SCS FACT SHEET

FINDINGS FROM THE SOUTHERN CALIFORNIA PUBLIC OPINION SURVEY (SCS)

Vol. 1 No. 5 *http://lewis.spa.ucla.edu* May 2005

High Interest in Hybrid Cars

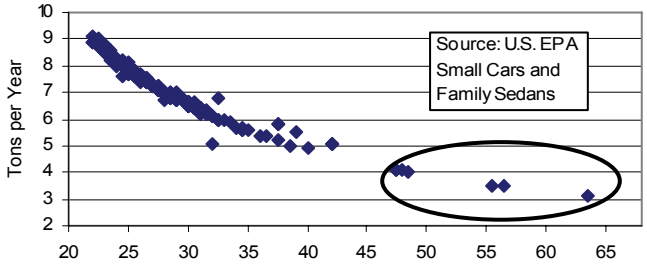
INTRODUCTION

Public opinion surveys can play an important role in decision making by complementing standard sources such as the Decennial Census and Current Population Survey. This Fact Sheet presents findings from a recently completed survey of Southern California residents (those living in the counties of Los Angeles, Orange, Riverside, San Bernardino, and Ventura). Details of the survey can be found in the appendix. The information from the survey can inform elected officials about the public's concerns and priorities, and can also help the residents of this region gain insight into themselves as a community. This SCS Fact Sheet provides information on the level of interest in purchasing hybrid automobiles-vehicles that combine gasoline and electric motors to increase fuel mileage and reduce air pollution. A significant minority stated that they are willing to pay more for such a car, with the proportion varying by income and ethnicity. Not surprisingly, those drivers who commute to work and those with environmental concerns are more likely to pay the additional cost for a hybrid car.

BACKGROUND

Among the immediately available technologies for more energy-efficient and cleaner automobiles, hybrid cars have emerged as the most marketable. Unlike vehicles that depend solely on electricity, hybrids do not require charging from an external source. Instead, a hybrid uses onboard generators to charge its batteries, and is able to recover energy from braking. The generator is also an electric motor that provides power to propel the vehicle. There is no need to "plug" a hybrid in for overnight charging. The stored energy is used to propel the vehicle when an onboard computer determines it is feasible. Hybrids come in two versions: a full hybrid can operate without using the gasoline motor at low speeds, while a mild hybrid uses its electric motor to assist the gasoline motor. The electric motor can also be used at most speeds when the car needs extra power for acceleration. The availability of the electric motor allows manufacturers to use smaller gasoline motors. The unique features of a hybrid car mean that it is more energy efficient and pollutes less. The gain in higher fuel efficiency is more pronounced for in-city driving, in part because hybrids can turn off the gasoline motor when it is not needed. Figure 1 presents data on gasoline consumption and emissions from the U.S. Environmental Protection Agency (EPA) for 2005 small and family-size automobiles. The available hybrid models are in the oval, and this group of automobiles has the highest miles-per-gallon ratings and lowest annual emission of greenhouse gases. While the EPA MPG statistics tend to be overly optimistic, data from third party testers, such as those for the magazines *Consumer Reports* and *Motor Trend*, also show that hybrid cars are more fuel efficient.

Figure 1: Greenhouse Gas Emission v. MPG



Because of additional features, and the associated cost, which is discussed later, buyers of hybrid cars have a higher average income than buyers of other types of cars. Moreover, hybrid buyers tend to be older (Hybridcars.com, 2005). Given the environmentally-friendly characteristics, it is not surprising that hybrid cars have become vehicles of choice for those who are concerned about oil dependency and air pollution.

(Continued on page 2)

ABOUT THE AUTHORS

Paul Ong is a professor in urban planning, social welfare, and Asian American studies at UCLA and Director of the Ralph and Goldy Lewis Center for Regional Policy Studies. Professor Ong owns a Toyota Prius.

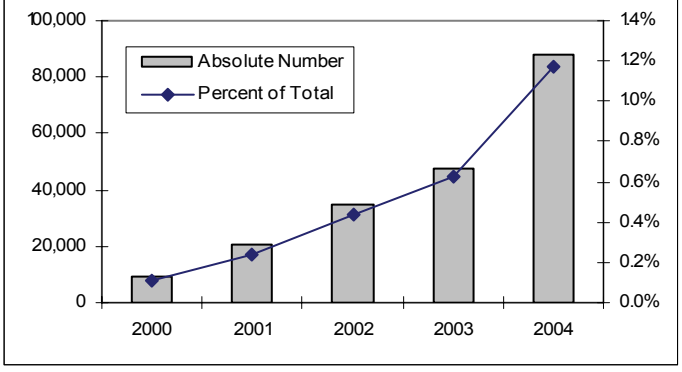
Kim Haselhoff is a post-doctoral fellow at the Lewis Center for Regional Policy Studies.

(Continued from page 1)

In a 2002/03 survey of hybrid owners in Oregon, 89 percent stated that they purchased their car because it pollutes the air less, and another 77 percent stated that the car emits less climate-changing CO_2 (Oregon Environmental Council, 2003). In a survey by *Hybridcars.com*, 80 percent stated that they purchased a hybrid because it reduces dependency on foreign oil, and 78 percent stated that the car pollutes less. In both surveys, nearly three-quarters also stated savings from better MPG. While these are selective samples, the findings nonetheless indicate that owners are environmentally oriented.

Hybrids appeal to individuals beyond those who are the most environmentally conscious. A 2002 survey of recent car buyers found that 30 percent would "definitely" consider a hybrid vehicle, and any of these were willing to pay more for such a vehicle (J.D. Power and Associates, 2002). A survey of Californians show that a large majority "would seriously consider buying or leasing a hybrid car (gas-electric)" (Baldassare, 2004). Despite the interest, the number of gas-electric vehicles sold in the early 2000s was extremely low, due to both a limited supply and limited appeal of the existing models, which were under-powered and small (see Figure 2).

Figure 2: Hybrid Sales



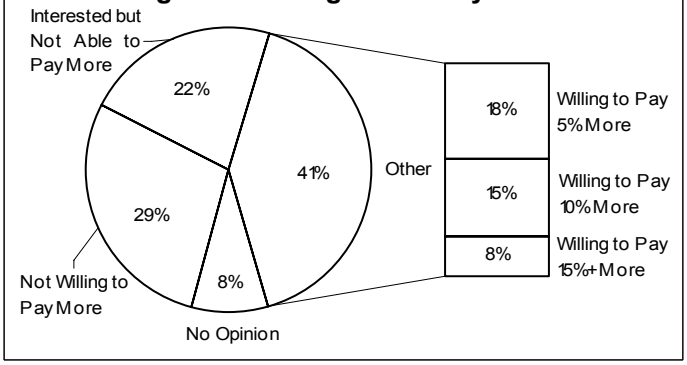
Late 2003 was a turning point for the market with the introduction of the 2004 Toyota Prius, a second generation hybrid that overcame many of the shortcomings of previous models and won praises from both consumers and third-party testers. Hybrid cars also received an additional image boost when they became the vehicles of choice for many of the environmentally-oriented attendees of the highly visible 2005 Academy Awards. Total sales in 2004 of all hybrids climbed to about 88,000, and the volume for this year is projected to at least double with the introduction of more models. Despite this rapid growth, hybrids will make up a very small percentage of the total market for automobiles.

STATED WILLINGNESS TO PAY MORE

One barrier facing potential buyers is the additional cost of additional technology and equipment in hybrid vehicles. The difference in the sticker price between comparable vehicles with and without a hybrid system is over $3,000, but that understates the differences in sale price due to differences in demand that push up the price of hybrids. Moreover, there are long-term real but uncertain cost differences associated with fuel consumption and maintenance, particularly the batteries for the hybrid. Tax policy offsets some of the purchase price of hybrids. A buyer can deduct $2,000 for the purchase of a qualifying gas-electric car, but because this is a deduction rather than a credit, the value depends on the tax bracket. The higher the marginal tax rate, the higher the value of the deduction.

To gauge interest in hybrid automobiles, the 2005 Southern California Public Opinion Survey asked respondents, "Hypothetically, if you were to purchase a new car today, how much more would you be willing to pay for a fuel efficient, low emission, hybrid car, which uses both gasoline and electricity?" They were given several options, and the responses are summarized in Figure 3. While stated preference is not the same as actual purchases, the patterns of the responses do provide some insights into the potential market for hybrids in this region. The results show that two in five, a significant minority of the respondents, are willing to pay more. Given the difference in the price between hybrid and non-hybrid cars, a more realistic cutoff is willingness to pay at least 10 percent more. At this level, nearly a quarter of the respondents answered affirmatively.

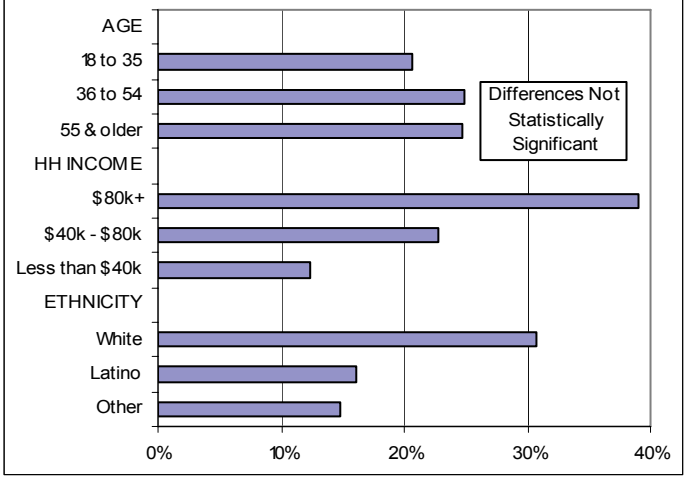
Figure 3: Willingness to Pay More



There is considerable variation in the willingness to pay 10 percent transit usage by economic and demographic groups (see Figure 4). Although the percentage for younger adults (18 to 35) is lower, the overall variation among the three age groups is not statistically significant. The difference by household income, however, is

sizeable and statistically significant. The percentage for those in the top bracket ($80,000 or more in annual income) is over three times the percentage for those in the bottom bracket (less than $40,000). Finally, there is also a significant variation by ethnic groups, due in part to ethnic differences in income.

Figure 4: Willingness to Pay 10% or More by Groups



OTHER VARIATIONS IN WILLINGNESS

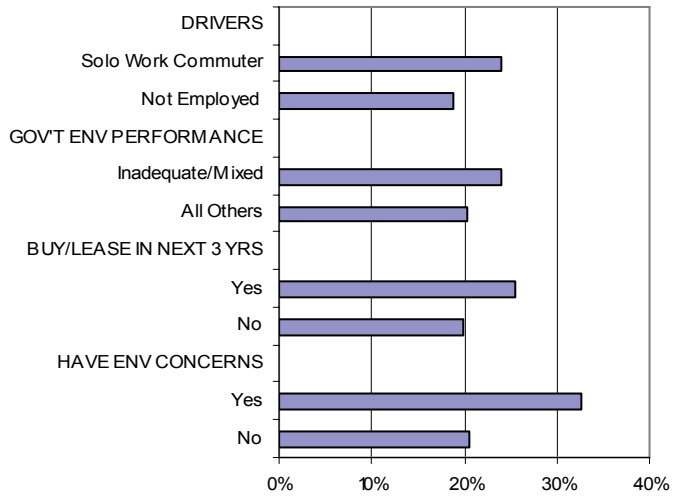
The survey results show additional variations. Solo drivers who commute to their jobs are more likely to be willing to pay 10 percent or more than drivers who are not in the labor market, but the difference is not statistically significant. This may be due to a relatively small number of observations in these categories. Those who give local government an "inadequate" or "mixed" rating in improving the environment are slightly more likely to be willing to pay more than all other respondents. This indicates that personal action may be seen as a substitute for the low performance of local government. Interestingly, those who definitely or maybe plan to purchase or lease a new car within the next three years are more inclined to pay more than all others. This may be driven in part by a strong correlation with income. Finally, those who are more concerned about the environment are more willing to pay the additional cost. Respondents were asked to name the three most important problems facing this region today. Among those who identified an environmental concern ("air pollution," "water pollution," etc.), a third stated that they are willing to pay 10 percent or more for a hybrid vehicle.

ACKNOWLEDGEMENTS

The authors would like to thank Norman Wong, Margaret Johnson, Lucy Tran, and Diana Tran for formatting and editing the Fact Sheet.

DISCLAIMER

Figure 5: Willingness to Pay at Least 10% More



APPENDIX

The 2005 Southern California Public Opinion Survey is supported by the UCLA Ralph and Goldy Lewis Center for Regional Policy Studies and is designed to gather the views and opinions of Southern California residents on critical public policy issues in this region. The survey was developed with input from campus and community organizations. UCLA units include the Center for Communications and Community, the Institute for Transportation Studies, the Center for Civil Society, and the Anderson School of Management. Three public agencies participated in the process: the Southern California Association of Governments (SCAG), the Los Angeles County Metropolitan Transportation Authority, and the Los Angeles Economic Development Corporation (LAEDC). Several UCLA faculty provided valuable input: Professors Vickie Mays, Michael Stoll, Brian Taylor, Amy Zegart, Frank Gilliam, Helmut Anheier, Chris Thornberg and Ed Leamer.

The 2005 Survey gathered basic demographic data and covered seven topical areas: 1) major issues facing the region, 2) the efficacy of local government, 3) transportation, 4) the state of the regional economy, 5) housing, 6) civic engagement, and 7) major disasters. When possible, questions were worded to parallel existing questions from other surveys. All respondents were asked questions related to hybrid cars.

The Survey was conducted in English and Spanish during the months of January and February 2005 using ran-

(Continued on page 4)

(Continued from page 3)

dom digit dialing, and the data were collected by The Social Science Research Center at California State University, Fullerton. There are 1544 completed surveys for the five counties: Los Angeles, Orange, Riverside, San Bernardino, and Ventura. The sample is divided proportionally by county household population. The characteristics of the sample by age, ethnicity, income and home ownership categories are consistent with the 2004 March Current Population Survey. There is a sampling error of +/- 2.6 percent at the 95 percent confidence level for the full sample. The size of the sampling error is larger for subpopulations.

The **Ralph and Goldy Lewis Center for Regional Policy Studies** was established to promote the study, understanding and solution of regional policy issues, with special reference to Southern California, including problems of the environment, urban design, housing, community and neighborhood dynamics, transportation and economic development. It is a focus of interdisciplinary activities, involving numerous faculty members and graduate students from many schools and departments at UCLA. It also fosters links with researchers at other California universities and research institutes on issues of relevance to regional policy. Founded in 1988 with a $5 million endowment from Ralph and Goldy Lewis, it was directed until December 1994 by Professor Allen J. Scott, directed by Roger Waldinger from 1994 through 1998 and is currently directed by Paul Ong . The Center is supported by its endowment, other private donors and foundations and research grants from a variety of agencies. The director works with an executive committee, with guidance from an advisory board that includes members drawn from both the University and the wider community.

REFERENCES

Baldassare, M. (2004). *Special Survey on Californians and the Environment*. Public Policy Institute of California.

Consumer Reports. (2005). "Which Cars Would People Get Again?" *Consumer Reports*. April.

Hybridcars.com. (2005). "Hybrid Drivers Survey." http://www.hybridcars.com/survey.html (accessed 3/30/2005).

Hybridcars.com. (2005). "Who's Buying Hybrids?." http://www.hybridcars.com/hybrid-driver-profile.html (accessed 4/2/2005).

J.D. Power and Associates. (2002). *Hybrid Vehicle Consumer Acceptance Study*.

Motor Trend. (2003). "Motor Trend Announces 2004 Car of the Year." *Motor Trend*, November. http://www.motortrend.com/roadtests/alternative/112_031120_coy/ (accessed 4/1/2005).

Oregon Environmental Council, Oregon Office of Energy. (2003). *Survey of Oregon Hybrid Gas-Electric Car Owners*. July.

U.S. Internal Revenue Service. (2005). "Clean-Fuel Vehicle Deduction Available for Certain Models." http://www.irs.gov/newsroom/article/0,,id=104549,00.html (accessed 4/2/2005).

RECOMMENDED CITATION

Ong, P. & Haselhoff, K. (2005). "High Interest in Hybrid Cars." *SCS Fact Sheet*, Vol. 1, No. 5, UCLA Lewis Center for Regional Policy Studies.

LEWIS CENTER FOR REGIONAL POLICY STUDIES
UCLA SCHOOL OF PUBLIC AFFAIRS
3250 PUBLIC POLICY BUILDING
LOS ANGELES, CA 90095-1656

FORWARDING SERVICE REQUESTED