

Measurement of Deflators and Real Value Added in the Service Sector

Kyoji Fukao
Hitotsubashi University

Taisuke Kameda
Economic and Social Research Institute, Cabinet Office,
Government of Japan

Kota Nakamura
Economic and Social Research Institute, Cabinet Office,
Government of Japan

Ryoichi Namba
Economic and Social Research Institute, Cabinet Office,
Government of Japan

Masahiro Sato
Economic and Social Research Institute, Cabinet Office,
Government of Japan

Paper Abstract:

The estimation of output and prices in the service sector entails various theoretical and practical difficulties that are distinct from the challenges faced when examining the manufacturing sector. Some of these difficulties are due to the non-existence or limited functioning of the market mechanism in the sector, while others are due to certain economic characteristics of services, such as their intangibility and heterogeneity.

For instance, an area in which the estimation of output is particularly difficult is non-market services. For some publicly provided services, such as government-funded education, the absence of a market means that market prices are not available. For other services, such as medical care, relevant prices may be available, but using such prices may provide misleading valuations of output, since they do not reflect the value that consumers attach to such services, with the discrepancy arising, for example, as a result of asymmetric information or price regulation. However, even in the market sector, there are measurement issues with regard to certain services. An example is retail and wholesale services, for which it is difficult to construct margin price indexes due to the lack of publicly available information.

These difficulties, in turn, make cross-country comparisons of total factor productivity (TFP) growth, which greatly depend on how output and prices are calculated in each country, particularly problematic, since statistical agencies in different countries have adopted different approaches to address these difficulties. For instance, many countries have adopted an input-cost approach for the

measurement of non-market services, but the range of service sector industries to which the approach is applied differs across countries. Moreover, some countries incorporate the quality of inputs, such as workers' educational attainment, into the calculation of input values, while other countries do not. Furthermore, some countries are shifting from the input-cost approach to the estimation of real output by incorporating quality adjustments (such as scholastic ability test results or survival rates) when measuring quantities (such as the number of graduates or patients).

This paper provides a comparison of approaches to the measurement of service sector deflators in Japan and other developed countries such as the United States in order to examine the potential impact of methodological differences on estimates of the macroeconomic performance of these countries. Specifically, for education and medical care services, we compare the range of industries to which the input-cost approach is applied and the way qualitative indicators are incorporated in the calculation of input costs and output values. For retail and wholesale services, we consider how the use of margin prices instead of the sale prices of products affects the estimated output of these two industries. Using these comparisons, we consider how differences in the measurement of deflators affect the measured TFP growth in the countries examined and, furthermore, consider the implications for future revisions of methods of measuring deflators.