JESSIE X. FAN AND JOHN R. BURTON

Vehicle Acquisitions: Leasing or Financing?

In this study, we investigate household vehicle leasing versus financing behavior using the Interview Survey Portions of the 2001 Consumer Expenditure Survey. Two research questions are addressed in this study: (1) What are the demographics of those who lease as opposed to those who finance, and (2) What are the major factors affecting a consumer's probability of leasing versus financing when acquiring vehicles? Findings show that among income and demographic characteristics, being older, Caucasian or Hispanic, college educated, living in urban Northeast and Midwest, living in large Metropolitan Statistical Areas (MSAs), not having teenagers in the family, and having a higher income increase a consumer's probability to lease a vehicle. Most of these income and demographic effects either become smaller or disappear after the vehicle characteristics are controlled for. Among vehicle characteristics, being newer, Japanese or European made, luxury brand, with more cylinders, with power brakes, sunroof, and four-wheel drive increase the probability of leasing. Purchasing the vehicle new instead of used, having a lower down payment and monthly payments, and having a smaller number of contracted payments also increase the probability of leasing.

There are three basic methods that consumers use to acquire a vehicle. Some borrow, some lease, and a small minority pays cash. Although there are a variety of reasons that a consumer would choose one of these methods over the other, there is a paucity of published research that addresses this question. With the exception of two recent studies (Mannering, Winston, and Starkey 2002; Trocchia and Beatty 2003), existing research in this area is most likely proprietary marketing studies performed by the automobile sellers and/or marketing research firms.[1] Such marketing studies are usually either descriptive or, at most, bivariate. On the other hand, the limited number of academic studies on this topic have focused either on proposing methods for consumers to evaluate alternative forms of consumer credit when acquiring vehicles (Nunnally and Plath 1989; Patrick 1984) or have only considered a rather limited set of variables in their multivariate models (Mannering, Winston, and Starkey 2002; Trocchia and Beatty 2003). Our

Jessie X. Fan (fan@fcs.utah.edu) and John R. Burton (burton@fcs.utah.edu) are associate professors of consumer and community studies in the Department of Family and Consumer Studies at the University of Utah, Salt Lake City.

This research was partly funded by a Consumer Research and Education Fund grant from the Department of Family and Consumer Studies at the University of Utah. The authors wish to thank Marie Hafey for her excellent research support.

The Journal of Consumer Affairs, Vol. 39, No. 2, 2005
ISSN 0022-0078

study attempts to fill this gap while providing some empirical basis for consumer education and consumer policy.

BACKGROUND AND LITERATURE REVIEW

Early in the twentieth century, the first automobiles were cash purchases. In the Model-T era, Henry Ford introduced auto financing on a large-scale basis. In the beginning of the second half of this century, commercial leasing was common and more recently, retail leasing. Retail or consumer leasing has really accelerated in the past several years. In 1999, about 32.4% of all retail new automobile acquisitions were leases, which was up from only 18.4% in 1993. Also in 1999, a total of 58.8% of consumers financed their automobile purchases, while only 8.8% paid cash (CNW Marketing Research 2000, Document 227). Only 1.2% of used vehicle acquisitions in 1999 were through leases (CNW Marketing Research 2000, Document 211). Two recent studies investigated consumers' choice of leasing versus financing in a multivariate context (Mannering, Winston, and Starkey 2002; Trocchia and Beatty 2003). Using a random sample of 654 households that acquired 700 new automobiles or light trucks in the 1993, 1994, and 1995 model years from a national household panel survey administered by National Family Opinion, Mannering, Winston, and Starkey (2002) estimated a nested logit model composed of payment method and vehicle type. They found that consumers were more attracted to leasing if they had previously leased a vehicle. In addition, income and education were positively related to a consumer's probability to lease. Mannering, Winston, and Starkey (2002) argued that consumers' growing attraction to leasing arose from their ongoing desire to upgrade their vehicles. This desire was reflected in consumers' vehicle choices. While consumers who paid cash, financed, or leased were all influenced by certain vehicle attributes such as greater reliability, greater performance (as measured by turning radius and vehicle horsepower), lower fuel or purchase price, and higher residual value, consumers who leased were willing to pay considerably more for certain "luxury" attributes than those who purchased. For example, leasers were willing to pay about twice as much for a passenger-side airbag and more than 80% for additional horsepower.

Trocchia and Beatty (2003) used qualitative interviews of 56 consumers who leased (46) and purchased (10) to identify four motives for leasing: (1) desire for variety, (2) desire for simplified maintenance, (3) desire for gratification, and (4) desire for social approval. Consumers who leased for reasons pertaining to variety seeking believed that leasing allowed them the opportunity to drive a variety of vehicles for a lower

overall cost (both monetary and psychological) than if they were to purchase and replace vehicles frequently. On the other hand, the desire for simplified maintenance described an individual's motivation to lease based on the wish to drive a vehicle with minimum potential complications such as repairs. Desire for gratification referred to an individual's hedonic or pleasure-seeking needs. Leasing was believed to allow consumers to obtain a vehicle that would be better able to please the senses (e.g., more comfortable, smoother riding, driving excitement) than they could procure by financing. Finally, based on the desire to be accepted by relevant others, some individuals chose to lease eye-catching, impressive, well-appointed automobiles that might otherwise be unaffordable. Trocchia and Beatty (2003) developed measurements for these four motives and administered the survey to a convenience sample of 348 consumers (189 lessees and 159 financers). When tested individually, all four motives were significant in predicting consumers' probability of leasing. However, when tested in one combined model with other demographic variables such as age, education, gender, and income, only two motives, desire for variety and desire for simplified maintenance, were statistically significant. None of the demographic variables were found to be significant.

In a CNW Marketing Research annual survey for 1999 asking why consumers chose leasing, the reasons most likely given were lower monthly payments (37.7%) and no/low down payment (29.8%). Two other questions in that survey were also telling. "To drive a nicer car" went from 33.5% in 1993 to 15.8% in 1999, while "better use of money" went from 1.2% to 13.3% during the same period (CNW Marketing Research 2000, Document 139).

What we have learned from past studies is that income, costs (down payment and monthly payments), and vehicle features (quality indicators for gratification and impressiveness indicators for social display) might be important in affecting consumers' probability for leasing. However, no past study has considered all these factors in a multivariate context. It is possible that certain factors may not be significant anymore once other factors are controlled for. In addition, past studies have not looked at the impact of a more extensive list of demographic variables such as race and family type, in addition to income, age, gender, and education. In this study, with a larger-than-past sample size and a more extensive list of independent variables, we try to fill that gap.

RESEARCH QUESTIONS

This study focuses on the determinants for a vehicle "buyer" to lease as opposed to acquiring a vehicle by traditional financing. We assume that

consumers first decide on whether to pay lump sum cash payment or periodic payments and then decide on whether to finance or to lease once the periodic payment decision is made. As noted above, cash acquisitions represent from 4% to 9% of all vehicle acquisitions. Because of the small percentage of cash purchasers, cash-paying consumers are excluded from this study. The research questions of this study are as follows:

1. What are the demographics (e.g., age, race/ethnicity, education, gender, family type) of those who lease as opposed to those who finance?
2. What are the major factors (income, costs, vehicle characteristics, and consumer demographic characteristics) affecting a consumer's probability of leasing versus financing when acquiring vehicles?

This research will not only help to better understand consumer decision making with respect to leasing and financing when acquiring vehicles but also provide some baseline information on vehicle leasing so that future policy evaluations can be performed when newer data become available.

CONCEPTUAL FRAMEWORK AND HYPOTHESES

A neoclassical economic framework is used to guide our analysis. In our model, a vehicle leased is treated as a different commodity compared with a vehicle financed, even if they are exactly the same vehicle. Denoting these vehicles as $X_i, i = 1, \ldots, n$, a consumer makes a decision on which vehicle to acquire by maximizing utility subject to constraints. By taking the first-order condition, one can derive

$$X_i = f(OC, M, P, PR), \tag{1}$$

where OC is nonmonetary constraints such as supply-side constraints, M is budget constraint, P is a vector of commodity prices, and PR is preferences.

While nonmonetary constraints are not typically included in a standard demand model, in our case they are important due to the complexity of vehicles as a consumer product. For example, not all features are available on all vehicles. Vehicle options may be packaged together. Some luxury features are simply not available on entry-level vehicles. In addition, not all leasing and financing options are available in all regions and areas. Small dealers in small metropolitan or nonmetropolitan areas may not have the capacity to develop the specialized skills that offering leases would require. These issues will lead consumers to face supply-side constraints when

making decisions. While in the long run supply is also affected by consumer demand, in this short-term study, supply is treated as given. For this study, region, rural/urban, and population size of the residing area are included to capture these supply-side constraints in different locations. It is expected that consumers in larger metropolitan areas are more likely to lease because they have more leasing options. The budget constraint M is measured using household before-tax income. Past studies have found that consumers with higher income levels were more likely to lease than those with lower income (Mannering, Winston, and Starkey 2002; Trocchia and Beatty 2003). When disposing of their old vehicles and acquiring new vehicles, consumers incur transaction costs associated with vehicle disposal and replacement. It is usually perceived that disposal of vehicles is easier when the lease is terminated, compared to the selling of vehicles that are financed. The Federal Reserve Board's "Keys to vehicle leasing" consumer guide states that with leasing, "you may return the vehicle at lease-end, pay any end-of-lease costs, and walk away"; while with buying, "you may have to sell or trade the vehicle when you decide you want a different vehicle" (Federal Reserve Board 2004). It follows that the disposal and replacement of vehicle has a lower time cost for lessees than for owners. Miller's (1995) call option value argument also implied that there was less hassle getting the predetermined residual value for a close-ended leased vehicle than getting the same price by selling or trading in an owned vehicle. Because consumers with higher income tend also to have higher wage rates and thus higher opportunity costs of time, it is expected that consumers with higher income are more likely to lease.

The price vector should theoretically include prices of all relevant commodities under consideration. However, because of data limitations, only the price of the chosen vehicle is used. It should be noted that with a durable good such as a vehicle, it is the total cost, rather than the initial price, that is important to consumer decision making. The Federal Reserve Board's "Keys to vehicle leasing" consumer guide notes three categories of vehicle acquisition costs: the up-front cost (down payment), the middle cost (regular monthly payments), and the end cost (early termination fee, excessive wear fee, excess mile fee, and disposition fee, if leasing).

While mathematical methods can be used to calculate the present value of the vehicle that includes these costs, we choose to use an approach that allows consumers to treat differently these costs that occur at different times, in line with the mental accounting approach in the behavioral life cycle hypothesis literature (Shefrin and Thaler 1988). We use three variables to measure these costs: down payment, monthly payments, and total number of payments. We are not able to incorporate end cost explicitly in

this model because information about these costs is not available in the data. However, some demographic variables, which will be discussed later, may help predict who is more likely to incur these end costs.

Because leasing typically requires a lower down payment and lower monthly payments than financing, consumers who intend to put down a lower down payment and lower monthly payments are more likely to lease. Because consumers with higher income tend to have higher opportunity costs of money due to better opportunities for investment, higher-income consumers may be more likely to lease with less money commitment up front and in the middle. However, when down payment and monthly payments are controlled directly, this income effect is likely to disappear. It is hypothesized that consumers who put down a lower down payment and lower monthly payments are more likely to lease than consumers who put down a larger down payment and commit to larger monthly payments, other things equal. Note that we are substituting actual down payment and monthly payments for the measurement of what a consumer intends to pay because information about intention is not available in the data. With respect to the total number of payments, the Federal Reserve Board (2004) recommends financing if one is to keep the vehicle for a long time because leasing terms are usually shorter than terms for financing. Thus, it is hypothesized that the longer the contract term, the less likely a consumer is to lease.

Ideally, consumer preferences should include consumers' likes and dislikes of features of the commodity, such as four-wheel drive, sunroof, make of the vehicle, and new or used. However, because preference information independent of the commodity the consumer finally chooses is unavailable, features the consumer eventually gets are used as proxies for his/her preferences for these features. While the utility maximization model provides us with a basic framework for our analysis, it does not provide details as to how these preference measures would affect consumers' decisions on leasing versus financing. The theory of conspicuous consumption is used to help frame our selection of hypotheses regarding preference shifters. Trocchia and Beatty (2003) found that one motivation for consumers to lease instead of finance was a strong emphasis on living for the moment, including a sense of gratification and a desire for social approval. Fan and Burton (2002) found that many college students regarded nice vehicles as a status consumption item. In particular, students reported that a stereo system, sunroof/moonroof, leather interior, and four-wheel/all-wheel drive were the features that they would get if they wanted to show social status. Thus, we hypothesize that consumers who prefer to have features that are status conveying are more likely to lease than to finance, other things equal.

It should also be noted that different marketing efforts by different brands may also contribute to changing consumers' preferences. Because luxury brands tend to make more of an effort to promote leasing, luxury brands may be more likely to be leased than financed.

In addition to these imperfect vehicle characteristic measures, demographic variables are used in the model to capture further differences in preferences. These demographic variables include age, race/ethnicity, education, family size, presence of teenagers, family type, region, and population size. Age is likely to be negatively associated with the probability of leasing because older consumers may be more likely to view vehicles as assets than younger consumers due to generational difference in social attitudes. The effect of education can be twofold. Because leasing contracts use terms that are further removed from our daily languages than terms in financing documents, consumers with lower levels of education may be less likely to lease due to this barrier, other things equal. On the other hand, they are more likely to be talked into leasing if that is what the sales personnel are pushing. Family size and family structure may have impact on the probability of leasing because larger families with children may put more mileage and more wear and tear on the car, thus making leasing less attractive due to charges on excess mileage and excess wear and tear. The location variables, besides contributing to the measurement of supply-side constraint, also can affect consumer preferences. For example, some options, such as four-wheel drive, may be considered more valuable in certain regions of the country with severe weather conditions than others. Finally, we theorize that the impact of sociodemographic variables such as age and race is likely to disappear or diminish once we control for the vehicle characteristics variables that capture comfort and status consumption.

DATA

The data for this study are from the interview survey portion of 2001 Consumer Expenditure Survey (CEX) (U.S. Bureau of Labor Statistics 2003). The CEX data set, collected and published by the Bureau of Labor Statistics, is the most comprehensive source of detailed information on family expenditure, income, and other socioeconomic and demographic characteristics of the U.S. population. The CEX is conducted quarterly with rotating panels of approximately 7,000 families who are interviewed for five consecutive quarters.

The CEX data have information on all vehicles (passenger cars, sports utility vehicles [SUVs], and light pickup trucks) a consumer unit (CU) has

at the interview time. For each vehicle, detailed information is available regarding the make, model, and year of the vehicle; the month and year when the vehicle was financed or leased; whether the vehicle was acquired new or used; and other financial information such as down payment and monthly payments.

The sample used in this study includes all financed or leased non–business use vehicles owned by the CUs that were interviewed between the first quarter of 2001 and the first quarter of 2002. Thus, the unit of analysis in this study is vehicles. Because income is an important variable in this study, only those CUs that were complete income reporters are included in the sample. For those CUs that own their vehicle(s), the CEX does not have a question directly asking whether the vehicle was financed. However, the following question was asked: "Were all the loans on this vehicle paid off or were there any remaining payments to be made as of the beginning of the reference period?" The answer could either be "paid off" or "remaining payments." The vehicles identified as either paid off or having remaining payments are classified as being financed when first acquired. On the other hand, if a vehicle was leased, it was identified in the CEX data. After deleting observations that have missing values on either demographic or vehicle characteristics variables used in our multivariate analysis (see below), we have a final sample of 3,552 vehicles, with 2,710 of these financed and 842 of these leased.

METHODS AND MEASUREMENTS

The dependent variable of interest is whether the vehicle acquired by a CU was leased or financed. The independent variables used in this study include consumer income and costs of the vehicle, as measured by down payment, monthly payments, and length of the term. Region and population size are used to capture nonmonetary constraints such as supply-side constraints. The preference variables include the characteristics of the vehicle and the characteristics of the CU. Characteristics of the vehicle include whether the vehicle was new or used when first acquired, whether it was domestic or foreign made, current age of the vehicle, number of cylinders, whether the vehicle was a luxury vehicle,[2] whether it had a sunroof, and whether it had four-wheel drive. The characteristics of the CU include gender, age, education, race/ethnicity, family type, family size, and whether there were teenagers in the family. Region and population size variables may also capture some preference differences due to local cultural differences and peer influences.

Given the discrete nature of this dependent variable, logistic regression is used. Following Maddala (1983), the logit model is specified as follows:

$$\log \frac{P}{1-P} = BX + e \tag{2}$$

where P is the probability of a consumer leasing the vehicle and $(1 - p)$ is the probability of a consumer financing the vehicle. X is a vector of income, costs, consumer demographic characteristics, and vehicle characteristics that have impact on a consumer's probability of leasing versus financing. B is a vector of coefficients. The error term is denoted as e.

Two models are estimated. Model 1 is the full model including income, costs, and preferences variables. Model 2 is estimated with only income and demographic variables. The purpose of estimating model 2 is to identify whether certain demographic groups are more likely to lease than other groups, holding other demographic variables and income constant. Such information can be used as a basis of consumer education, consumer policy, and for product marketing.

DESCRIPTIVE STATISTICS

Descriptive statistics by leasing status are presented in Table 1. On average, compared to CUs who financed, CUs who leased were slightly older, had a smaller family size, and had a higher before-tax income. The proportion of lessees was higher among European Americans, college-educated, and married households. The proportion of lessees was also higher in the Northeast and Midwest regions and in metropolitan areas of more than 1.2 million population.

The descriptive statistics also show that compared to the CUs that financed, the lessees had newer vehicles. The percentage of lessees who acquired their vehicles new is much higher than that of CUs who financed (94% vs. 48%). In addition, lessees also had a lower down payment, compared to the CUs who financed ($2,042 vs. $3,625). However, the monthly payments are higher for lessees compared to those who financed ($369 vs. $340), while consumers who financed had longer terms of payments than lessees (53 vs. 42 months).

Vehicles that were leased were more likely to be foreign-made and luxury models, compared to vehicles that were financed. In addition, leased vehicles were more likely to have more cylinders, a sunroof, and four-wheel drive.

TABLE 1
Sample Characteristics by Leasing Status

Variable	Purchased (n = 2,710) Mean (SD) or %	Leased (n = 842) Mean (SD) or %
Age	43.52 (13.02)	44.67 (13.48)
Race/ethnicity		
European American	0.76	0.84
African American	0.11	0.07
Hispanics	0.08	0.06
Other races	0.04	0.03
Education		
Less than high school	0.06	0.03
High school	0.60	0.43
College or more	0.34	0.54
Family size	3.15 (1.50)	3.02 (1.41)
Presence of teenagers	0.11	0.08
Family type		
Married	0.70	0.74
Single-female head	0.09	0.09
Single-male head	0.06	0.07
Nonfamily	0.14	0.10
Region		
Urban Northeast	0.13	0.23
Urban Midwest	0.23	0.33
Urban South	0.30	0.20
Urban West	0.23	0.20
Rural	0.11	0.03
Population size of primary sampling unit		
More than 4 million	0.21	0.36
1.20–4 million	0.31	0.35
0.33–1.19 million	0.16	0.13
125,000–329,900	0.12	0.08
Less than 125,000	0.19	0.08
Family income before tax	54,990.58 (43,553.13)	74,053.50 (67,234.29)
Down payment	3625.18 (3575.47)	2042.13 (3607.42)
Monthly payments	340.27 (157.17)	369.40 (143.40)
Number of months contracted	52.56 (12.64)	42.05 (18.95)
Make of the vehicle		
U.S.	0.64	0.50
Japanese	0.22	0.29
European	0.03	0.08
Korean/Missing	0.03	0.02
Age of the vehicle	4.56 (3.11)	2.61 (2.11)
Purchased new	0.48	0.94
Luxury car	0.05	0.10
Sunroof	0.16	0.30
Four-wheel drive	0.18	0.29
Number of cylinders	5.70 (1.41)	5.80 (1.34)

RESULTS AND DISCUSSION

The results of the multivariate logistic regression are presented in Table 2. Two sets of estimates are presented: the full model and the model with demographic characteristics and income only. The full model has a Max-rescaled R^2 of 0.579 and predicts 91.6% of observations correctly. The demographics-only model has a much lower Max-rescaled R^2 of 0.138, with a correct prediction rate of 70.1%.

Income, costs, and preferences, especially preferences regarding vehicle characteristics, are important in consumer decisions regarding leasing versus financing. The higher a household's income, the more likely it is to lease a vehicle, even when vehicle characteristics and household demographic characteristics are controlled. This result supports our hypothesis and is consistent with findings from previous studies (Mannering, Winston, and Starkey 2002; Trocchia and Beatty 2003). While this income effect is likely a result of higher time cost for high-income households, it is possible that this positive coefficient also captures the effect of high-income households choosing vehicle options that are not controlled in our analysis, such as leather seats.

Supporting our hypotheses regarding costs, we find when controlling for other variables, lower down payments and monthly payments increase the chance of leasing. The shorter the term of payments, the more likely a vehicle is leased, other things equal. While it is possible that consumers do compare the present value of overall costs of vehicles, the payment structure clearly makes a difference in consumer decision making regarding leasing versus financing. It is likely that a consumer knows approximately how much down payment and monthly payments he/she is willing to commit before the decision of leasing versus financing is made. It is thus possible that a consumer who wants to get a more expensive vehicle with more options would choose leasing over financing. This result is consistent with a CNW survey showing that lower monthly payments and a lower down payment are two major reasons for consumers to choose leasing over financing (CNW Marketing Research 2000, Document 139). This result is also consistent with the concept of mental accounting in the theory of behavioral life cycle hypothesis (Shefrin and Thaler 1988), in that spending decisions are likely made by following implicit or explicit monthly budgets instead of the present value of the overall costs.

As a group, vehicle characteristics are very significant in predicting consumers' leasing versus financing decisions. Foreign-made vehicles, especially European-made and Japanese-made ones, are much more likely to be leased than financed, compared to U.S.-made vehicles. One might suspect

TABLE 2
Logistic Regression Results on the Probability of Leasing

	Model 1			Model 2		
Variables	Coefficient	Odds ratio	Chi-square	Coefficient	Odds ratio	Chi-square
Intercept	1.514		8.048***	−0.972		14.777***
Age	−0.005	0.995	1.446	0.006	1.006	2.796*
Race/ethnicity (European)						
African American	−0.234	0.792	1.256	−0.309	0.734	3.726**
Hispanic	0.026	1.026	0.013	−0.102	0.903	0.315
Other races	−0.590	0.554	4.443**	−0.419	0.658	3.345*
Education (high school)						
Less than high school	−0.071	0.931	0.056	−0.261	0.770	1.109
College or more	0.139	1.149	1.384	0.615	1.849	48.884***
Family size	0.031	1.032	0.429	−0.055	0.946	2.225
Presence of teenagers	−0.541	0.582	6.884***	−0.413	0.662	7.062***
Family type (married)						
Single-female head	0.050	1.051	0.053	0.022	1.022	0.017
Single-male head	−0.253	0.776	0.997	0.026	1.026	0.019
Nonfamily	0.113	1.120	0.404	−0.051	0.950	0.140
Region (urban Northeast)						
Urban Midwest	0.053	1.054	0.094	0.059	1.060	0.215
Urban South	−0.668	0.513	13.206***	−0.702	0.496	26.698***
Urban West	−0.095	0.910	0.278	−0.455	0.635	11.543***
Rural	−1.110	0.330	9.109***	−0.895	0.409	10.192***
Size of primary sampling unit (>4 million)						
1.20–4 million	−0.089	0.914	0.373	−0.383	0.682	12.171***
0.33–1.19 million	−0.153	0.858	0.729	−0.532	0.588	15.362***
125,000–329,900	−0.513	0.599	5.969**	−0.694	0.499	19.055***
Less than 125,000	−0.446	0.640	3.119*	−1.014	0.363	28.911***
Family income before tax (in $10,000)	0.036	1.037	9.967***	0.045	1.046	30.215***
Down payment (in $1,000)	−0.219	0.803	177.489***			
Monthly payments (in $100)	−0.282	0.755	28.541***			
Number of months contracted	−0.093	0.911	383.093***			
Make of the vehicle						
Japanese	0.658	1.931	21.108***			
European	1.219	3.383	19.330***			
Korean/missing	−0.573	0.564	2.521			
Age of the vehicle	−0.211	0.810	40.362***			
Purchased new	2.983	19.738	200.125***			
Luxury car	1.142	3.134	23.831***			
Sunroof	0.402	1.495	8.451***			
Four-wheel drive	0.860	2.363	35.244***			
Number of cylinders	0.286	1.331	30.679***			
Max-rescaled R^2	0.579			0.138		

*$p < .1$; **$p < .05$; ***$p < .01$.

that possibly foreign vehicle dealers make more of an effort to present leasing options. However, a survey by CNW Marketing Research would say not. CNW found that a consumer is more likely to be offered a lease by a domestic automobile dealership (CNW Marketing Research 2000, Document 125). This contradiction warrants further investigation.

If a vehicle is purchased new, then the odds of it being leased are almost 19 times that of the odds of a used vehicle. Although used vehicle leasing is available, its availability is more limited. In addition, most consumers are not aware of such opportunities. Consumer awareness and consideration of used vehicle leasing for 1999 is 17.9% and 8.8%, respectively (CNW Marketing Research 2000, Document 207). The older the vehicle, the less likely it is leased. This makes sense because older vehicles were probably bought in earlier years when leasing opportunities were less abundant. It is also possible that consumers who finance keep their vehicles longer than the consumers who lease; thus, financed vehicles, on average, are older than leased vehicles.

Being a luxury brand, having four-wheel drive (likely an indicator for SUVs), and having a sunroof increase the odds of leasing by 213%, 136%, and 50%, respectively. An increase in the number of cylinders also increases the odds of leasing, other things equal. This result is consistent with findings by Trocchia and Beatty (2003) that one of the reasons consumers lease is for gratification and social display. It is also consistent with Mannering, Winston, and Starkey's (2002) conclusion that consumers lease in order to get higher quality vehicles. In Fan and Burton's (2002) study, more than half of the students surveyed thought that a sunroof and four-wheel drive indicate status. While it is difficult to separate which vehicle options are for comfort and which are for social comparison, the results in Fan and Burton (2002) suggest that at least some of the vehicle options lessees are more likely to choose do convey status.

In addition to vehicle characteristics, demographic variables also affect the probability of leasing. When costs and vehicle characteristics are not controlled, more demographic variables become significant. For those demographic variables that are significant in both models, the effects are larger in the income- and demographics-only model compared to the full model. Below we discuss the impact of demographic variables in both models.

Age is found to be positively associated with the probability of leasing in model 2. However, when payment structure and vehicle characteristics are controlled, age becomes insignificant. This implies that the impact of age on the probability of leasing works through the choices consumers make about payment structure and vehicle characteristics.

Non-Hispanic African Americans and Asian Americans are less likely to lease, compared to non-Hispanic white Americans and Hispanic Americans. However, when payment structure and vehicle characteristics are controlled, the coefficient for African Americans becomes insignificant. This implies that African Americans are less likely to lease in order to get more options, luxury, or new vehicles for the same payment. On the other hand, there might be cultural differences between Asian Americans and white Americans in their preferences for leasing. Because many Asian Americans are recent immigrants and leasing of vehicles may not be common in their home countries, Asian Americans may be less likely to lease due to their unfamiliarity with leasing. However, this does not seem to affect Hispanic Americans, another group that includes many recent immigrants.

While consumers with college education are found to be more likely to lease than consumers with high school education or less in model 2, the effect disappears when costs and vehicle characteristics are controlled. This indicates that consumers with college education are more likely to purchase new luxury vehicles with options. This preference leads them to be more likely to choose leasing over financing in order to get more expensive vehicles for a given payment structure.

While family size is not significant in either of the two models, the presence of teenager(s) in the household is found to decrease the probability of leasing. It is possible that having teenagers in the household increases the probability of excess mileage and excess wear and tear, which can lead to significant end cost if a vehicle is leased. Gender and marital status are not significant.

Location, measured by both region and population size of the Metropolitan Statistical Areas (MSAs), is found to be highly significant in affecting leasing versus financing. The bigger the metropolitan area in which the household resides, the more likely it is to lease than to finance, possibly implying that consumers in large areas face less supply-side constraints for leasing and are more culturally accustomed to the idea of leasing. Finally, those who live in the urban South, urban West, and rural areas are less likely to lease than those who live in the urban Northeast and urban Midwest (additional test performed but not shown in the table).

It is important to note that the results and discussion should be viewed in the context of the limitations of this study. First, there may be determinants of the propensity to lease that have not been addressed in this study. For example, our data do not contain social and psychological variables, so a direct test of these effects cannot be conducted. A consumer's locus of control might be relevant to the leasing versus financing decision. Per-

sons with internal local of control might be more likely to finance because eventual ownership may be symbolic to them as a desirable consequence of their actions of choosing to finance. Unfortunately, our data do not provide this information. In addition, our data do not contain direct measures of the respondent's knowledge of leasing terms as opposed to methods of financing. The question remains as to whether a consumer would lease if the consumer knew the long-term economic consequences of such a decision. Further, there may be additional vehicle characteristics, such as leather seats, heated seats, power everything, six-speaker sound system, that are important in this decision but are not available in this data set.

CONCLUSIONS AND IMPLICATIONS

In this study, we use a nationally representative sample of households and the vehicles they own to study consumer choices of financing versus leasing in acquiring vehicles. Consistent with results from previous studies (Mannering, Winston, and Starkey 2002; Trocchia and Beatty 2003), households with higher income are more likely to lease than households with lower income. Differences in the opportunity costs of time and money are likely the reason. This finding has theoretical implications in confirming that consumers do take opportunity cost into consideration when making decisions.

Comfort and status consumption are important factors in consumers' choice of leasing versus financing when acquiring vehicles. The finding that consumers who choose luxury vehicles and choose more options are more likely to lease, ceteris paribus, lends support to this conclusion. Our finding supports results from Trocchia and Beatty (2003) and adds to the validity of this conclusion by using measures different from previous studies. However, a contributing factor to the luxury-vehicle leasing phenomenon could be supply-side efforts, in that more leasing deals are offered by luxury-vehicle dealers to consumers. On the other hand, our findings support what is implied in the CNW Marketing Research surveys and what was explicitly stated by a car salesman to one of the authors: car consumers typically use leasing as a means to attain lower monthly payments to fit within the household budget, so they can buy more car for the same monthly payments. While pursuing status consumption in itself is not a bad thing, it does imply a present-oriented time preference and can cause problems in the long term if a consumer overextends because of the pursuit of status consumption. Future studies should look at the link between vehicle leasing and consumer debt status to better understand this issue and to draw implications for financial counseling and planning

professionals as well as consumer educators. It is important to educate consumers to think about all costs associated with acquiring a vehicle, including the up-front cost, the middle cost, and the end cost, instead of just looking at immediate costs. It is also important to educate consumers to go beyond the mental accounting approach of making spending decisions based only on implicit or explicit monthly budgets when acquiring durable goods.

Holding other things equal, the vulnerable groups of the population, those who are poorer, less educated, minorities, are found to be less likely to lease than those who have higher income and are better educated. Although the Board of Governors of the Federal Reserve Board formulated new leasing rules for consumer protection in 1997 and the Consumers Union has subsequently advocated even stricter regulations, our findings do not support the belief that more vulnerable consumers are being pressured into leasing vehicles rather than financing. However, this does not mean that leasing regulations are not needed because the purpose of regulations are not to just protect disadvantaged consumers but to protect all consumers by making it easier for vehicle consumers to compare among leases and among acquisition options. However, this result does suggest that the Federal Reserve should focus its policy and educational efforts to serve all consumers instead of just targeting the vulnerable groups.

Location differences exist, with consumers in the South and rural areas less likely to lease. These differences may be caused by cultural differences, supply-side constraints, or both. If supply-side constraints are one of the causes, then businesses can serve consumers better by offering more leasing options in the South and in rural areas.

With vehicle leasing remaining popular among consumers, along with many potential abuses in the acquisition process, and with ever-increasing personal bankruptcy and indebtedness of American households, this area of relatively large consumer expenditures necessitates a careful examination with further research. These follow-up projects might examine the effects of disclosure and consumer education on consumer decisions and the long-term economic effects of leasing on the household. In addition, given how rapid this market is changing, newer data are needed for investigations of current trends and current consumer policies.

ENDNOTES

1. CNW Marketing Research, which is cited heavily in this study, is a privately owned market research firm that conducts surveys and gathers data from other sources pertaining to new and used automobile and small-truck acquisition. A major research interest of this firm is automobile leasing.

Customers of CNW represent various segments of the automobile industry, in particular, retailers. CNW is the primary, if not the only, research firm doing this type of auto marketing research. Its research findings may only be obtained through an annual subscription. The specific methods that are used to gather data (e.g., sample size) are proprietary and thus are not available to us.

2. The following models are considered luxury models: Rolls-Royce, Cadillac, Chrysler, Lincoln, Alfa, Audi, BMW, Jaguar, Mercedes, Porsche, Lambor, Infinity, Acura, Lexus, and Land Rover.

REFERENCES

CNW Marketing Research. 2000. Proprietary documents by subscription only: (#125–Percentage of consumer who receive a lease presentation; #139–Why People Lease; #207–Awareness Considerations of Leasing; #211–Source of Financing and Leasing; #227–Cash Sales). http://www.nvo.com/cnwmr/door/.

Fan, Jessie X. and John R. Burton. 2002. Students' Perception of Status-Conveying Goods. *Financial Counseling and Planning*, 13 (1): 35–46.

Federal Reserve Board. 2004. *Keys to Vehicle Leasing*. http://www.federalreserve.gov/pubs/leasing/default.htm#difference.

Maddala, G.S. 1983. *Limited-Dependent and Qualitative Variables in Econometrics*. Cambridge, UK: Cambridge University Press.

Mannering, Fred, Clifford Winston, and William Starkey. 2002. An Exploratory Analysis of Automobile Leasing by US Households. *Journal of Urban Economics*, 52 (1): 154–176.

Miller, Stephen. 1995. The Economics of Automobile Leasing: The Call Option. *The Journal of Consumer Affairs*, 29 (Summer): 199–218.

Nunnally, Bennie H. and D. Anthony Plath. 1989. Leasing versus Borrowing: Evaluating the Alternative Forms of Consumer Credit. *The Journal of Consumer Affairs*, 23 (Winter): 383–392.

Patrick, Thomas M. 1984. A Proposed Procedure for Facilitating the Analysis of Lease-Purchase Decisions by Consumers. *The Journal of Consumer Affairs*, 19 (Winter): 355–365.

Shefrin, Hersh M. and Rhichard H. Thaler. 1988. The Behavioral Life-Cycle Hypothesis. *Economic Inquiry*, 26 (4): 609–643.

Trocchia, Philip J. and Sharon E. Beatty. 2003. An Empirical Examination of Automobile Lease vs. Finance Motivational Processes. *Journal of Consumer Marketing*, 20 (1): 28–43.

U.S. Department of Labor, Bureau of Labor Statistics. 2003. *Consumer Expenditure Survey 2001: Interview Survey and EXPN Files*. Ann Arbor, MI: Inter-University Consortium of Political Science Research.