

Global Value Chains in official business statistics¹

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Abstract

Both the *broadening* of globalisation, i.e. the increasing number of emerging markets, and the *deepening* of globalisation in terms of splitting up production processes globally, including the supporting services functions, poses new challenges upon policy makers to identify the new needs for evidence on these complex activities and their impact on the economy, and upon statisticians to produce relevant and reliable data covering the complexity of national and international business relations. Within the ESS a broad range of activities and products have been included to address the information gap on the features, the dynamics and the impact of global value chains (GVC) at the level of the enterprise and enterprise groups. This paper focuses on the work in progress and its intermediate results in two main areas of research: 1) the conceptual framework of the GVC structure and 2) the methodological implications of integration and harmonization of enterprise level data using existing administrative and survey data. Results from both areas are promising steps forward in developing a comprehensive, yet parsimonious statistical framework on GVC.

1. Introduction

As Pascal Lamy states in his foreword in the WTO report *Global Value Chains in a Changing World*: “Any discussion today of international trade and investment policy that fails to acknowledge the centrality of global value chains (GVCs) would be considered outmoded and of questionable relevance.” (Elms & Low, 2013, p. xv). It is precisely this centrality which led to the development of new statistics on offshoring and outsourcing within the EU in the last decades, based amongst others on earlier academic work of Kaplinsky (2003), Gereffi and Fernandez-Stark (2011) and Sturgeon (2013).

Offshoring and outsourcing are one of the basic dynamic processes of economic globalisation, driven by lower trade and investment barriers and cheaper transportation and communication due to constantly improved information and communication technologies, causing lower unit costs and allowing a global unbundling of value chains (Baldwin, 2013). As such offshoring and outsourcing can be seen as two legs of entrepreneurial strategy, one on optimization of location (through offshoring and relocation) and one on more general control strategies of the value chain through outsourcing (Mudambi & Venzin, 2010; Contractor et. al, 2010).

¹ Views expressed in this paper are those of the authors and do not necessary reflect the policies of Statistics Netherlands and/or Statistics Denmark.

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Globalisation, i.e. economic globalisation⁴, pushes the integration of statistics based on the measurement of domestic activities forward: “It has thus been, and continues to be, a very challenging task for national statistical institutes [...], to compile and provide information on international activities and affiliates and contractors abroad.”⁵

The Eurostat report “Global Value Chains and Economic Globalization - Towards a New Measurement Framework-“ (Sturgeon, 2013) identifies several measurement challenges. The national systems of official statistics are mainly designed to measure domestic activities, and less transnational activities. The dynamics of globalisation also requires the introduction of new concepts, not only to get more complete information on cross-border activities, but also to refine the national information as firm heterogeneity plays a greater role in understanding the interconnectedness of economies. (OECD, 2013).

This paper focuses on the work in progress and its intermediate results in two main areas of research: 1) the conceptual framework of the GVC structure and 2) the methodological implications of micro data linking.

2. Conceptual framework of the GVC structure

In the analytical work on cross-border activities two important concepts are identified: the concept of the globalized enterprise and the concept of business functions. The globalized enterprise refers to the degree in which an enterprise is involved in international trade, investments and ownership. The concept of business functions refers to the way an enterprise has organised its production from inputs to outputs.

The globalized enterprise

The growing demand for information on determinants and effects of globalisation requires the development of a standardized and harmonised concept of the international orientation of an enterprise or enterprise group. This international orientation is based on the dimensions type of trader, ownership and type of investor (Luppés & Van Brummelen, 2008). This concept enables statisticians to analyze the national and international component of business dynamics in terms of economic growth, employment and innovation, with respect to the different types of statistical units. As such this concept is now also part of the international work on global value chains, and is also referred to as ‘globalized enterprise’ (Nielsen & Luppés, 2012; Statistics Denmark, 2013).

The general definition of the concept of international orientation in many cases is restricted to the dimensions of type of trader, geography and ownership⁶. International orientation of an enterprise is then defined as the intensity of international connectedness of an enterprise in terms of the presence of trade

⁴ Economic globalisation in this article refers to the general process of globalisation involving the enterprises in the non-financial business economy.

⁵ http://ec.europa.eu/eurostat/statistics-explained/index.php/Global_value_chains

⁶ Linkages related to cross border financial flows are out of scope at this moment, as not all information is available at the level of the individual enterprises.

(imports, exports both goods and services) and the degree of influence and control across borders.

In practical terms this implies that the Business Register (or its derived analytical datasets) should contain a basic set of dummy variables indicating whether or not the enterprise is active in respectively imports, exports of goods, and information on enterprise structure. Combined with information on the origin and destination of trade at EU level, the basic breakdown for ‘international orientation’ is outlined in figure 1.

Figure 1. Breakdown of international orientation

Type of trade activity	Two-way trader			Exporter			Importer			Non-trader
<i>Geo. spread of trade</i>	<i>Intra- and extra-EU</i>	<i>Extra-EU only</i>	<i>Intra-EU only</i>	<i>Intra- and extra-EU</i>	<i>Extra-EU only</i>	<i>Intra-EU only</i>	<i>Intra- and extra-EU</i>	<i>Extra-EU only</i>	<i>Intra-EU only</i>	-
Ownership										
Domestically controlled without foreign affiliates										
Domestically controlled with foreign affiliates										
Foreign controlled (with/without for. affiliates)										

Using this backbone of harmonized or standardized statistical units at enterprise level which are flagged on the dimensions of trade in goods and ownership enables researchers to make a distinction between nationally oriented and internationally oriented enterprises. Given these variables it is quite easy to select the relevant subpopulations which form the basis for comparisons and analysis of globalisation effects.

By utilizing the control dimension, the composition of exporting enterprises can be analyzed, showing the importance of MNEs in the exports of a given country, being either domestic or foreign owned MNEs. See figure 1 in the annex for an illustration.

The concept of Business Functions

A basic concept in understanding the dynamics of outsourcing and offshoring is the concept of business functions to describe the basic components of business organization (Nielsen, 2008; Sturgeon, 2013; Baldwin, 2013). Business functions can be distinguished in so-called core or primary functions and support functions. Nielsen (2008) describes the *core business function* as the primary activity of the enterprise and will in most cases equal the main

activity of the enterprise. It includes production of goods or services intended for the market/for third parties carried out by the enterprise and yielding income. The core business function equals in most cases the primary activity of the enterprise. It may also include other (secondary) activities if the enterprise considers these to comprise part of their core functions. The *support business functions*, also called ancillary activities, are carried out in order to permit or facilitate production of goods or services intended for the market/for third parties by the enterprise. The outputs of the support business functions are not themselves intended directly for the market/for third parties.

The core function of the enterprise can be associated with the industry or activity code(s) and associated products (goods or services), while support functions can be associated with the various business services that enterprises can either provide internally or source externally. The 2012 International Sourcing & Global Value Chains Survey (Eurostat) distinguished in total six functions:

1. Core business function (production of goods and/or services for the market and/or third parties);
2. Support functions:
 - a. Distribution and logistics
 - b. Marketing, sales services and after sales services, including help desks and call centres
 - c. ICT services
 - d. Administrative and management functions
 - e. R&D, engineering and related technical services.

A main strength of the business function approach is its potential to identify support services and other intangible inputs to the enterprise such as R&D or IT services. Even if international sourcing is mainly carried out by manufacturing enterprises, support services functions are more commonly sourced internationally than core functions (see figure 2 in the annex). This pattern emphasizes the need for establishing statistical tools to capture these services.

In the course of time the classification of business functions changed slightly, due to specific research questions and country or industry specific issues (Brown, 2008). In Nielsen & Sturgeon (2014) an overview is given of the classifications used in the 2007 International Sourcing Survey, the above mentioned 2012 International Sourcing Survey (both from Eurostat), the 2010 National Organizations Survey (USA), and the 2009/2012 Survey of Innovation & Business Strategy (Canada). A final classification of business functions to be used for statistical purposes is expected to be adopted by the UN expert group on classification and also to be integrated into the new EU Framework Regulation of Integrated Business Statistics as part of a future tri-annual mandatory survey measuring GVC related topics.

3. Micro data linking

Applying the concept of the ‘globalized enterprise’ in the analysis of offshoring and outsourcing implies the use of micro data linking (MDL)⁷, a strategy successfully applied in national and international research (Alda, Bender & Garnter, 2005; Van der Veen, 2007; Fortanier, Korvorst, & Luppès, 2012; ESSnet GVC, 2013). The basic driver behind this development is twofold. On the one hand the analysis of cause and effect requires MDL which implies breaking through the traditional ‘stove pipes’ of statistical production. On the other hand there is the practical argument of minimizing respondent burden (Nielsen & Luppès, 2012). Micro data linking (MDL) has been proven to be a successful analytical strategy in the development of statistical information on the international dimension and impact of economic globalisation at country level⁸.

MDL serves as an appropriate method to analyse the current most addressed research questions on cross border activities (‘what kind of enterprise is trading’ instead of ‘what do countries trade’), firm heterogeneity in SNA (‘what kind of enterprises contribute to GDP’) and the organisation of cross-border production processes (‘what parts of the business organisation move up or down the value chain’).

The methodology of MDL is applied in the most recent project of Eurostat in which nine different datasets are linked. This project, carried out by 7 countries compiled datasets using input data from nine different sources over the period 2008-2012 with the national Business Register as backbone. The sources (in short SBS, CIS, R&D, Trade, Investments, GVC) are characterized by containing harmonized definitions based on EU regulations. The data will be used to conduct micro-level economic analyses of essential questions relating to social and economic conditions, e.g. which factors generate economic growth or how international activities of enterprises influence their economic or job creating performance. First results will be published at the end of 2015.

4. Conclusions

To ensure that business statistics will not become outmoded and will be capable of measuring the importance and impacts of GVCs, we propose that official business statistics focus on including the following elements in the future development:

- Promote the MDL approach as a future tool for statistical production by carrying out new (pilot) projects – also addressing the

⁷ With MDL we refer to direct matching using unique ID keys. Other methods of linking, using parsing methods or random imputation strategies are not used (Cox et al, 1995) In a practical sense this means that the enterprise unit in the Business Register is linked with the FATS variable ‘UCI’ (foreign or domestic controlled, with and without foreign affiliates) and with a variable derived from International Trade in Goods in order to define four categories (no trader, only importer, only exporter, two way trader).

⁸ For more information on the MDL work within the ESSnet GVC projects see the methodological reports:

- http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Global_value_chains
- <http://www.cros-portal.eu/projectdetail/1527>
- <http://www.cros-portal.eu/content/global-value-chains-0>

methodological issues and with a global dimension – not only European participation

- Introduce the notion of globalized enterprises in the future production of business statistics as part of an internationally agreed set of globalisation indicators
- Introduce an international classification of Business Functions
- Develop a better coverage of the services sector, including the introduction of Business Functions which can mainly be seen as a tool to capture services elements in the production processes of both goods and services producing enterprises
- Include the International Organisation and Sourcing of Business Functions Survey in the upcoming European regulation on business statistics (FRIBS)

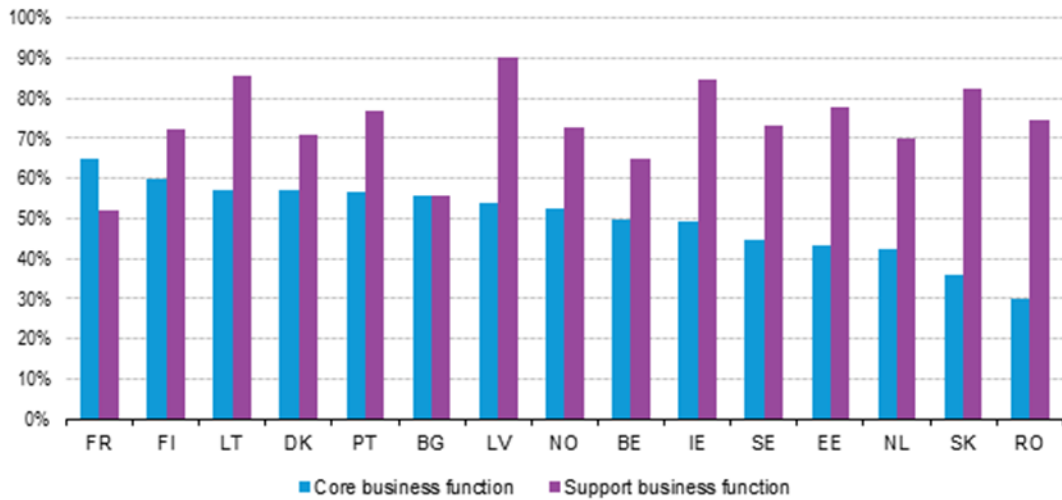
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Annex 1

Figure 1. International sourcing broken down by core and support functions. Per cent of enterprises sourcing internationally, 2009-2011



Source: Eurostat Survey on International Organisation and Sourcing of Business Functions 2012

Figure 2. Export shares broken down by nationality of control, 2012

