



# Discussion of “Measuring GDP in a Digitalized Economy”

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# Backdrop: the Productivity Slowdown Paradox

- Digitalization has changed how we work and live
  - Profusion of online services and content
  - Rapid growth of e-commerce
  - Smartphones and smartphone apps
  - Digitalized services and products
  - Big Data
- And yet, despite all the new technology, advanced economies have reported very low productivity growth
- Suspicion that growth of digital economy is underestimated, and that benefits aren't captured in our statistics

# Main Conclusions

- GDP remains conceptually sound and relevant
  - ⇒ GDP measurement problems aren't as great as has been claimed
- Problems with GDP involve estimation methods that don't capture new transactions, or get prices and volumes right
- Need to complement GDP with indicators that capture well-being
- Omission of welfare gains from new goods and quality improvements is a longstanding issue; what is different is the scale of the estimation problems
- Globalization and international trade in digital services are important measure challenges

# Detailed look at some of the issues

# Digitally intermediated services

- Digitally intermediated peer-to-peer services
  - Lodging (a big component of the “sharing economy”)
  - Transportation services and misc. tasks of the “gig economy”
  - Distribution services
- The challenges:
  - Capturing value of the intermediation services themselves (usually easy unless they are traded internationally)
  - Capturing the value of the peer-to-peer services (not hard once they come into the tax system)
  - Price and volume measurement

# Digitally intermediated services

My comments:

- Good discussion of recording vehicle purchases by Uber drivers as investment rather than consumer durables
- Implications of vehicle leasing are different, noteworthy
- Paper urges statisticians to develop price and volume measures that take the quality change into account
- When a large number of consumers choose to use a new peer-to-peer service, we can infer that the consumers who switch to it find its quality-adjusted price to be lower
  - May allow us to find plausible bounds for the price and volume measures in cases with few changes in characteristics.

# Consumers as Producers: Blurring the Production Boundary

- Internet has allowed tasks to be shifted to the consumer
  - e.g. making one's own travel arrangements, no travel agent needed
- The activity moves outside the GDP production boundary
- A wider boundary would keep the tasks in, raising output
- But redefining the production boundary to include these tasks would also imply general inclusion of non-market production
  - This non-market production is of interest, but including it would make GDP unsuitable for some key uses
- Another kind of production boundary problem arises with volunteer-created wikis and open source software

# Consumers as Producers: Blurring the Production Boundary

- Paper explains merits of current GDP conceptual definition
- Task shifting treated as indicative of quality changes in the service affecting price and volume estimation
- Authors don't say GDP falls when tasks shift to consumer
- Shifting of tasks to inside the boundary also occurs
- The misconceptions of some of the critics of GDP seem to be more fundamental than the paper implies
  - More work for the consumer doesn't itself imply lower quality
  - Current practices may get the volume change correct
  - How should we think about recent example of Big Data replacing real estate appraisers in the mortgage application process?



# Free and subsidized products

Lots of free products from

- Internet platforms providing information, social networking and entertainment
- Smartphone apps

Supported mainly by advertising

- In national accounts, the output of the platforms and app writers is advertising services used by the ad buyers
- Services to consumers aren't directly included in GDP
- Approaches to directly include consumption of the services by households are much-discussed

# Free and subsidized products

Clear explanation of conceptual debate over advertising-supported free services and of the empirical evidence

- Nakamura & Soloveichik, 2015, (and Nakamura, Samuels & Soloveichik, 2016) find that the empirical magnitude is small
- Revenue from selling data (discussed) is really small, but revenue from platform's sales of its own goods and services(ignored) is more substantial
- If we really believe that output and household consumption are not fully measured in the current SNA, the simple solution would be just to recognize an additional flow of output of services consumed by households

**Thank you for your attention!**