Factors Influencing Consumer Likelihood of 
Purchasing a Flexible-Fuel or Hybrid Automobile

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**CONCEPTUAL FRAMEWORK**

Household transportation decisions typically involve the allocation of both time and money, and the choice of FFVs and hybrids (particularly with the advent of “plug-in hybrids”) is no exception. Thus, we adopt a household production model (Komei 1988) that considers travel behavior as a function of both time and monetary inputs. We extend the model by incorporating the negative externalities associated with travel into the household utility function.

In this model, households generate utility through participation in location-specific activities (\(X\)). These activities are produced using inputs of goods and services (represented in the model by a composite good \(Z\)), time (\(T\)), and travel (\(T\)), which itself is a function of time (\(H\)) and money (\(M\)). Travel is assumed to generate externalities (\(E\)) that vary depending upon choice of location (\(r\)) and travel mode (\(m\)). Thus, maximizing utility involves allocating time and money to different activities and the goods, services and travel needed to produce these activities, subject to a single combined (time and money) budget constraint.

\[
\max_{H, M, \ldots} U = f(X, H, T, E) \quad \text{s.t.} \quad \sum_{r, m} P_r x_r m_m = M\]

where \(P_r\) is the price level of the composite goods and services at the \(r\)th location, \(w\) is household wage rate, \(H_t\) is hours spent working, and \(M\) is the total time available.

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**DATA AND METHODS**

Data was collected through an online survey of automobile owners conducted in January and February of 2009. The survey sample was drawn from an online research panel designed to be representative of the U.S. population. Individuals are recruited for the panel by telephone using random-digit dialing and address-based sampling methods. If needed, panel members are provided with free access to the Internet and a computer in exchange for agreeing to serve on the panel. This survey was fielded to 2,516 members of the panel and 1,722 useable responses were received before the survey was closed.

The survey provided respondents with some basic information on ethanol blends and feedstocks on a series of “information screens.” The information screens were interspersed with questions on vehicle ownership, driving patterns, familiarity and screens. “The information screens were interspersed with questions on vehicle ownership, driving patterns, familiarity and

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**REFERENCES**


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**CONCLUSIONS**

The regression results suggest that there are some similarities and differences in the factors influencing the likelihood of purchasing an FFV or hybrid. Respondents, who are fuel price conscious, concerned with global climate change/environment, believe that dependence on imported oil raises national security concerns, and who are not planning to purchase or lease a car in the near future, consider it more likely that their next vehicle will be either an FFV or a hybrid. Respondents who currently have either an FFV or hybrid are more likely to choose that type of automobile in the future. However, hybrid owners consider themselves less likely to choose an FFV.

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**Bivariate Probit Regression (n = 1,966)**

<table>
<thead>
<tr>
<th>Variable</th>
<th>FFV</th>
<th>Hybrid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td>0.100*</td>
<td>0.252</td>
</tr>
<tr>
<td>Age</td>
<td>0.178**</td>
<td>0.178**</td>
</tr>
<tr>
<td>Education</td>
<td>0.130**</td>
<td>0.073**</td>
</tr>
<tr>
<td>Gender</td>
<td>0.122</td>
<td>0.122</td>
</tr>
<tr>
<td>Married</td>
<td>0.122</td>
<td>0.122</td>
</tr>
<tr>
<td>Religion</td>
<td>0.122</td>
<td>0.122</td>
</tr>
<tr>
<td>Children</td>
<td>0.122</td>
<td>0.122</td>
</tr>
<tr>
<td>Race</td>
<td>0.122</td>
<td>0.122</td>
</tr>
<tr>
<td>Income (categorical midpoint / number of members of household) log form</td>
<td>0.122</td>
<td>0.122</td>
</tr>
<tr>
<td>Intercept</td>
<td>1.702**</td>
<td>1.702**</td>
</tr>
</tbody>
</table>

**Log Likelihood = -1,870.68**

**Rebird had the text output:** TP values are significant at 10%, 5% and 1%.

**One, two and three stars indicate significance at 10%, 5% and 1%.**