Time Series Considerations in Updating the U.S. National Accounts

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Meeting of the Group of Experts on National Accounts

May 23-25, 2018

Geneva, Switzerland

Aspirations and tradeoffs



Aspirations

- Timeliness
- Relevance
- Accuracy
- Transparency

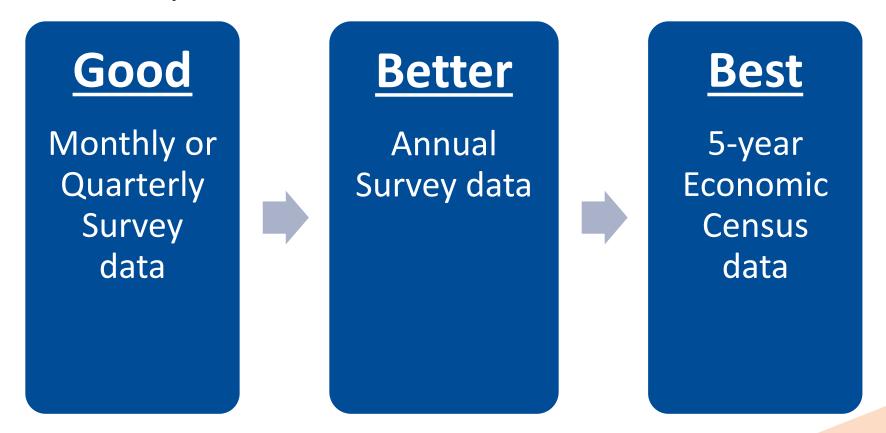
Tradeoffs

- Revision policies
- Backcasting and nowcasting choices
- Evaluation of future improvements

Revision policies



 For BEA, revision schedule largely dictated by data availability



Every 5 years



- Integrates the three GDP estimation processes
 - -Production, expenditure and income
- Introduces major conceptual changes
 - Capitalization of IPP
- Opens the entire time span
 - Annuals 1929-present
 - Quarters 1947-present
- Updates the reference year for price and quantity estimates

Move to "flexible" annual updates



- In 2011, BEA adopted a "flexible" annual update policy
 - Span determined by the types of changes we introduce in a given year
 - "Minimum" span of revision was most recent 3 years
 - Can adopt methodological improvements more rapidly
 - Can incorporate full set of revisions to underlying source data
 - Eases burden on staff and users!

Refinement to revision spans



- Next summer (2019), BEA will expand its minimum annual update revision span to 5 years.
 - Motivated largely by analysis of quarterly estimates
 - Want to ensure our quarterly series incorporate accurate seasonal adjustments

Backcasting



- In general, BEA preference is to extend a methodological change back through the full time series
- This means we will wait for a comprehensive update to incorporate a major change
 - When the "full" time series is open for revision
 - Ensure the change is also incorporated in the input/output accounts
 - Allows adequate time to prepare users for the change

Backcasting



- For revised source data or smaller, more limited statistical changes, BEA may limit the period over which we incorporate the change
 - Example: International Transactions data
 - Revised data available late in our production process
 - Impact of the revised data assessed to be small
 - We inform users of our decision
- Backcasting as an abbreviation for historical data
 - Example: Historical GDP by industry pre-1997
 - Abbreviated Supply-Use methodology and double deflation

Nowcasting and big data



- Many new, alternative data sources available
- Potential to fill measurement gaps
- Potential to accelerate estimates
 - Early wins using machine learning techniques to predict consumer spending on healthcare and investment in software
 - Modeling transaction-level data to anticipate quarterly services data

The Future of National Economic Accounts



- Produce Economic Accounts in a comprehensive and synchronized process
 - Holistic approach that draws on strengths of existing practices
 - Comprehensive and annual updates produced simultaneously with (nearly) coincidental release at end of July each year
 - Current estimate produced simultaneously with (nearly)
 coincidental release within 90 days after quarter end
 - Facilitates acceleration of GDP by state
- Changes to production processes beginning with 2019 annual update; organizational design to follow

Current Business Processes



- Mostly sequential business processes:
 - "Third estimate" of GDP for the 4th quarter released on March 28; GDP
 by industry for the 4th quarter release on April 19
 - Comprehensive Update of GDP on July 27; GDP by industry on November 1
- Current directorates have strong working relationships but we have realized (most) efficiencies in the current process
- Currently we do not have a formal process to resolve Supply-Use asymmetries outside of Benchmark years to set GDP
 - Benchmarking process happens once every five years

Motivation



- To best position BEA to maintain its innovative edge, improve existing products, develop new and valuable statistics, and to build and support a dynamic and flexible workforce
- Aspirations: Timeliness, Accuracy, Relevance, Transparency
- Guiding Principles
 - Exploit efficiencies to produce economic statistics
 - Harness advances in IT
 - Promote the quality and relevance of economic statistics
 - Develop staff by offering more opportunities for growth

Conclusion



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Conclusions



- Aspirations: Timeliness, Relevance, Accuracy, Transparency
- Tradeoffs
 - Revision policies
 - Backcasting and nowcasting choices
 - Evaluation of future improvements
- The Future of the U.S. National Economic Accounts