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Globalization and Global Value Chains in External Sector Statistics: Measurement and Challenges



Paper for discussion

François Mouriaux¹

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1 Introduction

In the last decades, different factors associated to globalization, including the liberalisation of trade², the development of information technology and the decrease of transport costs, have allowed companies to spread their operations across countries, leading to international production chains, also called Global Value Chains (GVCs).

A GVC is “a network of interlinked stages of production for the manufacture of goods and services that straddles international borders” (Cheng, et al., 2015). GVCs are a consequence of firms’ optimization of the location of production processes in order to benefit from countries’ advantages regarding different criteria: workforce, legal environment, taxes, proximity with suppliers or clients. International organisation of production implies an increasing part of intermediate products (intended to continue on in the production process) in global trade rather than final products (intended for consumption) as well as intra-group trade and foreign direct investment, which could put into question the traditional statistical measures.

During the past months, the issue of a “compacting” of GVCs has been discussed, as a hypothesis to explain the so-called “global trade puzzle”, or “the new normal of global trade”³, that is, a deceleration of the growth in international trade below the pace of growth of the world economy. The dynamics of GVCs appear also very much related to financial stability issues – because they influence the relationship between imports and exports and therefore, how unbalanced current accounts rebalance – and social and welfare issues – because they influence the locations of job creations, the definition of skills and the allocation of income via the perpetual redesign of the value chain.

On one side, external statistics have to describe and measure globalization and the development of GVCs. Policy makers and other users tend to be more demanding regarding external statistics which are needed to bring to light the effects of globalization. External statistics are used to study the impact of GVCs on many matters such as the evolving relation between imports and exports, sectorial specialization, FDI attractiveness, changes in firms’ characteristics and strategies (including

¹ This paper has been prepared with the essential support of Gwenaëlle FEGAR and Guillaume COUSIN.

² Favoured by the reduction of trade barriers following the General Agreements on Tariffs and Trade initiated in 1947 and the creation of the World Trade Organization in 1995.

³ For instance : IMF (2016) “Global Trade : What’s behind the slowdown”, World Economic Outlook. OECD (2016) “Cardiac arrest of dizzy spell : why is the world trade so weak and what can policy do about it” (OECD WP3 – sep 2016).

outsourcing and offshoring) and impact on the labour market and the distribution of income. But on the other side, globalization and GVCs challenge the compilation of traditional indicators and make them more difficult to construe. This is for instance the case for trade flows and bilateral balances because of the increasing imported content of exports implied by GVCs (Cezar, et al., 2017). It makes the measurement of competitiveness – a core concern of policy makers at the national level as well as a regular part of the IMF’s surveillance work – more complicated. Therefore, “we have a strong sense of profound changes in the world economy, and see signs of it everywhere, but cannot fully describe the new patterns and structures that are taking shape, not least because the official statistics at our easy disposal were created for other purposes and in simpler times.” (Sturgeon, 2013).

As one of the main objective of external sector statistics is to enable a better understanding of global trade dynamics and countries’ interdependencies and to provide a detailed picture of trade patterns, this paper is intended to give an overview of the current available measures of globalization and GVCs derived from external sector statistics - including the Banque de France’s ongoing work - and related challenges.

2 Datasets required to analyse the insertion into global value chains and main issues

2.1 External sector statistics

To our knowledge there is no commonly agreed definition of « external sector statistics », although this concept is frequently used. It can be found as an entry on the websites of many central banks for instance.

A first approach would be to define the “external sector statistics” as the various data sets that are normalized in, and/or explicitly articulated with, the 6th Edition of the Balance of Payments Manual. This would encompass: the balance of payments, the international investment position, the additional analytical position data (BPM6, appendix 9), the external debt, the external components of monetary and financial statistics and the reserve assets. Such definitions can be found, for instance, on the website of the European Central Bank. It general refers more to the financial account components than to the current account components of the external sector.

A second approach would be to regard as external statistics any dataset that would provide, as a satellite account, information starting from the BPM6 basic framework but with extensions opening wider possibilities to analyse globalization. Implicitly, the presentations on the websites of the Banque de France, the Bundesbank, and the Banca d’Italia seem to go in this direction.

None of these definitions is fully satisfactory, the first one being too restrictive, and the other one being partly misleading, to the extent that satellite accounts – such as data on multinational firms, on tourism... – are both “external” and “domestic” datasets. It could be noted also that, in order to improve the measure of interconnectedness, the G20 Data Gaps Initiative includes a range of datasets that are either domestic, either cross-border or include the two dimensions (notably, the National Accounts).

In this paper, we define “external statistics” as balance of payments data – including international merchandise trade and international services trade data, international investment position data,

foreign direct investment data, foreign affiliates statistics data, transactions by enterprise characteristics datasets, Trade-In-Value-Added datasets, Services-by-mode-of supply datasets. These are, in our view, the datasets that should be developed in a systematic manner with a firm anchor to the BPM6 in order to support the analysis of global value chains.

2.2 Balance of payments data

The balance of payments, as “a statement that summarizes economic transactions between residents and non-residents during a specific time period”⁴, is the most widely established dataset available – as a starting point - for measuring and analysing GVCs within a worldwide consistent methodological framework. The sixth edition of the Balance of Payments and International Investment Position Manual (BPM6) has introduced statistical standards modifications in order to better capture the complexity of cross-border transactions. As stated in the BPM6, “globalized production processes have become more important, so treatments have been developed to provide a fuller and more coherent picture of outsourced physical processes (i.e., goods for processing) and sales and management of manufacturing that do not involve physical possession (i.e., merchanting)” (IMF, 2009).

With BPM6, the principle of change in economic ownership becomes central in determining the time of recording a transaction (see BPM6, part 3.41), all the exceptions remaining in BPM5 being eliminated. This led to review the characterization of transactions, some of them previously regarded as goods flows becoming recorded in services and *vice versa*. This is the case for **global production arrangements, especially merchanting and goods for processing**, while “Factoryless goods producers”⁵, which is not an item in the taxonomy of BPM6, is a category that has emerged from the experience of compilers, as a way to include production arrangements that would not be properly reflected in the existing categories.

Box: short memo about Merchanting and Goods sent abroad for processing

“Merchanting” refers to the production arrangement where a good is purchased by a resident from a non-resident and subsequently resold to another non-resident, without the good entering the merchant's economy (ESA 2010, para 3.164d). Merchanting was previously considered as a resale service while under BPM6, it is now classified with goods, as an import and re-export, even if the goods do not enter the customs territory.

When goods are sent abroad for processing, part of the production process is outsourced to a firm in another country while the input materials as well as the intellectual property associated with the production process is owned by the resident firm. Under BPM6 (and ESA 2010 and SNA 2008), this production arrangement is recorded as the purchasing of a manufacturing service from a non-resident and not as an international goods transaction (because the economic ownership of the implied goods does not change).

According to Eurostat, the factoryless goods producer (FGP) “is an extreme case of goods sent abroad for processing, where the physical transformation of the goods is 100% outsourced. An FGP arrangement occurs when a resident firm owns the intellectual property (technology, know-how, product design, etc.) used in the production process but fully outsources the material

⁴ Source: IMF, Balance of Payments and International Investment Position Manual, Sixth Edition, 2009 (IMF, 2009)

⁵ See detailed definition: <http://ec.europa.eu/eurostat/web/economic-globalisation-and-macroeconomic-statistics/global-production-arrangements/>

transformation process (either in the same country or abroad) required to produce the output”. Recording the transactions in which FGPs are involved is an issue that has already been discussed at the BOPCOM (IMF, 2014). Has the transaction between the FGP and its manufacturer to be recorded as a transaction of goods or as manufacturing services? If it is a transaction of goods, then another question arises about how balance of payments should account for the buying of the manufactured good by the FGP and its sale to the final customer, as it could be considered as general merchandise or merchanting of goods.

Improvements in the taxonomy of services are essential in reflecting properly the diversity of flows generated by the fragmentation of production along multi-country value chains. As regards services, the MSITS^[1] goes further than the BPM6 while keeping within its conceptual framework. This complementary manual especially recommends an *Extended Balance of Payments Services* classification (EBOPS) which goes into great details regarding the different types of services. It is very helpful for the analysis of globalisation because, thanks to the correspondence table between the EBOPS and the statistical classification of products by activity (CPA 2008)^[2], matching balance of payments data with other sources at a highly disaggregated level is possible. A serious challenge is however to achieve a good measurement at each level of this detailed nomenclature when relevant for the compiler’s economy.

A further way to improve the way GVCs are taken into account would be to **better link revenues with trade balance**. Apart from producing in its home country and then exporting its manufactured goods to another country, a firm can also settle a manufacturing entity abroad in order to supply foreign markets. In the first case, an export of goods is recorded. In the second case, the settlement of an entity abroad is recorded as a direct investment and the income generated by this entity may provide direct investment revenues for the parent firm but no exports are recorded. Therefore, the integration of an industry in GVCs can be accompanied by an increase in FDI and FDI income, as shown in the case of the French pharmaceutical industry by a recent study by the Banque de France (Cezar, 2017). Building a **global picture of current account by enterprise** or group of enterprises, taking into account both the goods and services trade balance and primary income would therefore help to further improve the understanding of GVCs.

2.3 Direct Investment Data and Foreign Affiliates Statistics

While the BPM5 recommended classifying primarily direct investment according to the directional principle, BPM6 relies on the asset/liability presentation in the BoP standard components and presents the directional principle as a supplementary item. In the asset/liability presentation, direct investment statistics are organised according to whether the investment relates to an asset or a liability for the country compiling the statistics. The directional principle is a presentation of direct investment data organized according to the direction of the direct investment relationship (BPM6 paragraph 6.42). The two presentations are in particular differentiated by the treatment of reverse investments (when an affiliate invests in its parent).

The asset and liability basis “was recommended to make FDI statistics consistent with other macroeconomic statistics in general and with the statistics for other functional categories of

^[1] Manual on Statistics of International Trade in Services. The full text is available at the following link https://unstats.un.org/unsd/publication/Seriesm/seriesM_86Rev1e.pdf

^[2] Available in Eurostat metadata database RAMON:

investment in the BOP and IIP statistics” (OECD, 2014). Perhaps more importantly, from a central bank viewpoint, the asset-liability basis prevents to neglect the first counterparty risk and provide the elementary macro-data to help in the re-composition of the multiple roads of cross-border transactions. The BPM6 insists on the fact that “data on an asset and liability basis are consistent with monetary, financial, and other balance sheet data, and thus facilitate comparison between the data sets”. It reduces the risk of bilateral asymmetries and should therefore facilitate country comparisons as well. By providing the gross composition of a country’s assets and liabilities, this presentation eases macroeconomic analysis, especially regarding a country’s vulnerability to market conditions.

However the asset/liability basis provides incomplete information about the ultimate source and destination countries of FDI and it inflates recorded flows⁶ (OECD, 2015). It makes it difficult to appraise the access to foreign markets by direct investors. Data on a directional principle basis is needed for measuring the development of GVCs because it assists in understanding the motivation for direct investment and takes account of control and influence (BPM6, paragraph 6.44).

As finding out the ultimate recipient of FDIs is currently not easily achievable, it is recommended that countries compile a geographical breakdown of inward investment stocks according to the Ultimate Investing Country (UIC), thereby identifying the country of investors that control at the last resort the resident subsidiaries. It appears to be a more meaningful measure of FDI to deepen the knowledge of the complete chain of ownership and to identify round tripping⁷. In 2016, an update of the Balance of Payments Regulation of the European Union⁸ has been released. It includes a roadmap to compile FDI statistics based on the ultimate ownership concept and FDI statistics distinguishing greenfield FDI transactions from takeovers⁹.

The analysis of GVCs through FDIs could be supplemented using Foreign Affiliates Statistics (FATS). As direct investment statistics encompass financial transactions between the investor and the investment enterprise and each other’s positions, FATS would provide information about the economic activities of the affiliates, such as the turnover or the number of person employed. FATS differ from FDI statistics with regard to the affiliate reporting scope. FATS are based on control (majority ownership of capital or voting rights) whereas FDI statistics meet the criterion of a shareholding of minimum 10 %. Thus, FATS cover a subset of firms covered by FDI statistics. The combination of these data sets, together with progress in data-sharing via an FDI network including a critical mass of countries – under consensual governance and practical arrangements that are yet to be found -, would enable to compile a range of indicators measuring the modalities and degree of internationalisation of multinationals.

⁶When a multinational invests through several countries, each flow into and out of each country is recorded even if the capital is just passing through.

⁷Round tripping is a specific case of pass-through funds. For the definition and more details, see CDIS Guide at the following link <https://www.imf.org/external/np/sta/pdf/cdisguide.pdf>

⁸Regulation (EU) 2016/1013 of 8 June 2016 amending the regulation (EC) n° 184/2005 on Community statistics concerning balance of payments, international trade in services and foreign direct investment.

⁹The decision to make the compilation a regular process is subjected to a merits and costs analysis, based on the outcome of pilot studies that will start on 1st, January 2018.

2.4 Transactions by Enterprise Characteristics Analysis

Trade by enterprise characteristics (TEC) and Services trade by enterprise characteristics (STEC) data are aimed at providing more detailed information about the actors responsible for trade. The OECD TEC database provides data on international annual trade in goods broken down by different categories of enterprises. Enterprises are distinguished by country, size (number of employees), and sector of economic activity or level of concentration. This detailed data allows for a deeper analysis of the impact of trade on other economic variables such as the current account and changes in the relative shares of the components, employment, production and value added. While TEC data is focused on the trade of goods, Eurostat launched a project for measuring services trade by enterprise characteristics (STEC). Both TEC and STEC meet policymakers' and researchers' demand for more comprehensive data on international trade and globalisation. In particular, TEC and STEC allow distinguishing the roles of small and medium enterprises in trade versus multi-national enterprises.

2.5 Trade in Value Added data¹⁰

When production is fragmented in several locations worldwide, it becomes relevant to allocate value added along global value chains across countries. As traditional external statistics proved insufficient to identify the increasing share of export value generated by imported intermediates, trade in value added indicators are used to analyse this phenomenon. Measuring trade in terms of value added consists in stripping out the imported content from the value of exports. This approach reallocates trade flows between countries as well as bilateral balances and it reduces the total amount of flows, without altering the overall trade balance of each country. It provides a more detailed picture of trade patterns to complement bilateral or sectoral trade balances.

The two main databases currently used for measuring external trade flows in value added are WIOD (World Input-Output Database) and TiVA (Trade in Value Added). WIOD is made in the framework of a consortium of institutions funded by the European Commission. TiVA is a joint initiative from the OECD and the WTO. Both have been developed with a common focus: providing an additional tool for better analysing the impact of globalisation on international trade, environment and social and economic development. And both use international input-output tables built on the basis of harmonized national input-output tables. As there is no indication on the domestic or international character of intermediates in officially published national input-output tables, national accounts (supply and use tables) and international trade statistics are used to estimate bilateral flows. Available metadata and methodological papers (Timmer, et al., 2015) give further details about the methods of estimation and the partition coefficients of each database, which differ in some respects¹¹.

Furthermore, the coverage is not the same either: WIOD makes available data for 43 countries¹² and 35 economic sectors from 2010 to 2014¹³ whereas TiVA database covers 61 countries and 34 economic sectors for the years 1995, 2000, 2005, 2008, 2009, 2010 and 2011. Finally, while WIOD

¹⁰ This section has been prepared in part on the basis of a prior memo drafted by Rafael Cezar, Banque de France.

¹¹ Regarding WIOD, see <http://www.wiod.org/home> ; as regards TiVA, see <http://www.oecd.org/sti/ind/tiva/tivasourcesandmethods.htm>

¹² Data are completed by an estimate for the residual part of the world.

¹³ A prior release is available covering 40 countries and 35 sectors for 1995-2011

disseminates the input-output tables from which various trade in value added indicators can be derived, TiVA publishes directly some selected indicators (input-output tables from the OECD, called Inter-Country Input-Output (ICIO), recently became available too). WIOD also makes available data on labour and capital inputs and pollution indicators at the industry level that can be used to build further indicators.

TiVA Datasets as well as TEC and STEC datasets can be combined with socio-economic indicators and contribute to address issues such as the impact of globalisation on inequalities, employment or job qualifications¹⁴.

2.6 Trade in services by modes of supply data

The production of services seems less likely to be fragmented than manufactured products, especially because their consumption often cannot be separated from their production and thereby it requires the physical proximity between the supplier and the consumer. However, even if the manufacture of goods remains the crux of GVCs, services (especially business services, transport and logistics) are deeply involved in the value creation through GVCs. They “account for over half of value creation in GVCs in many OECD countries and over 30% in China” (OECD, 2013). Therefore, particular attention should be paid on current initiatives on services by modes of supply that are actually developing in the perspective of providing a regulatory framework for liberalisation of services trade. These statistics are aimed at distinguishing international exchanges of services depending on the way the service is actually supplied: cross-border supply (mode 1), consumption abroad (mode 2), presence of natural persons (mode 4) and commercial presence (mode 3), i.e. the setting-up of a subsidiary abroad. Traditional external statistics cover these four modes of supply differently, and do not include all of them¹⁵.

3 Overview of the Banque de France’s research

3.1 The balance of payments scope *stricto sensu*

The Banque de France uses different data sources in order to capture trade in goods and services and FDI, for the purpose of establishing the balance of payments. The development of GVCs has brought about an intensification of trade, notably in services and prompted an evolution of the external statistics compilation system which mixes direct reporting and surveys.

The full direct reporting system is aimed at recording the international transactions of the largest companies. Full direct reporters are industrial and commercial corporations as well as airlines and insurance and reinsurance companies engaging in foreign transactions of any type (except trade in goods) for amounts that exceed a threshold currently set at EUR 30 million. Approximately 450 enterprises are direct reporting entities. Companies have to report all their cross-border transactions except transactions in goods which are reported to Customs. They also report their trade credits and financial assets and liabilities. Data collected include the economic nature of transactions and the counterparties’ countries of residence (Banque de France, 2015). The full

¹⁴ See for instance : “the changing landscape of global trade and some implications for employment and inequality – Handout by Catherine L. Mann, OECD, Jackson Hole Economic Symposium – 24, August 2017.

¹⁵ For more details, see Manual on Statistics of International Trade in Services 2010 at the following link: [https://unstats.un.org/unsd/tradeserv/TFSITS/msits2010/docs/MSITS%202010%20M86%20\(E\)%20web.pdf](https://unstats.un.org/unsd/tradeserv/TFSITS/msits2010/docs/MSITS%202010%20M86%20(E)%20web.pdf)

direct reporting system is used for several purposes. It enables the Banque de France to derive the trade in goods recorded in balance of payments (based on the change of ownership) from customs data (based on cross-border movements). It is also one of the data sources used for the compilation of trade in services and records enterprises' revenues including intra-group flows.

The Banque de France also uses a survey in order to estimate the international trade in services of companies whose cross-border transactions are below the EUR 30m threshold. This supplementary survey complements the information obtained from direct reporters by providing information about the trade in services of smaller enterprises. The survey is conducted every year since 2009 on 1,000 companies plus a sample of 4,500 enterprises selected in a sampling frame of 46,000 enterprises meeting certain conditions (imports exceed EUR 75k or exports exceed EUR 200k).

The current recording of direct investments is based on the disclosure requirement of transactions exceeding EUR 15 million. However, in the context of globalization, an increasing number of transactions are executed by new entities, sometimes small and medium-sized enterprises and this may bring the census approach to limitations – as it is costly to manage increasing volumes or reports and increase the volume of quality monitoring to identify lacking reports. A recently launched project is aiming at assessing the merits and costs of a survey-based approach.

3.2 Additional fields

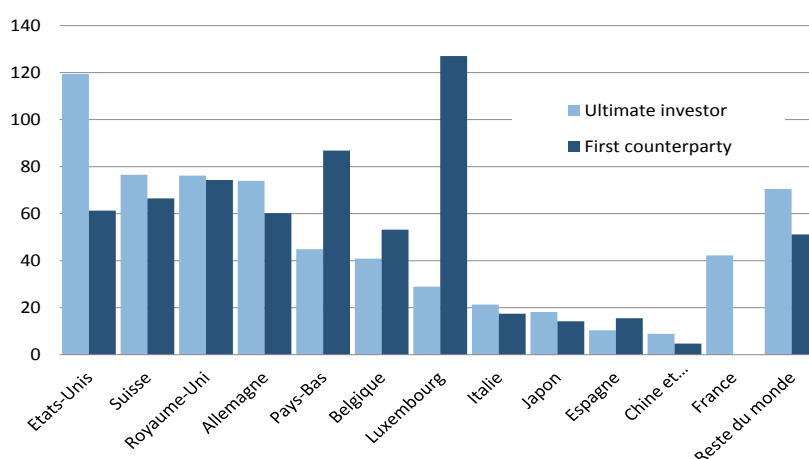
The Banque de France publishes studies linked with the development of GVCs. The purpose of these studies is threefold: experiment new methods and new datasets to update our understanding of the data properties, the shortcomings and the priority areas of our statistical work ; extract key results from complex datasets and make them available to the public ; provide the users of data with examples of good practices regarding the use of external statistics datasets.

In doing so, Banque de France also contributes to the research on the current account deficit of and loss of market share of the French economy in the past years, the drivers of competitiveness and associated policy responses.

3.2.1 Direct Investment and FATS: geographical structure by country of residence of the ultimate investor and typologies of internationalisation

Since 2009, following the OECD's recommendations, the Banque de France establishes a breakdown of inward foreign direct investment stocks by country of residence of the ultimate controlling parent, and publishes it on a yearly basis.

Chart 1: Main stocks of direct investment in France in 2015



Source: The French Balance of Payments and International Investment Position Annual Report, 2016

Identifying the ultimate controlling parents' countries of residence reveals that French groups ultimately own a significant share of the stocks of inward foreign direct investment, accounting for EUR 42 billion at the end of 2015, or almost 7 % of the total.

After reclassification in accordance with the country of residence of the ultimate controlling parent, the shares of the United States, Switzerland and Germany increase by 58 billion, 10 billion and 14 billion respectively, placing them with the United Kingdom in the top four investors in France, with 19 %, somewhat above 12 % and slightly less than 12 % of the total.

In contrast, the direct investment stocks from "transit" countries decrease, with Luxembourg's share reduced by 98 billion, the Netherlands' by 42 billion and, to a lesser extent, Belgium's by 12 billion and Spain's by 5 billion.

Within the agreement with INSEE, Banque de France compiles the FATS of the financial sector (banks and insurance). As regards the banks, FATS data have been combined with Balance of Payments data (notably, services and income), and International banking statistics data, in order to characterize the internationalisation of the French banking sector (Devillers & Parra, 2017). A typology has been established (investment abroad with the purpose of delivering universal banking services with a local basis of depositors, with the purpose of locating back-office and logistical activities, with the purpose of providing investment banking and asset management services. The combination of datasets enabled to measure to which extent there was a "country rotation" of the direct investment countries, and compare various measures of international diversification. This work provided an additional perspective to the classical, more prudential orientated country-risk analysis.

3.2.2 Trade by enterprise characteristics (TEC)

On the occasion of the 2016 OECD Working Party on International Trade in Goods and Services Statistics (WPTGS), the Banque de France presented its experimental work on using VAT information to improve Services in Trade by Enterprise Characteristics (STEC) analysis. The presentation¹⁶ focused on compilation methodology and therefore underlined various data-linking problems, such as missing data or scope discrepancies. Another issue addressed was how to follow

¹⁶ The presentation media is available at the following link:
[http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=STD/CSSP/WPTGS\(2016\)39&docLanguage=En](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=STD/CSSP/WPTGS(2016)39&docLanguage=En)

creations, mergers and deaths of firms under consideration in order to keep data accurate and updated.

Ever since, the Banque de France has published an article entitled *France's International Trade in Services* (Castor, et al., 2016) which presents some results from the exploitation of STEC. In recent years, the soaring growth of French international trade in services has been particularly pronounced in activities linked to the emergence of GVCs. "Exports are much stronger for companies also importing services. This suggests that, as with industry, including service activities in international value chains reduces the entry cost for international trade or is a factor in making them more competitive¹⁷."

Besides, the Banque de France has recently published a case study about the integration of the French pharmaceutical industry in GVCs (Cezar, 2017). Using the WIOD databases and balance of payments data, this article shows how the opening of French pharmaceutical industry to GVCs translates in external statistics. This opening is revealed by the sharp increase of the imported value added in the industry exports and the rise of the exported domestic value added. Regarding external statistics, the study notices that exporting firms make greater use of imported inputs and that the integration of the French pharmaceutical industry in GVCs has been accompanied by a rise in direct investment flows (both inward and outward) and in revenues. Studies of this kind highlight the consequences of globalization and help to understand the influence of GVCs on external statistics but require a significant amount of dedicated work since they are based not only on standard external statistics but also on the linking of different sources and the use of micro-data.

3.2.3 Value added indicators

The Banque de France has also published different articles using value added indicators in order to measure global competitiveness and to assess France's integration in GVCs. A working paper (Cezar, et al., 2017) discusses the measure of global competitiveness by exports market shares, highlighting the fact that this indicator "does however not allow distinguishing whether exports contain substantial domestic value added or a large proportion of imported inputs". Furthermore, it does not take into account firms' performance in their domestic market. The authors therefore build a global market share indicator based on value added data that takes into account both export and domestic performance. The paper shows that, using this indicator, the dynamics of market shares of most European countries within the manufacturing value chains converge. This is explained by the decorrelation observed between export and domestic performance. The article finally shows that the role of services is growing in GVCs. Another article (Cezar, 2016) measures France's integration in GVCs with value added statistics. In comparison to balance of payments statistics, the use of value added indicators puts into perspective both the geographical and sectorial usual findings. The weight of European partners appears less important in France's foreign trade figures, to the benefit of other major economies (United States, China). Value added indicators also allow identifying the sectors where the exported value added is originated. In the case of France, "the main source of gross exports is the manufacturing sector, but the main source of the exported value added is the service sector. Services are therefore a major contributor to France's international competitiveness".

Considering value added indicators in addition to gross trade statistics has implications on the policy use of external statistics. The above mentioned work conducted at the Banque de France suggests that some sectors, especially services, export indirectly. Manufactured exported goods contain a

¹⁷ The article was published in the Banque de France Bulletin and is available at the following link: https://publications.banque-france.fr/sites/default/files/medias/documents/quarterly-selection-of-articles_41_2016-spring.pdf#page=17

high share of services-related value added, which does not appear in gross trade statistics. Therefore, “trade in value added changes the notion of competitiveness” and challenges IMF’s surveillance work under article IV because the standard competitiveness indicators (for instance the real effective exchange rate), based on gross trade flows and consumer price indexes, does not seem appropriate to the context of increasing supply chain trade (IMF, 2013).

3.2.4 Services by modes of supply

The Banque de France is currently undertaking a study to deliver a measurement of France’s international trade in services by modes of supply. The method relies on the Manual on Statistics of International Trade in Services (UN, EU, IMF, OECD, UNCTD, UNWTO, WTO, 2010): partition coefficients are applied to each service item of the balance of payments with the aim of appraising modes 1, 2 and 4 while FATS are used to estimate services supplied through commercial presence. The allocation keys proposed in the Eurostat’s study¹⁸ has been the starting point of the Banque de France’s approach. However, every coefficient has been reassessed, in conjunction with compilers of the France’s services account, to take into consideration French specificities. Furthermore, the allocation has been applied to a more detailed level of services classification (59 items). The first results are to be published by the end of 2017.

Even if it is based on quite strong assumptions (allocation keys for modes 1, 2 and 4 and use of a correspondence table in order to match the balance of payments classification, based on products and the FATS classification, based on activity), this work has the merit of providing estimates without increasing the reporting burden for private firms.

The Banque de France also leads a reflexion on whether an *ad hoc* question about the mode of supply should be added to the existing surveys to services exporters. This would enable a more accurate allocation of balance of payments flows to the different modes of supply, but it might be more time-consuming, involving changing the survey content, the necessary related processing adaptations and also communication with respondents.

4 Requirements: solutions implemented at the Banque de France

4.1 Key organisational principles

The data collections are organised along two lines of expertise: financial and non-financial sectors. Within each division, large units are managed on a specific basis, with staff dedicated to an in-depth analysis and frequent relation with the large businesses. As regards the non-financial sector, key issues regarding statistical classifications and reporting options for large cases are discussed on an ad-hoc basis with INSEE in order to build a common view on their statistical treatment.

Deriving from this principle, the data model is integrated: the respondent has to report on both the current account and financial account operations to his referent expert. This choice is helpful as regards for instance the discussion on the nature of a counterparty, resident or non-resident, because the respondent is getting used over time with the balance of payments concepts, be they related to the current account or to the financial account. In addition, the expert in charge of a large case develops an understanding of the global business model and the interaction between the

¹⁸ The study is available at the following link : http://ec.europa.eu/eurostat/statistics-explained/index.php/Services_trade_statistics_by_modes_of_supply

business model and dynamics of cross border flows. Within the non-financial enterprises division, besides the large cases unit, a unit is dedicated to the engineering of surveys. The proximity between the Large Unit cases and the Surveys Unit is instrumental in adjusting the living frontier between the two approaches.

4.2 Data sharing agreements between the Banque de France, the NSO and Customs

The compilation of external statistics involves several statistical offices. It goes without saying that the collaboration between statistical offices is a requirement for building a complete dataset of external statistics and for managing the consistency between external statistics and other statistics, especially national accounts. It becomes all the more relevant when the concern of making statistics fit for analysing GVCs becomes prominent. The Banque de France and the national statistical office (INSEE) concluded a data sharing agreement in 2010. Shared data include public administration financing statistics, government debt, financial accounts of institutional sectors, enterprise statistics (including FATS) and balance of payments statistics. The terms of the agreement set calendar and confidentiality related issues. The sharing of individual enterprise data between Banque de France and INSEE is a valuable asset for compiling balance of payments statistics (on Banque de France's side) and the Real Sector National Accounts (on INSEE's side).

In the same vein the Banque de France also has set up a data sharing agreement with the customs administration, which is in charge of establishing trade balance of merchandises.

Data sharing and working side by side give the opportunity to discuss survey engineering and to look into and develop concrete expertise on the treatment of some specific large cases.

In addition to these data sharing agreements focused on the production of standard statistics, close collaboration between the different statistics producers has also been key in the above-mentioned pilot exercises or specific studies related to the development of GVCs. For instance, the study of the integration of the French pharmaceutical industry in GVCs followed a joint study made by the Customs administration, INSEE and Banque de France based on micro-data linking. The current experiment of building a dataset of services by modes of supply is also based on data-sharing with INSEE related to the FATS dataset.

4.3 Best practices sharing, International Organizations' role

The sharing of best practices is necessary for adapting external statistics to the context of globalization. In this matter, international organizations play a key role by stimulating and proposing different projects related to the challenges addressed to external statistics.

For instance the OECD initiated the writing of a handbook on linking trade and business statistics (Ahmad, 2017) whose development was recently discussed in the Working Party on Trade in Goods and Services Statistics (WPTGS) of March 2017. Linking trade and business statistics enables to identify more precisely the characteristics of the firms that engage in trade or foreign investment. Related business statistics include TEC, STEC, SBS and FATS. The aim of the handbook is to address the statistical challenges of this linking. The OECD also developed jointly with the WTO the Trade in Value Added (TiVA) initiative in order to improve policy makers' understanding of trade flows. At the European level, EUROSTAT has launched similar initiatives that offer member countries the opportunity to share practices, discuss methodological options and go ahead with more advanced compilation initiatives.

International organisations offer two other “services” that are essential to progress on the measurement of globalization : workshops on bilateral asymmetries and “pooled datasets”, such as the IMF Coordinated Direct Investment Survey, the World Tourism Organisation statistical database on tourism and the World Bank remittances database, that facilitate the use of mirror data.

Although it is focused on improving the monitoring of financial stability, the G20 Data Gaps Initiative sponsored by the FSB and the IMF generates positive externalities for the understanding of globalisation in the real sector. As mentioned earlier, measuring the impact of Global Value Chains on the domestic economies necessitates the inclusion of income. Quite often, income is at least partly derived from the estimation of financial stocks, to which a certain yield is applied. Obviously the G20 DGI provides guidance to make this measure more reliable and open new possibilities to compile geographical breakdowns of assets and liabilities, from which a geographical breakdown of income can be derived. The G20 DGI also supports the roll-out of infrastructural elements (notably, the LEI) enabling to compile advanced measures of FDI and identify the ultimate investor.

4.4 Close relationship with policy makers

A close relationship with policymakers is also relevant in order to identify their expectations regarding external statistics. The Banque de France accordingly provides to the French Treasury informative data about French key exporting sectors on a regular basis. While maintaining the independence of the statistical function, strong links with policymakers are also desirable to develop a prospective view of policy needs, identify the priority datasets and develop a vision of globalisation based on official data.

4.5 Close relationship with economists and academics

The use of external statistics data by economists has been promoted by the setting up, internally at Banque de France, of a “datalake” enabling economists of Banque de France to access to granular, entity level data (subject to the authorization for the specific period of research by an ad hoc committee). Banque de France has also set up an Open Data Room enabling external researchers to access anonymised, entity level data. Access to the Open data room is subject to an authorization by an ad hoc committee. A representative from Banque de France DG Statistics is part of the committees. The review of the projects provides unique information on the most recent trends in research and helps developing a forward-looking approach to the evolution of the data sets. It also provides some guidance on the prioritisation of the data quality management, basing on the most demanded data or on the user’s feedbacks about anomalies in the data.

The dialog with the economists and researchers is facilitated to the extent that, as far as possible, the statisticians in the Banque de France DG statistics are not pure compilers and are encouraged to develop analysis. In some cases, they are part of projects with central bank economists or academics.

5 Discussion points

5.1 Which data model?

The analysis of globalisation is based on multiple sources. Some sources are narrowly related to the balance sheets of companies, which do not include the breakdown of residence as a native data; others are related to census-based surveys; others are related to sample-based surveys. Questionnaires can be of varying frequencies, depending on the size of the reporting entity, the instrument or the coverage of counterparty countries. Some questionnaires may be specialised by

instrument (cross-border flows related to technical reserves of insurance companies, derivatives ...). Customs data are not firm level, but product level data. This heterogeneity reflects the adaptation of the tactics of data collection to the nature of the relationship with the respondents, and the need to optimize the reporting burden.

However, the expansion of datasets measuring globalisation is an invitation to revisit the current landscape. It is therefore important to decide whether the existing – generally fragmented – data models have to be continued and incrementally improved, or whether integrated models have to be promoted.

In an integrated model, the balance of payments taxonomy is more or less transmitted to the reporting entity. The reporting entity has to derive from the accounting data the flows and stocks vis-à-vis the rest of the world, both financial and non-financial. An ultimate vision of the integrated model would be the definition of a multinational component, whereby multinational firms would report to each statistical authority a “per-country” reporting perfectly adjusted, therefore eliminating asymmetries related to multinational cross-border flows.

Although this approach may be practicable for very large entities that would be able – and agree - to dedicate to this statistical reporting the scale of resources that systemic banks, for instance, devote to regulatory reportings, it raises the risk that the inevitable adjustments would be randomly spread in the sub-components of the reporting. This “black-box effect” may deprive the statistician from the information delivered by the “errors and omissions” and the “bilateral asymmetries”, and/or transfer from the statistician to the reporting entity the decision to allocate entity-level errors and omissions.

The integrated data model would also presumably have to be a one-size-fits-all data model. The number of reporting firms would be defined so that the coverage rate is appropriate whatever the finality of the data collection. However, depending on the items of the balance of payments, differentiated coverage rate can be defined – for instance, a large sample for international trade in services due to a fragmentation of the sector, a reduced sample for income or FDI if it appears more concentrated, etc. This may raise issues regarding the optimisation of the reporting burden.

All in all, an integrated data model provides a basis to develop a medium term strategy regarding the adaptation of the data collection system, help to identify data gaps and build bridges between the various domains (FDI, FATS, IIP ...). Beyond that the multifaceted and ever-evolving aspects of globalisation would advocate to **keep the generally prevailing “building blocks” bespoke approach**, assuming that the blocks are not perfectly adjusted and that one of the responsibilities of the statistician is to compile the datasets by adjusting the blocks.

- 1. *What are the views of the Committee members about the articulation between a global data model***
 - responding to the need of guidance for the design of easy-to-integrate external statistics datasets*
 - and the practitioners’ “building blocks” prevailing solutions?*

5.2 Should new categories of operations or new classifications be introduced?

As regards the current account, transactions related to global value chains can be recorded as trade in goods, trade in services, and notably, as merchanting (goods) and processing (services). However, new production arrangements emerge, such as the concept of factory-less goods production (FGP). While FGP have been the trendy issue in the years 2013 – 2016, a new one has emerged, digital trade. No doubt that, in the years to come, other arrangements will trigger methodological discussions. From a practitioner’s viewpoint, the lower the number of categories, the better. From a user’s viewpoint, the richer the typologies, the better. Some reasons would invite **not to establish additional categories**:

- More categories mean more reporting burden,
- More categories could go along with additional discrepancies according to countries : subtle differences between close categories may lead to different choices of classification,
- More categories mean more constraints in the public dissemination of data, due to an increased likelihood of falling below the statistical confidentiality thresholds.

It must be acknowledged that, regarding the frontier between merchanting and processing, quasi-similar operations may be classified in goods, or in services. It is worth discussing the opportunity to **group all these operations related to the transit of goods in the context of global value chains within the sole category of “trade in goods”**. This option would probably bring benefits regarding the measurement of trade in goods in a pluriannual annual perspective, avoiding “structural shifts” from merchanting to processing and the other way round; it would also bring more homogeneity in international comparisons.

If an additional dimension had to be introduced, the **distinction between intragroup trade and trade vis-à-vis third parties** would be a natural candidate. The breakdown of the current account, and the financial account, according to the intragroup dimension, would shed a new light on a range of issues: the share of intragroup trade in the extension of global value chains, intragroup trade as a driver or an amortizer of global trade fluctuations, intragroup trade as a driver of balance of payments disequilibrium or rebalancing, etc.

2. *What are the views of the Committee regarding:*

- *Introducing, or refraining from introducing, new categories of complex production arrangements?*
- *Regroup all operations related to the transit of goods in the context of global value chains within a single category “trade in goods related to cross border production arrangements”*
- *Introduce a distinction between intragroup trade and trade vis-à-vis third party in key items of the current account?*

5.3 Status of datasets

As at today, the balance of payments and international investment position datasets are recognized as the official external statistics. They provide reference data for the IMF surveillance, they are a key component of the analytical framework of the rating agencies. As far as Europe is concerned, balance of payments indicators contribute to the scoreboard underlying the monitoring of imbalances by the Commission.

The development of the related datasets supporting the analysis of globalisation – additional dimensions in the FDI data, FATS, TEC, STEC, TIVA, service by modes of supply – include adjustments, assumptions, that are required to overcome data limitation while provide analysts with enriched datasets. In some cases these adjustments are carried out by the international organisations because these adjustments stem from the pooling of data from many countries. This is notably the case for the TIVA database, where the bilateral balances for the participating countries will differ, in many instances, from the bilateral balances series of the balance of payments.

Yet, these datasets become progressively reference datasets. It is likely that, over the medium term, once these datasets are more firmly established and intensively used, user's will need terms of reference regarding the status of these datasets and to which extent they call on the responsibility of the national compilers.

- 3. *What are the Committee's views on the qualification of these datasets?***
- 4. *Would the distinction between "official statistics" and "institutional statistics based on official data" help in improve the users' awareness about the nature of the datasets?***

5.4 The principle of change of ownership

According to the current change of ownership principle, a cross-border trade in goods –that is, a good that physically goes cross-border – is not necessarily recorded as a transaction in goods. Conversely, a good that does not cross the frontier is in some cases recorded in the balance of payments – when the change of ownership involves a resident and a non-resident.

The application of the ownership principle to complex production arrangements as well as choices in the organisation of multinationals can lead to debatable recording choices: activities could even be allocated to the GDP of a country while, de facto, being carried out to a very significant extent in another country if the location of the factors of production or the originating source of income is considered. This can be the case when the headquarters and effective management of a production process, as well as the location of the legal rights of intellectual property or other capacities such as the formal ability to conclude contracts, is located in country A while the effective production factors are located in country B¹⁹.

This issue highlights the limitations of the "change in ownership principle" for establishing an enriched, multi-perspective measurement of globalisation.

We would certainly not go as far as suggesting that the 4th Edition of the Balance of Payments Manual was better fitted to cope with the new modalities of the globalisation. This "change of ownership principle" is instrumental to solve many classification issues and, to take a contemporaneous example, the "change in ownership principle" is not far from the IFRS 15 standard updated in 2014 (and the sister US standard ASC 606), both applicable as at 1st, January 2018. Among other qualities, the change in ownership principle provides the adequate guidance to measure long term contracts and projects which are also an important modality of complex production arrangements.

¹⁹ This matter is discussed, for instance, in chapter 1 of the Manual « The Impact of Globalisation on National Accounts » co-edited by UNECE, EUROSTAT and the OECD (2011)

However the “cross border principle” – understood as a principle based on the observation of the location of the factors of production (human and capital resources) from which income originates, could provide the most relevant “proxy reference” to define, on a case-by-case basis, the appropriate statistical treatment enabling to match in a fair way a production arrangement to the involved economies.

5. ***Have Committee members experienced situations when the reference to the “cross-border principle” provides the most relevant key to understand and classify a global production arrangement and attribute to the place of income generation the value added and related cross-border flows?***

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