The Role of Statistical Agencies in the 21st Century

June 2017

By

John Haltiwanger, University of Maryland

.

Selected Critical Issues with Measurement Gaps: Today, use to motivate needed transformation at the Statistical Agencies

- **Slow Productivity Growth**
  - After robust growth in the 1990s, we have had slowing growth since early 2000s
  - Is this due to mismeasurement? If not, what are the causes?
- **The Future of Work**
  - Robots and AI displacing workers rapidly?
  - The Rise of the Gig/Sharing Economy?
- **Rising Earnings Inequality**
  - Mostly between firm. Increased Polarization.
  - Driving Factors? Technology? Globalization? Changes in distribution of rents?
- **Declining Economic Dynamics**
  - Declining economic mobility, business dynamism, labor market fluidity
  - Is this connected to the patterns of productivity and earnings above?
- **Increased Market Concentration within Sectors**
  - Needs further research and validation. What are driving factors?   Related to above?

Statistical Agencies Must Transform: Innovate to do More & Differently with Less

- Addressing these questions will require doing more & differently.

- Resources are limited for the Federal Statistical Agencies.

- How to do more & differently with less?
  - Good news: Statistical agencies have already made great progress exploiting administrative data over last 20 years.
    - What we know about many of the issues in prior slide is due to exploiting admin data
  - "Bad news": Need to do much more.
    - More intensive use of administrative data
    - More collaboration and integration of measurement programs within and across agencies
    - Must use private sector "big data" and integrate with survey/administrative data

Case Study: Slowdown in Growth in Labor productivity and TFP: Is this mismeasurement? If not, what are causes?

Argument: We won't be able to answer these questions unless we move to transactions level data.

Contributions to growth in U.S. output per hour
Business sector, percent change, annual rate

Labor quality
Capital deepening
TFP

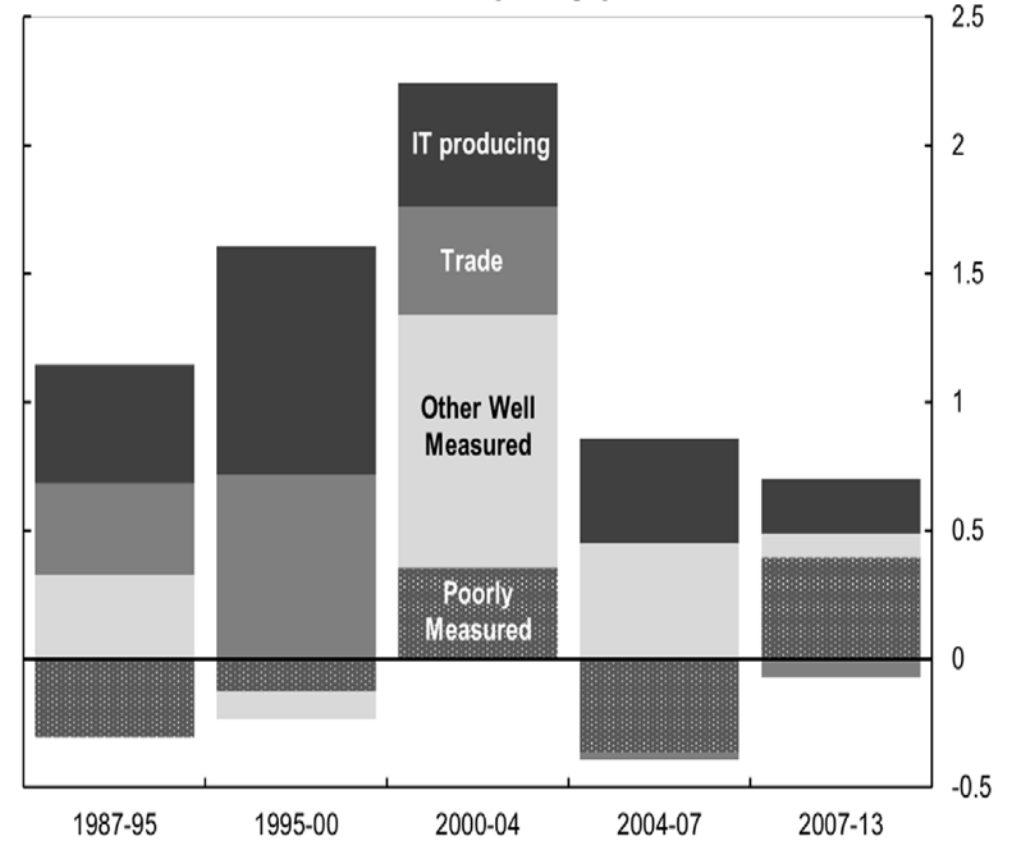1947-73   1973-95   1995-03   2003-07 '07-10 '10-15
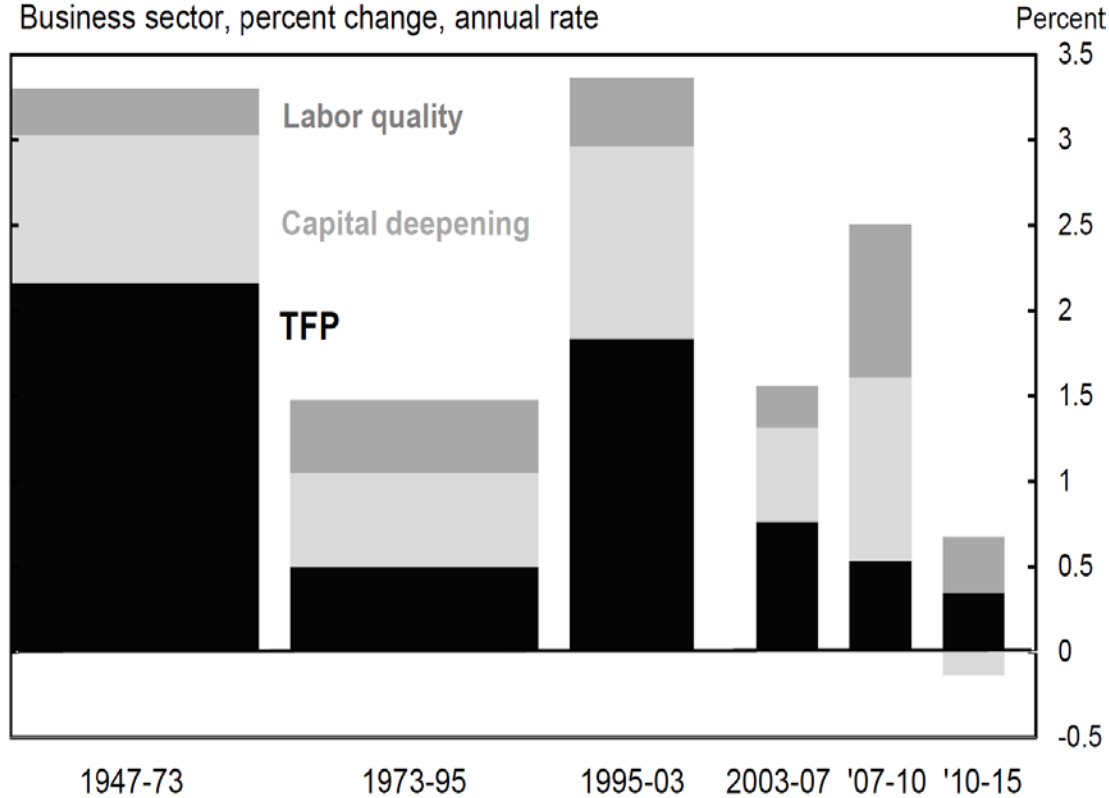
Source: Fernald (2014a). Quarterly; samples end in Q4 of years shown except 1973 (ends Q1). Capital deepening is contribution of capital relative to quality-adjusted hours. Total factor productivity is measured as a residual.

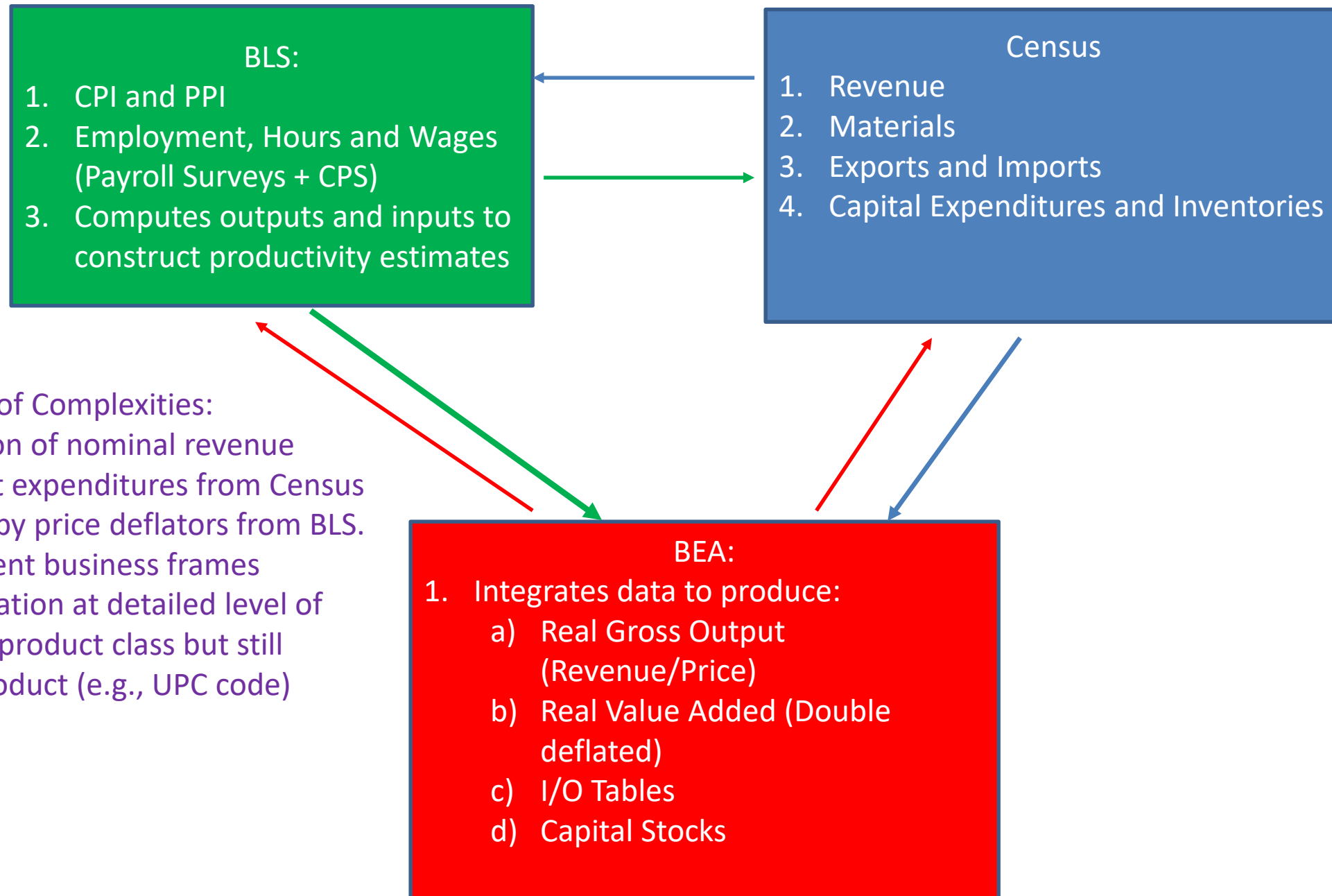**U.S. total factor productivity by industry subgroup**
Contribution, annual percentage points

IT producing
Trade
Other Well Measured
Poorly Measured

1987-95   1995-00   2000-04   2004-07   2007-13

Source: Bryne et. al. (2016)

Rough (Incomplete) Schematic of Current Measurement System for Output and Productivity

BLS:
1. CPI and PPI
2. Employment, Hours and Wages (Payroll Surveys + CPS)
3. Computes outputs and inputs to construct productivity estimates

Census
1. Revenue
2. Materials
3. Exports and Imports
4. Capital Expenditures and Inventories

Example of Complexities:
Integration of nominal revenue and input expenditures from Census deflated by price deflators from BLS.
- Different business frames
- Integration at detailed level of industry/product class but still not at product (e.g., UPC code) level.

BEA:
1. Integrates data to produce:
   a) Real Gross Output (Revenue/Price)
   b) Real Value Added (Double deflated)
   c) I/O Tables
   d) Capital Stocks

Why the current approach is likely insufficient in critical ways?

- Getting real output and productivity growth measured without bias requires measuring prices and quantities at the product code level in a consistent, high frequency manner (see Redding and Weinstein (2016))
  - New variety bias, substitution bias and consumer valuation bias
- Given high and likely increasing rate of product turnover this bias is arguably becoming larger.
  - Moving to types of products with more product turnover
  - Within product types (e.g., electronics) are exhibiting more product turnover.
  - Biases are likely increasing over time.
- This may account for measured productivity slowdown.
- We won't know unless we develop the data infrastructure and measurement methodology to take this into account.

Arguments Draw Heavily from Redding and Weinstein June 2016 FESAC Presentation (Slide 9)
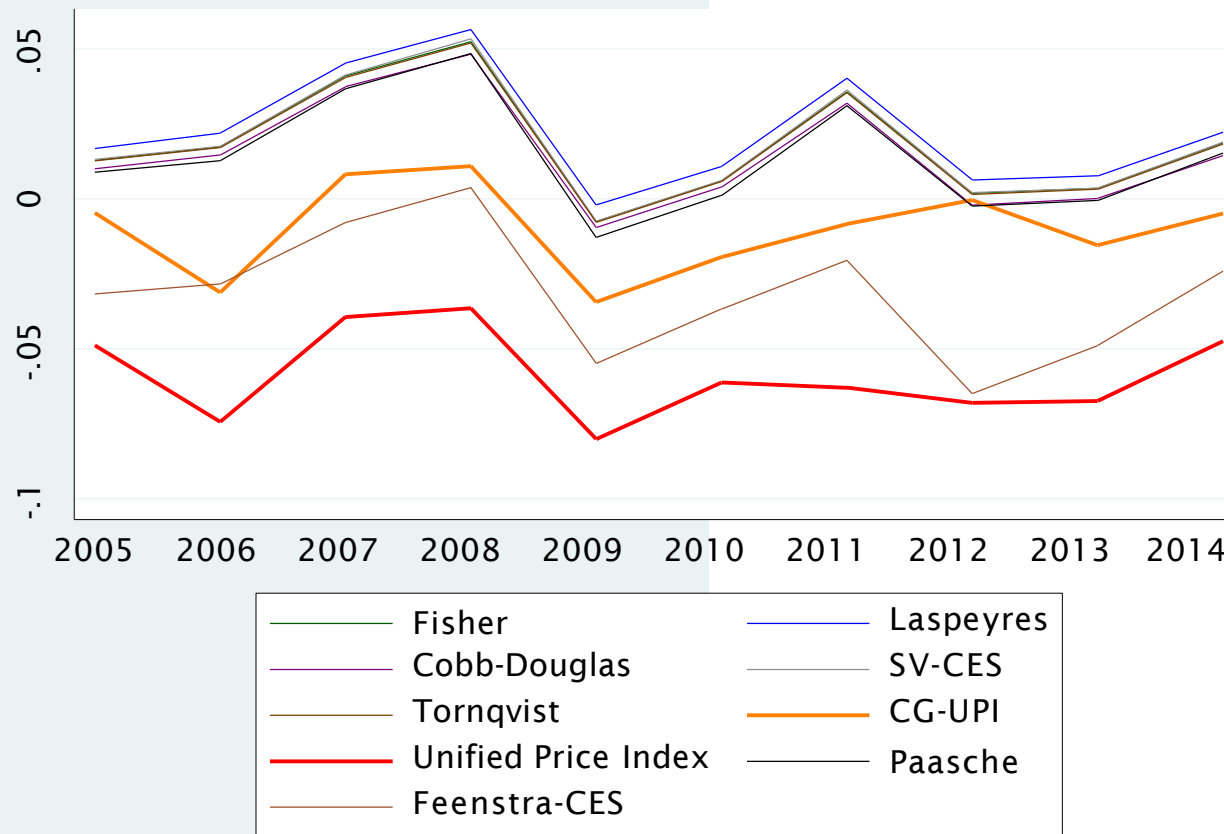
SV-CES: Sato-Vartia CES, CG-UPI: Common-Goods Component of the Unified Price Index

The Unified Price Index uses Product Code level information on P and Q and explicitly incorporates the role of product turnover

The implied substitution and consumer valuation bias are very large even for food/packaged goods from Nielsen Data

It is not apparent that large bias is changing over time but this is only grocery Items.

Between 2004-14, cost-of-living increases were much lower and productivity growth was much higher than is being measured by conventional methods

Transforming our Approach to Data

- **Customize our use of data sources to play to their strengths.**
  - Potential to reduce burden, improve timeliness, quality and granularity.
- **Commercial data**: Potential best source of fundamentals is directly from economic actors.
  - Collect transactions level data from information aggregators (NPD, Nielsen) or individual companies. Surveys of fundamentals (revenue, prices, labor inputs, earnings) are burdensome with declining response rates.
  - Collaborate in using this data so that BLS prices and Census revenues and BEA uses are consistent. Price distributions within sectors have independent interest.
- **Administrative data**: will still need to play critical roles for both frames (representativeness) and for key measures.
- **Survey data:** will play a critical role for providing contextual information.
  - Management practices, constraints facing firms and workers, changing nature of work, changing technology. This is the information we need to address critical issues discussed earlier.

Transformation requires Collaboration

- Integrated collection and processing of transactions level data on prices and quantities should be a joint effort of BLS, BEA and Census

  - Does not make sense for BLS and Census to separately use these source data for price vs. revenue data to do what we did before but with new source data.

  - Requires a new economics measurement approach with integration of prices and quantities at the product code level.

  - Agencies could produce new or improved statistics heretofore impossible without this collaboration.