Modernizing Measurement of Productivity with Nonstandard Data

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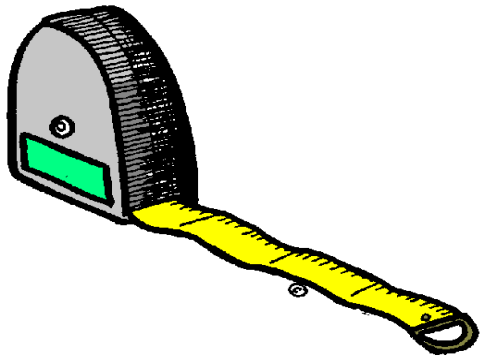
Erica L. Groshen, Cornell U.-ILR
Michael Horrigan, Upjohn Institute for Employment Research
Christopher Kurz, Board of Governors of the Federal Reserve System

Cornell University
ILR School

Measuring productivity is important

- Drives national wellbeing
- Evidence-based policy requires understanding productivity growth
  - Fiscal and monetary policy
  - Causes and consequences
  - Distributional impacts



State of productivity measurement

Labor productivity growth
= (output growth rate) – (labor hours growth rate)

- Produced by BLS, quarterly, 2-month lag
- Output from BEA and Census, deflated by price indexes mostly from BLS
- Labor hours from BLS

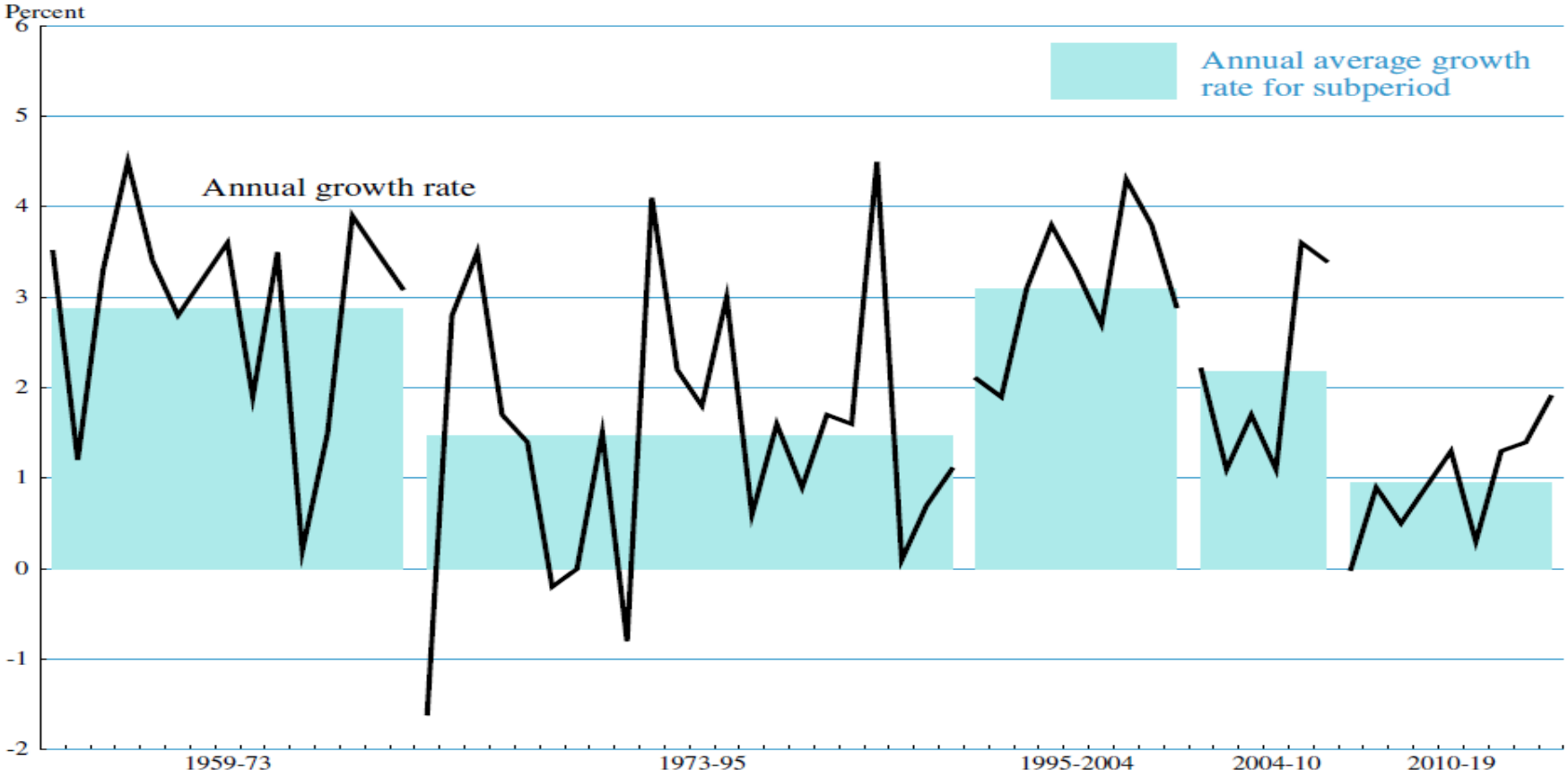
Multifactor productivity growth (MFP)
= (quantity index of output) / (quantity index of labor and capital input)

- Produced by BLS, annual, 3-month lag
- Output from BEA and Census, deflated by price indexes mostly from BLS
- Labor hours from BLS
- Capital input from BEA

Measuring productivity is hard

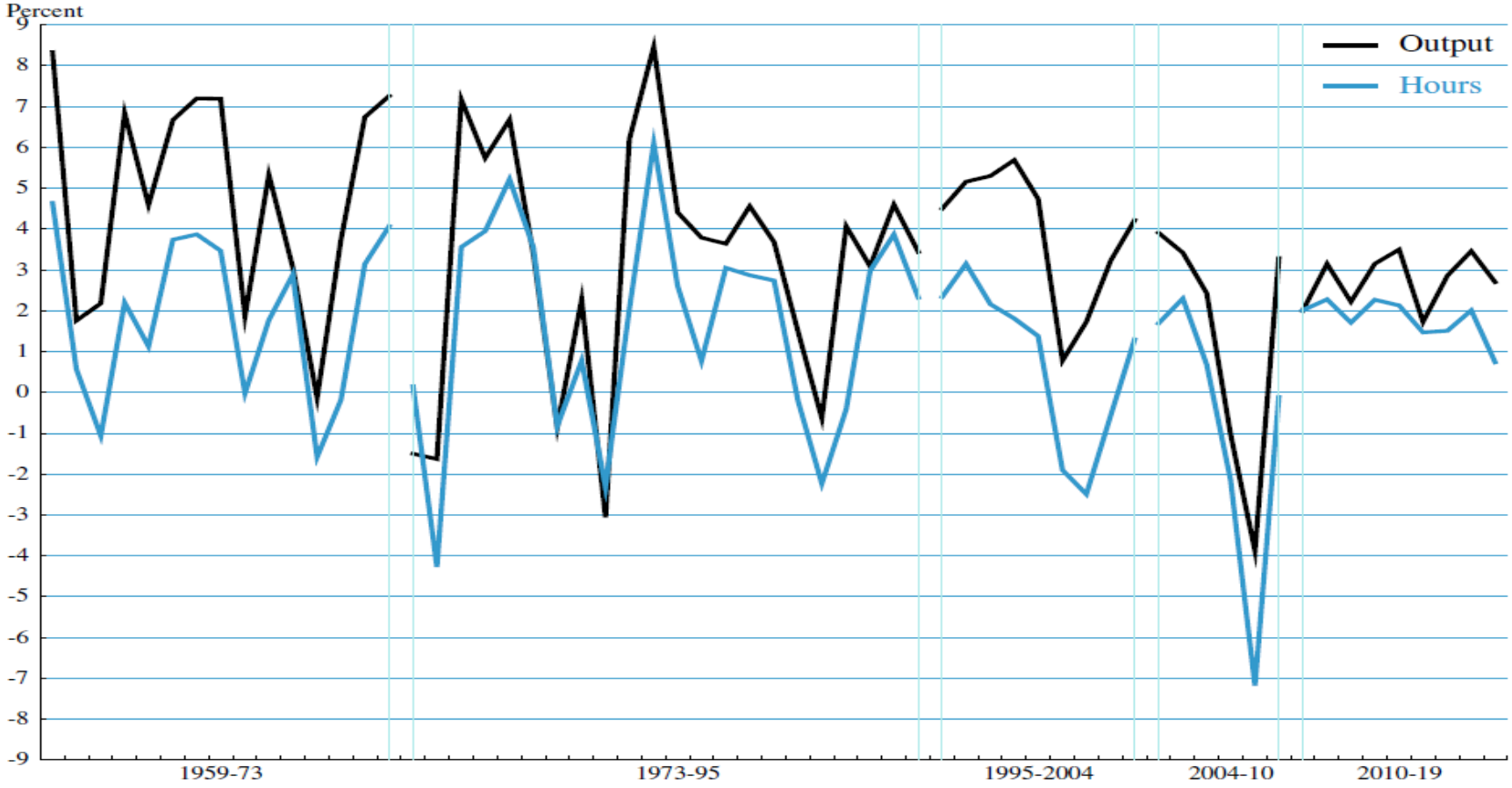
- Disparate sourcing: input data often incompatible
- Service sector: growing and challenging
- Noise: need averages over time to see trends

U.S Labor Productivity Growth, 1959-2019



Source: U.S. Department of Labor, Bueau of Labor Statistics.
Note: Both series refer to annual nonfarm business productivity

Hours and Real Output Annual Growth Rates



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Incentives for using more nonstandard data

Nonstandard data = nonsurvey, "organic" records

E.g., government or private administrative data, transactional records, web-scraping, private sector aggregations

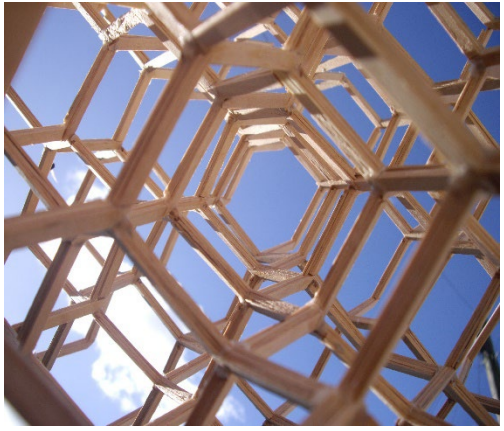
- Improve granularity, coverage, timeliness, precision, or accuracy
- Counteract falling survey response rates
- Reduce respondent burden
- Improve efficiency and resilience

Challenges for stats agencies in using nonstandard data

1. Quality
2. Access
3. Respondent protection
4. Operations
5. Comparability
6. Mission compatibility

Framework for using nonstandard data

- Easiest case: new sources for survey-equivalent data
- Otherwise, new sources change measurement strategy
  - Beneficial?
  - Transparent methodology?
  - Break in series?
  - Require changes in other series for consistency?
  - Aggregation acceptable?



Progress and opportunities (1 of 3)

Products available

- Productivity slowdown
  - New data sources used to investigate causes and measurement issues (Byrne, Fernald, and Reinsdorf 2016)
- NBER/CES productivity database
  - Detailed industry information on labor productivity and MFP
- Disaggregated productivity
  - BLS-Census DISP project (Cunningham et al. 2019) dispersion for official statistics Implies measurement is important issue

Progress and opportunities (2 of 3)

Available/in progress

- Modeling interim estimates
  - Board of Governors leverages Quarterly Survey of Plant Capacity to impute productivity before Census data
- Utilization-adjusted quarterly MFP
  - Quarterly MFP with controls for unobserved utilization. (Fernald 2014; Basu et. al. 2006)
- Medical records
  - BLS & BEA experimental disease-based price indexes using alternative data (Groshen et al. 2017)
  - CMS data for producer prices
    - Diagnosis-related group (DRG) revenues by hospital to pre-select DRGs for sampling of hospital bills
    - Measured adherence to quality of care protocols for treatment of heart attacks and pneumonia by hospitals could allow adjustments for quality
  - Establish base-period pricing of hospital bills by DRG
    - Could the universe of hospital bills help develop new approaches to deriving price indexes
  - Use medical records for non-hospital providers of health care services

Progress and opportunities (3 of 3)

Key opportunities

- Unemployment Insurance (UI) system wage records
  - Augment or replace surveys to enhance granularity, timeliness, accuracy, frequency, and fields
  - Sensitive issues revolve around ownership of records, legal access, and benefits of sharing records
    - BLS Wage Records Program for state-to-state sharing plus sharing of records with BLS and helps states to add new fields, e.g., occupational job titles, worksite, and hours
  - Wage record environment may change
    - JEDx initiative (U.S. Chamber of Commerce & Lumina Foundations) to develop public-private standards for employment, training, and earnings records
- Credit card data
  - Improve service spending measures, with Quarterly Survey of Services and Services Annual Survey
  - Improve retail spending measures (BEA effort)
    - Ecommerce prices (Kurz et al. 2019)
    - Monthly consumer expenditure weights
    - Replace direct data collection and add demographic information

Productivity measurement: A panacea

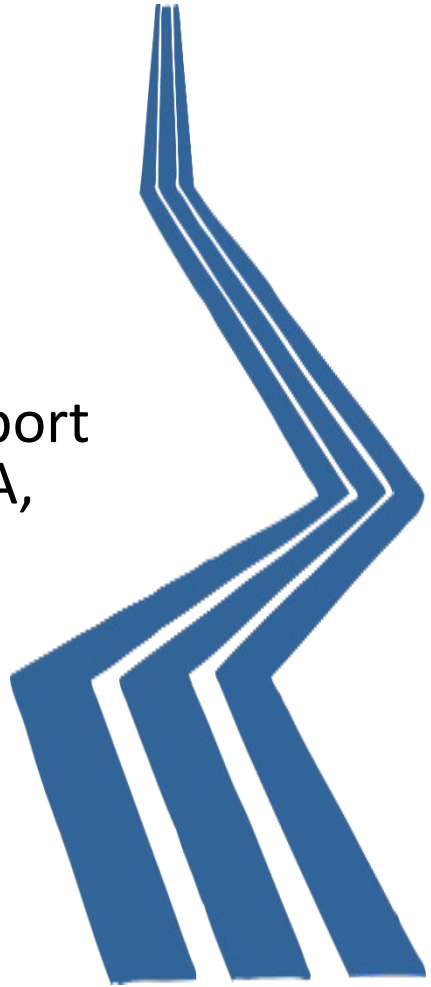
- Research finds best measures of service sector productivity
- Monthly (weekly?) productivity growth by industry, state, and local areas—with short lags
  - Comparable across industries and regions
  - Add up to national numbers
- Input components as disaggregated as published statistics
- Less dramatic revisions

Panacea moth

Road to panacea

- Robust access to high-quality surveys and nonstandard sources
- Adequate resources and mechanisms to support coordination, research, and agility in BLS, BEA, and Census
- Independence from political interference

➢ ***Much progress, yet much more to do! Cannot happen without support…***



Thank you.

Contact info

- erica.groshen@gmail.com
- horrigan@upjohn.org
- christopher.j.kurz@frb.gov

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