The Financial Behavior of Leisure Vehicle Owners

**Objective**

This study seeks to identify the ways that leisure vehicle owners differ in their financial lives in comparison to non-leisure vehicle owners. The scope of leisure vehicle ownership for this study encapsulates campers, commonly referred to as recreational vehicles, boats, motorcycles, all-terrain vehicles (atvs), personal watercraft (pwcs), snowmobiles, airplanes, helicopters, and other powersports vehicles or aircraft.  The financial characteristics of leisure vehicle owners is interesting for a few reasons. First, leisure vehicle ownership may conflict with goals of retirement planning, cash flow planning, and insurance planning. Second, operating these leisure vehicles is inherently risky, so the relationship between leisure vehicle ownership and risk aversion may be of interest to insurance planners and investment advisors. Finally, leisure vehicles owners purchase leisure vehicles with savings or installment loans, or some combination. Investigating the behavior of leisure vehicle owners provides insight for financial planners when working with these clients.

**Significance**

Researches have investigated non-automobile vehicle ownership previously, but through a much different lens. Many articles investigate motorcycle ownership decisions, focusing largely on economic utility of ownership compared to automobile ownership for commuting purposes (Duffy & Robinson, 2004; Vu, 2011; Wen, Chiou, & Huang, 2012). These studies do not advance an understanding of US households, as motorcycles are primarily owned in the US for leisure rather than necessary transportation. Also, these motorcycle ownership studies fail to

examine internal characteristics of a household including financial characteristics. This study is really the first of its kind, and will begin new vein of literature.

## Method

The conceptual framework of this study is rooted in the neoclassical economic model, which states that individuals attempt to maximize personal utility. In a world with limited resources, individuals must make decisions in resource allocation. This resource allocation puzzle leads this study to investigate the financial behavior and choices between leisure vehicle owners and non-leisure vehicle owners. All else equal (controlled for demographic variables, education, income, net worth, attitudes, and norms) leisure vehicle owners must decide how to allocate resources to afford the leisure vehicles. In a world of limited resources, this means leisure vehicle ownership may negatively impact cashflow, debt, insurance coverage, or homeownership adversely. Using the neoclassical model, this study will seek to understand just how leisure vehicles owners resource allocation (and therefore utility) differs from non-leisure vehicle owners.

### Hypotheses

Leisure Vehicles are expensive. Owning leisure vehicles may impede a household's ability to meet financial goals. Therefore, this study specifically investigates the following hypotheses.

### *H1: Homeownership is negatively related to leisure vehicle ownership.*

Becomes homes require large down payments and leisure vehicles cost money to own and operate, we hypothesize that households who own their homes will be less likely to own leisure vehicles.

***H2: Credit Card debt is positively related to leisure vehicle ownership.***

Credit card debt is a symptom of a household living beyond their means and budget constraints. Credit card debt is hypothesized to be positively related to leisure vehicle ownership because households may be using credit cards to pay unexpected expenses if leisure vehicles expenses are a portion of the household's budget.

***H3: Savings is negatively related to leisure vehicle ownership.***

Leisure vehicles are expensive, and a household's decision to have a leisure vehicle may be at the expense of forgoing savings. As savings and leisure vehicles compete for constrained resources, savings and leisure vehicle ownership are hypothesized to have a negative relationship.

***H4: Full Health Coverage is negatively related to leisure vehicle ownership.***

Leisure vehicles are expensive, and a household's decision to have a leisure vehicle may require lessor health coverage. As health coverage and leisure vehicles compete for constrained resources, health coverage and leisure vehicle ownership are hypothesized to have a negative relationship. It seems rational that a leisure vehicle owners might be inclined to desire more health coverage, given the inherent health risks of owning a leisure vehicle, but these two products are at odds given the budget constraint.

***H5: Financial Knowledge is negatively related to leisure vehicle ownership.***

Those with higher financial knowledge are expected to be less likely to own a leisure vehicle. Financial knowledge will lead households to allocate confined resources to financial products, rather than leisure vehicles.

**Data and Sample**

The Survey of Consumer Finances (SCF) is well equipped to supply useful data for this investigation. The SCF is a survey conducted by the Federal Reserve every three years. Most recently, this survey was administered in 2016, but has been administered since 1983. The data is cross sectional, and it is intended to be a generalized snapshot of the US population. Setting this dataset apart from others, the SCF provides intricate information about household balance sheets.

**Dependent Variables**

Two Dependent Variables shall be used to measure household leisure vehicle ownership. First, a binary variable shall be used to identify whether a household owns leisure vehicles or not. Second, a categorical variable shall be used to identify the number of leisure vehicles owned.

**Independent Variables**

The major independent variables of interest will be resource allocation and financial behavior variables. A seemingly infinite amount of financial behavior variables could be used in this model. With extremely detailed balance sheet information in the SCF, many financial ratios could be constructed to illustrate financial behavior. Yet, the following variables have been identified. The SCF provides a variable that identifies whether everyone in the household has healthcare coverage, whether or not a household saves (spends less than they earn), has any type of retirement account, has a credit card balance, and owns a home. Each of these variable are directly related to a hypothesis in this study.

The SCF has three objective financial knowledge questions. The Federal Reserve uses these three objective financial knowledge questions to create a financial knowledge scale. This variable ranges from 0 to 3 indicating the number of objective financial knowledge questions

answered correctly by each respondent. The SCF also has a subjective financial knowledge 10-point Likert scale. These financial knowledge variables are used to test the final hypothesis.  In addition to these variables of interest, control variables will be included in the analysis as predictors.

**Empirical Model**

The following equations show the empirical models used in this analysis.

$$logit(p) = \log\left(\frac{p}{1-p}\right) = \beta_0 + x_1\beta_1 + x_2\beta_2 + x_3\beta_3 \ldots x_i\beta_i = X\beta$$

When leisure vehicle ownership is the dependent variable the regression method shall be a Binary Logit Model. When the number of leisure vehicles owned, identified by one of three categories, is the dependent variable the regression method will be a multinomial logit (proving an ordinal logit is not appropriate).

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**Results**

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Descriptive Statistics are presented in Table 1. Of the 6248 households in the 2016 SCF, 15.92% of households own leisure vehicles. Otherwise stated, 15.92% of households own leisure vehicles. Of those owning leisure vehicles, 63.84% owned only one vehicle while 36.16% owned more than one vehicle.

Table 2 shows the results from the binary logistic regression predicting leisure vehicle ownership. Age is significantly associated with leisure vehicle ownership. In fact, age is positively associated with leisure vehicle ownership and age squared is negatively associated with leisure vehicle ownership. This means that leisure vehicle ownership increases with age

until a certain point and then begins to fall with age. The inflection point is at age 50, so leisure vehicle ownership increases with age until 50 years old and then begins to decrease.

Education is associated with leisure vehicle ownership. Households with bachelor's Degrees have 0.613 times the odds of having a leisure vehicle than households with less than a high school education. Similarly, households with graduate degrees have 0.457 times the odds of having a leisure vehicle than households with less than highs school education. This binary logistic regression shows that those with higher education levels are less likely to have a leisure vehicle than those with lower education levels. Higher parental education was also associated with lower leisure vehicle ownership. Households with parents completing college degrees had 0.782 times the odd of having a leisure vehicle than households who did not have college educated parents.

In regards to the financial behavioral variables of interest, homeownership and credit card balances were the only behaviors that had a significant impact on leisure vehicle ownership. Homeowners had 1.319 times the odds of being leisure vehicle owners than non-home owners. Those with credit card balances had 1.225 times the odds of having a leisure vehicle than those without credit card balances. Full health insurance coverage across the household, savings behavior, and retirement accounts did not significantly predict leisure vehicle ownership in the binary logistic regression.

On the financial knowledge front, both types of financial knowledge were positively associated with leisure vehicle ownership. Each additional correctly answered objective financial knowledge question meant 1.172 times higher odds of having a leisure vehicle. Each additional level of self-identified subjective financial knowledge meant 1.073 times the odds of having a leisure vehicle.

Table 3 shows the results from the multivariate logistic regression. This analysis is a robustness check of the binary logistic regression presented earlier. Confirming the results in the binary logistic regression, age, education, race, marital status, parental education, and assets were all significantly associated with leisure vehicle ownership. Differences were found most often between the households with zero leisure vehicles and households with more than one leisure vehicle.

## Conclusion & Relevance

This study tested multiple hypotheses directly tied to neoclassical economic theory and consumer demand theory. Interestingly, many of these hypotheses were not supported by the empirical analysis. The first hypothesis proposed a negative relationship between leisure vehicle ownership and homeownership, due to a budget constraint. The empirical analysis overwhelmingly rejects this hypothesis.

The second hypothesis concerning credit card debt did garner support through the analysis. The binary logistic regression showed that credit card debt was positively associated with leisure vehicle ownership. This finding infers that leisure vehicle ownership does impose some stress on a households' budget constraint, as longstanding revolving credit financing ins more prevalent in households with these vehicles.

The third hypothesis concerning savings behavior did have yield any significant support. Neither net savings nor the presence of a qualified retirement account in a household were significantly associated with leisure vehicle ownership. The fourth hypothesis concerning health insurance also had no significant support.

The first four hypotheses all proposed that leisure vehicle ownership would be associated with some financial behavior based on a budget constraint. The fifth and final hypotheses views

budget constraints through a slightly different lens. Here financial knowledge was hypothesized to have a negative relationship with leisure vehicle ownership, since those with higher financial knowledge might better understand the need for prioritizing financial stability over leisure. However, the results show that both objective financial knowledge and subjective financial knowledge are positively associated with leisure vehicle ownership. Perhaps this positive relationship exists because the mere act of purchasing and upkeeping leisure vehicles exposes and socializes households to financial concepts.

Although few in number, this study does provide some meaningful insights for households, practitioners, and policymakers. Despite leisure vehicle owners have increased financial knowledge, they may be more inclined to have poor financial behavior regarding debt management.

References

Duffy, M., & Robinson, T. (2004). An econometric analysis of motorcycle ownership in the UK. *International Journal of Transport Management*, *2*(3-4), 111-121.

Vu, A. T. (2011). Dynamic interactions between private passenger car and motorcycle ownership in Asia: a cross-country analysis. In *Proceedings of the Eastern Asia Society for Transportation Studies The 9th International Conference of Eastern Asia Society for Transportation Studies, 2011* (pp. 97-97). Eastern Asia Society for Transportation Studies.

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Table 1.
*Descriptive Statistics*

| | | Entire Sample | | L-Vehicle Owners | |
| | | Unweighted | Weighted | Unweighted | Weighted |
| | Code | Mean (*Median*)/ Proportion | Mean (*Median*)/ Proportion | Mean (*Median*)/ Proportion | Mean (*Median*)/ Proportion |
|---|---|---|---|---|---|
| LV Owners | X2503 | 15.92% | 12.80% | | |
| Number of LVs | | | | | |
|   0 Vehicles | X2504=0 | 84.08% | 87.20% | | |
|   1 Vehicle | X2504=1 | 10.16% | 8.76% | 63.84% | 68.48% |
|   2 or More | X2504=2,3,4,5 | 5.76% | 4.03% | 36.16% | 31.52% |
| Age | Age | 52.14 (*53*) | 51.05 (*51*) | 54.60 (*56*) | 52.26 (*54*) |
| Race | | | | | |
|   White | White | 71.71% | 68.03% | 92.10% | 91.07% |
|   Black | Black | 13.37% | 15.85% | 2.73% | 3.30% |
|   Hispanic | Hispanic | 9.79% | 11.34% | 3.12% | 3.85% |
|   Asian/Other | AsianOther | 5.13% | 4.77% | 2.05% | 1.78% |
| Education | | | | | |
|   Less Than HS | respHSdrop | 8.95% | 10.73% | 4.32% | 6.26% |
|   High School | respHS | 19.44% | 23.18% | 16.79% | 21.02% |
|   Some College | respSC | 26.46% | 29.97% | 29.44% | 38.32% |
|   College Grad | respBS | 25.06% | 22.18% | 28.23% | 22.73% |
|   Graduate/Prof | respGrad | 20.09% | 13.94% | 21.21% | 11.68% |
| Marital Status | | | | | |
|   Married | married | 53.83% | 47.21% | 73.80% | 67.81% |
|   Single Male | singlemale | 14.96% | 16.58% | 14.68% | 18.52% |
|   Single Female | singlefemale | 22.55% | 26.70% | 4.52% | 4.74% |
|   Partner | partner | 8.66% | 9.51% | 7.00% | 8.93% |
| Financial Knowledge | | | | | |
|   Ob. Fin. Know | FinLit | 2.29 (*2*) | 2.18 (*2*) | 2.56 (*3*) | 2.45 (*3*) |
|   Sub. Fin. Know | X7556 | 7.455 (*8*) | 7.254 (*8*) | 8.7 (*8*) | 7.83 (*8*) |
| Financial Condition | | | | | |
|   Income | Income | $799,817 ($69,264.33) | $102,251 ($52,657) | $2,013,952 ($117,465) | $162,204 ($84,048) |
|   Assets | Assets | $12,172,44 ($299.000) | $785,088 ($186,500) | $30,337,734 ($903,700) | $1,505,968 ($308,700) |
|   Debt | Debt | $248,054 ($28,000) | $95,513 ($25,500) | $445,100 ($80,000) | $138,776 ($75,730) |
| Attitudes & Norms | | | | | |
|   Smoker | HHSmokes | 18.27% | 20.70% | 15.32% | 20.20% |
|   Parent Grad | RespPBSGrad | 33.09% | 28.07% | 35.07% | 28.40% |
|   White Collar | RespWhiteCollar | 50.91% | 44.48% | 58.09% | 48.08% |
|   Retired | RespRetired | 19.75% | 21.87% | 20.21% | 21.79% |
| Financial Behavior / Resource Allocation | | | | | |
|   All Health | All Health | 88.67% | 64.90% | 94.23% | 91.78% |
|   Saved | WSaved | 60.57% | 55.38% | 71.73% | 66.01% |
|   Home Owner | HouseCL | 66.84% | 63.72% | 88.14% | 85.38% |
|   Retire Account | IRA+AnyPen | 68.77% | 64.90% | 83.61% | 82.57% |
|   Credit Card Bal. | HCCBal | 38.24% | 43.89% | 37.34% | 48.39% |

*Entire Sample n=6248, Unweighted Leisure Vehicle Owners n=994.6, Population Weighted Leisure Vehicle Owners n=799.6*

Table 2.
*Binary Logistic Regression Results*

| (n=6248) | Estimate | SE | *p*-value | Odds Ratio | Average Marginal Effect |
|---|---|---|---|---|---|
| Intercept | -7.527 | (0.58) | <.01 | | |
| Age | 0.100 | (0.02) | <.01 | 1.106 | 1.12% |
| Age(squared) | -0.001 | (0.00) | <.01 | 0.999 | -0.01% |
| Education (<High School) | | | | | |
| High School | 0.016 | (0.20) | 0.94 | 1.016 | 0.33% |
| Some College | 0.211 | (0.19) | 0.28 | 1.235 | 2.72% |
| Bachelor's Degree | -0.489 | (0.21) | 0.02 | 0.613 | -5.09% |
| Graduate Degree | -0.783 | (0.21) | <.01 | 0.457 | -8.62% |
| Race (White) | | | | | |
| Black | -1.468 | (0.21) | <.01 | 0.230 | -15.24% |
| Hispanic | -1.212 | (0.20) | <.01 | 0.298 | -13.36% |
| Asian/Other | -1.157 | (0.24) | <.01 | 0.315 | -12.53% |
| Marital Status (Married) | | | | | |
| Single Male | 0.212 | (0.11) | 0.06 | 1.236 | 2.52% |
| Single Female | -1.396 | (0.17) | <.01 | 0.248 | -14.74% |
| Partner | -0.026 | (0.15) | 0.86 | 0.974 | -0.34% |
| Financial Knowledge | | | | | |
| Obj. Fin. Know | 0.159 | (0.06) | 0.01 | 1.172 | 1.81% |
| Sub. Fin. Know | 0.070 | (0.02) | <.01 | 1.073 | 0.75% |
| Financial | | | | | |
| Income(log) | -0.017 | (0.02) | 0.45 | 0.983 | -0.20% |
| Asset(log) | 0.242 | (0.03) | <.01 | 1.274 | 2.86% |
| Debt(log) | 0.008 | (0.01) | 0.32 | 1.008 | 0.10% |
| Norms | | | | | |
| Smokes | 0.108 | (0.11) | 0.33 | 1.114 | 1.49% |
| Parent College | -0.247 | (0.09) | <.01 | 0.782 | -2.89% |
| White Collar | -0.175 | (0.10) | 0.09 | 0.84 | -1.84% |
| Retired | 0.179 | (0.15) | 0.22 | 1.196 | 2.12% |
| Financial Behavior | | | | | |
| Full Health Coverage | 0.150 | (0.17) | 0.36 | 1.162 | 1.41% |
| Homeowner | 0.277 | (0.13) | 0.04 | 1.319 | 2.42% |
| Saved | 0.017 | (0.09) | 0.85 | 1.017 | 0.15% |
| Retirement Account | 0.122 | (0.11) | 0.28 | 1.129 | 1.00% |
| Card Balance | 0.203 | (0.09) | 0.02 | 1.225 | 2.27% |

*Unweighted analysis of the 2016 Survey of Consumer Finances (SCF) using all 5 implicates and RII adjusted standard errors.*

Table 3.
*Multinomial Regression Results*

| (n=6248) | 0 to 1 Vehicle | | | 0 to >1 Vehicles | | | 1 to >1 Vehicles | | |
|---|---|---|---|---|---|---|---|---|---|
| | Est. | *p*-val. | Odds Ratio | Est. | *p*-val. | Odds Ratio | Est. | *p*-val. | Odds Ratio |
| Intercept | -6.808 | <.01 | | -11.286 | <.01 | | -4.478 | <.01 | |
| Age | 0.088 | <.01 | 1.14 | 0.128 | <.01 | 1.22 | 0.041 | 0.29 | 1.04 |
| Age(squared) | -0.001 | <.01 | 1.00 | -0.001 | <.01 | 1.00 | 0.000 | 0.20 | 1.00 |
| Education (<High School) | | | | | | | | | |
| High School | 0.076 | 0.74 | 1.80 | -0.077 | 0.82 | 1.80 | -0.153 | 0.69 | 0.86 |
| Some College | 0.270 | 0.22 | 2.02 | 0.141 | 0.67 | 2.20 | -0.129 | 0.73 | 0.88 |
| Bachelor's Degree | -0.258 | 0.27 | 1.23 | -0.904 | <.01 | 0.79 | -0.646 | 0.10 | 0.52 |
| Graduate Degree | -0.542 | 0.03 | 0.95 | -1.206 | <.01 | 0.60 | -0.664 | 0.10 | 0.52 |
| Race (White) | | | | | | | | | |
| Black | -1.166 | <.01 | 0.48 | -2.937 | <.01 | 0.22 | -1.771 | 0.02 | 0.17 |
| Hispanic | -0.968 | <.01 | 0.58 | -2.084 | <.01 | 0.34 | -1.116 | 0.04 | 0.33 |
| Asian / Other | -0.940 | <.01 | 0.65 | -1.727 | <.01 | 0.49 | -0.787 | 0.16 | 0.46 |
| Marital Status | | | | | | | | | |
| Single Male | 0.125 | 0.35 | 1.47 | 0.386 | 0.03 | 2.09 | 0.261 | 0.20 | 1.30 |
| Single Female | -1.527 | <.01 | 0.32 | -1.140 | <.01 | 0.55 | 0.388 | 0.25 | 1.47 |
| Partner | -0.046 | 0.08 | 1.34 | -0.027 | 0.92 | 1.62 | 0.020 | 0.95 | 1.02 |
| Financial Knowledge | | | | | | | | | |
| Obj. Fin. Know | 0.170 | 0.01 | 1.35 | 0.136 | 0.16 | 1.38 | -0.035 | 0.75 | 0.97 |
| Sub Fin. Know | 0.049 | 0.05 | 1.10 | 0.119 | 0.01 | 1.21 | 0.070 | 0.10 | 1.07 |
| Financial | | | | | | | | | |
| Income(log) | 0.006 | 0.83 | 1.07 | -0.054 | 0.05 | 1.00 | -0.061 | 0.09 | 0.94 |
| Assets(log) | 0.157 | <.01 | 1.24 | 0.389 | <.01 | 1.59 | 0.233 | <.01 | 1.26 |
| Log(debt) | 0.011 | 0.29 | 1.03 | 0.007 | 0.58 | 1.03 | -0.004 | 0.78 | 1.00 |
| Norms | | | | | | | | | |
| Smokes | 0.195 | 0.11 | 1.55 | -0.115 | 0.55 | 1.30 | -0.309 | 0.14 | 0.73 |
| Parent College | -0.218 | 0.03 | 0.98 | -0.303 | 0.02 | 0.96 | -0.086 | 0.57 | 0.92 |
| White Collar | -0.223 | 0.06 | 1.01 | -0.061 | 0.72 | 1.31 | 0.162 | 0.40 | 1.18 |
| Retired | 0.089 | 0.61 | 1.53 | 0.371 | 0.10 | 2.25 | 0.283 | 0.28 | 1.33 |
| Financial Behavior | | | | | | | | | |
| Full Health | 0.170 | 0.35 | 1.70 | 0.105 | 0.73 | 2.02 | -0.066 | 0.85 | 0.94 |
| Homeowner | 0.286 | 0.06 | 1.80 | 0.498 | 0.05 | 2.70 | 0.212 | 0.45 | 1.24 |
| Saved | 0.022 | 0.83 | 1.25 | 0.021 | 0.89 | 1.36 | 0.000 | 0.99 | 1.00 |
| Retirement | 0.048 | 0.71 | 1.34 | 0.345 | 0.07 | 2.05 | 0.298 | 0.16 | 1.35 |
| Credit Card Balance | 0.192 | 0.06 | 1.48 | 0.267 | 0.06 | 1.73 | 0.074 | 0.65 | 1.08 |

*Unweighted analysis of the 2016 Survey of Consumer Finances (SCF).*