Problem Set 10

Shrouded Attributes

Due: 11PM Eastern Time on Sunday, November 17th

Econ 316: Industrial Organization

Question 1: Estimating the salience of gasoline prices

The U.S. Corporate Average Fuel Economy standards require that each auto manufacturer's new vehicle sales attain a given minimum average fuel economy rating. Policymakers give several justifications for the regulation, including reducing vehicle greenhouse gas emissions and improving energy security. In the official Regulatory Impact Analyses, however, "consumer protection" is the main channel of benefits. In particular, the RIAs argue that consumers might benefit from being forced to buy higher fuel economy vehicles than they would otherwise buy, because fuel costs are a non-salient "hidden fee" like bag fees or shipping and handling charge.

In recent years, several papers have tested this hypothesis. Papers by Allcott and Wozny (2014), Busse, Knittel, and Zettelmeyer (2013), and Sallee, West, and Fan (2015) measure how used vehicle prices adjust to gasoline price changes. In this question, you will carry out a simple version of these analyses using data from Allcott and Wozny (2014). Allcott and Wozny (2014) gathered data on prices and fuel economy (MPG) ratings for 86 million used vehicle transactions. For each transaction, they also constructed a variable denoted G, the present discounted value (PDV) of future gasoline costs over the remaining life of the vehicle, given the gas prices at the time of the transaction. For some analyses, they then found the average price and average G for all above-median MPG vehicles and all below-median MPG vehicles transacted in a given month. The file data/allcott_wozny/AllcottWoznyData.csv contains the difference in price and G between below- and above-median vehicles for each month between 1999 and 2008. Denote these differences Δp_t and ΔG_t, respectively. Using these data, you will replicate part of the Allcott and Wozny analysis. Specifically, you should run this regression:

$$\Delta p_t \sim \beta 0 - \psi \Delta G_t$$

A) Report your estimate of ψ from the full 1999-2008 sample.

B) Report your estimate of ψ if you limit the sample to 1999-2003.
C) Does this estimate provide support for the arguments made in the Regulatory Impact Analyses?

Question 2: Estimating the effect of restricting bag fees

In recent years, many policymakers have called for limits on airline ticket surcharges such as checked bag fees. Imagine that you are working for a federal agency (such as the Congressional Research Service, the White House Office of Information and Regulatory Affairs, the Federal Aviation Administration, or the Federal Trade Commission) that is doing the Regulatory Impact Analysis of such a proposed regulation. Your job is to evaluate one particular concern raised by critics of the rule, which is that if the government restricts checked bag fees, airlines will just raise ticket prices, so consumers won't actually be better off. Your manager has instructed you to replicate the analysis of Agarwal, Chomsisengphet, Mahoney, and Stroebel (2014), called "A Simple Framework for Estimating Consumer Benefits from Regulating Hidden Fees." You will use the value ψ estimated above from the Allcott-Wozny data, and you will estimate ψ using the approach detailed in the lecture slides.

Your job is to fill in the numbers in the official memo
``Memo - Predicted Effect of Bag Fee Restriction on Airline Ticket Prices – Template"
For this, you'll need to use the data assembled for you in folder data/agarwal_et_al/ (the sources for various datasets are given, you can replicate the processing of finding these sources by googling them).

Implement the analysis described in the memo using python. Fill in the missing details of the memo, and submit both the filled memo and your code.