

Measurement of deflators and real value added in the service sector

IARIW 2016, Session 4F



Statistics
Netherlands

Session 4F

Title:

Measurement of deflators and real value added in the service sector

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Background

In Japan the productivity growth is low for the service sector, which accounts for about 80% of GDP.

This sector has some well-known challenges:

- If an output measure for an activity is based on an input measure, obviously no change in productivity can be ascertained.
- Adequate deflators are difficult to measure

Goal of the paper

The paper has two aims:

1. To compare Japan's methods of estimating service sector quantities and prices for GDP with those in the UK and US
2. To compare changes in TFP and gross output prices with those in the UK and US

They consider 5 sectors: (i) construction, (ii) wholesale and retail, (iii) education, (iv) healthcare, and (v) public administration and defense

Methodology

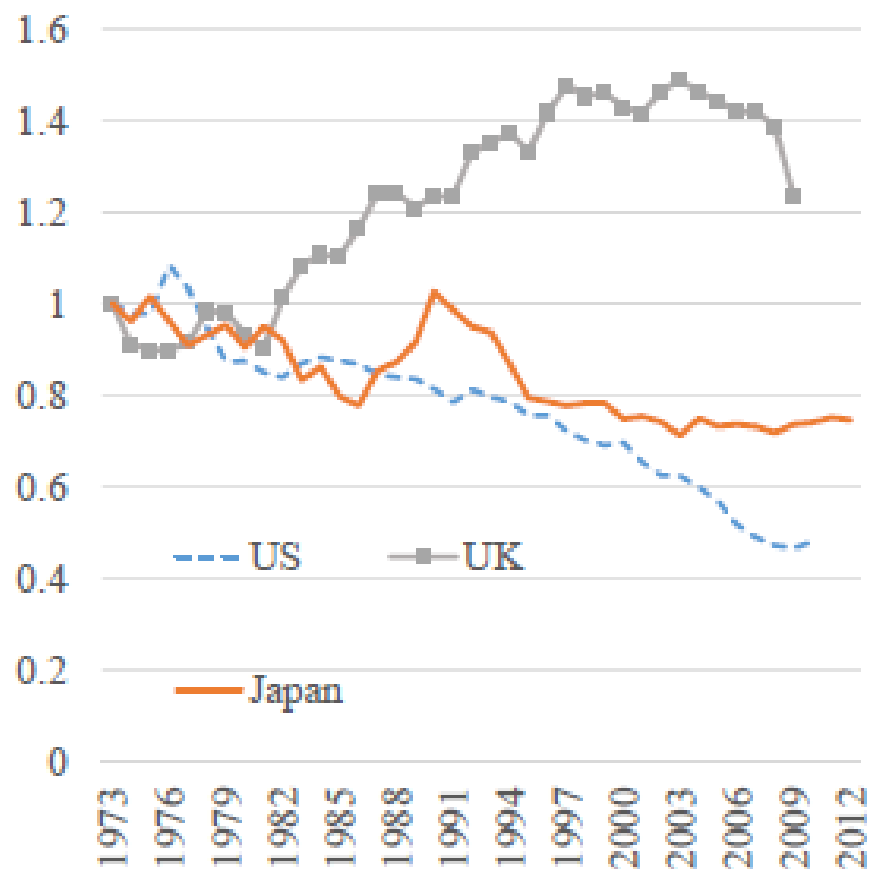
For aim 2: *To compare changes in TFP and gross output prices with those in the UK and US*, the authors use KLEMS type databases.

- World KLEMS data for the US
- EU KLEMS data for the UK
- JIP Database for Japan

GDP is used as the control total for all three databases, allowing for conjectures regarding the impact of measurement issues.

Construction

(a) TFP (1973=1)



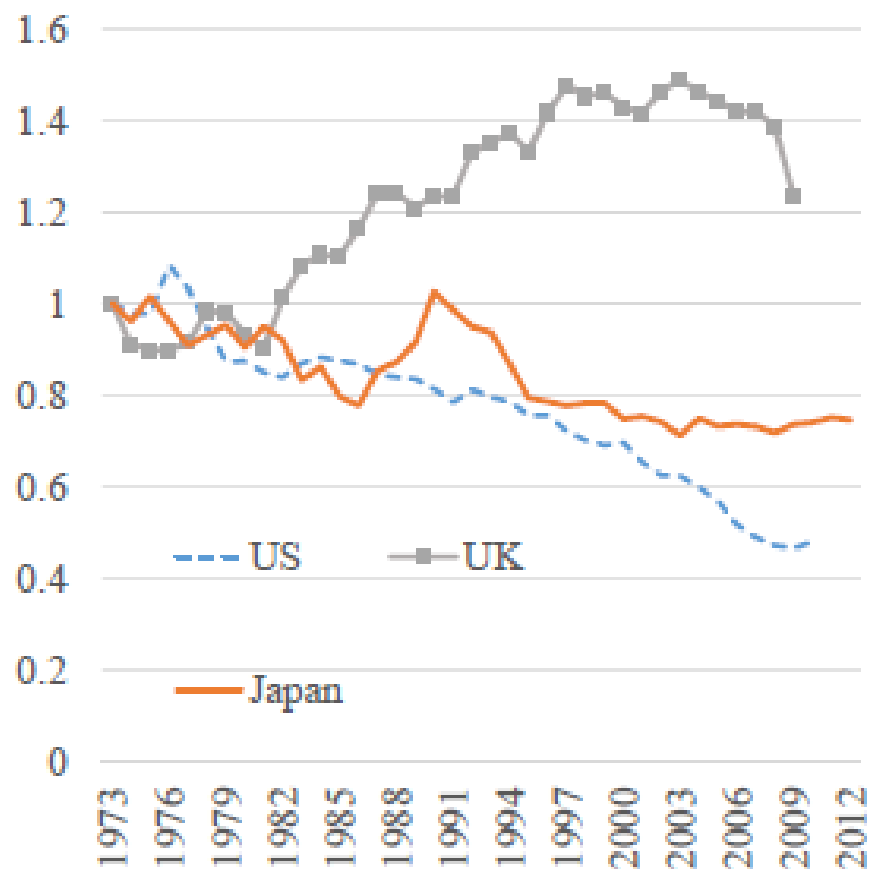
JP: output is (largely) determined by factor inputs. Deflator is input price index.

TFP in JP is a statistical artefact. And GDP is underestimated by 1.7% per year in this period.



Construction

(a) TFP (1973=1)



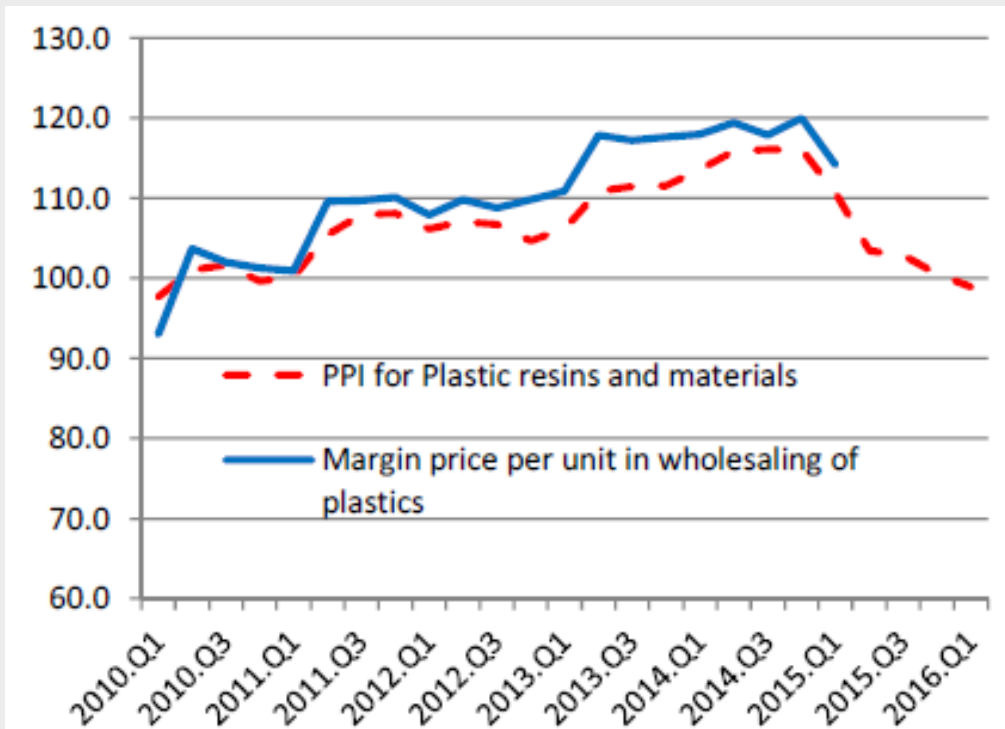
TFP in JP is a statistical artefact.

1. Output also includes operating surplus
2. No capital costs included in deflator
3. Labour quality not reflected in deflator

Wholesale and retail

JP, UK: prices of traded commodities

US: margin prices



- For plastics a comparison can be made.
- Margin prices increase more than PPI.
- TFP growth would be lower.

Education and healthcare

JP, US: input price index

UK: Direct measures (including quality adjustments)

- Atkinson Review (2005) recommends to measure output directly by counting the number of units for whom services are provided.
- Eurostat (2001) recommends to include quality adjustments.

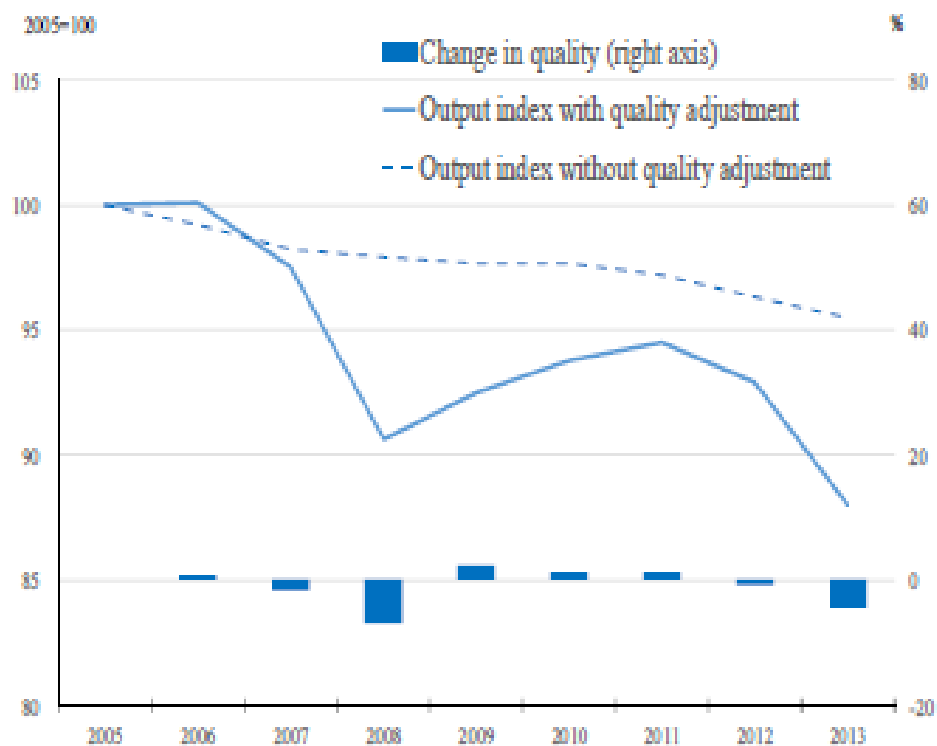
For ONS the authors show that the quality adjustments lead to higher growth (figures 8-11)

Education

For JP preliminary estimates for DMQ.

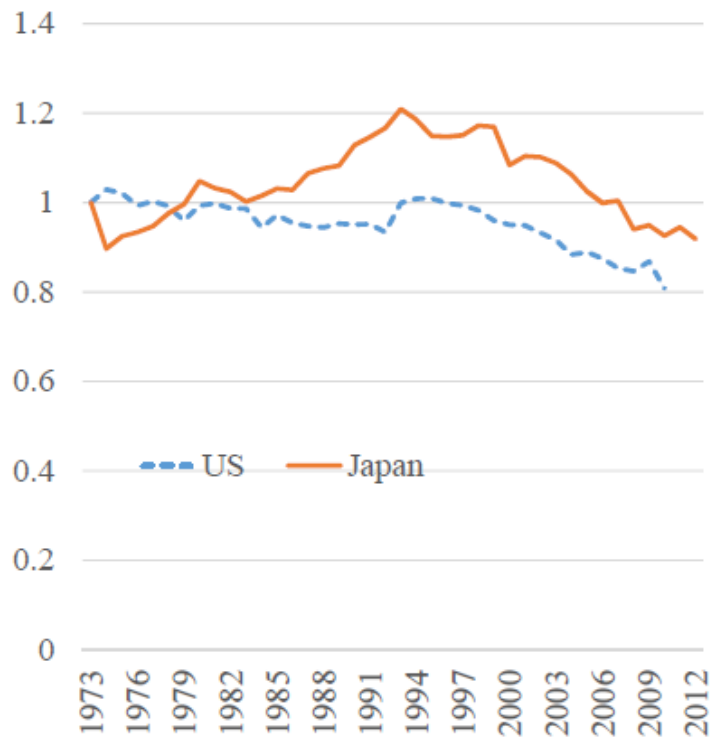
Education: Number of students (DM), test scores (Q)

Figure 17. Developments in the Direct Measure of Output with and without Quality Adjustment and the Quality Index: Education Sector, Japan, 2005–13

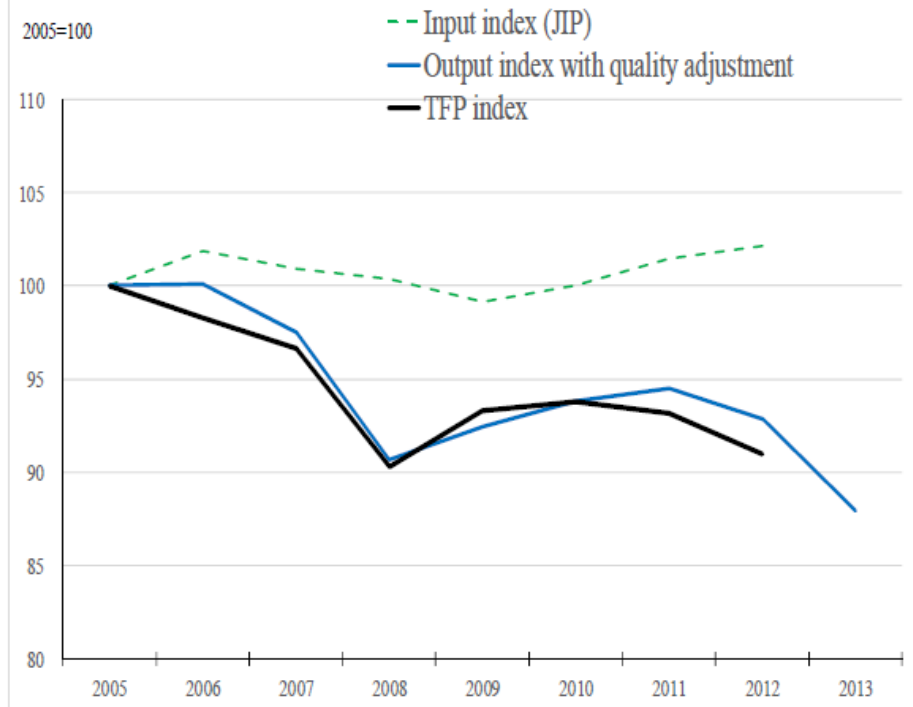


Education

(a) TFP (1973=1)



Input Index, and TFP: Education Sector, Japan



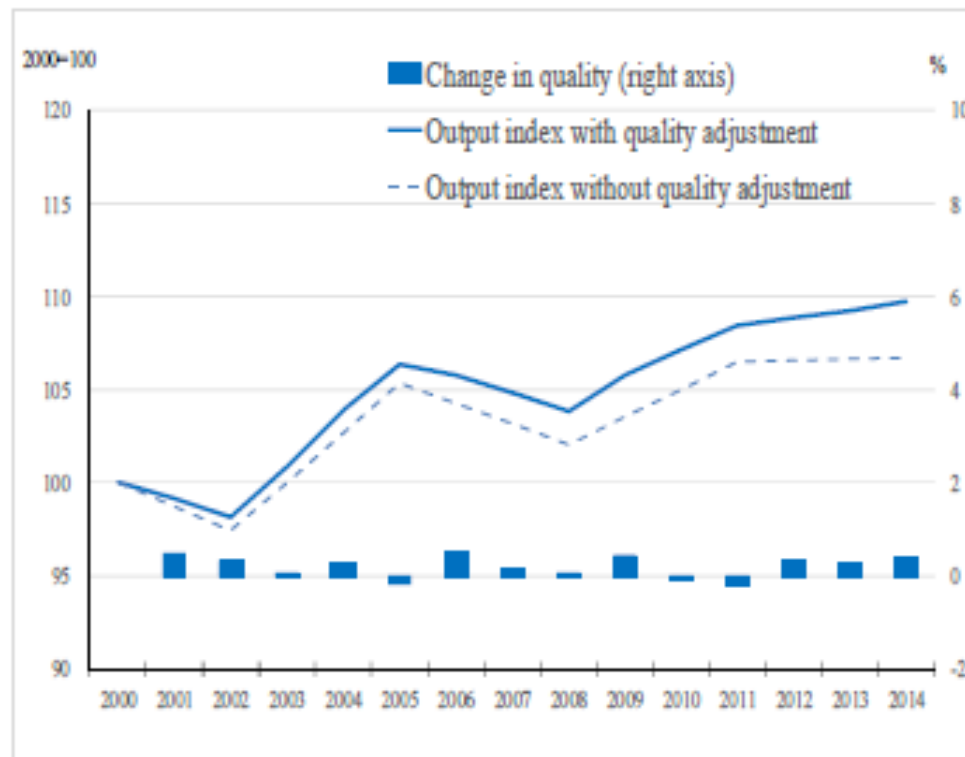
According to the new estimate, TFP declines by 9%

Healthcare

For JP preliminary estimates for DMQ.

Healthcare: Number of patients (DM), survival rates (Q)

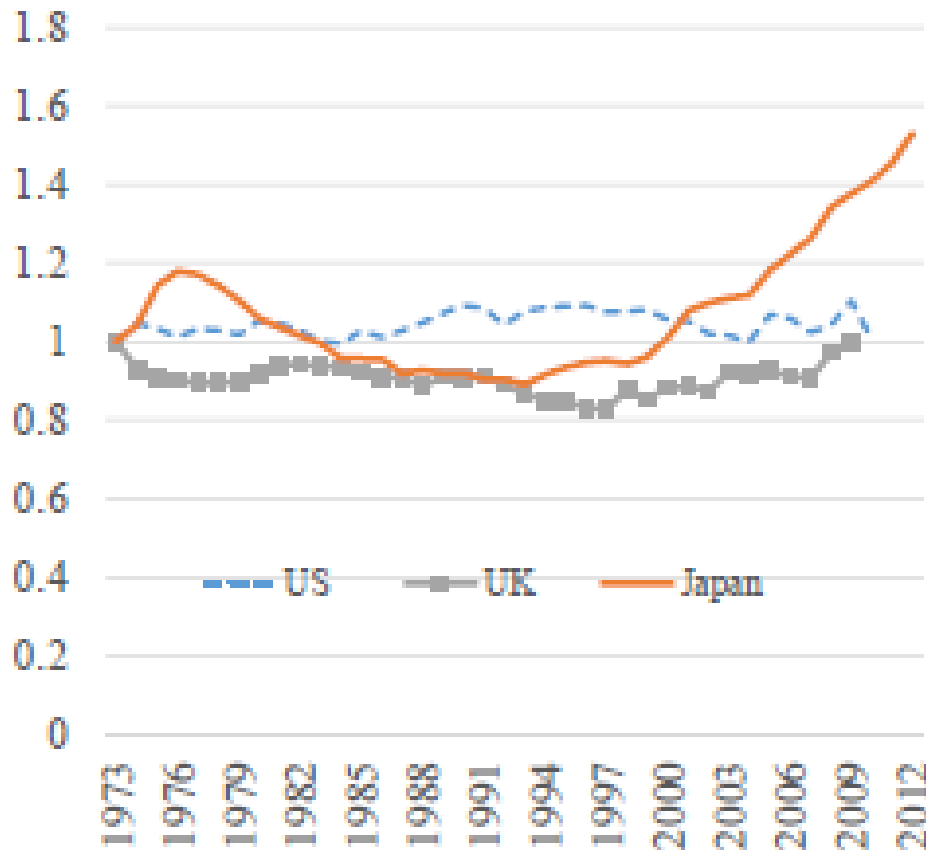
Figure 22. Developments in the Direct Measure of Output with and without Quality Adjustment and the Quality Index: Medical Services Sector, Japan



TFP declines by 30% between 2000 and 2012

Public administration

(a) TFP (1973=1)



JP, US: factor inputs

UK: DMQ

TFP growth is rapid due to incomplete data.



My comments

Promising paper, which offers important first steps towards better productivity measures. The authors show that they have a good overview of the measurement approaches.

It could benefit from stronger statements on the impact of the different approaches.

My comments

What are the implications for real GDP growth of Japan? Is this a statistical artefact too, when construction alone is underestimated largely (1.7% per year).

Education, are test scores comparable over time?

Healthcare, survival rates are not the right indicator of healthcare services

For public services at least a DM should be feasible to create, numbers of benefit receivers are most likely available.

Thank you!

