Abstract: Hedonic Price Model for Light-Duty Vehicles: Consumer’s Valuation of Automotive Fuel Economy
Growing recognition of climate change, energy security, and rising fuel prices leads to the analysis of policy actions aimed at reducing light-duty vehicle fuel use in the US. Average Fuel Economy (CAFE) regulation is a significant policy instrument among these policies. The effectiveness of CAFE, however, is strongly dependent on consumer’s valuation of automotive fuel economy. Therefore, automotive fuel economy, which provides private benefits in the form of cost savings, and also confers social benefits by reducing GHG emissions and securing oil import, is the main focus of our study. Our study estimates consumer’s marginal value of fuel economy using a hedonic regression of new vehicles sold in the United States during 2007. Considering future fuel price, discount rate is employed for future fuel savings calculation. Results indicate that in the short run, automobile buyers misperceive improved fuel economy with temporal myopia. In the long run, however, if vehicle consumers value the entire life of vehicles, they reasonably internalize social benefits from increased fuel economy. Our findings shed an important light on the effectiveness of tightening CAFE standards which promote higher fuel efficiency. Results also show that truck buyers value almost the same with car consumers on social benefits from increased fuel economy. It is thus reasonable to achieve the combined CAFE at 35 mpg target for both cars and light-duty trucks for the year 2020. Our study, therefore, provides important implications for policy makers both in the environmental and transportation arena.

Bio: Qin Fan is a Graduate Student and Research Assistant at the University of Maine.