manager, Mail Processing, Westbury, New York, September 12, 1977.

cover letters for the later mailings requested that the questionnaire be ignored if it had previously been completed. The questionnaires themselves were coded by mailing to protect against non-compliance with the instructions. There were no duplicate questionnaires received.

COMPARISON OF EARLY AND LATE RESPONDENTS

The early and late respondents were tested to determine if the two groups differed to any extent. Specifically, they were tested for differences in their distribution among the prestige categories of automobiles, number of inner- and other-directed respondents in each group, automobile utilization, social class, income, stage in family life cycle, and employment status of wife.

Table 6 presents Chi-square analyses of the early and late respondents. For the early respondents, the prestige categories contained a high of 233 automobiles in the Low-Prestige category and a low of 29 in the High-Prestige category. This necessitated that the classification phase of the discriminant analysis utilize a holdout sample consisting of half of the Medium, Low and Very-Low Prestige automobiles. For the late respondents, the prestige categories of automobiles contained a high of 62 in the Medium Prestige category and a low of four in the High Prestige category. The distribution of respondents among the prestige categories was not significantly different between the early and late respondents ($X^2 = 3.26$, d f = 3, p = .3528). Appendices 6 and 7 present a comparison of October 1976 new

TABLE 6
CHI-SQUARE ANALYSES OF EARLY AND LATE RESPONDENTS

(A) Chi-Square Analysis of Respondents by Prestige Category of Automobile Purchased

Respondent Group	Prestige Categories							
	High		Medium		Low		Very Low	
	#	%	#	%	#	%	#	%
Early	29	4.70	230	37.00	233	37.50	130	20.90
Late	4	2.80	62	44.00	51	36.20	24	17.00

$X^2 = 3.26316$

d f = 3

p = .3528

(B) Chi-Square Analysis of Respondents by Automobile Utilization

Respondent Group	Automobile Utilization			
	Purchased for Use As A Second Automobile		Not Purchased for Use As A Second Automobile	
	#	%	#	%
Early	155	24.90	467	75.10
Late	30	21.30	111	78.70

$X^2 = .64403$

d f = 1

p = .4223

TABLE 6
(continued)

(C) Chi-square Analysis of Respondents by Social Character

Respondent Group	Social Character			
	Inner-Directed		Other-Directed	
	#	%	#	%
Early	306	49.20	316	50.80
Late	62	44.00	79	56.00

$X^2 = 1.0562$
d f = 1
p = .3041

(D) Chi-square Analysis of Respondents by Social Class[a]

Respondent Group	Social Class					
	Upper and Upper-Middle Class		Middle Class		Lower-Middle and Lower Class	
	#	%	#	%	#	%
Early	76	14.00	278	51.30	188	34.70
Late	15	12.20	64	52.00	44	35.80

$X^2 = .28913$
d f = 2
p = .8654

TABLE 6
(continued)

(E) Chi-square Analysis of Respondents by Employment Status of Wife

Respondent Group	Employment Status of Wife			
	Wife Works		Wife Does Not Work	
	#	%	#	%
Early	236	37.90	386	62.10
Late	54	38.30	87	61.70

X^2 = .00031
d f = 1
p = .9860

(F) Chi-square Analysis of Respondents by Stage in Family Life Cycle

Respondent Group	Stage in Family Life Cycle													
	Young Single		Young Married No Children		Young Married Oldest Child Under Six		Young Married Youngest Child Over Six		Older Married With Dependent Children		Older Married No Dependent Children		Older Single	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Early	128	20.60	60	9.60	75	12.10	87	14.00	81	13.00	158	25.40	33	5.30
Late	23	16.30	17	12.10	23	16.30	18	12.80	17	12.10	36	25.50	7	5.00

X^2 = 3.57303
d f = 6
p = .7342

TABLE 6
(continued)

(G) Chi-square Analysis of Respondents by Income[b]

Respondent Group	Income							
	$0 to $13,999		$14,000 to $20,999		$21,000 to $34,999		$35,000 or more	
	#	%	#	%	#	%	#	%
Early	172	28.10	182	29.70	168	27.40	91	14.80
Late	39	27.70	39	27.70	47	33.30	16	11.30

$X^2 = 2.56820$
d f = 3
p = .4631

NOTE: For Early Respondents, n = 622 unless otherwise indicated
For Late Respondents, n = 141 unless otherwise indicated

[a] Early Respondents n = 542 -- Late Respondents n = 123

[b] Early Respondents n = 613 -- Late Respondents n = 141

automobile sales by brand with the survey observations. Sample frequencies are consistent with actual sales on the bases of market shares across prestige categories (X^2 = .4847, d f = 3, p < .9000) and between domestics and imports (X^2 = .6809, d f = 1, p < .9000).

Among the early respondents, 25.90% of the automobiles were purchased for use as second cars and 74.10% for use as the primary automobile. For the late respondents, these figures were 21.30% and 78.70% respectively. These are not significant differences (X^2 = .64403, d f = 1, p = .4223).

For the early respondents, the mean on the I-O Social Preference Scale was 85.4678, the standard deviation 13.847, and the range of scores from 41.00 (very other-directed) to 128.00 (very inner-directed). For the late respondents, the mean was 83.844, the standard deviation 15.385, and the range of scores from 45.00 to 131.00. Using the sample mean of 85 as the dividing point between inner- and other-directedness, 50.80% of the early respondents were classified as other-directed and 49.20% as inner-directed. For the late respondents, these figures were 56.00% and 44.00% respectively. These are not significant differences (X^2 = 1.0562, d f = 1, p = .3041). The sample mean has been used as the dividing point between inner- and other-directedness in previous studies (Woodside, 1968; Donnelly, 1970; Donnelly and Ivancevich, 1974).

Since the social class category a respondent was

assigned to was based on occupation and education, failure to answer either of these two questions makes it impossible to identify the respondent's social class. For the early respondents, 12.20% were upper class or upper-middle class, 44.70% were middle class, 30.20% were lower-middle or lower class, and 12.90% could not be classified. For the late respondents, these figures were 10.60%, 45.40%, 31.20%, and 12.80% respectively. These are not significant differences (X^2 = .28913, d f = 2, p = .8554).

For the early respondents, 62.10% were either single or in a marriage where the wife did not work and 37.90% were in a marriage where both partners worked. For the late respondents, these figures were 61.70% and 38.30% respectively. These are not significant differences (X^2 = .00031, d f = 1, p = .9860).

On family life cycle distribution, the largest group for the early respondents was older marrieds without dependent children, 25.40%, and 43.70% of the respondents were over 45 years old. For the late respondents, these figures were 25.50% and 42.60% respectively. There were no significant life cycle differences between the early and late respondents (X^2 = 3.57303, d f = 6, p = .7342).

For the early respondents, 27.70% had annual family incomes below $13,999, 29.30% were between $14,000-$20,999, 27.00% between $21,000-$34,999, and 14.60% were in excess of $35,000. The question was not answered by 1.40% of the early respondents. For the late respondents,

the figures were 27.70%, 27.70%, 33.30%, and 11.30% respectively. This question was answered by all the late respondents. There were no significant income differences between the early and late respondents (X^2 = 2.56820, d f = 3, p = .4631).

The foregoing analyses indicate that early and late respondents did not differ significantly by prestige category of automobile purchased, automobile utilization, social character, social class, employment status of wife, stage in family life cycle, or family income.

STATISTICS DEALING WITH HYPOTHESES

The purpose of this section is to present those statistics which relate to the research hypotheses. The first part of the section presents those dealing with the bivariate relationship between:

1. Social Character and New Automobile Purchase
2. Social Class and New Automobile Purchase
3. Family Income and New Automobile Purchase
4. Stage in Family Life Cycle and New Automobile Purchase

The second part presents those dealing with the research model's ability to discriminate among purchasers of the prestige categories of automobiles.

Statistics for Testing Bivariate Hypotheses

Table 7 indicates the relationship between social character and prestige category of automobile.

The Chi-square analysis indicated a significant

TABLE 7

ANALYSES OF EFFECT OF SOCIAL CHARACTER ON PRESTIGE CATEGORY OF AUTOMOBILE

(A) Chi-square Analysis of the Effect of Social Character on Prestige Category of Automobile

Prestige Category of Automobile	Social Character	
	Inner-Directed	Other-Directed
High	11	18
Medium	74	156
Low	131	102
Very Low	90	40

$X^2 = 53.61771$
d f = 3
$p < .0001$

(B) ANOVA of Social Preference Scale Score Across Prestige Categories

Source of Variation	d f	MS	F
Between Groups	3	3,922	22.588
Within Groups	618	173	

$p < .0001$

TABLE 7
(continued)

(C) Duncan Multiple Range Test at the 5% Level of the Significance of the Difference between Means on the I-O Social Preference Scale across the Prestige Automobile Categories

High	Medium	Low	Very Low
80.5172	80.6043	87.5708	91.4077

Note: Lines underlying common means are not significantly different from one another

relationship between social character and prestige category of automobile (X^2 = 53.62, d f = 3, p < .0001). There were comparatively more other-directed respondents in the two highest prestige categories and comparatively more inner-directed respondents in the lower two prestige categories. The ANOVA indicated that means on the I-O Social Preference Scale Score across the four prestige categories were significantly different. These means ranged from a low of 80.5172 (other-directed) for purchasers of High Prestige Automobiles, to a high of 91.4077 (inner-directed) for purchasers of Very-Low Prestige Automobiles. The Duncan test indicated that the means on the I-O Social Preference Scale were not significantly different between purchasers of High and Medium Prestige Automobiles. Purchasers of Low Prestige automobiles were found to be significantly more inner-directed than the High and Medium Prestige Automobile purchasers. Purchasers of Very-Low Prestige Automobiles were found to be significantly more inner-directed than purchasers of Low Prestige Automobiles.

Table 8 indicates the relationship between social class and prestige category of automobile. There is no significant relationship between social class and prestige category of automobile purchased. Appendix 8 presents analyses of the correlations among the variables. The zero order partial correlation coefficient between social class and prestige category of automobile is significant (p =.008) as is the correlation coefficient between social class and

TABLE 8

CHI-SQUARE ANALYSIS OF THE EFFECT OF SOCIAL CLASS ON PRESTIGE CATEGORY OF AUTOMOBILE

Prestige Category	Social Class		
	Upper and Upper-Middle	Middle	Lower-Middle and Middle
High	6	15	4
Medium	30	110	61
Low	24	98	77
Very-Low	16	55	46

$X^2 = 9.11241$
d f = 6
p = .1674

income ($p = .001$). However, when the effect of income is controlled for the correlation between social class and prestige category of automobile is no longer significant ($p = .226$).

Table 9 indicates the relationship between stage in family life cycle and prestige category of automobile. Respondents 45 or older purchased 82.76% of the High Prestige automobiles, although they accounted for only 43.70% of the sample, while those under 45 purchased 73.85% of the Very-Low Prestige automobiles, although they accounted for only 56.30% of the sample. The relationship is significant ($X^2 = 62.16238$, d f = 18, $p < .0001$). Additionally, the correlation between prestige category of automobile purchased and stage in family life cycle is significant when income ($p = .004$) and social class ($p = .001$) is controlled for.

Table 10 indicates the relationship between income and prestige category of automobile. Respondents earning in excess of $35,000 purchased 72.40% of the High Prestige category automobiles, although they accounted for only 14.80% of the respondents. This relationship is significant ($X^2 = 95.33386$, d f = 9, $p < .001$). Additionally, the correlation between prestige category of automobile purchased is significant when stage in family life cycle ($p = .001$) and social class ($p = .001$) is controlled for.

The foregoing analyses indicate that a significant relationship exists between prestige category of automobile and social character, family income, and stage in

TABLE 9

CHI-SQUARE ANALYSIS OF THE EFFECT OF STAGE IN FAMILY LIFE CYCLE ON PRESTIGE CATEGORY OF AUTOMOBILE

Prestige Category	Stage in Family Life Cycle						
	Young Single	Young Married No Children	Young Married Oldest Child Under Six	Young Married Youngest Child Over Six	Older Married With Dependent Children	Older Married No Dependent Children	Older Single
High	0	2	1	2	13	9	2
Medium	46	26	20	32	28	68	10
Low	45	15	29	36	29	64	15
Very-Low	37	17	25	17	11	17	6

$X^2 = 62.16238$
d f = 18
$p < .0001$

TABLE 10

CHI-SQUARE ANALYSIS OF THE EFFECT OF INCOME ON PRESTIGE CATEGORY OF AUTOMOBILE

Prestige Category	Income			
	$0 to $13,999	$14,000 to $20,999	$21,000 to $34,999	$35,000 or more
High	1	2	5	21
Medium	56	62	71	39
Low	73	71	62	22
Very-Low	42	47	30	9

$X^2 = 95.33386$
d f = 9
$p < .0001$

family life cycle. A significant relationship does not exist between prestige category of automobile and social class.

Group Membership Hypotheses

The following series of Tables presents the results of the discriminant analysis used to test the group membership hypotheses. As noted in Chapter III, the data is split into two groups in order to eliminate the upward bias in classification results which occur when all the observations are used to calculate the discriminant functions and then classifies the same individuals on the basis of these functions. The analysis sample consists of all the responses from individuals who had purchased High Prestige Automobiles and one-half of the remaining responses from the other three groups.

To aid in the interpretation of the Tables, Table 11 indicates the variable names used in the analysis.

Table 12 presents the variable means by prestige category of automobile. The I-O Social Preference Scale Scores range from a low of 80.5172 in the High Prestige category to a high of 92.3000 in the Very-Low Prestige category. The LC1 mean of zero indicates there were no young single purchasers of High Prestige automobiles. The mean for income in excess of $35,000 goes from a high of .7241 in the High Prestige category to a low of .0667 in the Very-Low Prestige category, indicating the relatively heavy representation of these individuals in the former and light representation in the latter.

TABLE 11

VARIABLE NAMES USED IN DISCRIMINANT ANALYSIS

Variable	Variable Name
Group 1	High Prestige Automobiles
Group 2	Medium Prestige Automobiles
Group 3	Low Prestige Automobiles
Group 4	Very-Low Prestige Automobiles
IOSCR	I-O Social Preference Scale Score (Social Character)
AUSE 1	Product Utilization -- Purchased Automobile for Use as a Second Automobile
SC 2	Social Class -- Upper and Upper-Middle Class
SC 3	-- Middle Class
SC 4	-- Lower-Middle and Lower Class
INC 1	Income -- Less Than $13,999
INC 2	-- $14,000 - $20,999
INC 3	-- $21,000 - $34,999
INC 4	-- More Than $35,000
LC 1	Stage in Family Life Cycle -- Single
LC 2	-- Young Married
LC 3	-- Young Married - Youngest Child Under Six
LC 4	-- Young Married - Youngest Child Over Six
LC 5	-- Older Married with Dependent Children
LC 6	-- Older Married Without Dependent Children
W 2	Employment Status of Wife (Wife Works)

TABLE 12

VARIABLE MEANS FOR PRESTIGE CATEGORIES OF AUTOMOBILES

Variable	High Prestige Automobiles	Medium Prestige Automobiles	Low Prestige Automobiles	Very-Low Prestige Automobiles	Average
IOSCR	80.5172	80.6870	87.9917	92.3000	85.5354
AUSE 1	0.4138	0.1739	0.2314	0.3500	0.2492
SC 2	0.2069	0.1565	0.1157	0.1000	0.1354
SC 3	0.5172	0.5043	0.4132	0.4000	0.4523
SC 4	0.1379	0.2261	0.3719	0.4167	0.3077
INC 1	0.0345	0.2609	0.2645	0.3167	0.2523
INC 2	0.0690	0.2435	0.3471	0.4000	0.2954
INC 3	0.1724	0.2870	0.2727	0.2000	0.2554
INC 4	0.7241	0.2000	0.0992	0.0667	0.1846
LC 1	0.0000	0.1826	0.1653	0.2167	0.1662
LC 2	0.0690	0.0870	0.0496	0.2000	0.0923
LC 3	0.0345	0.0870	0.1405	0.2167	0.1262
LC 4	0.0690	0.1304	0.1818	0.1333	0.1446
LC 5	0.4483	0.1478	0.1240	0.0833	0.1538
LC 6	0.3103	0.2870	0.2645	0.0833	0.2431
W 2	0.2759	0.3565	0.3967	0.4167	0.3754

Table 13 presents the results of a one-way ANOVA for equality of group means on a single discriminating variable. The variables are ordered by descending values of their Wilks' lambdas to provide a ranking of their relative discriminatory power. The lower the value, the greater is the discriminatory power of the variable. As the Table indicates, family income in excess of $35,000 per year and social character were the most discriminating variables. Additionally, seven of the variables were significant at the .01 level and three at the .05 level.

Table 14 presents a summary table of the results of the stepwise discriminant analysis. The variable standard deviations and the within group correlations matrix appear in Appendices 10 and 11. The stepwise procedure is used to obtain the most parsimonious group of variables which achieve the optimal discrimination among the four groups. The stepwise procedure begins by selecting a discriminating variable and then pairing it with each of the other available variables. The new variable which, in conjunction with the initial variable, produces the best criterion value (largest Mahalanobis distance between two groups for the two closest groups on that variable), is the second variable entered into the equation. This procedure of locating the next variable which yields the best criterion score, given those variables already selected, continues until all are selected or additional variables do not improve the discriminatory power

TABLE 13

ONE-WAY ANOVA FOR EQUALITY OF GROUP MEANS

Variable	Wilks' Lambda	Univariate F with 3 and 321 Degrees of Freedom	Significance Level
INC 4	.7918	28.1385	.01
IOSCR	.8980	12.1539	.01
LC 5	.9309	7.9455	.01
INC 2	.9589	4.5807	.01
SC 4	.9594	4.5317	.01
LC 2	.9656	3.8080	.01
AUSE 1	.9657	3.7997	.01
LC 6	.9676	3.5861	.05
INC 1	.9731	2.9608	.05
LC 3	.9739	2.8731	.05
LC 1	.9781	2.3929	.10
SC 3	.9903	1.0505	NS
LC 4	.9909	.9782	NS
INC 3	.9913	.9339	NS
SC 2	.9915	.9125	NS
W 2	.9936	.6859	NS

TABLE 14

SUMMARY TABLE OF STEPWISE DISCRIMINANT ANALYSIS

Step Number	Variable Entered	F to Enter or Remove	Number Included	Wilks' Lambda	Sig.	Rao's V	Change in Rao's V	Sig. of Change
1	LC 3	2.87305	1	0.97385	0.036	8.61901	8.61901	0.035
2	SC 4	4.87454	2	0.93129	0.001	23.63797	15.01896	0.002
3	AUSE 1	4.08882	3	0.89681	<0.001	36.08894	12.45097	0.006
4	IOSCR	9.38222	4	0.82388	<0.001	66.75761	30.66867	<0.001
5	LC 2	4.50503	5	0.79019	<0.001	81.33537	14.57776	0.002
6	INC 4	24.77518	6	0.63973	<0.001	163.91313	82.57776	<0.001
7	INC 3	2.62803	7	0.62410	<0.001	174.44481	10.53168	0.015
8	LC 5	3.45491	8	0.60416	<0.001	188.20732	13.76251	0.003
9	LC 1	1.25791	9	0.59696	<0.001	193.01427	4.80695	0.186

of the equation. Variables in the analysis may be deleted at later stages if the information they contain about the group differences is available in some combination of the included variables.[3] Two statistics, Wilks' lambda and Rao's V, both of which measure overall group separation based on the variables in the equation, provide an indication of the discriminatory power of the variables. For the former, an F-test of significance is computed at each step. For the latter, a significance test for the change in V is computed.[4] As the table indicates, Wilks' lambda is a significant .59696. Rao's V is 193.01427. The two most significant variables changing Rao's V are family income in excess of $35,000 per year and I-O Social Preference Scale Score (social character).

Table 15 presents the matrix of pairwise F-ratios for each pair of groups. This F is the significance test for the Mahalonobis distance between the groups. As the Table indicates, all the group centroids are significantly different from each other ($p < .01$). The greatest separation occurs between High Prestige Automobiles and Very-Low Prestige Automobiles (F = 13.80490). The smallest separation occurs between Low Prestige and Very-Low Prestige Automobiles (F = 3.31002).

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[3] Norman Nie, C. Hadlai Hull, Jean Penkins, Karin Steinbrenner, and Dale Bent, Statistical Package for the Social Sciences, 2nd Edition (New York: McGraw-Hill Book Company, 1975), pp. 447-448.

[4] Ibid., p. 403.

TABLE 15

MATRIX OF PAIRWISE F RATIOS
FOR MAHALONOBIS DISTANCE BETWEEN GROUPS

	High Prestige Automobiles	Medium Prestige Automobiles	Low Prestige Automobiles
Medium Prestige Automobiles	7.48603		
Low Prestige Automobiles	11.31975	3.35695	
Very-Low Prestige Automobiles	13.80490	8.00179	3.31002

d f = 6,313

p < .01

Tables 16 and 17 present statistics for evaluating the relative ability of the discriminant functions to separate the groups. The maximum number of functions will be equal to the number of discriminating variables or the number of groups minus one. Since this study involves four groups and 16 variables, three functions are derived. The eigen-values represent the total variance in the discriminating variables. Each individual eigen-value indicates the relative importance of the function. As the table indicates, the first discriminant function accounts for approximately 75% of the total variance in the discriminating variables. Additional information concerning the discriminating power of the functions can be obtained by analyzing the change in Wilks' lambda as functions are removed. As Table 17 indicates, by using the three functions, lambda is significant (X^2 = 163.793, d f = 27, p < .0001). When the first discriminant function is removed, lambda increases but is still significant (X^2 = 45.784, d f = 16, p < .0001). When the second discriminant function is removed, lambda is no longer significant (X^2 = 10.641, d f = 7, p. < .155). This indicates that a statistically significant amount of discriminating information does not exist in the third function. However, all the functions are used in the classification since "even significant" functions can aid in the ability to accurately classify observations.[5]

[5] Robert A. Eisenbeis and Robert B. Avery, Discriminant Analysis and Classification Procedures (Lexington, Mass.: D.C. Heath and Company, 1972), p. 63.

TABLE 16

WEIGHTS OF EIGENVALUES FOR
THREE DISCRIMINANT FUNCTIONS

Discriminant Function	Eigenvalue	Relative Percentage of Total Eigenvalues
1	.45018	74.87
2	.11704	19.46
3	.03408	5.67

TABLE 17

DISCRIMINATING POWER OF
DISCRIMINANT FUNCTIONS

Functions Removed	Wilks' Lambda	X^2	d f	p
0	.5970	163.793	27	< .0001
1	.8657	45.784	16	< .0001
2	.9670	10.671	7	.155

Table 18 presents the standardized discriminant function coefficients. Regardless of the sign, the coefficients represent the relative contribution of the associated variable to that function. As the Table indicates, INC 4, family income in excess of $35,000 per year, and IOSCR, I-O Social Preference Scale Score, are the two most important variables in the first function. They are the fourth and first, respectively, in the second function.

Table 19 presents the group centroids for each function. The centroids represent the mean for all cases in a particular group along a specific function. In effect, then, they summarize the group locations in the space which is defined by the discriminant functions.[6]

Table 20 presents the classification matrix for the 9-variable, 4-group discriminant analysis for the classification sample of 325 respondents. Entries on the main diagonal of the matrix indicate correct classifications or hits. The off-diagonal numbers represent misses. In comparison to its actual numbers, the High Prestige category achieved the highest number of hits (20/29).

In order to improve the interpretability of the classification matrix, a normalized classification matrix is presented in Table 21. Each row has been divided by its total so that percents rather than numbers are compared. Purchasers of High Prestige automobiles have the most distinct

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[6] Nie, et al., op. cit., p. 440.

TABLE 18

STANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS

	Function		
Variable	1	2	3
INC 4	.73605	-.37003	.01523
IOSCR	-.40582	-.45515	.37653
LC 5	.21554	-.33342	.05713
LC 2	-.20924	-.38627	-.83766
LC 3	-.20093	-.26791	-.22463
INC 3	.15961	.22297	.14543
AUSE 1	-.15073	-.42481	.09310
LC 1	-.13147	-.09002	-.42459
SC 4	-.11954	-.22547	.26900

TABLE 19

CENTROIDS OF GROUPS IN REDUCED SPACE

Prestige Category	Function 1	Function 2	Function 3
High	1.42557	-0.60332	0.07149
Medium	0.24220	0.30802	-0.15466
Low	-0.23020	0.07220	0.21938
Very Low	-0.68904	-0.44440	-0.18054

TABLE 20

CLASSIFICATION MATRIX FOR ANALYSIS SAMPLE

Actual Group Membership	(#)	Predicted Group Membership HPA	MPA	LPA	VLPA	Total
High Prestige Automobiles	29	20	3	4	2	29
Medium Prestige Automobiles	115	16	51	43	5	115
Low Prestige Automobiles	121	7	34	72	8	121
Very-Low Prestige Automobiles	60	1	5	34	20	60
Total	325					325

Number of Cases Correctly Classified -- 163

TABLE 21

NORMALIZED CLASSIFICATION MATRIX FOR ANALYSIS SAMPLE

Actual Group Membership	(%)	Predicted Group Membership HPA	MPA	LPA	VLPA	Total
High Prestige Automobiles	8.92	68.97	10.34	13.79	6.90	100.00
Medium Prestige Automobiles	35.39	13.91	44.35	37.39	4.35	100.00
Low Prestige Automobiles	37.23	5.78	28.10	59.51	6.61	100.00
Very-Low Prestige Automobiles	18.46	1.66	8.33	56.68	33.33	100.00
Total	100.00					

Percent of Cases Correctly Classified = 50.15

Chance = 37.23%

Q = 109.67

d f = 1

$p < .001$

group profile as evidenced by the 69% correct classifications. Purchasers of Very-Low Prestige Automobiles have the least distinct group profile as evidenced by the 33% correct classifications. The Press Q statistic, a chi-square test of discriminatory power, equals 109.67. Since at the .001 level X^2 = 10.828, Q is significant. Thus, the classification procedure does do better than chance (assignment of all respondents into the largest category). However, since the same data is being used to evaluate the procedure as well as define it, there is an upward bias in the classification results. This bias is eliminated by use of a holdout sample. The holdout sample has been classified on the basis of the classification function coefficients which were derived from the analysis sample (see Appendix 12 for the Classification Function Coefficients).

Table 22 presents the classification matrix for the holdout sample of 297 respondents. As previously noted, the small size of the High Prestige Automobile category necessitated the use of all these responses in the analysis sample. There were no misclassifications into the High Prestige Category. As was the case with the analysis sample, the Low Prestige Category had the poorest classification results.

Table 23 presents the normalized confusion matrix for the holdout sample. Both the Medium and Low Prestige Categories appear to have rather distinct profiles (56% and 60% hits respectively). Purchasers of the Low Prestige

TABLE 22

CLASSIFICATION MATRIX FOR HOLDOUT SAMPLE

Actual Group Membership	(#)	Predicted Group Membership # HPA	MPA	LPA	VLPA	Total
High Prestige Automobiles	0	0	0	0	0	0
Medium Prestige Automobiles	115	0	64	50	1	115
Low Prestige Automobiles	112	0	44	67	1	112
Very-Low Prestige Automobiles	70	0	23	46	1	70
Total	297					297

Number of Cases Correctly Classified -- 132

TABLE 23

NORMALIZED CLASSIFICATION MATRIX FOR HOLDOUT SAMPLE

Actual Group Membership	(%)	Predicted Group Membership % HPA	MPA	LPA	VLPA	Total
High Prestige Automobiles	0.00	0.00	0.00	0.00	0.00	0.00
Medium Prestige Automobiles	38.72	0.00	55.65	43.48	0.87	100.00
Low Prestige Automobiles	37.71	0.00	39.28	59.82	0.90	100.00
Very-Low Prestige Automobiles	23.57	0.00	32.85	65.72	1.43	100.00
Total	100.00					

Percent of Cases Correctly Classified = 44.44

Chance = 38.72%

Q = 59.89

d f = 1

$p < .001$

Automobiles have the least distinct profile. The procedure is significantly better than chance ($X^2 = 59.89$, df = 1, $p < .001$).

HYPOTHESES TESTS

The purpose of this section is to present the results of the hypotheses, tests and a discussion of the conclusions drawn from them.

1. A systematic relationship exists between the social character of the consumer and the prestige category of automobile purchased.

   H_0: Prestige category of automobile purchased is not related to social character.

   H_1: Prestige category of automobile purchased is negatively related to social character (that is, inner-directed consumers tend to purchase lower prestige automobiles and other-directed consumers tend to purchase higher prestige automobiles).

As Table 7 indicated, there was a very significant relationship between prestige category of automobile and social character. The null hypothesis is therefore rejected. Table 24 provides a clearer picture of the relationship. As can be seen, other-directedness is associated with the purchase of either a Medium or High Prestige Automobile. The percent of other-directed purchasers in each group is 67.80 and 62.10, respectively. The purchase of an automobile from the Low and Very-Low Prestige Categories appears to be related to inner-direction. The percent of inner-directed purchasers in each group is 56.20 and 69.20, respectively. Finally, the analysis indicates that the nature of the

TABLE 24

RELATIONSHIP BETWEEN PRESTIGE CATEGORY OF AUTOMOBILE AND SOCIAL CHARACTER OF CONSUMER

Prestige Category	Number	Mean	Percent Inner-directed	Percent Other-directed	Significantly Different Group Mean
High	29	80.52	37.90	62.10	High with Low
					High with Very-Low
Medium	230	80.60	32.20	67.80	Medium with Low
					Medium with Very-Low
Low	233	87.57	56.20	43.80	Low with High
					Low with Medium
					Low with Very-Low
Very Low	130	91.47	64.20	30.80	Very-Low with High
					Very-Low with Medium
					Very-Low with Low
Average		85.47	49.20	50.80	

relationship between prestige categories of automobiles and social character is such that there exists no significant differences between purchasers of High and Medium Prestige Automobiles, but that purchasers of Low Prestige Automobiles were more inner-directed than those purchasing from the top two prestige categories and that purchasers of Very-Low Prestige Automobiles are the most inner-directed consumers of the four groups.

2. A systematic relationship exists between the social class of the consumer and the prestige category of automobile purchased.

   H_0: Prestige category of automobile purchased is not related to social class.

   H_1: Prestige category of automobile purchased is positively related to social class (that is, upper class consumers tend to purchase higher prestige automobiles and lower class consumers tend to purchase lower prestige automobiles).

As Table 8 indicated, there was not a significant relationship between social class and prestige category of automobile. The null hypothesis is therefore accepted. Additionally, the correlation between prestige category of automobile purchased and social class is not significant when the effect of income is controlled.

3. A systematic relationship exists between the consumer's stage in the family life cycle and the prestige category of automobile purchased.

   H_0: Prestige category of automobile purchased is not related to stage in family life cycle.

H_1: Prestige category of automobile purchased is positively related to stage in family life cycle (that is, older families will tend to purchase higher prestige automobiles and younger families will tend to purchase lower prestige automobiles).

As Table 9 indicated, there is a very significant relationship between life cycle and prestige category of automobile purchased. The null hypothesis is therefore rejected. As Table 25 indicates, the High Prestige Automobile market appears to be related to age in excess of 45 and families with older dependent children or without dependent children. Ownership of a Very-Low Prestige Automobile seems to be associated with young singles, newly marrieds, and those families who have a child under six.

4. A systematic relationship exists between the consumer's family income and prestige category of automobile purchased.

   H_0: Prestige category of automobile purchased is not related to family income.

   H_1: Prestige category of automobile purchased is positively related to family income (that is, wealthier consumers tend to purchase higher prestige automobiles and poorer consumers tend to purchase lower prestige automobiles).

As Table 10 indicated, there is a very significant relationship between family income and prestige category

TABLE 25

LIFE CYCLE AND PRESTIGE CATEGORY OF AUTOMOBILE

Life Cycle Stage	Distribution (Percent)	Purchases of Prestige Categories Exceeding Distribution			
		High	Medium	Low	Very Low
Young Single	20.60	--	--	--	28.50
Young Married without Children	9.60	--	11.30	--	13.10
Young Married, Youngest Child under Six	12.10	--	--	--	19.20
Young Married, Youngest Child over Six	14.00	--	--	15.50	--
Older Married, with Dependent Children	13.00	44.80	--	--	--
Older Married, without Dependent Children	25.40	31.00	29.60	27.50	--
Older Single	5.30	6.90	--	6.40	--
Total	100.00				

of automobile purchased. The null hypothesis is therefore rejected.

As Table 26 indicates, the market for High Prestige Automobiles is primarily comprised of families earning in excess of $35,000 per year. This group purchased 72.40% of the High Prestige Automobiles, although they accounted for only 14.80% of the respondents. The market for Low and Very-Low Prestige Automobiles is associated with family incomes below $21,000 per year.

5a. The independent variable means are significantly different between at least two of the four groups.

H_0: $\text{Mean}_{1R} = \text{Mean}_{2R} = \text{Mean}_{3R} = \text{Mean}_{4R}$

for each independent variable R = 1-16

H_1: $\text{Mean}_{iR} \neq \text{Mean}_{jR}$ for any i and j and R

As Table 13 indicated, significant differences were found for ten of the sixteen independent variables, indicating that at least one pair of automobile groups is significantly different on ten of the variables.

In order to present a clearer picture of the mean differences, Table 27 lists the variables and group means from Table 12, their significance levels from Table 13, and the Prestige Categories the univariate analyses, Tables 7, 8, 9, and 10 and Appendices 8, 13, and 14, indicate the variable is associated with. This is necessary since the

TABLE 26

FAMILY INCOME AND PRESTIGE CATEGORY OF AUTOMOBILE

Income Category (Per Year)	Distribution (Percent)	Purchases of Prestige Categories Exceeding			
		High	Medium	Low	Very Low
$35,000 or more	14.80	72.40	17.10	--	--
$21,000 - $34,999	27.40	--	31.10	--	--
$14,000 - $20,999	29.70	--	--	31.10	36.70
$13,999 or less	28.10	--	--	32.00	32.80
Total	100.00				

TABLE 27

ANALYSIS OF ONE-WAY ANOVA FOR EQUALITY OF INDEPENDENT VARIABLE MEANS ACROSS THE FOUR AUTOMOBILE PRESTIGE CATEGORIES

Variable	Prestige Category Univariate Analyses Indicates Variable Related To			
	High	Medium	Low	Very Low
Social Character*	81	81	88	92
Social Class				
Upper and Upper-Middle Class***	.27	.16	.12	.10
Middle Class***	.52	.50	.44	.40
Lower-Middle and Lower Class*	.14	.23	.37	.42
Family Income				
Less Than $13,999**	.03	.26	.26	.32
$14,000 - $20,999*	.07	.24	.35	.40
$21,000 - $34,999***	.17	.29	.27	.20
More Than $35,000**	.72	.20	.10	.07
Stage in Family Life Cycle				
Single***	.00	.18	.17	.22
Young Married without Children*	.07	.04	.05	.20
Young Married Youngest Child Under Six**	.03	.09	.14	.22
Young Married Youngest Child Over Six***	.07	.13	.18	.13
Older Married with Dependent Children*	.45	.15	.12	.08
Older Married without Dependent Children**	.31	.29	.26	.08
Working Wife***	.28	.36	.40	.42
Automobile Purchased for Use as a Second Automobile*	.41	.17	.23	.35

Note: The Underlined Means Identify Variables Which the Univariate Analyses Indicated Were Related to That Prestige Category

* p = .01
** p = .05
*** p = Not Significant

ANOVA only indicates that any two group means are significantly different. Not which two are significantly different. Chi-square analyses were run on the relationship between Prestige Category of Automobile and Automobile Utilization and between Prestige Category of Automobile and Employment Status of Wife (Appendices 13 and 14). There is a significant relationship between Prestige Category and Automobile Utilization (X^2 = 0.10113, d f = 3, p = .0280). Purchase of a second car appears to be primarily associated with the High Prestige Category and to a lesser extent with the Very-Low Prestige Category. Purchasing the automobile for use as a second car is least associated with the Medium Prestige Category. There is no significant relationship between Prestige Category of Automobile and Employment Status of Wife (X^2 = 1.81547, d f = 3, p = .6116).

As the table indicates, social character appears to be similar for the High- and Medium-Prestige Category purchaser. As with the Low Prestige Category being inner-directed and the Very-Low Prestige Category the most inner-directed of the four categories. Although the ANOVA indicated that lower-middle and lower class consumers made significantly different purchasers from the prestige categories, the chi-square analysis found no significant relationship between social class and prestige category of automobile purchased. Additionally, the first order partial correlation coefficient between social class and prestige category of automobile is not significant when the effect

of income is controlled. Family income less than $13,999 seems to differentiate the bottom three segments from the High Prestige market. This variable is associated most with the Very-Low Prestige Automobile Category. Family Income between $14,000-$20,999 per year appears to differentiate the Low and Very-Low Prestige Automobile market segments from the High Prestige segment. Family income between $21,000-$34,999 per year seems to differentiate the Medium Prestige market segments from the others. Family income in excess of $35,000 per year appears to differentiate the High Prestige Automobile segment from the other three. Young single consumers appear to be associated most with the Very-Low Prestige Category and least with the High Prestige Category. Young marrieds without children appear to separate the Very-Low Prestige market from the other three as do young marrieds whose youngest child is under six. Young marrieds with the youngest child over six distinguishes the Low Prestige market from the others. Older married couples with dependent children appear to separate the High Prestige Category from any one of the other three. Older married without dependent children appears to separate the top three segments from the Very-Low Prestige segment. The employment status of the wife appears to offer minimal information as to the prestige category of automobile a consumer would purchase from. Whether or not the automobile was purchased for use as a second car appears to differentiate the High Prestige market from the Medium and Low, as well as the Very-Low from the Medium and Low.

5b. The market segments for prestige categories of automobiles defined by the function $Y = f(X_1, X_2, \ldots X_6)$ are significantly different.

H_0: $M_1 = M_2 = M_3 = M_4$

H_1: $M_i \neq M_j$ for any Mi and Mj

where:

Mi = the group centroids for each of the prestige categories of automobile.

The group centroid defines the mean group profile based on the 9 independent variables in the analysis. The test of the equality of the group centroids is based on a F-ratio which is calculated from the Mahalonobis distance between two centroids. Table 15 presented the matrix of pairwise F-ratios. As the table indicated, all the groups are significantly different from each other ($p < .01$). The null hypothesis is therefore rejected. The greatest distance occurs between the High and the Very-Low Prestige Category ($F = 13.80$). The smallest occurs between the Low and the Very-Low Prestige Category ($F = 3.31$).

A clearer picture of the group differences and the variables affecting group separation can be obtained by examining the group centroids and the major discriminant function.

Table 28 presents the first discriminant function (which accounted for 75% of the discriminating power available in the 9 variables), the standardized discriminant

TABLE 28

FIRST DISCRIMINANT FUNCTION AND GROUP CENTROIDS

Variables	Coefficients
Family Income in Excess of $35,000 Per Year	.74
Social Character	-.41
Older Married with Dependent Children	.22
Young Married without Children	-.20
Young Married, Youngest Child Under Six	-.21
Family Income Between $21,000-$34,999	.16
Automobile Purchased For Use As a Second Car	-.15
Young Single	-.13
Lower-Middle and Lower Class	-.12

Centroids

-2.0	-1.0	0	+1.0	+2.0
-.69 Very Low Prestige Auto-mobile	-.23 Low Prestige Auto-mobile	.24 Medium Prestige Automobiles	+1.43 High Prestige Automobiles	

function coefficients which represent the relative contribution of the associated variable to the function, and the group centroids. The zero point is the grand mean for all the cases. As the table indicates, the function appears to measure high income (positive), and other-directedness (social character, negative). This seems to indicate that family income in excess of $35,000 per year and other-directedness are associated with the purchase of a High Prestige Automobile. Additionally, LC5, older married couples with dependent children, is associated with purchase of a High Prestige Automobile. From the table, the large separation between the High Prestige Automobile market and the other three markets is evident, as is the separation amongst the three lower prestige groups.

5c. The equation $Y = f(X_1, X_2, \ldots X_6)$ predicts group membership better than chance.

H_0: The procedure does not classify better than chance.

H_1: The procedure does classify better than chance.

As Tables 20 through 23 indicated, the procedure does classify better than chance (assignment of all individuals into the modal dependent variable category). The null hypothesis is therefore rejected.

Table 29 presents a comparison of the two classification results. For the analysis sample, 50.15% of the

TABLE 29

COMPARISON OF CLASSIFICATION RESULTS
COMBINED FROM ANALYSIS AND VALIDATION SAMPLES

Sample	Number of Cases	Correct Classifications		Press Q	Significance
		Number	Percent		
Analysis[a]	325	163	50.15	109.67	$p < .001$
Validation[b]	297	132	44.44	59.89	$p < .001$

[a] Chance = 37.23%

[b] Chance = 38.72%

cases were correctly classified. This dropped to a correct classification percentage of 44.44% for the validation sample. The drop in predictive ability of 5.71 percentage points is due to the bias inherent in the model-building process when the same individuals used to calculate the discriminant functions are then classified by the same functions. However, the number of correct classifications obtained from applying the discriminant functions estimated from the analysis sample to the validation sample fairly reflects the model's real ability to discriminate.

RESULTS SUMMARY

The study examined three specific questions. Are the profiles of the automobile purchasers different? Can the independent variables (social character, social class, family income, stage in family life cycle, employment status of wife, and automobile utilization) predict group membership? Is social character a worthwhile market segmentation variable? Social character received special emphasis because its value as a segmentation variable had not been proven when used in conjunction with demographic variables.

From the foregoing analyses, it appears that all three questions were answered affirmatively. Table 30 presents the classification function coefficients of the nine variables for the four discriminant functions (from Appendix 12). This table is used in conjunction with Table 27, Analysis of One-Way ANOVA for Equality of Group

TABLE 30

MULTIPLE DISCRIMINANT CLASSIFICATION COEFFICIENTS FOR FOUR AUTOMOBILE MARKET SEGMENTS AND NINE INDEPENDENT VARIABLES

Variable	High Prestige Automobiles	Medium Prestige Automobiles	Low Prestige Automobiles	Very Low Prestige Automobiles
Social Character	.42 (L)	.43	.47	.50 (H)
Automobile Purchased for Use As a Second Car	1.11	.66 (L)	1.23	1.94 (H)
Lower-Middle or Lower Class	.30	.11 (L)	.64	.85 (H)
Family Income Between $21,000-$34,999	2.36 (H)	2.18	1.93	1.26 (L)
Family Income in Excess of $35,000	6.10 (H)	1.91	.89	.17 (L)
Young Single	3.95 (L)	4.58	4.44	5.28 (H)
Young Married	1.81 (L)	2.35	2.08	4.51 (H)
Young Married, Youngest Child Under Six	1.68 (L)	2.05	2.41	3.55 (H)
Older Married with Dependent Children	3.43 (H)	1.52	1.30 (L)	1.50

H = High

L = Low

Means, to derive a consumer profile for each segment. Each coefficient represents the effect of the variable on classification in the group corresponding to the particular classification function. Automobile market segment characteristics can be found by noting the extreme values of the discriminant coefficients for each variable in Table 30. A variable contributes most to classification in that Prestige Automobile market segment for which it is most positive.[7]

An analysis of the high and low coefficients indicates the following relationships:

(1) Higher social character scores (inner-directedness) appear to be associated with the Very-Low Prestige Category and lower scores with the High Prestige Category.

(2) Purchase of an automobile for use as a second car is associated most with the Very-Low Prestige Category and least with the Medium Prestige Category.

(3) Lower-middle or lower class is associated most with the Very-Low Prestige Category and least with the Medium Prestige Category.

(4) Family income between $21,000-$34,999 and $35,000 or more is associated most with the High Prestige Category and least with the Very-Low Prestige Category.

(5) The first three stages of the family life cycle are associated most with the Very-Low Prestige Category and least with the High Prestige Category.

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[7] William F. Massy, "Discriminant Analysis of Audience Characteristics," Journal of Advertising Research, Vol. 5 (March, 1965), p. 46.

(6) Older married couples with dependent children are associated most with the High Prestige Category and least with the Low Prestige Category.

The second research question dealt with the predictive ability of the independent variables. As Table 29 indicated, the independent variables were able to predict group membership significantly better than chance ($p < .001$) for both the analysis and validation samples. As Tables 21 and 23 indicated, the High Prestige automobile market has the most distinct profile as indicated by the 68.97% correct classification rate on the analysis sample and the total lack of misclassification into this category on the validation sample. The Medium and Low Prestige Categories have somewhat distinctive profiles, as evidenced by their correct classification percentage. The independent variables were least effective in predicting group membership into the Very-Low Prestige Category.

The final research question concerned the utility of social character, as measured by the I-O Social Preference Scale, for market segmentation. Prior research had indicated a relationship between social character and consumer behavior. However, these studies had only tested social character. It was possible that social character would be comparatively ineffective if used in conjunction with demographic variables. The question was attacked in two ways. The first step analyzed the discriminatory power of the independent variable categories. The second analyzed

the discriminatory power of each of the variables, i.e., upper and upper-middle class, middle class, etc.

In order to determine which of the independent variable categories (family income, stage in family life cycle, social character, automobile utilization, social class, and employment status of wife) had the most discriminatory power, six discriminant analyses were run minus each of the categories in turn. One analysis was run using all the variable categories. The missing variable category which produced the highest Wilks' lambda has the most discriminatory power.[8] As Table 31 indicates, family income had the greatest discriminatory power. Social character ranked third.

As Table 13 indicated, social character is a relatively powerful discriminating variable. Based on the significance levels of the univariate analysis of variance F-test for each variable, it is the second most powerful variable. The problem with the univariate F-test is that it does not consider correlations among the variables being used. If the variables are not independent, the correlations could result in an incorrect ranking. In that prior research and the partial correlation analyses conducted as part of this study indicate that social character is not correlated with the socioeconomic variables of family income, social

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[8] Robert A. Eisenberg and Robert B. Avery, Discriminant Analysis and Classification Procedures (Lexington, Massachusetts: D.C. Heath and Company, 1972), p. 71.

TABLE 31

INDEPENDENT VARIABLE CATEGORIES BY DELETION TO OBTAIN HIGHEST WILKS' LAMBDA

Variable Not Included In Analysis	Wilks' Lambda
Income	.7041
Stage in Family Life Cycle	.6587
Social Character	.6394
Automobile Utilization	.5967
Social Class	.5898
Employment Status of Wife	.5883

Note: When all 6 variable categories are used, Wilks' lambda equals .5821.

class, and stage in the family life cycle, the univariate F-test should provide a good indication of its discriminatory power. However, the stepwise discriminant procedure used in this study provides three additional methods of analyzing the segmentation utility of social character.

Table 32 ranks the variables by their decrease in Wilks' lambda. The variable which contributes the most to decreasing Wilks' lambda is the most significant variable when combined with the other variables. This method recognizes any correlations.[7] As the table indicates, social character is the second most powerful discriminating variable accounting for 18.09% of the total decrease in Wilks' lambda.

Table 33 presents an analysis of the variables' effect on the increase in Rao's V, which is a generalized distance measure. The larger the Rao's V, the greater the overall separation amongst the groups. Additionally, the change in Rao's V can be tested for statistical significance.[8] As the table indicates, social character provided the second greatest degree of separation and the change was significant ($p < .001$).

Further information concerning the importance of social character as a segmentation variable can be obtained by examining Table 18, which presents the standardized discriminant function coefficients. Regardless of the sign, these coefficients represent the relative contribution of

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[7] Ibid., pp. 67-71.

[8] Nie, op. cit., pp. 447-448.

TABLE 32

RANKING OF VARIABLES BY DECREASE IN WILKS' LAMBDA

Variable	Decrease in Wilks' Lambda	Percent of Total Decrease in Wilks' Lambda
Family Income in Excess of $35,000 Per Year	.15046	37.33
Social Character	.07293	18.09
Lower-Middle and Lower Class	.04256	10.56
Purchase Automobile for Use As a Second Car	.03448	8.55
Young Married	.03369	8.36
Young Married, Youngest Child Under Six	.02615	6.49
Older Married with Dependent Children	.01994	4.95
Family Income Between $21,000-$34,999 Per Year	.01563	3.88
Young Single	.00720	1.79
Total	.40304	100.00

TABLE 33

RANKING OF VARIABLES BY INCREASE IN RAO'S V

Variable	Increase in Rao's V	Significance of Chance	Percent of Total Increase in Rao's V
Family Income in Excess of $35,000 Per Year	82.57776	<.001	42.78
Social Character	30.66867	<.001	15.89
Lower-Middle and Lower Class	15.01896	.002	7.78
Young Married	14.57776	.002	7.55
Older Married with Dependent Children	13.76251	.003	7.13
Purchase Automobile for Use As A Second Car	12.45097	.006	6.45
Family Income Between $21,000-$34,999 Per Year	10.53168	.015	5.46
Young Married, Youngest Child Under Six	8.61901	.035	4.47
Young Single	4.80695	.186	2.49
Total	193.01427		100.00

that variable to that function. As the table indicated, social character was the second most important variable in the first function, the most important in the second, and the third most important in the third function. These functions respectively contained 75%, 19% and 6% of the discriminating power of the three functions.

As Table 34 indicates, social character has been found to be a very significant segmentation variable in the univariate F-test, decrease in Wilks' lambda, increase in Rao's V, and contribution to the discriminant functions.

TABLE 34

COMPARISON OF FOUR METHODS TO DETERMINE THE IMPORTANCE OF VARIABLES IN THE FOUR GROUP AUTOMOBILE CONSUMER STUDY

	Order of Importance					
				Discriminant Function Coefficients Function		
Variable	Univariate F-Test	Increase in Rao's V	Decrease in Wilks' Lambda	1	2	3
Family Income in Excess of $35,000 Per Year	1	1	1	1	4	9
Social Character	2	2	2	2	1	3
Lower-Middle and Lower Class	5	3	3	9	7	4
Young Married	6	4	5	4	3	1
Older Married with Dependent Children	3	5	7	3	5	8
Purchase Automobile for Use As a Second Car	7	6	4	7	2	7
Young Married, Youngest Child Under Six	10	8	6	5	6	5
Family Income Between $21,000-$34,999 Per Year	14	7	8	6	8	6
Young Single	11	9	9	8	9	2
Family Income Between $14,000-$20,999 Per Year	4	*	*	*	*	*

TABLE 34
(continued)

Variable	Order of Importance: Univariate F-Test	Increase in Rao's V	Decrease in Wilks' Lambda	Discriminant Function Coefficients Function: 1	2	3
Family Income Less Than $13,999 Per Year	9	*	*	*	*	*
Older Married without Dependent Children	8	*	*	*	*	*
Middle Class	12	*	*	*	*	*
Young Married, Youngest Child Over Six	13	*	*	*	*	*
Upper and Upper-Middle Class	15	*	*	*	*	*
Working Wife	16	*	*	*	*	*

*Not in This Analysis

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this chapter is to present a summary of the study, the conclusions drawn from the study, and to recommend further areas for research.

SUMMARY

This section presents a review of the study objectives and the research process.

Study Objectives

The purpose of the study was to determine a socioeconomic and behavioral profile of the new automobile purchaser on the basis of the following equation:

$$Y = f(X_1, X_2, \ldots\ldots X_6)$$

where:

Y = Purchase of a new automobile which was registered in the continental United States during October 1976.

Y =

- 1 = High-Prestige Automobiles (Lincoln, Cadillac, Mercedes-Benz, Jaguar)
- 2 = Medium-Prestige Automobiles (Chrysler, Oldsmobile, Buick, Pontiac, Dodge, Mercury, Volvo, Audi, Peugeot, Triumph, BMW, MGB, Checker)
- 3 = Low-Prestige Automobiles (Plymouth, Ford, Chevrolet)
- 4 = Very Low-Prestige Automobiles (Volkswagen, Pinto, Renault, Opel, Datsun, Toyota, Mazda, Saab, Fiat, American Motors, Honda, Subaru);

X_1 = Social Character ($\leq \bar{X}$ = other-directed; $\geq \bar{X}$ = inner-directed);

X_2 = Social Class (11-27 = upper and upper middle; 28-43 = middle; 44-77 = lower middle and lower);

X_3 = Income (1 = less than $13,999; 2 = $14,000-$20,999; 3 = $21,000-$34,999; 4 = more than $35,000);

X_4 = Stage in Family Life Cycle (1 = young single; 2 = young married without children; 3 = young married, youngest child under six; 4 = young married, youngest child over six; 5 = older married with dependent children; 6 = older married without dependent children; 7 = older single);

X_5 = Employment Status of Wife (1 = wife works; 2 = wife doesn't work); and

X_6 = Product Utilization (1 = purchased for use as second automobile; 2 = not purchased for use as a second automobile).

The categories of the independent variable were adapted from a classification system used by Birdwell (1968). Pre-tests were conducted to validate the currency of the classification system and to add automobile brands.

Social character is a concept developed by Riesman (1950). The theory states that the majority of the people in the United States are either "inner-directed" (the person relies on his own internal standards and values to guide behavior), or "other-directed" (the person tends to rely on the values of his contemporaries). The instrument used to measure social character, the I-O Social Preference Scale, was developed by Kassarjian (1963). This scale had been shown to be a valid and reliable instrument in a number of studies.

Variables X_2 through X_6 are traditional correlates of automobile purchasing behavior and have been used in numerous studies. (See Table 35 for a listing of these studies.)

The specific research issues examined were:

1. Are the profiles of the purchasers of the categories of new automobiles different?
2. Can the independent variables predict category membership better than chance?

TABLE 35

MAJOR DEMOGRAPHIC CORRELATES OF AUTOMOBILE CONSUMER BEHAVIOR INCORPORATED IN PRESENT STUDY

Variable	Study
Social Class	Peters[a] Henry (1976)
Occupation	Peters[a] Peters[b] Wiseman (1971) Newman & Staelin (1972) Feldman & Armstrong (1975)
Education	Peters[a] Wiseman (1971) Newman & Staelin (1972) Feldman & Armstrong (1975)
Family Income	Evans (1959 & 1968) Peters[a&b] Wiseman (1971) Newman & Staelin (1972) Feldman & Armstrong (1975) Henry (1976)
Stage in Family Life Cycle	Wiseman (1971) Newman & Staelin (1972)
Life Cycle Related Variables	
Age	Evans (1959 & 1968) Peters[b] Feldman & Armstrong (1975) Henry (1976)
Number of Children	Evans (1959 & 1968) Peters[b] Henry (1970)

[a] (April 1970)

[b] (August 1970)

3. Is "social character" a major discriminating variable for the prestige categories of automobiles?

RESEARCH DESIGN

Questionnaires were mailed to a national probability sample of 2,966 individuals who had registered a new automobile in the continental United States during October 1976. As Table 1 in Chapter IV indicates, responses were received from 763 new automobile registrants in 229 three-digit zip codes. This equates to a 25.72% response rate.

Non-response bias was evaluated by conducting three mailings to the sample frame. The first wave was compared to the second and third to determine if any differences existed between the two groups. As Table 6 indicated, there were no significant differences between the early and late respondents on the basis of the prestige category of automobiles purchased, the percent of inner- or other-directed respondents in each group, the use to which the automobile was to be put, social class, income, life cycle stage, or distribution of working wives.

Pilot Studies. Two pilot studies were conducted to update, and expand, the composition of the prestige categories of automobiles. As Tables 1 and 2 indicate, the respondents had fairly definite perceptions concerning the prestige category identification of the additional automobile brands. All of the automobiles added to Birdwell's categories were classified in the prestige category they were assigned to by at least 64% of the subjects questioned.

Data Analysis. Chi-square analysis at a .05 significance level was used to test the univariate hypotheses dealing with prestige categories of automobile and each of the independent variables (social character, social class, stage in family life cycle, and family income). ANOVA and Duncan's Multiple Range Test was also used in the analysis of social character.

Subprogram DISCRIM of the Statistical Package for the Social Sciences was used for the four group discriminant analysis. The 622 responses were divided into an analysis sample and a validation sample. The analysis sample consisted of all the High Prestige Automobiles and half of the other three categories. This was necessary because of the small market share held by automobiles in this category and the resultant small (less than 5%) number of respondents who had purchased these automobiles.

The validation sample was used to classify automobile owners on the basis of the classification function coefficients derived from the DISCRIM subprogram. This was

necessary in order to eliminate the upward bias in classification results which occurs when the same data which was used to generate the functions is used to test them. The Press Q statistic was used to determine if the procedure discriminated better than chance. The following section presents the conclusions drawn from the study.

CONCLUSIONS

The importance of the study findings falls into three broad areas: their identification of the relationship between the independent and dependent variables; their identification of social character as a significant market segmentation variable; and their product specific value for the formulation of marketing strategies in the automobile industry.

The significant relationship between family income and prestige category was as expected ($X^2 = 95.33$, d f = 9, $p < .0001$). The importance of the variable family income in excess of $35,000 for the purchase of High and Medium Prestige Automobiles was also expected. Henry (1976) had found that the variable category family income was significant ($p = .01$) in the identification of purchasers of full- and intermediate-sized automobiles. With the variable family income in excess of $50,000 per year associated with the former ($p = .05$) and family income between $25,000-$49,999 ($p = .05$) associated with the latter. In the present study, the family income variable category was found to be the most powerful discriminatory variable

category on the basis of the residual Wilks' lambda. This seems to indicate that family income is the major determinant of automobile purchase.

The significant relationship between family life cycle and prestige category was as expected (X^2 = 62.16, d f = 18, p < .0001). The variable category ranked second in discriminatory power on the basis of the residual Wilks' lambda.

The effect of the individual stages is particularly interesting. Those in the first three stages show a strong preference for automobiles from the Very-Low Prestige Category -- the small foreign and domestic makes. Peters (1970) observed a similar situation with regard to age, between 25-35, and a preference for small domestic automobiles. Henry (1976) demonstrated a significant relationship (p = .05) between family size (no children) and purchase of subcompact automobiles. Peters (1970) noted that the independent variable son or daughter usually drives car seemed to be related to the purchase of a compact automobile. He concluded that this might indicate a long-term trend towards smaller cars. His tentative conclusions appear to be borne out by this study, since they (the children) would now be in the first three stages of the family life cycle.

The ineffectiveness of social class, as measured by the Hollingshead Index of Social Position as a market segmentation variable, was not expected. The Chi-square

was not significant (X^2 = 9.11, d f = 6, p = .1674); only the variable lower-middle and lower class provided any discriminatory power (Change in Rao's V = 15.02, p = .002), and the discriminatory power of the variable category social class ranked fifth, out of six variables, on the basis of highest residual Wilks' lambda. Mathews and Slocum (1969) had found a significant relationship (p = .001) between social class and consumer behavior (credit card usage). Henry (1976) also used the Hollingshead Index and noted a slight relationship between the middle class and purchase of a full-sized automobile. Based on the analysis of the classification function coefficients, the present study appears to indicate a slight positive relationship between social class and prestige category of automobile.

A strong and meaningful relationship was found between social character, as measured by the I-O Social Preference Scale, and prestige category of automobile. The Chi-square analysis was significant (X^2 = 53.62, d f = 3, p < .0001). The ANOVA indicated that the social character of the consumers was significantly different among the four prestige categories (F = 22.56, d f = 3,618, p < .0001). Duncan's Multiple Range Test indicated that as one moved from the High and Medium Prestige Automobile Categories to the Very-Low Prestige Category, consumers became significantly (p = .05) more inner-directed. The variable ranked second in discriminatory power on the basis of (Change in Rao's V = 30.67, p < .001), (Univariate F = 12.15, d f = 3,321, p = .01), and (contribution to reduction in Wilks' lambda =

18.09%). The present study also confirms the Kassarjian (1962) and Centers (1962) studies which indicated that social character was not appreciably correlated with socio-economic indices. The present study found that social character was not significantly correlated with stage in family life cycle, family income, or social class.

Based on the matrix of pairwise F ratios (the test for the Mahalonobis distance between the groups), all the groups were significantly different from each other ($p < .01$). Of greater operational interest is the variables' ability to predict group membership significantly better than chance for the analysis sample ($X^2 = 109.67$, d f = 1, $p < .001$), as well as the validation sample ($X^2 = 59.89$, d f = 1, $p < .001$). For the automobile industry, the market segments identified by the prestige groupings may be of future value. Much of the prior research has emphasized market segmentation according to the size of the automobile. Given the trend towards smaller "full-size" automobiles, size distinctions may become meaningless. Segmentation by prestige category may offer a viable alternative.

From the analysis of the Chi-square tests, the group means, and the multiple discriminant function co-efficients, the following consumer profiles seem to exist:

> High Prestige Automobiles -- Consumers who purchase an automobile from this category tend to be other-directed, older, upper and upper-middle class people with dependent children whose family income is in excess of $35,000 per year.

Medium Prestige Automobiles -- Consumers who purchase an automobile from this category tend to be other-directed, older, middle class or above people without dependent children, whose family income is between $21,000-$34,999 per year. An automobile purchased from this category is least likely to be purchased for use as a second car.

Low Prestige Automobiles -- Consumers who purchase an automobile from this category tend to be inner-directed, lower-middle and lower class people who possibly had recent increases in discretionary purchasing, i.e., young marrieds whose youngest child is over six and older marrieds without dependent children and whose family income is less than $21,000 per year.

Very-Low Prestige Automobiles -- Consumers who purchase an automobile from this category tend to be the most inner-directed of the four groups of consumers. They are young single or married, lower-middle and lower class people whose family income is less than $21,000 per year. Automobiles from this category are more likely to be purchased for use as a second automobile than automobiles from any of the other categories.

RECOMMENDATIONS

This section notes recommendations based on the study.

Only one study was found which attempted to determine the distribution of social character among the general population (Centers, 1962) and this study was limited to the Metropolitan Los Angeles area. The results of the present study indicate a trend towards inner-direction (the I-O Social Preference Scale Score means were 81 and 85 respectively). Prior research (Kassarjian, 1962) indicated a possible positive relationship between age and inner-direction. Given the movement towards an older society, it could be possible that the social character of the United States is becoming more inner-directed due to aging. Further research utilizing social character as the dependent variable in conjunction with socioeconomic and demographic independent variables would seem appropriate.

Social character has been found to be related to a preference for specific advertising appeals (Kassarjian and Kassarjian, 1965), to the purchase of innovative convenience products (Donnelly, 1970), and to the purchase of automobiles (Donnelly and Ivancevich, 1974) and this study. Further product-specific research should be conducted. Does the relationship between other-direction and a preference towards more prestigious products exist for other consumer durables? A preference for national brands as opposed to retail brands may be related to other-direction.

The different behavioral types of inner- and other-directedness may react quite differently to a personal selling effort. The value of price as an indicator of product quality may be quite different for the inner- or other-directed consumer. And the type of retail outlet or channel used by the two types could be quite dissimilar. Possibly, the inner-directed consumer is a more frequent user of mail-order services.

The Inner-Other Directed Social Preference Scale itself could possibly be made more amenable to marketing research by designing product-specific I-O scales which would be shorter than the present 36-question scale.

The lack of a significant relationship between automobile purchase and social class seems to invite further analysis. It is possible that the increasing numbers of students attending, and completing, college has caused social class distinctions based on education levels to become obsolete. A similar problem exists with regard to the rate of occupational change in the United States. The proliferation of paraprofessionals is an example of this phenomenon. This is not to say that different social classes, as defined by presently undetermined variables, do not consume differently. But that the existing definition based on occupation and education is no longer sufficient.

The major strategic implication of this study is that market segmentation remains an appropriate strategy

in the changed operating environment of the seventies. It should continue to be used to appeal to the differences which exist among new automobile purchasers.

The preference of younger consumers for smaller automobiles is of particular importance to the product strategies of manufacturers of full-size High and Medium Prestige Automobiles. It seems to indicate that they should be downsized and their prestige appeal emphasized.

The implications of this study for automobile advertising strategy deal with both content and timing. More prestigious automobiles should be promoted with other-directed appeals and the less prestigious with inner-directed appeals. However, given the relationship between inner-direction and innovativeness, all advertising appeals should be more inner-directed during the introduction of the new model year.

In conclusion, the following recommendations are made:

1. Social character has been found to be an important market segmentation variable and should be integrated into marketing strategies involving high-priced consumer durable goods.

2. For products or brands which are considered prestigious by consumers, the most appropriate strategy would involve an other-directed advertising appeal aimed at the other-directed consumer.

3. When establishing information-gathering priorities for the marketing of high-priced consumer durable goods, annual family income and stage in family life cycle appear to be the first and second essential elements of demographic information.

4. The use of social class as a segmentation variable appears to provide minimal additional information concerning the purchase of a high-priced consumer durable good and its use is not recommended.

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APPENDICES

APPENDIX 1

INSTRUCTIONS FOR BRAND CLASSIFICATION PRETESTS

Hi, I represent the Consumer Research Program at the University of New Haven. We are gathering information about how people throughout the U.S.. feel about various types of cars sold in the U.S. We'd appreciate your simply looking at this paper which has four groups of autos on it and then matching the autos on the second piece of paper with one of the groups.

Thanks.

Listed below are four groups of automobiles. Please look at these groups and then place the automobiles listed on this second piece of paper into the group you think the automobile belongs on the basis of the prestige involved in owning the particular automobile.

Group 1	Cadillac, Lincoln
Group 2	Oldsmobile, Chrysler, Buick, Pontiac
Group 3	Ford, Chevrolet, Plymouth
Group 4	Volkswagen, Renault, American Motors

APPENDIX 2

QUESTIONNAIRE TO UPDATE BIRDWELL'S CLASSIFICATION

Automobile	Group
Audi	
Datsun	
Dodge	
Jaguar	
Mercedes-Benz	
Mercury	
Opel	
Peugeot	
Pinto	
Toyota	
Volvo	

APPENDIX 3

QUESTIONNAIRE TO CLASSIFY ADDITIONAL AUTOMOBILE BRANDS

Automobile	Group
B.M.W.	
Checker	
Fiat	
Honda	
Mazda	
MGB	
Saab	
Subaru	
Triumph	

APPENDIX 4

COVER LETTERS

UNIVERSITY OF NEW HAVEN
WEST HAVEN, CONNECTICUT 06516

DEPARTMENT OF MARKETING

January 31, 1977

Belated Seasons Greetings,

In the process of paying off your recent purchases you may have wondered why you purchased some of the products you did.

The Consumer Research Program of the University of New Haven is also interested in the why of consumer purchases and is conducting a national survey of consumer purchasing patterns as they relate to social attitudes.

Your help in filling out the enclosed questionnaire is needed so that purchasing projections can be formulated for consumer products. The results of this survey will be used for academic purposes only and your response to the questionnaire is anonymous.

Given the economic problems facing our country information which could help to better match the product offerings of U.S. industry with consumer product wants is urgently needed. You are an integral part of a national sampling plan and it is very important that you complete the questionnaire in its entirety.

If you have any questions concerning the study please do not hesitate to call me collect at 203 934-6321 Extension 404. A stamped self-addressed envelope for the return of the questionnaire is enclosed for your convenience.

Thank you very much for your cooperation.

Sincerely yours,

Kevin F. McCrohan

Kevin F. McCrohan
Assistant Professor of Marketing

UNIVERSITY OF NEW HAVEN
WEST HAVEN, CONNECTICUT 06516

DEPARTMENT OF MARKETING

April 29, 1977

More Belated Seasons Greetings,

If you have completed and returned the first questionnaire, please accept our thanks and disregard this request. In the event that you have not, we've enclosed a second copy and again request your assistance in our research.

Remember, the results of this survey will be used for academic purposes only and your response to the questionnaire is annoymous.

Again, if you have any questions concerning the study please do not hesitate to call me at 203 934-6321 extension 404. A stamped self-addressed envelope for return of the questionnaire is enclosed for your convenience.

Thank you very much for your cooperation.

Sincerely yours,

Devin McCrohan

Devin F. McCrohan
Assistant Professor of Marketing

KFM:la

UNIVERSITY OF NEW HAVEN
WEST HAVEN. CONNECTICUT 06516

DEPARTMENT OF MARKETING

June 9, 1977

More Belated Seasons Greetings,

If you have completed and returned the first or second questionnaire, please accept our thanks and disregard this request. In the event that you have not, we've enclosed a third copy and again request your assistance in our research.

Remember, the results of this survey will be used for academic purposes only and your response to the questionnaire is annoymous.

Again, if you have any questions concerning the study please do not hesitate to call me at 203 934-6321 extension 404. A stamped self-addressed envelope for return of the questionnaire is enclosed for your convenience.

Thank you very much for your cooperation.

Sincerely yours,

Kevin McCrohan

Kevin F. McCrohan
Assistant Professor of Marketing

KFM:la

APPENDIX 5

QUESTIONNAIRE

CONSUMER PURCHASING PATTERN SURVEY

This questionnaire is divided into three parts. The first deals with your attitudes towards social situations, the second your purchases of automobiles, and the third information required to classify your responses. Please remember that this questionnaire is annonymous. Again, thank you very much for your cooperation.

Part I: A number of controversial statements or questions with two alternative answers are given below. Answer every item as it applies to you. Indicate your preference by circling the appropriate number (only one per question) to the right of each question. Some of the alternatives may appear equally attractive or unattractive. Nevertheless, please make a real attempt to choose the one that is relatively more acceptable to you. Remember, only one of the four numbers per question can be circled. In answering the questions please follow these rules:

	Strongly Agree A	Slightly Agree A	Slightly Agree B	Strongly Agree B
If you strongly agree with alternative (a) and disagree with (b), circle 1 under strongly Agree A.	(1)	2	3	4
If you strongly agree with alternative (b) and disagree with (a), circle 4 under Strongly Agree B.	1	2	3	(4)
If you have a slight preference for (a) over (b), circle 2 under Slightly Agree A.	1	(2)	3	4
If you have a slight preference for (b) over (a), circle 3 under Slightly Agree B.	1	2	(3)	4

For example, if you were to strongly agree with alternative (a) in the following question your response would look like this:

As far as camping is concerned I would rather	Strongly Agree A	Slightly Agree A	Slightly Agree B	Strongly Agree B
a. rough it on my own.	(1)	2	3	4
b. go with a group in a comfortable camper.				

There are no right or wrong answers to this questionnaire. Do not spend too much time on any one item. And please do not leave out any of the questions unless you find it really impossible to make a decision. Again circle only one number per question.

	Strongly Agree A	Slightly Agree A	Slightly Agree B	Strongly Agree B
1. With regard to partying, I feel a. the more the merrier (25 or more people present). b. it is nicest to be in a small group of intimate friends (6 or 8 people at most).	1	2	3	4
2. If I had more time a. I would spend more evenings at home doing the things I'd like to do. b. I would more often go out with my friends.	1	2	3	4
3. If I was trained as an electrical engineer and liked my work very much and would be offered a promotion into an administrative position, I would a. accept it because it means an advancement in pay which I need quite badly. b. turn it down because it would no longer give me an opportunity to do the work I like and am trained for even though I desperately need the money.	1	2	3	4
4. I believe that a. it is difficult to draw a line between work and play and therefore one should not even try it. b. one is better off keeping work and social activities separated.	1	2	3	4
5. I would rather join a. a political or social club or organization. b. an organization dedicated to literary, scientific, or other academic subject matter.	1	2	3	4
6. I would be more eager to accept a person as a group leader who a. is outstanding in those activities which are important to the group. b. is about average in the performance of the group activities but has an especially pleasing personality.	1	2	3	4
7. I like to read books about a. people like you and me. b. great people or adventurers.	1	2	3	4
8. For physical exercise or as a sport I would prefer a. softball, basketball, volleyball, or similar team sport. b. skiing, hiking, horsebackriding, bicycling, or a similar individual sport.	1	2	3	4

		Strongly Agree A	Slightly Agree A	Slightly Agree B	Strongly Agree B
9.	With regard to a job, I would enjoy more a. one in which one can show his skill or knowledge. b. one in which one gets in contact with many different people.	1	2	3	4
10.	I believe a. being able to make friends is a great accomplishment in and of itself. b. one should be concerned more about one's achievements rather than with making friends.	1	2	3	4
11.	It is more desirable a. to be popular and well-liked by everybody. b. to become famous in the field of one's choice or for a particular deed.	1	2	3	4
12.	With regard to clothing a. I would feel conspicuous if I were not dressed the way most of my friends are dressed. b. I like to wear clothes which stress my individuality and which not everybody else is wearing.	1	2	3	4
13.	On the subject of social living a. a person should set up his own standards and then live up to them. b. one should be careful to live up to the prevailing standards of the culture.	1	2	3	4
14.	I would consider it more embarrassing a. to be caught loafing on a job for which I get paid. b. losing my temper when a number of people are around of whom I think a lot.	1	2	3	4
15.	I respect the person most who a. is considerate of others and concerned that they think well of him. b. lives up to his ideals and principles.	1	2	3	4
16.	A child who has had intellectual difficulties in some grade in school a. should repeat the grade to be able to get more out of the next higher grade. b. should be kept with his age group though he has some intellectual difficulties.	1	2	3	4

		Strongly Agree A	Slightly Agree A	Slightly Agree B	Strongly Agree B
17.	In my free time				
	a. I'd like to read an interesting book at home.				
	b. I'd rather be with a group of my friends.	1	2	3	4
18.	I have				
	a. a great many friends who are, however, not very intimate friends.				
	b. few but rather intimate friends.	1	2	3	4
19.	When doing something, I am most concerned with				
	a. "What's in it for me" and how long will it last.				
	b. what impression others get of me for doing it.	1	2	3	4
20.	As leisure-time activity I would rather choose				
	a. woodcarving, painting, stamp collecting, photography, or similar activity.				
	b. bridge or other card game, or discussion groups.	1	2	3	4
21.	I consider a person most successful when				
	a. he can live up to his own standards and ideals.				
	b. he can get along with even the most difficult people.	1	2	3	4
22.	One of the main things a child should be taught is				
	a. cooperation.				
	b. self-discipline.	1	2	3	4
23.	As far as I am concerned				
	a. I am only happy when I have people around me.				
	b. I am perfectly happy when I am alone.	1	2	3	4
24.	On a free evening				
	a. I like to go and see a nice movie.				
	b. I would try to have a television party at my (or a friend's) house.	1	2	3	4
25.	The persons whom I admire most are those who				
	a. are very outstanding in their achievements.				
	b. have a very pleasant personality.	1	2	3	4
26.	I consider myself to be				
	a. quite idealistic and to some extent a "dreamer".				
	b. quite realistic and living for the present only.	1	2	3	4

	Strongly Agree A	Slightly Agree A	Slightly Agree B	Strongly Agree B
28. To me it is very important				
a. what one is and does regardless of what others think.				
b. what my friends think of me.	1	2	3	4
29. I prefer listening to a person who				
a. knows his subject matter real well but is not very skilled in presenting it interestingly.				
b. knows his subject matter not as well but has an interesting way of discussing it.	1	2	3	4
30. As far as I am concerned				
a. I see real advantages in keeping a diary and would like to keep one myself.				
b. I'd rather discuss my experiences with friends than keep a diary.	1	2	3	4
31. Schools should				
a. teach children to take their place in society.				
b. be concerned more with teaching subject matter.	1	2	3	4
32. It is desirable				
a. That one shares the opinions others hold on a particular matter.				
b. that one strongly holds onto his opinions even though they may be radically different from those of others.	1	2	3	4
33. For me it is more important to				
a. keep my dignity (not make a fool of myself) even though I may not always be considered a good sport.				
b. be a good sport even though I would lose my dignity (make a fool of myself) by doing it.	1	2	3	4
34. When in a strange city or foriegn country I should have no great difficulty because				
a. I am interested in new things and can live under almost any conditions.				
b. people are the same everywhere and I can get along with them.	1	2	3	4
35. I believe in coffee breaks and social activities for employees because				
a. it gives people a chance to get to know each other and enjoy work more.				
b. people work more efficiently when they do not work for too long a stretch at a time and can look forward to special events.	1	2	3	4

36.		Strongly Agree A	Slightly Agree A	Slightly Agree B	Strongly Agree B
a.	The greatest influence upon children should be from their own age group and from educational sources outside the family since they can be more objective in evaluating the child's needs.				
b.	The greatest influence upon children should be from the immediate family who should know the child best.	1	2	3	4

Part II: This series of questions deals with your past and present ownership of automobiles.

1. Please list the type, brand, year, and major user of all automobiles owned by you or your immediate family if married:

   Type _____ Brand _____ Year _____ User _____ Type _____ Brand _____ Year _____ User _____

   Type _____ Brand _____ Year _____ User _____ Type _____ Brand _____ Year _____ User _____

2. If you or your family owns more than one automobile please circle the automobile noted above which would be used if you were visiting friends or relatives.

3. What type, brand, and year automobile did you use before you obtained the automobile circled in question 1:

   Type _____ Brand _____ Year _____

4. Was your most recently purchased automobile purchased for use as a second car? Yes _____ No _____.

Part III: This series of questions is for the purpose of classifying your responses in relation to size of family, income, education, race, and occupation.

1. Please check the line which indicates the highest level of formal education achieved:

   Award of a graduate degree _____ Award of a bachelors degree _____ Some college (at least one year) ___

   High School graduate _____ Partial high school (completion of 10th or 11th grades) _____

   Junior high school attendance _____ Less than 7 years schooling _____ Other (specify) _____

2. What is your present occupation? _____.

3. Please check the box which most closely indicates your total annual household income:

   Less than $14,000 ___ $14,000 - $20,999 ___ 21,000 - $34,999 ___ $35,000 or more ___

4. Please list your age as well as the age of your spouse and children if any:

   Yourself _____; Spouse _____; Children _____; _____; _____; _____; _____; _____.

5. If you are married and your spouse works please indicate the percent of total annual household income he or she contributes: Husband's Percent _____ or Wife's Percent _____

6. Please indicate your race: Black _____ White _____ Other _____

APPENDIX 6

CHI-SQUARE ANALYSIS OF ACTUAL OCTOBER 1976 AUTOMOBILE SALES BY PRESTIGE CATEGORY WITH SURVEY REPRESENTATION

Prestige Category	Survey Representation #	%	October 1976 Sales[a] #	%
High	33	4.32	35,897	4.50
Medium	292	38.27	307,450	38.50
Low	284	37.23	310,084	38.83
Very-Low	154	20.90	145,059	18.17
Total	703	100.00	798,490	100.00

[a] October 1976 sales were 10.26% of year-to-date sales

$X^2 = .4847$
d f = 3
p < .9000

Source: Wards Automotive Reports (November 8, 1976), pp. 354-357.

APPENDIX 7

CHI-SQUARE ANALYSIS OF ACTUAL OCTOBER 1976 AUTOMOBILE SALES OF DOMESTIC AND FOREIGN BRANDS WITH SURVEY REPRESENTATION

Brand	Survey Representation #	Survey Representation %	October 1976 Sales #	October 1976 Sales %
Lincoln	5	.70	3,435	.43
Cadillac	27	3.54	29,378	3.68
Chrysler	14	1.83	23,276	2.92
Oldsmobile	71	9.31	79,105	9.90
Buick	62	8.13	63,007	7.89
Pontiac	60	7.86	66,035	8.27
Dodge	42	5.50	35,845	4.49
Mercury	30	3.93	27,542	3.45
Checker	1	.13	N/A	N/A
Plymouth	42	5.50	40,088	5.02
Ford	110	14.41	107,876	13.51
Chevrolet	132	17.30	162,120	20.30
AMC	13	1.70	22,004	2.76
Pinto	14	1.83	15,715	1.97
Total Domestic	623	81.67	675,426	84.59
Mercedes	1	.13	3,084	.39
Volvo	3	.40	4,296	.54
Audi	2	.26	2,240	.28
MGB	2	.26	1,928	.24
Triumph	2	.26	2,431	.30
BMW	3	.40	1,745	.22
Mazda	3	.40	2,661	.33
Saab	2	.26	665	.08
Volkswagen	27	3.53	13,170	1.65
Fiat	3	.40	5,966	.75
Toyota	38	4.98	33,737	4.22
Honda	20	2.62	16,814	2.11
Subaru	3	.40	4,677	.59
Renault	5	.70	686	.09
Opel	1	.13	1,122	.14
Datsun	25	3.27	27,842	3.48
Total Foreign	140	18.40	123,064	15.41
Total Foreign and Domestic	763	100.07[a]	798,490	100.00

[a] Due to rounding

$X^2 = .6809$ d f = 1 $p < .9000$

Source: Wards Automotive Reports (November 8, 1976), pp. 354 and 357.

APPENDIX 8

PARTIAL CORRELATION ANALYSES OF DEPENDENT AND INDEPENDENT VARIABLES

(A) Zero Order Partial Correlation Coefficients

	Prestige Category of Automobile	Social Character	Stage in Family Life Cycle	Family Income	Social Class
Prestige Category of Automobile	1.00	.27*	- .18*	- .25*	.10**
Social Character		1.00	.05***	.02***	.02***
Stage in Family Life Cycle			1.00	.29*	.04***
Family Income				1.00	- .29*
Social Class					1.00

d f = 536

* p = .001
** p = .008
*** p = Not Significant

(B) First Order Partial Correlation between Prestige Category and Social Class

Variable Controlled	Correlation Coefficient	p
Stage in Family Life Cycle	.11	.005
Family Income	.03	.226
Social Character	.10	.009

d f = .535

APPENDIX 8
(continued)

(C) First Order Partial Correlation between Prestige Category and Stage in Family Life Cycle

Variable Controlled	Correlation Coefficient	p
Family Income	-.11	.004
Social Class	-.18	.001
Social Character	-.20	.001

d f = 535

(D) First Order Partial Correlation between Prestige Category and Family Income

Variable Controlled	Correlation Coefficient	p
Stage in Family Life Cycle	-.22	.001
Social Class	-.23	.001
Social Character	-.27	.001

d f = 535

(E) First Order Partial Correlation between Prestige Category and Social Character

Variable Controlled	Correlation Coefficient	p
Stage in Family Life Cycle	.29	.001
Social Character	.28	.001
Family Income	.29	.001

d f = 535

APPENDIX 9

METHODOLOGY OF AUTOMOBILE PURCHASE STUDIES

Study	Sample	Statistical Tests
Evans (1959)	Random sample of 1,639 Ford and Chevrolet owners in Park Forest, Ill. 146 completed questionnaires	Two (2) Group Discriminant Analysis. Simple comparison of predictive results for personality (62.9%) and objective (69.9%) variables.
Evans (1968)	Random sample of 1,850 Ford and Chevrolet owners in Park Forest, Ill. 95 completed questionnaires	Two (2) Group Discriminant Analysis. Simple comparison of predictive results for personality (61.4%) and objective (65.3%) variables.
Westfall (1962)	Convenience sample of 231 male owners of convertible, compact or standard automobiles	Chi-square analysis of Thurstone Temperament Schedule variables and type of automobile.
Jacobson & Kossoff (1963)	Convenience sample of 250 adults in Woodside, N.Y.	Chi-square analysis to determine relationship between self precept and attitudes towards small cars.
Ito (1967)	Probability sample of 577 Ford and Chevrolet owners[a]	Two (2) Group Discriminant Analysis to determine loyal versus brand switchers by comparison of classification matrix.
Bell (1967)	Convenience sample of 284 new Chevrolet purchasers in an urban area in the Western U.S., 234 responses	Chi-square analysis to determine the relationship between persuasibility and cognitive dissonance.

APPENDIX 9
(continued)

Study	Sample	Statistical Tests
Birdwell (1968)	Random sample of 100 purchasers of automobiles in Travis County, Texas	Dixon-Mood Sign Test and ANOVA to determine congruency between self and auto image and image of other automobiles.
May (1969)	Cluster Area Probability Sample of 387 purchasers of automobiles in St. Paul, Mn., 132 responses	Chi-square analysis to determine brand-switching behavior.
Morrison (1970)	Same data as May (1969)	Chi-square analysis to determine brand-switching behavior.
Bennett & Mandell (1969)	Total of all new auto registrations in Harrisburg, Pa. during 3/14/67-4/14/67, 148 responses	Chi-square analysis to determine effect of prior automobile purchases on information-seeking behavior.
Ford Motor Company (1970)	Convenience sample of individuals who had purchased a Ford Pinto or V.W.	Comparison of percentages.
Peters (1970)	1,646 responses from Michigan SCF to determine the effect of relative occupational class income on automobile purchase	Simple comparison of market shares.
Peters (1970)	2,051 individuals from Michigan SCF who had purchased a new automobile during 1963/1967	MCA (which tests for significance of differences from expected mean) tested at .05 level of significance.

APPENDIX 9
(continued)

Study	Sample	Statistical Tests
Hughes & Gurrero (1971)	Convenience sample of 58 businessmen	Factor Analysis.
Wiseman (1971)	Stratified random sample of 210 individuals who had purchased a new automobile in Buffalo, N.Y.	Six (6) Group Discriminant Analysis to determine importance of variable categories (personality, SED, and purchase/usage) on purchase of new or old model year automobile.
Settle & Gibby (1972)	Convenience sample of 66 UCLA students	Hotelling T^2 to determine perceptions of foreign and domestic automobiles.
Newman & Staelin (1972)	Probability sample of 653 households from Michigan SCF	AID and MCA to determine variables effecting prepurchase information-seeking for purchase of consumer durables.
Donnelly & Ivancevich (1974)	A convenience sample of 980 purchasers of new Ford Mavericks and similar new automobiles, 651 responses	Chi-square analysis to determine relationship between social character and early purchase of Ford Maverick.
Feldman & Armstrong (1975)	Cluster probability sample of 4,400 purchasers (California and Midwest, early and late) of Mazda and Toyota automobiles, 1880 responses	Chi-square analysis of group differences (variables included demographics, personality, and perceived product characteristics).
Henry (1976)	Probability sample of 1,605 families from L.A. County Registrar of Voters, 498 responses	MCA (which tests for significance of differences from expected mean). Tested at .05 level of significance.

[a] Part of Larger Study

APPENDIX 10

VARIABLE STANDARD DEVIATION FOR PRESTIGE CATEGORIES OF AUTOMOBILES

Variable	High Prestige Automobiles	Medium Prestige Automobiles	Low Prestige Automobiles	Very-Low Prestige Automobiles	Total
IOSCR	17.1228	13.2801	13.7263	12.9635	14.4602
AUSE 1	0.5012	0.3807	0.4235	0.4810	0.4332
SC 2	0.4123	0.3649	0.3212	0.3025	0.3427
SC 3	0.5085	0.5022	0.4945	0.4940	0.4985
SC 4	0.3509	0.4201	0.4853	0.4972	0.4623
INC 1	0.1857	0.4410	0.4429	0.4691	0.4350
INC 2	0.2579	0.4311	0.4780	0.4940	0.4569
INC 3	0.3844	0.4543	0.4472	0.4034	0.4367
INC 4	0.4549	0.4018	0.3001	0.2515	0.3886
LC 1	0.0000	0.3880	0.3730	0.4155	0.3728
LC 2	0.2579	0.2830	0.2180	0.4034	0.2899
LC 3	0.1857	0.2830	0.3489	0.4155	0.3325
LC 4	0.2579	0.3383	0.3873	0.3428	0.3523
LC 5	0.5061	0.3565	0.3309	0.2787	0.3614
LC 6	0.4708	0.4543	0.4429	0.2787	0.4296
W 2	0.4549	0.4811	0.4912	0.4972	0.4850

APPENDIX 11

WITHIN GROUPS CORRELATION MATRIX

	IOSCR	AUSE 1	SC 2	SC 3	SC 4	INC 1	INC 2	INC 3
IOSCR	1.0000							
AUSE 1	0.0095	1.0000						
SC 2	0.0534	0.0860	1.0000					
SC 3	-0.0696	0.0838	-0.3714	1.0000				
SC 4	0.1164	-0.1656	-0.2518	-0.6016	1.0000			
INC 1	-0.0339	-0.1467	-0.1582	0.0077	0.0677	1.0000		
INC 2	-0.0167	-0.0618	-0.1426	-0.0989	0.1794	-0.4192	1.0000	
INC 3	0.0183	0.0393	0.2035	0.0334	-0.1320	-0.3524	-0.3908	1.0000
INC 4	0.0471	0.1915	0.1378	0.0716	-0.1425	-0.2322	-0.2556	-0.2934
LC 1	-0.0936	-0.1540	-0.0712	0.0666	0.0813	0.2949	0.0139	-0.2133
LC 2	-0.0272	0.0978	0.1310	0.0577	-0.0902	-0.1026	-0.1079	0.1682
LC 3	0.0171	0.0522	-0.0286	0.0609	-0.0652	-0.0275	0.0714	-0.0276
LC 4	0.0292	0.0966	0.0488	-0.0868	0.0937	-0.0479	-0.0910	0.1366
LC 5	0.0286	0.1340	-0.0152	0.0447	-0.0254	-0.1327	-0.0048	0.0975
LC 6	0.0040	-0.0792	0.0165	-0.1402	0.0051	-0.1015	0.0692	0.0042
W 2	0.0348	-0.0045	0.0163	0.0688	0.0333	-0.2021	0.0115	0.1580

	INC 4	LC 1	LC 2	LC 3	LC 4	LC 5	LC 6	W 2
INC 4	1.0000							
LC 1	-0.1223	1.0000						
LC 2	0.0676	-0.1592	1.0000					
LC 3	-0.0075	-0.1901	-0.1447	1.0000				
LC 4	-0.0042	-0.1936	-0.1277	-0.1662	1.0000			
LC 5	0.0606	-0.1601	-0.1280	-0.1380	-0.1643	1.0000		
LC 6	0.0291	-0.2456	-0.1558	-0.1950	-0.2377	-0.2785	1.0000	
W 2	0.0476	-0.3608	0.3026	-0.0000	0.1100	0.0608	0.0449	1.0000

APPENDIX 12

CLASSIFICATION FUNCTION COEFFICIENTS

Variable	High Prestige Automobiles	Medium Prestige Automobiles	Low Prestige Automobiles	Very-Low Prestige Automobiles
IOSCR	0.42254	0.43248	0.46972	0.49555
AUSE 1	1.10771	0.66041	1.23486	1.93675
SC 4	0.30070	0.11354	0.63942	0.85032
INC 3	2.36414	2.18066	1.92688	1.25769
INC 4	6.09794	1.90805	0.88591	0.16558
LC 1	3.95498	4.57500	4.44085	5.27808
LC 2	1.80136	2.35407	2.08443	4.50584
LC 3	1.67733	2.04851	2.41008	3.54576
LC 5	3.43011	1.52203	1.29743	1.49652
Constant	-20.53230	-18.74326	-21.90242	-24.98560

APPENDIX 13

CHI-SQUARE ANALYSIS OF THE EFFECT OF AUTOMOBILE UTILIZATION ON PRESTIGE CATEGORY OF AUTOMOBILE

Prestige Category	Purchased for Use As a Second Automobile	Not Purchased for Use as a Second Automobile
High	12	17
Medium	45	185
Low	60	173
Very-Low	38	92

$X^2 = 9.10113$

d f = 3

p = .0280

APPENDIX 14

CHI-SQUARE ANALYSIS OF THE EFFECT OF EMPLOYMENT STATUS OF WIFE ON PRESTIGE CATEGORIES OF AUTOMOBILE

Prestige Category	Wife Does Not Work	Wife Works
High	21	8
Medium	145	85
Low	140	93
Very-Low	80	50

$X^2 = 1.81547$

d f = 3

p = .6116

AUTOBIOGRAPHICAL STATEMENT

The author is an Associate Professor and Chairman of Marketing and International Business at the University of New Haven in Connecticut. Prior to joining the faculty at New Haven, he was progressively a research assistant, lecturer, instructor, and graduate fellow in the Marketing Department at Baruch College. Before beginning graduate studies, he was a contract negotiator with an international non-ferrous metals trading firm.

He holds a B.S. degree in economics from New York University (1967), an M.B.A. in international business from Baruch College (1971), and an M.B.A. in business administration from Baruch College (1974).

He has been an international business consultant for a number of firms, including Citibank of New York and the Education Division of Xerox Corporation, and has published in the Journal of Marketing, Industrial Marketing Management, Journal of Maritime Law and Commerce, American Psychologist, and the Journal of Marketing Research.

He is a member of Beta Gamma Sigma and is listed in the 16th Edition of Who's Who in the East. He was on the Board of Directors of L.I. Friends of the Children of Vietnam until April 1975 and is presently on the Board of American Friends of Children. He is a Captain in the U.S. Army Reserve, married, and the father of two gifted children.