

The Role of Statistical Agencies in the 21st Century

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By

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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

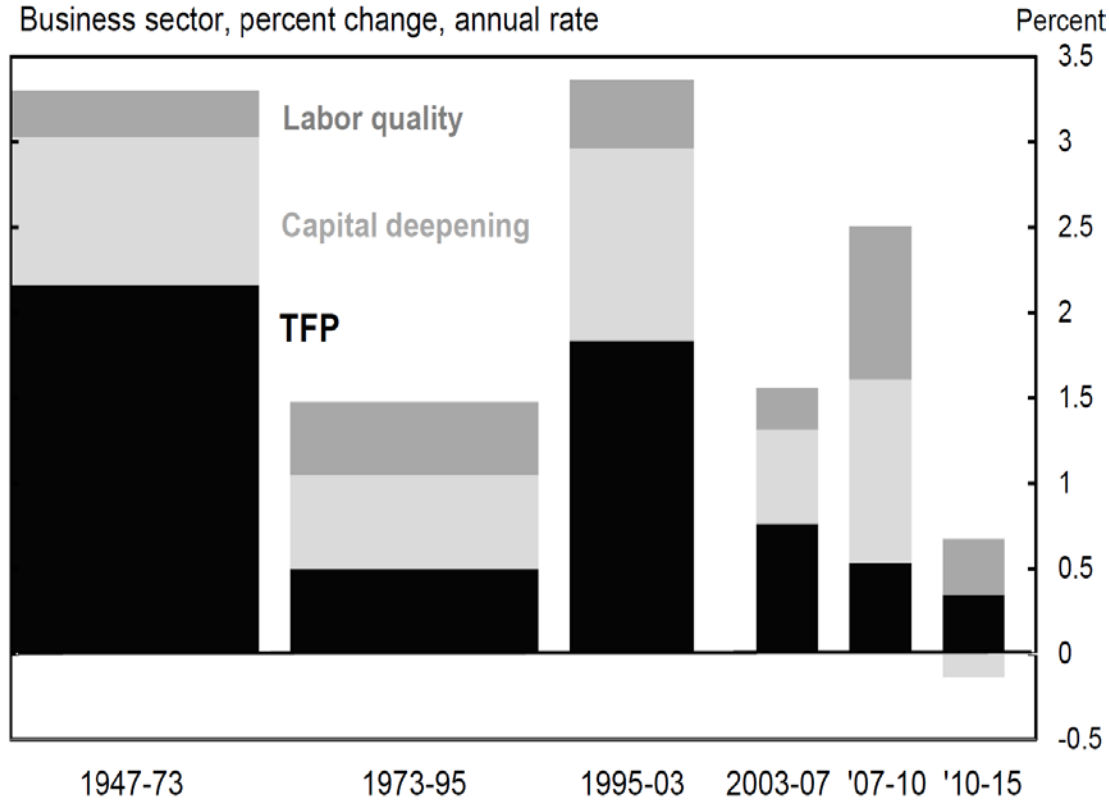
- Addressing these questions will require doing more & differently.
- Resources are limited for the Federal Statistical Agencies.
- How to do more & differently with less?
 - Good news: Statistical agencies have already made great progress exploiting administrative data over last 20 years.
 - What we 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

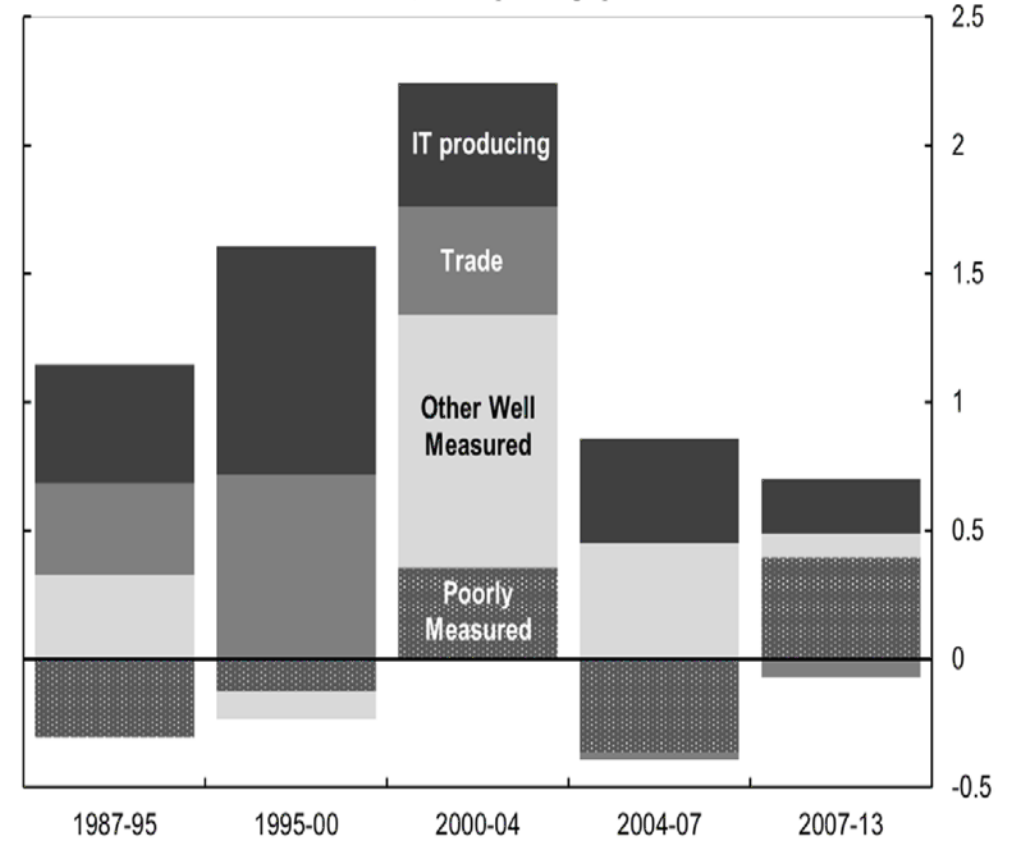


Source: Fernald (2014a). Quarterly; samples end in Q4 of years shown except 1973 (ends Q1). Capital deepening is contribution of capital relative to quality-adjusted hours. Total factor productivity is measured as a residual.

U.S. total factor productivity by industry subgroup

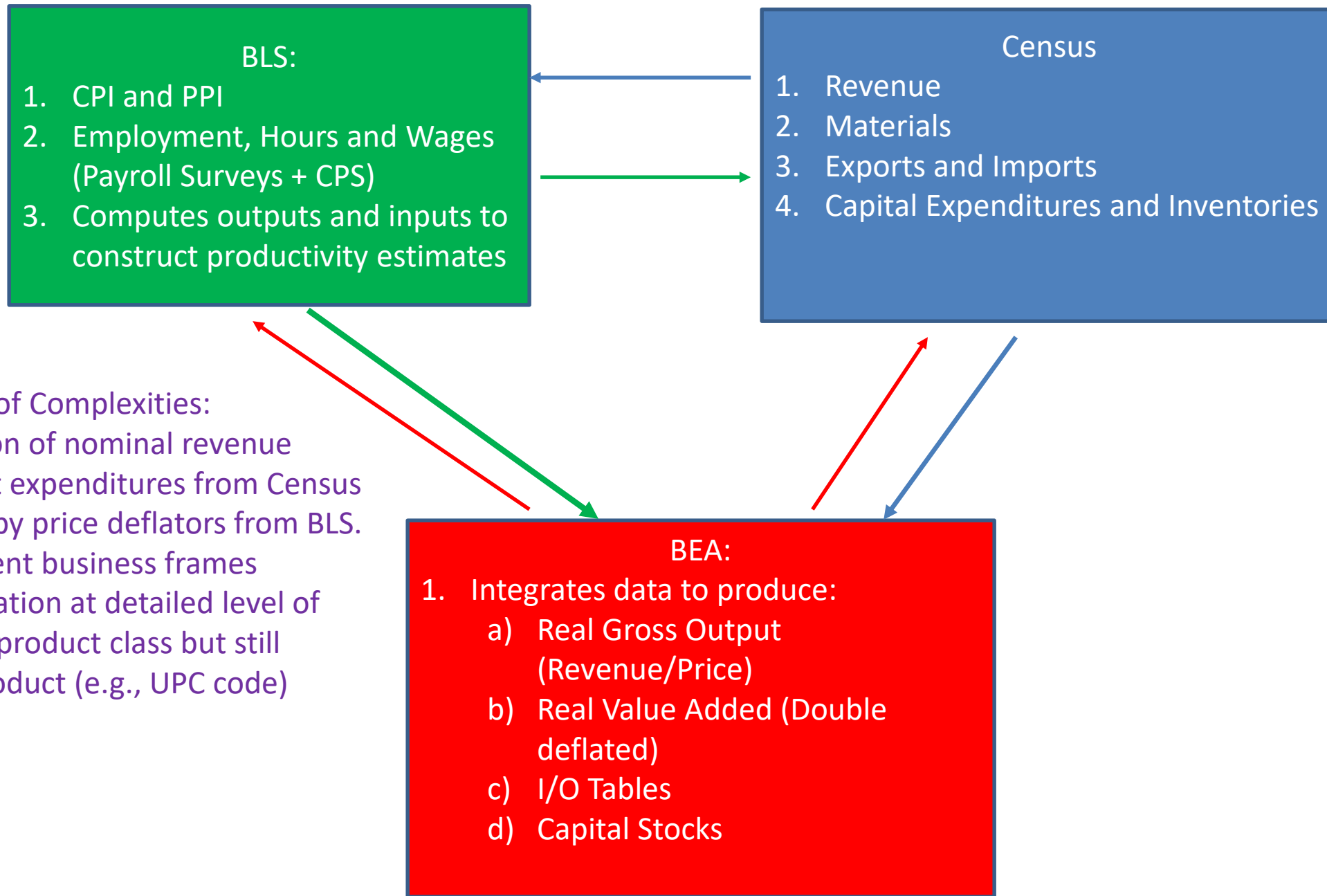
Contribution, annual percentage points

Percentage points



Source: Bryne et. al. (2016)

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



Example of Complexities:

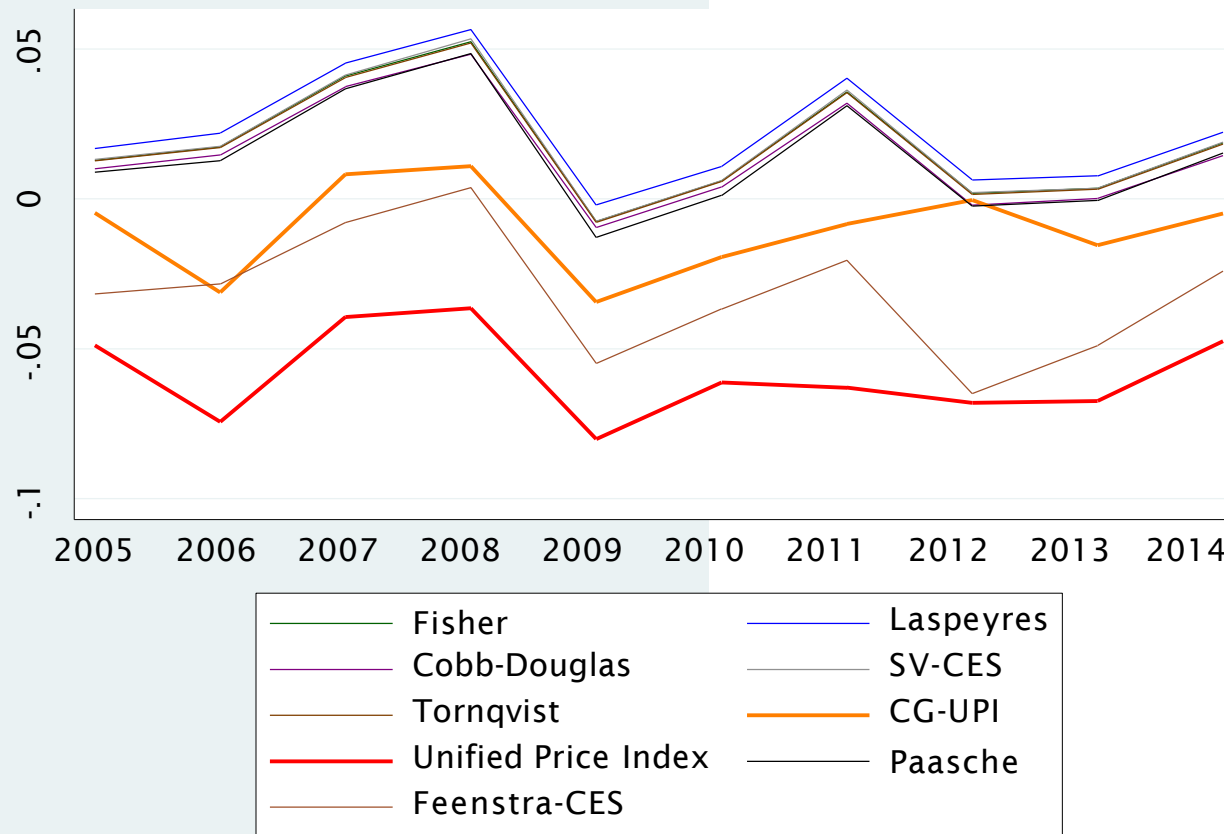
Integration of nominal revenue and input expenditures from Census deflated by price deflators from BLS.

- Different business frames
- Integration at detailed level of industry/product class but still not at product (e.g., UPC code) level.

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.