

Determinants of Owning a Prestigious Automobile

The market for prestigious automobiles in the US has been flourishing. This study applied reference group theory and prestigious goods consumption to explain the purchase behavior of prestigious automobiles. Utilizing the data from the 2001 Survey of Consumer Finances, logistic regression showed that income, business ownership, gender, age, education, length of the planning horizon, and propensity to increase spending were significant determinants of owning a prestigious automobile. The odds ratios of group characteristics such as education levels and business ownership were relatively stronger than that of the income variable. The findings suggest directions for financial advisors as well as consumer behavior researchers.

Sookeun Byun, Purdue University¹
Sharon A. DeVaney, Purdue University²

Introduction

In 1918, middle income American households allocated only 3% of their total spending to transportation. Seventy years later, in 1988, they allocated 20% of their total spending to transportation (Katz, 1997). Although saving time was a major reason to purchase an automobile in the past, consumers also purchase automobiles for other reasons (Leigh & Gabel, 1992). Namely, prestigious automobiles may be purchased to signal status or wealth, to pursue superior quality or to keep up with the owner's reference groups (Bearden & Etzel, 1982; Vigneron & Johnson, 1999). Because an automobile is a type of goods that are consumed conspicuously, the ownership of prestigious automobiles might be influenced by social interaction as much as for its function (Fan & Burton, 2002).

The prestigious automobile market in the US has been flourishing. The Mintel International Group (2002) noted that the prestigious automobile market experienced its longest increase between 1986 and 2000. Moreover, unit sales grew by 17% between 1997 and 2002. However, the market is very competitive since the market involves both domestic manufacturers and foreign manufacturers from Europe and Japan. Understanding the characteristics of prestigious automobile owners should be helpful to anyone interested in prestigious goods consumption as well as those in the automobile industry.

Previous studies on the automobile industry include research on consumer preferences for brand names (Haubl, 1996; Sullivan, 1998), energy efficiency (Dreyfus & Viscusi, 1995; Goodman, 1983), leasing and financing motives (Trochia & Beatty, 2003), and economic environment effects on automobiles ownership (Dargay & Gately, 1999). Despite a fair amount of research, there has not been as much attention to the factors that are related to the ownership of prestigious automobiles. Therefore, the purpose of this study is to examine the characteristics of prestigious automobile owners in the US. Data for this study will be drawn from the 2001 Survey of Consumer Finances (SCF). The SCF is a rich source of information on American households' financial, demographic, and socio-economic characteristics.

Desirable characteristics of an automobile include its performance, safety, reliability, comfort, durability, and other factors (Rosecky & King, 1996). These characteristics are influenced by the automobile's objective attributes, such as engine size, horsepower, gas mileage, and styling. However, the degree of prestige also varies depending on the individual's subjective perception and socioeconomic background (Vigneron & Johnson, 1999). In addition to the technical attributes, the country of origin, brand name, consumer loyalty, previous experience, and price of the automobile affect consumer value perception (e.g. Anurit, Newman, & Chansarkar, 1999; Haubl, 1996; Rosecky & King, 1996; Sullivan, 1998).

This implies that there is complexity in defining the term "prestige" when it comes to an automobile. However, the retail value of an automobile can be a way of defining a prestigious automobile. Lichtenstein, Ridgway, and Netemeyer (1993) note that consumers generally perceive high prices as a positive indicator of prestige. Therefore, this study limits the definition of a prestigious automobile owner to a household owning an automobile with a retail value greater than \$30,000 in 2001³.

Review of Literature

When goods are purchased for social display rather than solely for their actual utility and are accepted as status symbols, the goods become defined as "status conveying goods" (Fan & Burton, 2002). Frank (1985) used the

term “positional goods” for the things whose values are highly regarded by consumers in comparison with goods owned by others. Deaton and Muellbauer (1980) described “luxury goods” as those goods whose income elasticity of demand is greater than one which means the demand for luxury goods is affected by income change of households.

The term “prestigious goods” was more broadly defined as it includes consumer motivations for pursuing uniqueness, technical superiority, and aesthetic appeal as well as signaling status and wealth (Vigneron & Johnson, 1999). Prestigious goods include up-market and premium as well as luxury level which means the extreme level of prestige (Vigneron & Johnson, 1999). In marketing, the term “prestige pricing” is used when a higher price is used to indicate high quality or status (McCarthy & Perreault, 1987). Veblen (1899) observed that consumers often use price as a surrogate indicator of prestige, because high prices often have a positive role in determining the perception of product value (Lichtenstein et al. 1993; Vigneron & Johnson, 1999).

Previous studies have shown that financial status has a significant relationship with the purchase of an expensive automobile. Lave and Train (1979) claimed that the probability of choosing an expensive automobile increased with income. Stevenson, McQuivey, and Denton (2002) compared differences in financial status between households who spent more than \$30,000 and those who spent less than \$30,000 for their new-automobile purchase. The results showed that the households who spent more than \$30,000 had more income and investable assets than those who spent less than \$30,000 for an automobile. Bagwell and Bernheim (1996) added that prestigious goods are expected to be consumed by wealthy people because consumption reduces expenditure on other goods decreasing consumption utility for households with less wealth. Therefore, income is expected to predict prestigious automobile ownership, and it is used as an important segmentation variable in the automobile market.

In contrast, Stanley and Danko (1996) found that 70% of American millionaires purchased automobiles valued at less than \$29,000. This suggests that many wealthy people consume in a more frugal manner. Stanley and Danko showed that the American millionaires in their sample spent \$24,800, on average, for their most recent automobile, and about 30% of the sample spent less than \$19,500 (Stanley & Danko, 1996). This indicates that other factors besides income should be included when examining factors that influence the purchase of a prestigious automobile.

Consumers, as cultural beings, buy products not only due to their material needs but also the symbolic meanings attached to the goods that are shared by other members of society (Applbaum & Jordt, 1996; Leigh & Gabel, 1992). According to reference group theory, behavior is influenced by others as an individual assumes their standards as a basis for making self-appraisals, comparisons, and choices (Hyman, 1960). The comparative reference group is used as a standard of reference where symbolic purchasing behavior occurs (Dawson & Chatman, 2001). The reference groups have similar characteristics such as age, education, occupation, or other background variables within the group (Frank, 1985; Leigh & Gabel, 1992). If a group is more formal, and if the group interacts more frequently and actively, it is expected that stronger norms regarding purchase behavior will exist (Leigh & Gabel, 1992).

Duesenberry (1949) proposed that households compare themselves with their reference groups, and the status of the reference groups influences the expenditure of the households. Prestigious goods consumption is a behavior which is influenced by social groups; publicly consumed products are more likely to be influenced by conspicuous consumption motives (Bearden & Etzel, 1982; Veblen, 1899). Thus, ownership of a prestigious automobile is likely to be influenced by a person’s reference groups because automobiles are consumed publicly.

Previous studies have shown a significant relationship between group characteristics and prestigious goods ownership. Goldberg (1995) found that the probability of purchasing an expensive automobile increased with the age of household head. A group of managerial employees is a formal group. Thus, households that are business owners are expected to exhibit strong norms influencing their consumption behavior (Leigh & Gabel, 1992).

Moutinho, Davies, and Curry (1996) found that the price of an automobile had a significant relationship with the satisfaction of buyers. Men had a greater tendency to link the price of an automobile with perceived social status than did women (Moutinho et al. 1996). Thus, the likelihood of owning a prestigious automobile will be greater for an individual who is male, older, with more education, or a business owner compared to an individual who is female, younger, less educated, and not the owner of a business.

Psychological variables might explain the variance in a model that is not explained by other characteristics (Warneryd, 1999). Consumers might own prestigious goods because they are likely to be of higher quality (Vigneron & Johnson, 1999). Thus, a consumer who owns a prestigious automobile is likely to believe that it has high durability and reliability. Intuitively, this could mean that prestigious automobile owners have a long-term planning horizon for spending. Also, the likelihood of owning a prestigious automobile might increase if people have a propensity to increase spending when stimulated by some psychological trigger.

Based on previous studies, the following hypotheses were proposed:

- H1: An older household head will be more likely to own a prestigious automobile than a younger household head.
- H2: A male household head will be more likely to own a prestigious automobile compared to a female household head.
- H3: A household whose head has higher educational attainment will be more likely to own a prestigious automobile compared to a household head with less educational attainment.
- H4: A household with higher income will be more likely to own a prestigious automobile than those with lower income.
- H5: A household head who is a business owner will be more likely to own a prestigious automobile compared to a household head who is not a business owner.
- H6: A household head who has a tendency to increase spending when the things he owns increase in value will be more likely to own a prestigious automobile compared to those who do not have the tendency.
- H7: A household whose head has a long-term planning horizon for saving and spending will be more likely to own a prestigious automobile compared to those with a short-term planning horizon for saving and spending.

Method

The 2001 Survey of Consumer Finances (SCF) was used to predict the ownership of a prestigious automobile. The 2001 SCF was collected by the National Organization for Research at the University of Chicago and sponsored by the Board of Governors of the Federal Reserve System (Kennickell, 2003). The SCF is conducted every three years. The survey contains detailed information on financial, credit, employment and demographic characteristics of the U.S. households.

The unit of analysis in the survey is the primary economic unit (PEU) which represents the financial characteristics of a subset of the household unit. The PEU is made up of an economically dominant single individual or couple in a household and all other individuals in the household who are financially dependent on that individual or couple. To deal with missing values, the SCF data were imputed five times by drawing repeatedly from an estimate of the conditional distribution of the data. Only the first data set was used for this study. The only continuous financial variable that was used for analysis was household income. This variable is a sum of all of the sources of household income.

The sample was limited to households who owned at least one automobile. The sample excluded automobiles that were supplied by a business or leased. The total sample size was 3,768 households. Logistic regression was employed to test the hypotheses. This method is appropriate for a model with a binary dependent variable and either continuous or binary independent variables (Hatcher & Stepanski, 1994).

Variables

The dependent variable was the ownership of a prestigious automobile. In the survey, households were asked about the model and year of their automobiles. The SCF calculated the retail value of each automobile as of fall 2001 by referring to the industry guidebook. For this study, a prestigious automobile owner was defined as a household who owned at least one automobile valued at more than \$30,000 as of fall 2001. The variable was coded as '1' and '0' otherwise.

The demographic variables include age, gender, and educational attainment. Age was a continuous variable. If the household head was a male, the variable was coded as '1', and '0' if not. Because the SCF codes the husband as the head of household in a couple household, the variable for male includes both couple households and single male households. Educational attainment was categorized as: less than high school graduate or a high school graduate, some college or a college graduate, and advanced education.

Financial variables include the amount of household income and business ownership. The amount of household income was a continuous variable. If the household head was a business owner, the variable was coded as '1', and '0' if not.

Attitudinal variables include the propensity to increase spending when the things they own increase in value as well as the length of planning horizon for saving and spending. If the household head had a tendency to spend more when the things they owned increased in value, the variable was coded as '1' and '0' otherwise. If the head of household had a planning horizon for saving and spending longer than 5 years, the variable was coded as '1' which means a long-term planning horizon, otherwise the variable was coded as zero. The question in the survey was "In planning your saving and spending, which of the time periods listed on this page is important to you" The possible answers were "next few months", "next year", "next few years", "next 5-10 years" and "longer than 10

years.” The coding of variables is shown in Table 1.

Results

Descriptive Statistics

The weighted descriptive statistics of the sample are shown in Table 2. Among the 3,768 households who owned at least one automobile, 2.41% owned a prestigious automobile. Seventy-eight percent of households were headed by a male. (This means that the household could be a couple household or a single male household.) The average age of the household head was 49 years old. Forty-five percent of household heads had a high school diploma or less education, 42% attended college or graduated from college, and 13% had an advanced education. The average household income was \$72,521. Fifteen percent of the household heads were business owners. About a quarter of household heads had a propensity to increase spending when the things they own increase in value and forty-four percent had a long-term planning horizon for saving and spending.

Results of Preliminary Tests

Correlation tests were conducted with the continuous variables to check for multicollinearity. The correlation between continuous variables was less than 0.2. Chi-square tests and t-tests compared the characteristics of households who owned a prestigious automobile to other households. The results showed that the two groups differed for all of the characteristics except for age. Compared to other households, households who owned a prestigious automobile were more likely to be headed by individuals who were male, with more education, and business owners. They had more household income, on average, than those who did not own prestigious automobiles. The average income of households who owned prestigious automobiles was significantly influenced by a few households who had extremely large amounts of income. The households who owned a prestigious automobile also had a propensity to increase spending when things increased in value and a long-term planning horizon for saving and spending. The results of weighted chi-square tests and t-tests are shown in Tables 3 and 4, respectively.

Results of Binary Logistic Regression

Binary logistic regression was employed to examine the characteristics of households owning a prestigious automobile. Age, gender, educational attainment, household income, business ownership, planning horizon for saving and spending, and propensity to increase spending were significantly related to the likelihood of owning a prestigious automobile.

Households whose head was male (in either a couple household or single male household) were 268% more likely to own a prestigious automobile than households with a female head. If the household heads had attended college, they were 184% more likely to own a prestigious automobile than those who had not. The household heads with advanced education increased the odds of owning a prestigious automobile by 309%. A one year increase in the age of the household head increased the odds of owning a prestigious automobile by 3.5%.

A one unit increase of income (\$10,000) increased the odds of owning a prestigious automobile by 0.3%. Business ownership was a strong predictor of owning a prestigious automobile. The household head with a business ownership was 258% more likely to own a prestigious automobile than others.

Having a long-term planning horizon for saving and spending increased the odds of owning a prestigious automobile by 107%. Household heads with a tendency to increase spending when the thing they have in value were 42% more likely to own a prestigious automobile compared to those who do not. In summary, all of the hypotheses were supported. The results of logistic regression are shown in Table 5.

To examine the influence of attitudinal variables on prestigious automobile ownership more specifically, interaction effects were analyzed using hierarchical logistic regression (Jaccard, 2001). When the product terms between the propensity to increase spending and other variables were included in the original model, the model fit was not improved significantly.

When the long-term planning horizon was treated as a moderator variable, the model fit was significantly improved ($p < 0.05$). The logistic coefficients of the interaction terms showed that the long-term planning horizon interacted with the income and the propensity to increase spending variables. The odds ratio for the household heads with a propensity to increase spending but without a long-term planning horizon were 177% ($=1/0.566$) times larger than that for the household with a propensity to increase spending with a long-term planning horizon. These results are available from the authors.

Conclusion and Implications

This study examined demographic, financial, and attitudinal characteristics of prestigious automobile owners in the US using data from the 2001 SCF. The results of logistic regression showed that income, business ownership, age, gender, education, length of the planning horizon, and propensity to increase spending were significantly related to ownership of prestigious automobiles. Among these variables, business ownership, gender, and educational attainment had relatively strong effects on the odds of owning a prestigious automobile while the effects of income and age were relatively low.

The financial status of households might be a restraint on owning a prestigious automobile. Traditionally, low income has constrained consumption (Dubois & Duquesne, 1993). However, other variables representing group characteristics strongly influenced the odds of owning a prestigious automobile. These characteristics include gender, education, and business ownership. The results suggest that reference groups might significantly influence the purchase of prestigious automobiles.

The findings suggest helpful implications for consumers and their financial advisors. When consumers are considering the purchase of a prestigious automobile, they need to evaluate what they will receive in return for their investment. Individuals may want to purchase a prestigious automobile because of the opinions of their reference groups or the social status of their occupation without considering whether it is the best purchase based on their current financial status.

The results for the attitudinal variables suggest a direction for further research. Having both a long-term planning horizon and a propensity to spend contributed to an increase in the likelihood of owning a prestigious automobile. If having a long-term planning horizon is a proxy for pursuing superior quality, then prestigious automobile advertisements should appeal to quality and safety instead of wealth or ego, as suggested by Gelsi (1997). Meanwhile, the result of an interaction effect test showed that having a long-term planning horizon decreased the likelihood of owning a prestigious automobile when the household heads had a propensity to increase spending. Perhaps, more research is needed to understand these behaviors.

Researchers can extend this research by comparing the characteristics of households who consume different kinds of prestigious goods, for instance, non-durable goods versus durable goods, privately-consumed prestigious goods versus conspicuously-consumed prestigious goods. Marketers in the automobile industry can apply the findings when they plan a strategy to target new purchasers.

There are some limitations of the study. First, a prestigious automobile was defined as an automobile valued at more than \$30,000 in 2001. Basing the definition on retail price is somewhat controversial and an accepted definition of a prestigious automobile is needed.

This study did not use items that directly measured consumers' motivation to own a prestigious automobile because they were not available in the data set. In addition, the regression analysis did not test causal relationships. Instead, the regression tested the relationship between characteristics and ownership. Although this study found significant relationships between the group characteristics, such as education and business ownership, and the likelihood of owning a prestigious automobile, it is not enough to conclude that owners are influenced by interaction with social groups.

If the motivation for owning a prestigious automobile could be measured more clearly, the findings would be of great interest to marketers and researchers in the automobile industry. Meanwhile, consumer educators can use these results to assist consumers in understanding their motivation to purchase a prestigious automobile and, perhaps, other types of prestigious goods.

Table 1

Coding of Variables

Variables	Coding
Dependent variable:	
Prestigious automobile ownership	1 if the household owns an automobile with a retail value more than \$30,000, 0 otherwise
Independent variables:	
<u>Demographic variables</u> (household head)	
Age	Continuous
Gender of household head	1 if male, 0 female
Educational attainment:	
High school or less	1 if attended high school or less, 0 otherwise
College	1 if attended college, 0 otherwise
Graduate school	1 if attended graduate school, 0 otherwise
<u>Financial characteristics</u>	
Household income (log-transformed)	Continuous
Business ownership	1 if yes, 0 otherwise
<u>Attitudinal variables</u>	
Tendency to increase spending	1 if had somewhat or strong propensity to increase spending when the things they own increase in value, 0 otherwise
Planning horizon for saving and spending	1 if longer than 5 years, 0 otherwise

Table 2

Weighted Descriptive Statistics of Households in the SCF 2001 (N=3,768)

Variables	Mean (S.D)	Frequency (%)
Dependent variable:		
Prestigious automobile ownership	-	2.41
Independent variables:		
<u>Demographic variables</u> (household head's)		
Age	48.81 years (16.30)	-
Gender	-	78.11
Educational attainment:		
High school or less	-	44.56
College	-	42.27
Graduate school	-	13.18
<u>Financial characteristics</u>		
Household income	\$72,521.05 (231,967)	-
Business ownership	-	14.69
<u>Attitudinal variables</u>		
Tendency to increase spending	-	24.86
Planning horizon for saving and spending	-	43.78

Table 3

Weighted Chi-square Analysis of Prestigious Automobile Ownership and Selected Characteristics of Households in the 2001 SCF (N=3,768)

Variables	Prestigious Automobile Ownership		p-value
	Yes	No	
Gender of household head:			<0.0001
Male	92.76%	77.75%	
Female (reference group)	7.24%	22.25%	
Educational attainment:			<0.0001
High school or less (reference group)	18.61%	45.20%	
College	39.37%	42.34%	
Graduate school	42.02%	12.47%	
Business ownership:			<0.0001
Yes	45.11%	13.94%	
No (reference group)	54.89%	86.06%	
Tendency to increase spending:			<0.0001
Agree strongly or somewhat	36.47%	24.58%	
Negative or neutral (reference group)	63.53%	75.42%	
Planning horizon for saving and spending:			<0.0001
Longer than 5 years	69.70%	43.14%	
Less than 5 years (reference group)	30.30%	56.86%	

Table 4

Weighted t-tests for Income and Age between the Households with a Prestigious Automobile and Those without a Prestigious Automobile (N=3,768)

Variables	Mean of Income	Mean of Age
Ownership of a prestigious automobile:		
Yes	\$485,811	50.86
No	\$62,332	48.76
p-value	<.0001	0.2247

Table 5

Results of Logistic Regression for Owning a Prestigious Automobile (N=3,768)

Variables	Parameter Estimate	Pr>Chi-square	Odds Ratio
<u>Demographic variables</u> (head of household)			
Age	0.0340	<0.0001	1.035
Gender of household head	1.3026	<0.0001	3.679
Educational attainment:			
College	1.0433	<0.0001	2.839
Graduate school	1.4088	<0.0001	4.091
<u>Financial characteristics</u>			
Household income (\$10,000)	0.0027	<0.0001	1.003
Business ownership	1.2762	<0.0001	3.583
<u>Attitudinal variables</u>			
Tendency to increase spending	0.3511	<0.0035	1.421
Planning horizon for saving and spending	0.7288	<0.0001	2.073
Intercept	-7.2075	<0.0001	

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Endnotes

¹ Sookeun Byun, PhD Student, Department of Consumer Sciences and Retailing, Purdue University. Phone: (765) 409-6154, Email: sebyun@purdue.edu

² Sharon A. DeVaney, PhD, Professor, Department of Consumer Sciences and Retailing, Purdue University. Phone: (765) 494-8300, Fax (765) 494-0869, Email: sdevaney@purdue.edu

³ One may suggest using the brand name of automobiles for defining a prestigious automobile. It can be another way but it is still very subjective for dividing the sample into two groups: prestigious automobile owners and non-prestigious automobile owners. In addition, the SCF did not release the brand name of automobiles to public. The price range - "above \$30,000" is appropriate for defining a prestigious automobile in that the prestigious goods include not only the luxury level but also up-market and premium levels.