

Econ 533
Problem Set #2
Due: February 4, 2008

Using the data set “hybrid.xls” from the last homework set and TSP, estimate both a probit and a logit model of the decision to purchase a hybrid vehicle as a function of all of the available explanatory variables.

1. How do your parameter estimates and their statistical significances compare across the three models (i.e., including the LPM)?
2. How do the models compare in terms of what they say about which variables are most important in influencing the purchase decision?
3. For each of the two new models, estimate the predicted probability of purchasing a hybrid vehicle for $costd=0$ and $costd=10$, along with the standard deviation of each probability. As in the last homework set, hold the value of the other variables at their sample means. Compare the results from the three models in terms of these predictions.
4. For the probit and LPM (not the logit) model, estimate the marginal impact of gasoline prices on the probability of purchasing a hybrid (i.e., $\Pr[buy_i = 1]$) when gasoline prices are at
 - a. The mean gasoline price ($gas=2.31$);
 - b. A low level ($gas = 1.80$); and
 - c. A high level ($gas = 2.90$).

In each case, assume that the remaining characteristics are held at their sample means. You should also compute the standard deviation of these marginal effects. How do these results compare in terms of the marginal effect of gasoline prices?

5. Estimate the change you would expect in the percentage of hybrid purchases if the government were to provide a \$500 credit to individuals purchasing a hybrid vehicle.