NBS Productivity Measurement Project: Progress and Challenges

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Background

- China’s economy has been growing very rapidly since 1978, and due to its sheer size, it has drawn the world attention to the quality of the growth.
- A very important question is what has been the most important factor driving China’s rapid growth, productivity or factor accumulation?
- NBS has the sole responsibility to provide a clear answer to the public and the government through an institutionalized productivity measurement system.

Background

- For this purpose, NBS set up a Productivity Measurement Project (PMP) at the end of 2009.
- A PMP task force was formed to team up staffs from relevant departments of the NBS.
- To draw from international experiences in productivity measurement, NBS has collaborated with The Conference Board (TCB) China Center through a quarterly joint internal workshop from the early 2010. It has proved to be an effective mechanism for the PMP.

Objectives

- Establishing a measurement system to monitor changes in China's productivity, firstly labor productivity by industry and then total factor productivity by major sector and the total economy.
- The NBS productivity measures should satisfy the international standard in terms of input and output concepts, measurement methodology, industrial classification, which allow international comparison.
- When conditions permitted, the estimated productivity measures will be released regularly.

Challenges 1

- Basic data are insufficient:

  To measure TFP, we need much more data than it is available now.

  labor input

  capital stock

  price indices

  In general, the more detailed industry classification, the larger the data gaps.

Challenges 1-labor input

- No consistent labor inputs are available for detailed classification.
- Current work hours by industry are not convincible.

Challenges 1-capital stock

- There is no capital stock data by perpetual method.

  We once estimated the capital stock from 1981 to 1998 for stated-owned enterprises taking 1997 as benchmark year.
- Data on invest goods by industry are available only in input-output investigation year.
- In national balance sheet, data of fixed assets are priced at historical cost by institutional classification. Data for non-state-owned statistics are estimated with unsatisfactory quality.

Challenges 1-price indices

- The price changes of industrial output could be reflected by PPI only for above designated size, which are classified on 3-digit codes level.
- Price indices for other sectors are have no specific surveys. In national accounts, we usually use similar category indices from CPI.

Challenges 2

- Inconsistencies among data from different sources :

There are differences in the definition and coverage for data from different sources.

Value-added
Labor input

Challenges (2)-value-added

- Current industrial survey: above designated size enterprises, below designated size enterprises and individual household.
- The bottom-to-top method may lead to double counting in aggregated industrial statistics.
- Different estimation methods between Department of industrial statistics and national accounts.

Challenges (2)-labor input

- Different data on the number of employed persons from independent sources: National Economic Census, Sample Survey System on Labor Force and reporting forms on labor statistics and industry Survey.
- Different definitions on employee in above designated size enterprises and below designated size ones.
- Inconsistence between aggregates and data by industry due to different data sources.
- Inconsistence between hours worded by industry per capita and number of employees from labor statistics and industrial survey.

Priorities

According to the data problems, the priority is to clean up the data:

- Value-added: to promote the congruity of value-added of industry in Industry Survey and GDP Accounting
- Labor input: to make numbers of employed persons coming from different sources more consistent with each other

Measuring labor productivity

- The first stage: focusing on the industry
  - Measuring nominal value added by industry at 3-digital code level for above designated size.
  - Measuring constant price value-added by industry above the designated size.
  - Estimating labor input : numbers employed

Measuring labor productivity(con1)

- The second stage:
- Consolidate the 3-digital level into 2-digital level industries
- Extend the value-added and labor input of the above designated size to the whole industry

Measuring labor productivity(con2)

- The third stage:
- Reconcile the labor input by industry from industrial survey with the data from Department of Population and Employment Statistics.
- Adjust numbers employed with hours worked.
- Then we can obtain industrial labor productivity by industry.

Measuring labor productivity(con3)

- The fourth stage: extend the method to agriculture, construction and services.
- The Constant Price Value-added of the non-industrial sectors at two-digit level could be obtained from the national accounts.
- The labor input adjusted with hours worked can be obtained from the Department of Population and Employment Statistics.

Measuring labor productivity(con4)

- Further work: If possible, trying to adjust the labor input for quality by appropriate approaches.

Measuring TFP

According to the data problems, we'll focus on labor productivity estimation at present. Measuring TFP has a long way to go.

- Constructing capital stock by perpetual inventory method.
- Computing the total factor productivity of China.

Thank you for your attention!