

Re-engineering Economic Statistics from Real-Time Transactions Data

**Remarks by
John Haltiwanger, University of Maryland**

Our system of official economic statistics was mostly developed in the mid-20th Century

BLS



Prices, Wages
and Employment

Source data mostly from business surveys with different
underlying administrative data based sample frames

Census



Revenue and
Expenditures

BEA



Surveys mostly online or mailed in. BLS
Uses enumerators for prices at businesses.

Reliance on surveys means:
CPI and PPI weights updated infrequently

Limited ability to capture Business and
Product turnover

Integration of data to build national accounts

21st Century Re-engineering using transactions data

Challenge: Tap the firehose of transactions level data now available from businesses on P, Q and Product Characteristics.

P&Q microdata

- Internet retailers
- Brick and mortar
- Aggregators



Agencies

Data products:

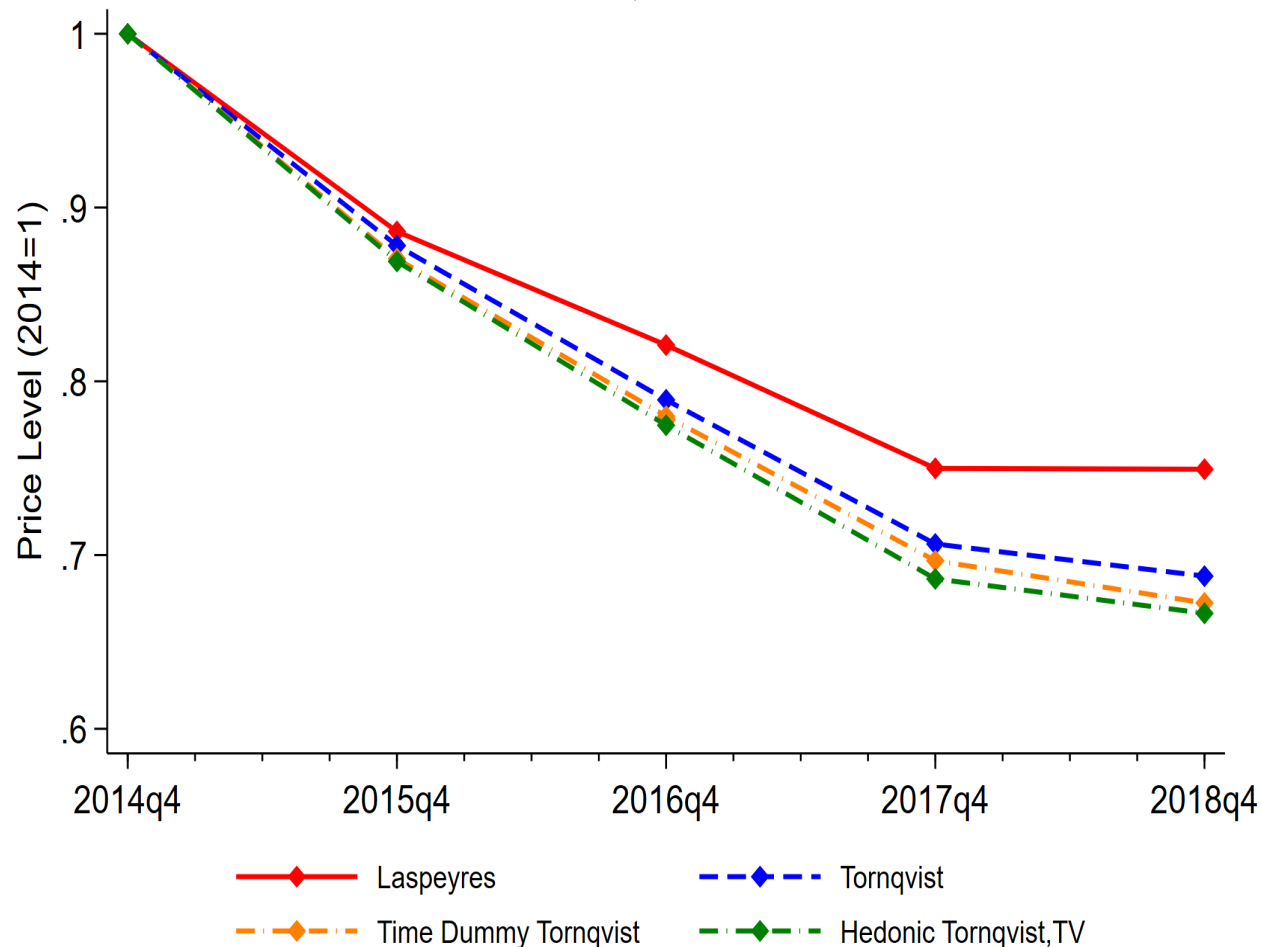
- GDP
- inflation

Data improvements:

- Quality change at Scale
- Timeliness
- Granularity
- Distributional statistics

Illustrate advantages of using P, Q and Attribute Data for one product group (from NPD)

Price Levels, Coffee Makers



- High pace of product entry and exit
 - 5.7% entry, 4.5% exit per qtr
- Rapid quality change
 - Single-serve pod makers entered over our sample period
- Laspeyres shows more inflation than Tornqvist (consistent with substitution bias in CPI-like indices)
- Time dummy hedonic method suggests quality adjustment needed.
- Hedonic Tornqvist, time varying unobservables (Erikson and Pakes, AER, 2011) yields even more quality adjustment.

Benefits of Re-engineering

- Measuring inflation central to economic policy and decision-making
 - Estimates of important unmeasured quality change
 - Large relative to movements in inflation that trigger changes in monetary policy
 - Federal budget heavily indexed to CPI inflation
 - Social Security cost-of-living adjustments
 - Tax brackets
 - Overstating inflation from substitution bias and quality adjustment understates growth and productivity
- Policymakers and data users need timely and granular estimates.
- Official statistics interpolate GDP and use fixed market baskets for prices
 - Estimates are too smooth
 - Missed collapse of GDP in late 2008 owing to financial crisis
 - Change in composition of retail spending during and after the pandemic – what are implications for inflation?

Major Investment Needed in Data Infrastructure

- Statistical agencies actively exploring use of naturally occurring data from multiple sources.
- But they are hard pressed to produce ongoing current statistics with current data architecture.
 - Part of challenge is ever changing structure of economy.
- Re-engineering requires major investment in data infrastructure
 - Requires fundamental changes in:
 - Structure of data collection
 - Measurement methods with core changes in inter-agency interaction.