

## Trade in services in statistical frameworks

Andreas Maurer  
World Trade Organization  
Economic Research and Statistics Division  
Switzerland  
[andreas.maurer@wto.org](mailto:andreas.maurer@wto.org)<sup>1</sup>

The release in January 2013 of a new OECD/WTO database on trade in value added terms suggested that the real share of services in world trade is twice as high as measured by conventional trade statistics. Against this background, it is asked whether current trade in services statistics are relevant for the formulation of national negotiation strategies or the analysis of global value chains.

This paper examines the type of services information available from international trade statistics, the Balance of Payments, and the System of National Accounts, including the international supply of services through foreign affiliates or individuals who temporarily move abroad. Measurement issues are discussed from a conceptual angle to identify possible improvements of concepts and definitions as well as for data production in order to sketch a roadmap for the future development of international trade information systems.

Key words: services trade statistics, challenges, and roadmap

### Introduction

"Measurement,..., establishes a mapping from the empirical system of the objects to a numerical system." (David Hand, Significance, June 2005). This quote describes the function of statistics to portray the reality through measurement in context. But why measure the economic reality? Niels Bohr, physicist, once said "Nothing exists until it is measured". While this offers the reason for developing relevant statistics, a major difficulty especially with respect to trade in services statistics is that the world is changing rapidly: it becomes more and more difficult to interpret the "measurement" in the respective economic environment.

The production of official statistics takes time from their conceptualization, preparing the legal basis for data collection, data compilation and dissemination to users. It can last several years until comparable statistics exist across countries. Also, when producing these statistics, trade-offs have to be compromised, be it on the accuracy, timeliness or relevance. "This adds additional pressure on statistics to keep pace with developments, often leading to economic analysis based on anecdotes rather than facts." (Maurer, A., 2006).

This is in particular true for international trade in services statistics. Trade negotiators highlight the lack of detail and adaptability of this statistical domain to a changing economic environment -- it is said that without proper statistical information it would be difficult to develop a country's trading strategy. Furthermore, economic analysts wonder whether the share of services trade is correctly reflected in existing statistical frames. In this respect, considerations of trade in value added terms offer a different angle.

The remainder describes where to find information on trade in services, what the bottlenecks are, and sketches a roadmap for the future.

---

<sup>1</sup> The opinions expressed are personal and do not represent an official position of the WTO or its Secretariat.

## **Some history and terminology**

When referring to international trade, one normally refers to goods and services (not to mention intellectual property). While for merchandise detailed customs records (Harmonized System) allow deriving statistics, for services it is much more difficult. As a consequence, trade is often equalized with trade in goods for which rules are laid down in GATT. This legal frame is in force since its ratification in 1948. However, trade in services and respective disciplines became a focus at international level when GATS, the General Agreement on Trade in Services, entered into force with the creation of the World Trade Organization in 1995. Unfortunately, at that time, there was no corresponding evidence on trade in services that was comparable to trade in goods. This led to the creation of an inter-agency Task Force on Statistics of International Trade in Services which published its first Manual in 2002 (seven years down the road from the inauguration of GATS in 1995). Following revisions of the System of National Accounts (2008 SNA) and the Balance of Payments (BPM6), this Manual was subsequently revised and published as Manual on Statistics of International Trade in Services (MSITS 2010).

Before describing actual statistical frameworks that hold quantitative information on trade in services, it is important to analyze the term production. National Accounts define production as an "activity, carried out under the responsibility, control and management of an institutional unit, that uses inputs of labor, capital, and goods and services to produce outputs of goods and services." (2008 SNA, paragraph 6.2).

Further, the System of National Accounts defines services as the "result of a production activity that changes the conditions of the consuming units [transformation services], or facilitates the exchange of products or financial assets [margin services]". A third category of products refers to knowledge-capturing products which include "the provision, storage, communication and dissemination of information, advice and entertainment in such a way that the consuming unit can access the knowledge repeatedly." (2008 SNA, para. 6.22). The revised Manual on Statistics of International Trade in Services (MSITS 2010) included this definition of services, for example, by identifying maintenance and repair services (transformation services) or wholesale and retail margin services which facilitate the exchange of products.

Next to the production boundary, output valuation and the process itself that leads to the generation of income, it is important to analyze resources and uses with the respective balancing item which is value added. International trade statistics -- referred to as conventional trade statistics -- however record international transactions gross.

When considering conventional trade statistics, the share of services is normally mentioned to be around a fifth of world trade. However, as pointed out in the SNA, the production of goods requires services, that is, intermediate goods and services inputs are used to produce final products. The sales price of final goods can therefore include the value of a number of important services.

Globalization is expanding. Goods are produced through offshoring (business functions) or global manufacturing. This can be done either through arm's-length trade or through multinationals creating affiliates that are majority owned (intra-firm trade). Beyond the fragmentation of goods production, services production itself is also increasingly fragmented. Examples include knowledge-intensive sectors such as software, banking, education or

research and development. Of course, this leaves aside intellectual property, which will be important in analyzing income and its repatriation.

### **What are the frameworks?**

#### Domestic

When analyzing domestic activities of an economy, one turns to national accounts. These statistics inform of the structure and size of economies, and of the relative importance of the individual industries/sectors, for example defined according to the ISIC classification. Information is given on the primary, secondary and tertiary sectors of a value chain, i.e., from raw materials (iron, caoutchuc, etc... to outputs (e.g. cars) over to type of work (e.g. engineering, counseling, etc.) (Jansson, J.O. 2013).

#### International

Internalization, fragmentation of production, global value chains, and trade in tasks are buzz words that are continuously used by the press, politicians, and/or academics. The thirst for adequate statistics to describe these facts is unlimited.

Merchandise trade statistics are sourced from customs information (product-oriented). Detailed customs classifications such as the Harmonized System allow categorizing and classifying international transactions according to products, their origins and destinations. However, when it comes to the nature of these transactions, be it arm's-length trade or trade between related parties/enterprises, information is not as easy to gather. In addition questions as to how these goods are shipped from one location to another are difficult to answer and require some estimation, let alone which part of the trade is carried out in which currency.

Trade in goods between entities located in different countries with an intermediary organizing these transactions from a third country (merchanting) or goods sent abroad for further refinement (goods for processing) are at the border line between goods and services. International statistical frameworks attempt to distinguish these transactions into goods and services through the ownership criterion. In the case of merchanting (a service activity), BPM6 recommends that goods acquired and sold later are recorded as negative and positive credits, the net (margin) between both representing the merchant's gains. It is called goods under merchanting and falls within the scope of trade in goods (e.g. commodity trading).

In the case of goods for processing, for which no ownership change is taking place, that is, the owner (principal) is shipping the inputs abroad for refinement and the processor provides a service of refinement, BPM6 recommends recording of manufacturing services on inputs owned by others. These transactions fall within the scope of services transactions but are not distributed across products.

Both these borderline cases raise the question as to where to draw from trade in services statistics. In contrast to merchandise where the customs are the principal data source, different frameworks are used to compile trade in services statistics: the balance of payments for resident/non-resident trade (BOP), and the foreign affiliates statistics (FATS) <sup>2</sup>The Manual on Statistics of International Trade in Services (MSITS) is based on these two frames and recommends a phased implementation of both. These frameworks reflect trade between residents and non-residents and (BOP) and trade through direct investment enterprises (FATS/ownership).

---

<sup>2</sup> FATS originally referred to foreign affiliates in trade in services statistics (FATS).

The need for developing these frames stems from the need of trade negotiators, in particular the General Agreement on Trade in Services (GATS) which specifies four modalities (modes) through which services may be supplied: cross-border, consumption abroad, commercial presence and presence of natural persons. For example, a lawyer in country A can serve a client in country B through cross-border communication (internet), known as mode 1. The client could visit the lawyer in his home country (consumption abroad or mode 2), the lawyer could establish an affiliate office in country B to serve directly the client (commercial presence or mode 3), and lastly, the lawyer could travel to the client in country B to counsel him/her (presence of natural persons or mode 4). This example shows that one and the same service can be supplied through different modes. While the BOP offers information on mode 1, 2 and 4, FATS are used to measure mode 3.

The 2010 edition of MSITS took on board different conceptual definitions such as goods under merchanting or manufacturing services on inputs owned by others (formerly called goods under processing) as described above. Among other definitional issues that relate to the classification used for trade in services statistics, it also conceptualized mode 4 in more detail and included a chapter on the international supply of services by mode.

For mode 4, MSITS clarified that service providers who deliver services abroad within a predefined period (movement of natural persons or mode 4, i.e. through a services contract) should be distinguished from those seeking access to the labor market of a country (i.e. provision of labor). MSITS 2010 made clear that trade relating to mode 4 is included in resident/non-resident trade in services (and not under compensation of employees or personal transfers), and that it is important to separately identify mode 4 in international services transactions (Maurer A., Magdeleine, J. 2011)

Yet again, while the MSITS 2010 is now under consideration for implementation, economic business practices develop further. The BOP/MSITS has re-considered some issues relating to the change of ownership principle such as merchanting of goods, or manufacturing services. However, the role of services arrangers may also be an issue that may need further consideration in future revisions.<sup>3</sup>

When considering resident/non-resident trade, trade flows are registered gross for both goods and services. While macroeconomic equations when calculating the GDP according to the expenditure approach take the contribution of the foreign sector into account (X-M), calculations in net (value added) terms is a better mirror of economic reality.

The discussion of global value chains and their extension has been taken up by a WTO initiative called Made in the World. This initiative proposes to look at trade flows from a value added point of view. The statistical tool to do so is input-output tables. Through combining national input-output tables and import trade flows, World input-output tables can be compiled. The OECD/WTO database, released in January 2013 brings about interesting results.

First, the structure of world trade as known from conventional trade statistics changes. Services take a twice as high share (from about a fifth to more than 40 %). Second, to improve on the export competitiveness, firms need competitive imports. Third, bilateral trade balances (goods and services added) are resized when considered in value added terms. These considerations may also impact on the calculation of productivity as pointed out by

---

<sup>3</sup> Although the concept is different, this can be considered as a certain type of "merchanting of services". For further information, see <http://www.uncece.org/stats/documents/2013.01.sna.html>

Patrick Low (2013): ..."unidentified service activities in production raises questions about the accuracy of relative productivity measures".

### **What in future?**

In February 2010, the Geneva Global Forum on Trade Statistics posed the question "Do we have the right numbers?" In fact, a major outcome of this Forum was a Vision for the Future of International Trade Information Systems in 2010<sup>4</sup>.

Besides institutional arrangements, it makes clear suggestions on trade in services statistics. While BOP is still considered the main data source, it brings into play business statistics as a complementary data source that may allow compiling trade in services statistics in more detail. It further suggests to co-ordinate better data collection frameworks covering both goods and services for deriving production, trade and price information. FATS are considered as important component of this endeavor. An ultimate objective would be to have micro-data on trade in goods and services available in data warehouses to users, access to it governed by the respective confidentiality rules of the countries.

But beyond the wealth of data available these days, not to mention the new data source of "Big Data", "do we draw the right signals out of current statistics, i.e. do we bring understanding to the measurement?"

A global division of labor has emerged, benefitting of an efficient allocation of tasks across the globe for producing and trading. In this context, there is a responsibility for statisticians to explain their statistics which are still based on the nation-state. For example, when considering conventional trade data, there might be conclusions drawn in respect of global imbalances, but analyzing international fragmentation of production by estimating the weight of imported inputs in domestically produced exports may result in presenting these imbalances differently.

It is important to combine statistics of different silos or domains in a story to detect spin, that is, to make better use of all statistical information available (national accounts and input-output matrices, business statistics, etc.) in order to have a better view of global economic developments such as the relationship between domestic production and trade.

The tension between an increasing globalization and states with national borders is growing (Radermacher, W.J. (2012)). Hence, there might be a need for a new statistical instrument, for example, a new satellite account to complement national accounts which bring together a country's foreign activities with respect to trade (goods, services, intellectual property, capital (FDI), labor (movement of persons)) in one presentation, complemented with trade indicators measured in value added terms.

### **Bibliography**

Jara, A., Escaith, H. (2012), "Global Value Chains, International Trade Statistics and Policymaking in a Flattening World", *World Economics*, Vol.13, No.4, October-December 2012.

Jansson, J.O. (2013), *The Economics of Services*, 2<sup>nd</sup> edition, Edward Elgar Publishing Limited.

---

<sup>4</sup> Last accessed on 15 May 2013 at [http://search.oecd.org/officialdocuments/displaydocumentpdf/?cote=STD/TBS/WPTGS\(2011\)18&doclanguage=en](http://search.oecd.org/officialdocuments/displaydocumentpdf/?cote=STD/TBS/WPTGS(2011)18&doclanguage=en)

Low, P. (2013), The role of services in Global Value Chains, unpublished manuscript.

Maurer, A. (2006), International Trade in Services -- GATS, statistical concepts and future challenges, co-authored with Magdeleine, J. and d'Andrea, B., IAOS Conference, Ottawa, 2006, People on the Move: Measuring Environmental, Social and Economic Impacts Within and Between Nations 2006 (Canada).

Maurer, A., Magdeleine, J. (2011), Measuring Trade in Services in Mode 4, in Services Sector Reforms, Asia-Pacific perspectives, edited by P. Sauvé, G. Pasadilla and M. Mikic, ADBI Institute, December 2011.

Sturgeon, T. (2013), Global Value Chains and Economic Globalization -- Towards a New Measurement Framework, [www.globalvaluechains.eu](http://www.globalvaluechains.eu).

Radermacher, W.J. (2012), Zahlen zählen -- Gedanken zur Zukunft der amtlichen Statistik in Europa, in AStA, Wirtschafts- und Sozialstatistisches Archiv, Band 5, Heft 4, 2012.