Spanish approach for measuring trade in services by enterprise characteristics and by modes of supply

José A. Isanta Foncuberta*
National Statistical Institute, Madrid, Spain – joseantonio.isanta.foncuberta@ine.es

Abstract

International trade in services statistics (ITSS) have been usually disseminated by product and by partner country under the balance of payments (BoP) statistical framework. Nowadays, there are additional information demands to compile ITSS also by enterprise characteristics in order to better understand what kind of enterprises are more deeply involved in international trade and therefore playing a main role in the generation of value added in the so-called global value chains (GVCs). On the other hand, governments and international organisations need statistics on the international supply of services by mode in order to negotiate commitments and assess economic impact under the framework of the World Trade Organisation's General Agreement on Trade in Services (GATS). GATS identifies four modes: cross-border transactions (Mode 1), consumption abroad (Mode 2), commercial presence (Mode 3) and presence of natural persons (Mode 4). This paper presents a first and simplified approach to the compilation of ITSS by enterprise characteristics and partially by modes of supply (MoS), based in the first case, on micro-data linking techniques and, in the second, on adding a very simple question in the ITSS questionnaire with a very low impact on respondents' burden. Finally, it provides some conclusions and future plans for improvement.

Keywords: International Trade in Services Statistics; Balance of Payments Statistics; Extended Balance of Payments Services Classification (EBOPS); Global Value Chain (GVC)

1. Introduction

The production of statistical information on international trade in services (ITS) has evolved more slowly than that of trade in goods. Nevertheless, during the last decade, a great effort has been made to revert this situation because of the tertiarization of most developed economies, and the effects this has had on economic phenomena highly linked to globalization (international outsourcing of business functions, services offshoring, foreign affiliates expansion supported by foreign direct investment flows, factoryless goods production, etc.).

In the beginning, the BoP framework was the statistical domain in which these statistics were mainly developed based initially on « bank settlements » or other international transactions reporting systems, and later on sampling surveys. However, the increasing share of services in international trade and its enormous influence in GVCs, has obliged ITSS to go beyond the BoP framework. Although still playing a main role for BoP purposes, ITSS have evolved to become an important tool under the business statistics domain trying to produce information not only by product and/or partner country, but also by enterprise characteristics which has allowed it to strengthen its analytical value to better account for firm heterogeneity in GVCs. In this context, important international projects like the OECD-WTO Trade in Value Added (TiVA) initiative or the Eurostat's FIGARO project have raised awareness and have helped accelerate improvements in the underlying statistics (on ITS and also on goods) used in those projects, in order to provide information on the main features of traders involved in the generation of value added all over the world.

With that goal in mind, the Services by Enterprise Characteristics project, namely STEC, was endorsed by the European Statistical System Committee (ESSC) on a voluntary basis in 2012, following in the main, the features of its older brother, the Trade by Enterprise Characteristics (TEC) project previously

approved and compulsory for EU members, in the scope of the EU international trade in goods statistics. The development of STEC statistics represents a major step forward in integrating ITSS into business statistics. They provide information on enterprises which are services traders in a global context, classified by size (number of employees), main economic activity and ownership. Eurostat set up the STEC Task Force in 2013 with 10 participating countries to develop tables templates and methodology to achieve the project goals according to user needs.

The STEC tables to be delivered include the following 6 cross-tables for both trade flows (exports and imports) and by partner (intra-EU, extra-EU, World):

1. Trade value by activity[1]and size class[2]
2. Trade value by service category[3] and activity
3. Trade value by activity and ownership[4]
4. Trade value by activity (2-digit-Nace rev.2 level), including export intensity[5] / import intensity[6]
5. Trade value by service category and size class
6. Trade value by service category and ownership

There is also a 6-tables simplified approach for those new countries that wish to join the STEC compilation process more slowly. For both trade flows (exports and imports) and by partner (intra-EU, extra-EU, World), the trade value is required by: activity sector[7], size class, service category and activity, ownership, service category and size class, and by service category and ownership.

On the other hand, the supply of international services seen under a global perspective does not take place only by exporting/importing services to/from non-residents (compiled by BoP), but through the commercial presence of providers in the recipient's country.

[1] Main sections of NACE rev.2: A-B (Agriculture, forestry and fishing; mining and quarrying), C (Manufacturing), D-E (Electricity, gas, steam and air conditioning supply, water supply; sewerage, waste management and remediation activities), F (Construction), G (Wholesale and retail trade, repair of motor vehicles and motorcycles), H (Transportation and Storage), J (Information and communication), K (Financial and insurance), M (Technical, scientific and professional activities) , N (Administrative and support activities), Other (I ,L, O, P, Q, R, S, T, U), Non-attributed activity.

[2] Employees size class: 0-49 (0-9; 10-49), 50-249, +250, Non-attributed size class.

[3] Main EBOPS items: Manufacturing of physical inputs owned by others, Maintenance and Repair, Transport, Travel, Construction, Insurance and pensions, Financial, Intellectual property, Telecommunications, computer and information, Other business services (R&D; professional and management consulting; technical, trade related and other business services), Personal, cultural and recreational, Government goods and services, Non-attributed service category.

[4] Domestic control (indigenous / multinational, both with foreign control < 50% voting power or shares), foreign control (>50%), Non-attributed ownership.

[5] Export intensity (%) = Services exports value / Turnover (or production value for some activities)

[6] Import intensity (%) = Services imports value / Purchases

[7] Main activity sectors of NACE rev.2: B-E (Industry and energy), F (Construction), G (Wholesale and retail trade, repair of motor vehicles and motorcycles), H-I (Transportation and storage; accommodation), K (Financial and insurance), Other (A, J, L-U), Non-attributed sector activity

This overall perspective of ITS must be statistically covered and the ITSS by MoS project aims at reaching this ambitious goal strongly supported by WTO and other international organisations with regard to facing GATS negotiations. However, the statistical approach to MoS is not an easy task as the integration of several statistical sources could be needed depending on mode. Most of Mode 1 and Mode 4 might be mainly covered by ITS surveys, and a very small share of Mode 2 and Mode 3, too. Nevertheless, important EBOPS items like Travel mostly supplied by Mode 2 and that accounts for the main part of Mode 2, are not usually collected by ITS surveys but by others (tourist expenditure surveys collated at borders or in households, accommodation surveys, etc.). In the same line, these ITS surveys with a clear BoP purpose, leave out of the survey's scope the services trade performed by foreign affiliates. Foreign Affiliates Statistics (FATS) is the appropriate statistical domain to cope with the measurement of most of Mode 3. This variety of sources with different objectives, scopes and periodicities make the regular compilation of ITSS by MoS a challenging project not lacking in difficulties.

2. The Spanish STEC approach

The approach is based on the STEC simplified approach sketched in the introduction but with no breakdown by partner. The rationale behind this decision is that the ITS survey was originally designed for BoP purposes to provide data only by service item and partner country. Now, the STEC project requires the survey to additionally provide data by enterprise characteristics for a great variety of cross-tables that involve several variables and categories at different breakdown levels. This new demanding requirement entails, in our view, a deep previous analysis as regards the representativeness of the survey's sample for those cross-tables (without disregarding confidentiality issues), before producing whole STEC data.
For this reason, Spain has started with a still more conservative version of the STEC simplified approach, and will then move to standard STEC if possible.

As our approach uses ITS survey microdata linked to the National Business Register (NBR) to obtain STEC data, let's see first the main features of the survey to know the information that it provides and its scope, and the STEC construction, afterwards.

2.1. Featuring the ITS survey

Table 1: Brief description of Spanish ITS survey characteristics

CHARACTERISTICS	OBSERVATIONS
A.MAIN GOAL	Quarterly and yearly BoP statistics / Rest of the World Account (RoW) of National Accounts (NA)
B.OTHER GOALS	MoS, STEC and others related to business statistics domain such as TiVA
C.POPULATION	-Register of international payments provided by Payment Services Suppliers to the National Central Bank (NCB); Customs records
D.STANDARDS & CLASSIFICATIONS	MSITS 2010, BPM6, EBOPS 2010, and NACE rev.2
E.DISSEMINATION	-ITSS_QUARTERLY primary data in gross figures -ITSS_YEARLY data at a higher level of breakdown, STEC and MoS
F.PERIODICITY & COLLECTION METHOD	Quarterly survey on resident enterprises and other institutions by Computer-Assisted Web Interviewing _ CAWI (>80%) and PAPI
G.SAMPLE SIZE	Approx. 8,000 units (2016)

H.SAMPLING METHOD	Stratified random sampling by activity (8 categories), size (5 categories) and prevalence of ITS transactions in the past
I.YEARLY THRESHOLD	Transactors with all their individual transactions under €50,000 are not included in the population
J.PRODUCT COVERAGE	62 EBOPS 2010 items (excluding Travel) and some non-service items such as: Merchanting, Current transfers (Miscellaneous), Capital account (non-produced non-financial assets; capital taxes and transfers)
K.VARIABLES COLLECTED	Number of employees, main economic activity, flow (export/import), EBOPS item, partner country and predominant MoS
L.ITSS ADJUSTMENTS* FOR BoP / NA	***Adjustments are made at macro data level by NCB:*** Estimation of threshold's undercoverage, inclusion of Travel, inclusion of FISIM, estimation of insurance services, estimation of freight (cif/fob), inclusion of illegal activities and additional estimates of Government services.

2.2. Elaboration of STEC data

As mentioned before, the STEC project relies on micro data linking (MDL) techniques, i.e. linking ITS microdata obtained mostly from an existing ITS survey to other existing sources in order to characterize ITS traders by size, activity and ownership. It is apparently a « low-hanging fruit » project, where matching already existing information, is the main task.

The Eurostat's STEC Manual recommends to link ITSS micro data to NBR and other business statistics to get the activity, size and ownership of the trader as these variables are not usually available on ITS surveys. However, in the Spanish case, activity and number of employees are collected in the ITS questionnaire (see Table 1.K) which makes STEC easier. In fact, the initial allocation of size and activity is done before sample selection on the basis of the NBR information, as these two variables are stratification variables (see Table 1.H). Thus, when respondents fill in the questionnaire they find a pre-printed assignation of its enterprise activity based on NBR, that can be easily checked and modified (if necessary) by the respondent during the questionnaire's filling-in process. Likewise, the number of employees is a variable of the questionnaire, so we have the opportunity to check NBR and respondent information for size and activity after doing a definitive allocation.

On the other hand, all resident legal units operating in Spain have a unique fiscal identity number (NIF) which allows unequivocal identification of any legal unit throughout all business and administrative registers.

As ownership is not collected in the questionnaire but it is included in the NBR, an MDL process to match ITSS with NBR by NIF is performed to allocate ownership to each sample unit (e.g. matching rate for 2014 was close to 99%). For ownership, we make an extra distinction with respect to Eurostat's recommendation (see footnote 4, p.2) between affiliated and non-affiliated enterprises prior to determining domestic or foreign control.

There is another important difference with respect to the standard STEC. In the Spanish case we calculate total STEC figures based on total values provided directly by the ITS survey, without taking into account any of the adjustments made to get final BoP/NA data (see Table 1.L), as happens in the standard STEC where total STEC values must correspond to total BoP_Services value. The reasons are, first, because these adjustments are made at macro data level and the STEC project is based on MDL, and secondly, because it does not make any difference in terms of information gain to include the value of these adjustments just to increase the non-attributed data share accounted for in the STEC tables.

As regards the inclusion of ITSS grossed-up figures in STEC, the Manual states that the trade in services which is not directly reported by enterprises but calculated from grossing up methods, should, as a standard, be treated as non-attributed data for the compilation of STEC tables, in line with other areas that cannot be directly linked with STEC. However, if the representative sample is drawn using a stratified random sample approach, as in the Spanish case, one could distribute the grossed up trade on dimensions that are comparable with the stratification used. In our case, ownership is not one of the dimensions considered for stratification, in contrast to size and activity, however we treat grossed up ownership data in the same way as they had been reported by enterprises, i.e., they are not added to the non-attributed ownership category, but distributed among STEC tables accordingly.

3. The Spanish approach to ITS data by MoS

MoS is a statistical requirement deeply treated in MSITS 2010 with a specific whole chapter that sheds light on possible ways of compilation. This Manual recognises that « allocating the international supply of services to the different modes is difficult as a service can often be produced, distributed, marketed, sold and/or delivered through many modes »[8].

The Spanish ITS survey was designed for BoP purposes where MoS were not initially taken into account. Nevertheless, there is a MSITS item entitled *GATS modes of supply and balance of payments statistics*[9] that fits well with our first approach to MoS starting from a BoP-oriented ITS survey. Our simplified approach relies on the view on facilitating the analysis and compilation of service transactions between residents and non-residents by MoS, recommended in MSITS 2010: *« If estimates cannot be provided for the subdivision of the transaction value by modes, the transaction may be allocated to the most important mode in terms of time and resources associated with it »*[10].

In order to set-up this approach we made the decision to ask respondents to allocate transactions themselves in the ITS survey. Following the MSITS recommendation, we introduced MoS in the least burdensome way for respondents, consisting in just asking them to insert a cross sign (X) in the box of the dominant mode for the transactions reported in the questionnaire by flow, EBOPS item and partner country as shown in Table 2, that simulates a fictional excerpt of the questionnaire.

Table 2: MoS in the ITS survey's questionnaire

Service item (EBOPS 2010)	Code	MoS 1	2	3	4	Country	Export value in € (idem. for imports)
Air passenger transport	02	X				France	123,000,000
Manufacturing services	38		X			Morocco	236,000

In this way, respondents do not have to break down transaction values by MoS in the questionnaire. They only have to put a cross in the predominant mode. For the sake of simplicity, more than one cross by register line is not allowed so 100% of the export / import value is assigned to the marked mode, irrespective of the participation of other MoS in the provision of the services registered. Instructions for respondents on how to fill in MoS are given in the questionnaire. This approach allows us to collate ITS data by MoS for two flows (export /import), 62 EBOPS items and all countries, though we disseminate cross-tables by MoS for the 15 main EBOPS items and 20 geographical areas /countries. Although it is

[8] MSITS 2010, Chapter V, p. 116, para. 5.22
[9] MSITS 2010, Chapter V, pp. 121-128
[10] MSITS 2010, Chapter V, pp. 126-127, para. 5.56

not perfect, the approach represents a great improvement with respect to the simplified and automatic allocation of BoP data to modes of supply recommended in MSITS 2010 (Table V.2)[11], if no information on MoS from respondents or other sources is available.

4. Conclusions and future plans

The development of STEC and MoS statistics in a current environment of economic globalization is one of the most challenging projects for trade and business statisticians. Spain has started to step forward to get some related estimates, but a lot of work still remains to accomplish our goal of getting full figures for STEC and by MoS, according to the proposed standards.

In the case of STEC, further work on the sample representativeness of the ITS survey and confidentiality as regards STEC tables, is still pending. For MoS, as mentioned in the introduction, the ITS survey only collects services transactions between residents and non-residents and its scope is limited to non-tourist services. This makes our current approach to MoS incomplete, since it leaves out EBOPS item Travel (most of Mode 2) and all services transactions of foreign affiliates in their host countries (most of Mode 3).
Future plans to achieve a full coverage of MoS are to:

- Include Travel figures from BoP as supplied entirely by Mode 2, without excluding the purchase of goods included in Travel item.
- Take Outward FATS statistics, estimate what share of affiliates' turnover[12] corresponds to sales of services in the host country and how to distribute this estimate by EBOPS item in order to integrate this information with that of Mode 3 coming from the ITS survey. The plan combines STEC and FATS information to get all these estimates. It lies in using information from STEC figures, to estimate affiliates' sales of services in the host country from turnover figures collected in FATS[13].
- Proceed with Inward FATS in the same fashion.

5. References

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[11] MSITS 2010, Chapter V, pp. 132-133, Table V.2
[12] FATS regulation only obliges to report on affiliate's turnover by NACE activity and host country. Neither further breakdown of that turnover into goods or services, nor by residence of customers is compulsorily required.
[13] For the reason mentioned in footnote 12, some procedures on FATS turnover figures are needed to estimate first, the share of services on total turnover sold to residents in the host country, and then, the distribution of these services by EBOPS item. As STEC relates trade value to turnover, and also economic activity (NACE) and service category (EBOPS), some useful ratios can be computed to apply to FATS turnover figures.