Big Data and Economics: Brazil

Roberto Rigobon
MIT, CSAC, CNStat, NBER
The world is not lacking of Data

Lacking of Careful Empirical Analysis

Lacking of Managerial Data Analysis

Big Distance!
Different Types of Data

Data

Designed

Survey

Administrative

Aspirational

Transactional

Aggregate

Public

Private

Organic
Online Inflation Rates

Billion Prices Project
Billion Prices Project

Our Approach to Daily Inflation Statistics

1. Use scraping technology
2. Connect to thousands of online retailers every day
3. Find individual items
4. Store and process key item information in a database
5. Develop daily inflation statistics for ~20 countries

- Date
- Item
- Price
- Description
USA: Anticipation
Real Exchange Rates

Thousand BigMac Indexes
Thousands Big Mac’s Project

Compare prices for a bottle of Coke across countries

• Online prices represent an effective tool to measure PPP fluctuations
  – Identical items sold around the world
  – Detailed descriptions to achieve a nearly perfect matching
  – Daily Prices

• PPP indices:
  – More than 300 narrow product categories
  – With thousands individually matched items
  – In food, fuel, and electronics: we are missing clothing, personal care, household products.
  – Cars we will never match
Two exchange rates

• E: Nominal Exchange Rate
  – Determined in financial markets
  • Uncovered and covered interest rate parity
  • Order Flows

• Eppp: Implied Exchange Rate
  – Computed from retailer’s relative prices
What can explain the divergence?

Retail sales fell for the third month running in March

Monthly Retail Sales, % change year-on-year, like-for-like
Core

• Direct effect: exclusion procedure
  – Food, gasoline, taxes, etc. are part of the consumption basket.
  – The direct effect is eliminated by exclusion

• Indirect effect: pass-through procedure
  – Oil has an impact on gasoline, transportation, imported items, cost of energy, etc.
  – The indirect effect cannot be computed by exclusion procedures
US Core in the Long Run

- Headline
- PS Core
- BLS Core
US Core: Where are we now?
Possibilities

• New technologies allow us to gather data differently
  – Need to understand the mapping between the data and the information
    • More data is NOT always better
    • Understand the weaknesses in the data

• Working on more ambitious projects
  – Housing Inflation and Bubbles: USA
  – Labor Market Conditions: USA and Colombia
  – GDP: In Sao Paolo
  – Household Stress: España and Mexico