Fuel Mix and Local Air Quality

Alberto Salvo
Kellogg School of Management
Northwestern University
Exploit a unique natural experiment

- Modern 3-D computer models of atmospheric chemistry suggest that a switch from gasoline to ethanol would not improve urban air quality (e.g., Jacobson 2007)
  - This has triggered a strong response from (e.g.) the “Ethanol Coalition”
- How will this project contribute?
  - Early 2010: Varying world sugar prices lead to a large and abrupt shift in the mix of fuel burned in Brazilian FFVs (35% of the country’s circulating passenger car fleet*): Ethanol $\rightarrow$ Gasoline $\rightarrow$ Ethanol
  - Use consumer demand (at the local level) from Salvo and Huse (2010)
  - Control for local (space and time) traffic flows and climatic conditions
  - Examine variation in measured local air pollution outcomes

* Light vehicles accounted for 72% of CO emissions and 81% of HC emissions (a precursor to ozone) in São Paulo city in 2008 (Cetesb 2009)