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Measurement Issues Arising from the Growth of Globalization

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W.E. UPJOHN INSTITUTE *for Employment Research*

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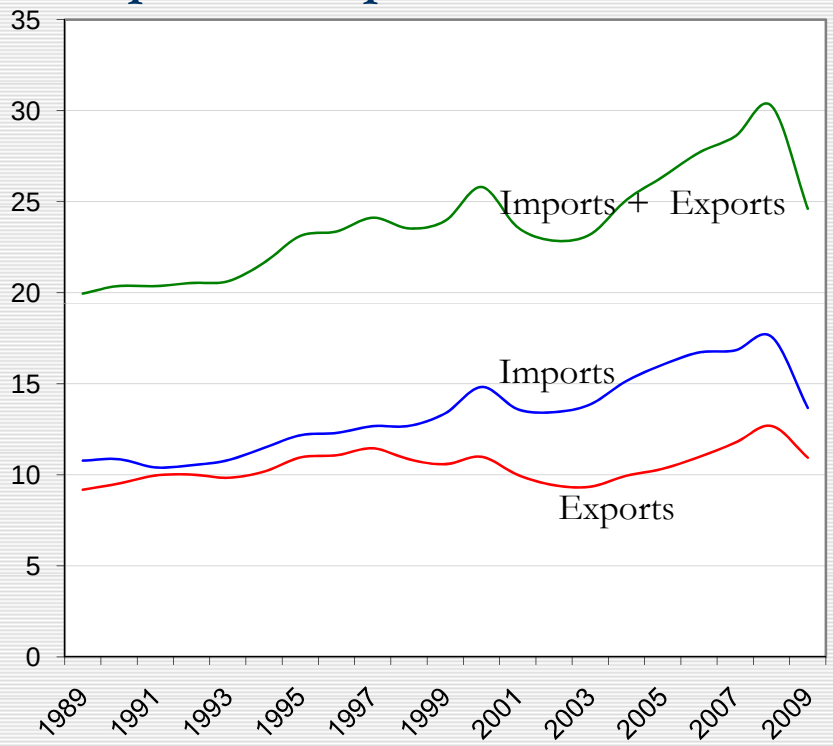
Challenge of Globalization for Policymakers & Statistical Agencies

- **Rapid growth of international trade among the most important economic phenomenon of our time. Reflects confluence of factors:**
  - Economic reform and development in China, former Soviet bloc, other Asian economies
  - Lower transportation & communication costs
  - Reduction trade barriers
- **Globalization offers great opportunities, but also challenges for businesses and workers in U.S. economy:**
  - Underscores need for need for reliable data to understand effects and formulate policies
- **But globalization greatly complicates collection of economic data and construction of reliable economic statistics:**
  - Production systems becoming globally integrated,
  - Rapid shifts in global sourcing of goods and services,
  - Rapid growth of trade in business services

Growth of globalization evident in trade statistics

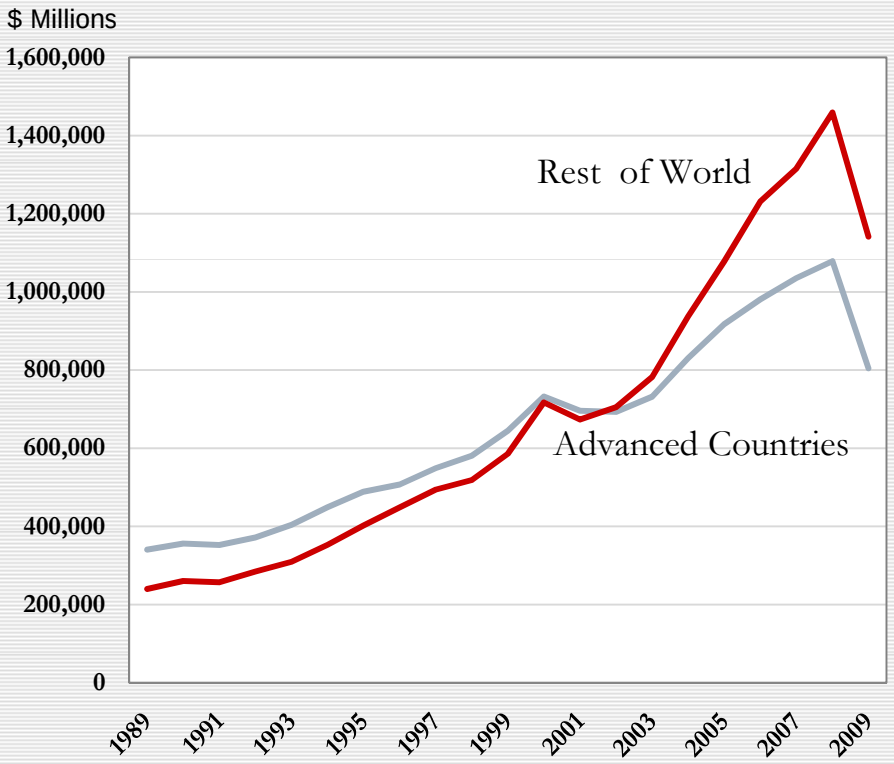
Imports & exports as % of GDP



Dramatic increase in trade relative to size of U.S. economy in 2000s

Imports grew faster than exports – led to widening trade deficit

Imports by country type



Import growth dominated by imports from emerging economies, most notably China

Motivation for the Study

- **2007 Business Week article, based partly on academic research, alleges that "offshoring" or growth imports from low-wage countries resulting in**
  - Systematic biases in key economic statistics
  - Understatement of true effects of trade on U.S. economy and workers

New Research in this Report

- **Funding from Bureau of Economic Analysis and Sloan Foundation supported new studies by academics and researchers in BLS, BEA and Census that examined**
  - What is the precise nature of the measurement problem highlighted in the Business Week article?
  - Is there concrete evidence of biases to key economic statistics?
  - What are the solutions?
- **Selected other issues also examined:**
  - Data gaps in tracking use of imports in economy
  - Data gaps in measuring services offshoring & labor market impacts from offshoring

Nature of the Problem: Bias to Import Price Indexes

- **Rapid shift in sourcing of consumer products and intermediate inputs used by businesses, especially in last decade.**
- **BUT price indexes, as currently constructed, generally do not capture price declines (often large) associated with shifts in sourcing**
  - Implicit assumption that patterns of trade stable or changing slowly
  - Problem well known: previous studies examined in context of consumer prices (CPI) & growth discount chains
  - Implications for biases in import prices (and price indexes based on them) not previously studied

Why Import (and Export) Prices are Important

- **Used in computing real (constant dollar) GDP growth**
  - GDP growth – computed from expenditure side

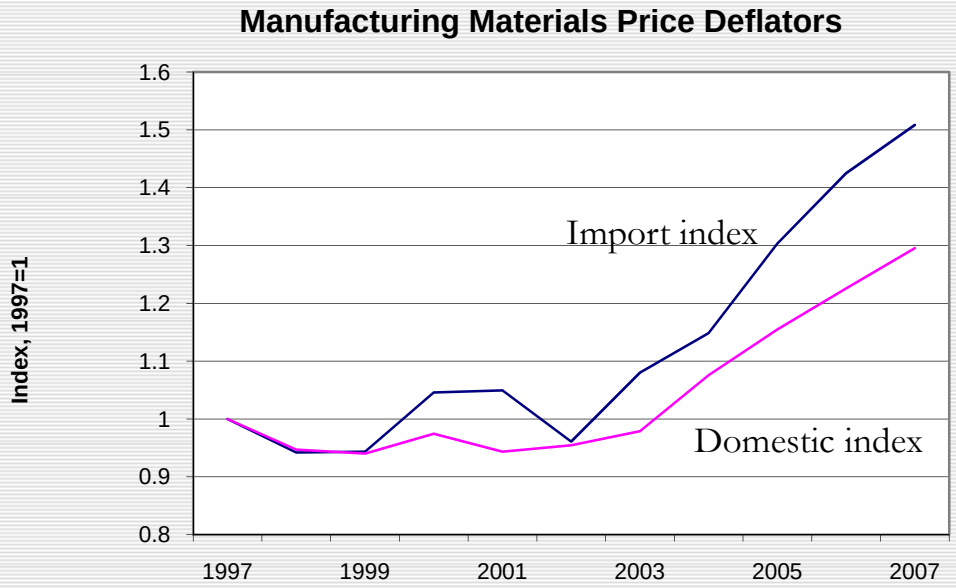
    GDP=C+I+G+(X-M)
  - Add up growth consumer purchases, business investment and government purchases (in constant dollars)
  - Add in growth real exports—export price indexes used to deflate values
  - *Subtract out growth in real imports—import price indexes used to deflate values*
  - *Exports & imports amount to 25-30% of GDP—proper deflation important*
- **Used in computing real value added growth in industry statistics**
  - Deflated inputs—*including imported intermediates*—must be subtracted from deflated shipments
- **If growth of real imports understated (because of biased import price indexes)**
  - GDP and industry value added growth rates overstated
  - Industry and aggregate productivity growth overstated

A Simple Example: Offshoring Production of Chairs

- **In 2006 a U.S. company produces chairs valued at $1,000. In 2007 it closes its U.S. chair factory & offshores production to China, importing the same number of chairs at half the cost ($500).**
- **How is this instance of offshoring treated in U.S. statistics?**
  - 2007 domestic consumption of chairs should be accurately recorded as $1,000 in 2006 prices. (Any price drop passed along to consumers should be picked up in the CPI)
  - But the statistical system won't recognize the $500 in imported chairs to be the same or comparable to chairs previously produced in U.S.
    - The price drop (50%) from domestic to imports won't be measured
    - In real (2006) dollars, imported chairs likely will be valued at much less than $1,000
    - Difference between real domestic chair consumption and measured real imports is misattributed to domestic output
- **The result: "Phantom GDP" and inflated productivity growth**

Evidence of Biases to Price Indexes

- **Conditions for biases to price indexes exist:**
  - Import penetration from China and other emerging economies
  - Evidence that lower prices driving growth
- **Patterns in import and domestic price indexes suggest bias**



  - Expect import index to grow more slowly than domestic index
  - Similar, anomalous patterns observed for import and domestic price indexes for consumer goods

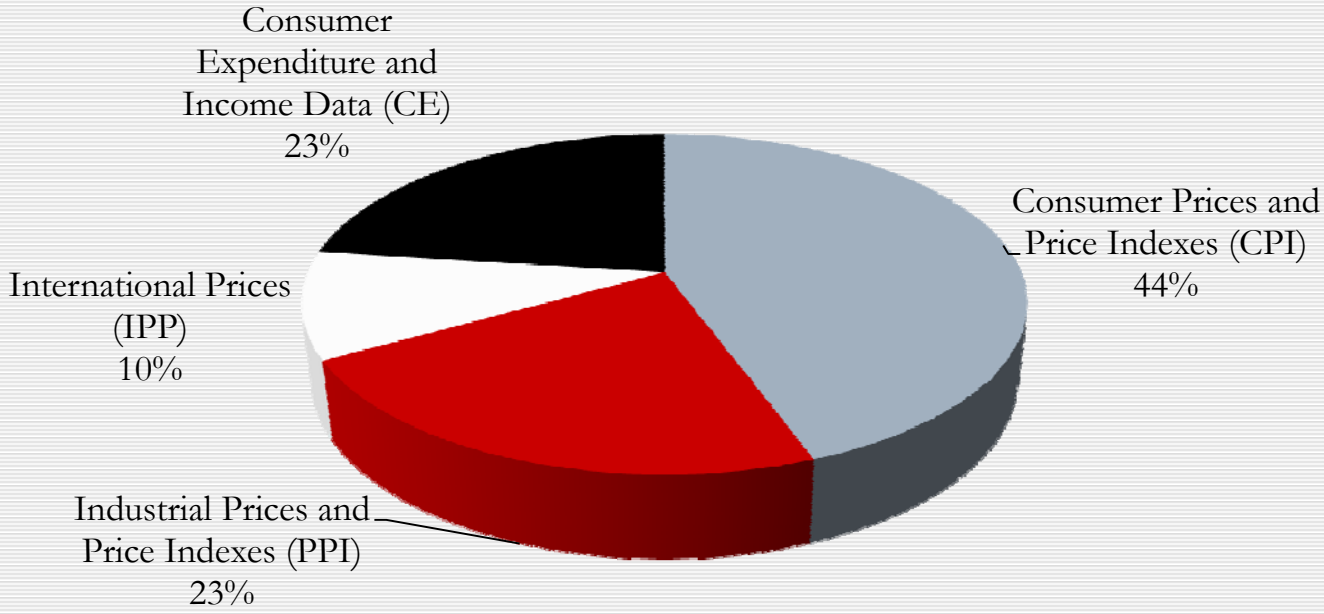
Evidence of bias in economic statistics

- **Simulations suggest possibly significant biases to output and productivity measures in manufacturing and construction from growth of imported intermediates**
  - Annual average growth real value-added in manufacturing may have been overstated by 0.2 to 0.5 percentage points, 1997-2007
  - Represents 7-18% of growth; excluding computers, represents 20-50% of growth.

- **Biases to economic statistics in other sectors and to aggregate economy unknown.**

International Prices Program at BLS

- **Prices data to support economic statistics collected by the BLS Office of Price and Living Conditions**



- **Import and export prices collected by the International Prices Program within OPLC**
  - Small program--$19 m budget
  - No increase in IPP budget since 2003

Solution

- **BLS is proposing the construction of an input price index**
  - New input price index would directly address biases in manufacturing and other industry statistics
  - Purchasers would be surveyed on input costs: purchasers could accurately report price changes, even when they switch suppliers
  - Information from input price index potentially could be used to address biases in GDP
- **Is an input price index feasible?**
  - Pilot needed to determine feasibility
  - Cost of pilot: $1.6 million/year for 2-3 years

Prices for Import and Export Business Services

- **Above discussion focused on biases to existing import price indexes from offshoring**
- **Currently, NO data on import or export prices for business services collected.**
  - Most rapidly expanding category of trade—includes IT services, engineering services, call center services
  - Serious data gap—could cause significant inaccuracies in economic statistics as business services trade expands
- **Funding needed to expand collection of import and export prices data to business services**

Other Measurement Issue: Tracking Import Use in Economy

- **Input-output data needed to distinguish between imports of goods and services for final demand relative to intermediate use**
- **Destination of imported intermediate goods and services not tracked directly**
- **To allocate imported inputs among industries BEA uses "import comparability assumption" – economy-wide import share for specific good or service the same for all industries using that input**
- **Research finds substantial differences in use of imported inputs among specific industries between direct measures and imputed estimates using "import comparability assumption"**
- **These input-output data used for wide-range of economic analysis:**
  - Where is services offshoring occurring?
  - What is the employment impact of export growth? (What is the import content of exports?)
  - What is the economic impact of state and local economic development policies? (How much leakage overseas occurs?)

Other Measurement Issue: Services Offshoring and Impacts on Workers

- **Services offshoring has raised new policy concerns**
  - Need to measure extent and growth of "elusive phenomena"
  - Policy responses require impact assessments of services offshoring on businesses, workers, and consumers
  - Micro-level (firm) data needed
- **Data on services sector activities limited**
- **Employment impacts involve occupational shifts as well as total employment changes**
  - BLS lacks longitudinal data on occupations needed to analyze occupational shifts over time
  - Additional resources for developing these data could range from $3.5-$7.7 million
- **Solution: Collect longitudinal data on employment by occupation**
  - Longitudinal occupational data have uses beyond assessing impact of services off-shoring

More efficiently use existing data

- Fiscal restraints mandate effective use of existing available data among all federal statistical agencies
- Micro-level data critical for assessing a number of economic issues, particularly outsourcing activities and services offshoring
- Improved data sharing and access to micro-level data requires amending Confidential Information Protection and Statistical Efficiency Act CIPSEA