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##### **Outcome of the in-depth review of global manufacturing**

### **In-depth review of global manufacturing**

#### **Note by Statistics Netherlands**

##### *Summary*

The Bureau of the Conference of European Statisticians reviews each year selected statistical areas in depth. The purpose of the reviews is to improve coordination of statistical activities in the region of the United Nations Economic Commission for Europe, identify gaps or duplication of work, and address emerging issues.

The current note was used as a basis for the in-depth review of global manufacturing by the Bureau in November 2011, excluding the technical annex. The full paper is available at <http://www.unecce.org/stats/documents/2011.11.bureau.html> (in English only). The outcome of the review is provided in document ECE/CES/2012/3/Add.1.

## I. Background

1. In 2007 the Conference of European Statisticians (CES) established an Expert Group on the Impact of Globalisation on National Accounts. This group was asked to examine how globalisation affects economic statistics and national accounts in particular. In the beginning of 2012, the findings of the expert group were published in a Guide *The Impact of Globalisation on National Accounts*, covering a wide range of aspects of globalisation. The Guide provides recommended solutions and best practices on how to improve the design, processing and use of source data in the compilation of national accounts statistics.

2. In the course of drafting the chapters on industrial processing (chapter 5), merchanting (6) and international transactions in intellectual property (7) quite some attention was paid to the phenomenon of global manufacturing. At a rather late stage in the drafting process it was decided that the issue of global manufacturing would deserve a chapter (8) on its own. Although in a short period of time many aspects of global manufacturing were discussed and presented in this chapter, some important issues were not sufficiently dealt with and needed further attention. On this background the CES Bureau requested Statistics Netherlands to further elaborate on the issue of global manufacturing.

3. This paper summarizes the main findings of the ‘in-depth review’ of the treatment of global manufacturing. Indeed the review covers broader range of issues related to global production processes and is not restricted purely to manufacturing. Section II gives an introduction to the complexity of the phenomenon. Section III provides a brief overview of existing international manuals, classifications and activities that address issues related to global manufacturing. Section IV highlights the main unresolved conceptual and measurement challenges and suggests future work. Section V includes a proposal to the Bureau to consider establishing an expert group to develop guidance on the unresolved issues related to global manufacturing.

4. The technical annex attached to this paper provides an overview of examples of global manufacturing as introduced in chapter 8 of the *Guide on the Impact of Globalisation on National Accounts* and further details on the outstanding conceptual issues identified in section III of this paper.

## II. The issue of global manufacturing

5. Driven by vertical de-integration and outsourcing of non-core activities, and by the desire to enter overseas markets, enterprises are increasingly transferring parts of their production processes to other countries. This phenomenon, also referred to as global manufacturing, is characterised by the increasing economic importance of multinational enterprises. With the growing free trade and, as a result of this, a more globalized economy, cross-border production arrangements have become more common and influence the economies of most countries.

6. Global manufacturing complicates the compilation of national accounts, balance of payments, and other economic statistics. It combines many different international activities of enterprises such as sending semi manufactured goods abroad for processing, merchanting, and the transferring of rights in intellectual property products. For statistical purposes, ideally, a breakdown of globally organized production chains on a country-by-country basis would be needed. In reality, business reporting does not always provide the required information to do so. An additional complexity is that, due to transfer pricing,

profit records on a country basis may be tax driven and, therefore, not represent the output and value added of an economy.

7. The lack of a complete and internationally agreed typology of global manufacturing arrangements as well as the missing guidelines on how to treat them cause a lot of confusion among official statisticians around the world. The following points could be highlighted in this regard:

(a) Further clarity is needed on the principles to determine the economic owner of the inputs, outputs and intellectual property products, particularly in the case of affiliated enterprises;

(b) Where production is outsourced, it is important to properly distinguish between “goods for processing” and “merchandising” treatment. This choice may have major implications for recorded trade in goods and services, and uncertainty about the underlying nature of the transactions may introduce discrepancies between national statistics;

(c) Another point that needs follow up is the statistical measurement of the domestic economic activities of multinational enterprises. Recently, several national statistical institutes installed ‘large and complex cases units’ to determine in a customised fashion the economic activities of multinational enterprises carried out in the domestic economy. International exchange of experiences would certainly help to improve the effectiveness of these dedicated units.

8. As global manufacturing has notable economic and social implications it should be carefully treated in statistics and sound and comprehensive international guidance is essential. The new accounting standards, the *System of National Accounts 2008* (2008 SNA) and the *Balance of Payments Manual* (BPM6), are better aligned to the economic reality of global manufacturing than their predecessors (1993 SNA and BPM5) and they provide some recommendations on global manufacturing. However, these international guidelines need further clarification on how to treat global manufacturing in practice.

9. The newly endorsed guide *The Impact of Globalisation on National Accounts* discusses in more detail the typology of global manufacturers and the implications of international accounting standards. It underlines a number of important issues to be carefully examined.

### III. Progress made

10. According to the new international guidelines, the 2008 SNA and BPM6, the recording of import and export of goods is strictly based on the transfer of economic ownership. This has led to simplifications, for example, foreign affiliates engaged in industrial processing are no longer expected to report the value of inputs and outputs they do not own. They merely have to report the processing fee, received from the principal, for the industrial service provided. However, the guidance of the 2008 SNA and the BPM6 on treating complicated cross-border corporate structures, such as multi-territory enterprises, special purpose entities and major construction projects carried out abroad, is less clear-cut.

11. The new revision 4 of the International Standard Industrial Classification (ISIC) provides guidance on the classification of global manufacturers. They are to be classified solely based on ownership of input materials. The ISIC considers a unit that outsources physical production activities but owns inputs a manufacturer, while a unit that outsources production without owning the inputs is a trader. The classification based on ownership of materials is consistent with the 2008 SNA, which recommends goods sent abroad for processing, without change of ownership, to be recorded as import of services.

12. In 2007, the Conference of European Statisticians (CES) established an Expert Group to develop a Guide *The Impact of Globalisation on National Accounts*. The Guide was endorsed by the CES in June 2011 and published in the beginning of 2012. Chapter 8 on global manufacturing examines the issue and draws threads from the previous three chapters on industrial processing (chapter 5), merchanting (6) and international transactions in intellectual property (7). Although many aspects of global manufacturing are discussed and presented in this chapter, some important issues are not sufficiently dealt with and need further attention.

13. The International Merchandise Trade Statistics manual (IMTS 2010) requires the value of materials sent abroad for processing to be recorded as exports of goods whether change in ownership takes place or not, and the processed goods subsequently returned to be recorded as imports of different goods. The cross-border recording of imports and exports differs from the recommendations of 2008 SNA and BPM6. A recent Global Forum on Trade statistics recommended further integration of trade and other economic, environmental and social statistics. The Global Forum website is dedicated to the linking of International Trade and Global Business Statistics, including best practices in linking customs data to business registers.

14. In the spring of 2011, Eurostat set up a Task Force (TF) on Goods for processing. The TF will take as a starting point the main findings and recommendations of the Guide *Impact of Globalization on National Accounts*. It will go into further details to study the main consequences of the implementation of the new treatment of goods sent abroad in ESA 2010; to identify the need for new data sources; to promote the exchange of experiences and; to propose some practical solutions to the main difficulties encountered.

15. The 2012 International Association for Research in Income and Wealth (IARIW) Conference will have a parallel session (8A) on 'how to capture multinationals in the national accounts', organized by Mark de Haan and Alice Nakamura.

16. There appears to be demand for using national accounts statistics to analyse global value chains. The OECD database of input-output tables is currently used for analyses of global structural change based on value added. Another example is the World Input-Output Database (WIOD) initiative to develop databases, accounting frameworks and models to increase our understanding of the relationship between economic growth and social cohesion. It goes without saying that eventually this kind of research will substantially benefit from the consistent and internationally harmonised recording of economic activities of multinational enterprises.

## **IV. Outstanding issues and proposals for further work**

17. The described developments have advanced the understanding of the accounting aspects of global manufacturing activities and brought international accounting standards closer to the economic reality of businesses. Progress has been made in addressing some of the practical measurement issues. There are, however, a number of conceptual and measurement challenges that need further attention. Many of these challenges are identified as major research priorities in the Guide *Impact of Globalization on National Accounts*. A brief summary of the challenges is provided below. For further explanations, please see the Annex.

### **A. Conceptual issues**

18. Currently, there is no common typology of global manufacturing arrangements. More guidance in this area would certainly help to strengthen the international

comparability of economic statistics such as statistics on international trade in services (and particularly the recording of intellectual property products) and subsequently the national accounts and balance of payments. Global manufacturing arrangements may vary in respect to concrete output specifications and the ability or willingness of the principal and supplier to take responsibility for the production process. Important aspects to be taken into account are the role of technology along the value chain and knowledge management.

19. Guidance is needed on identifying the economic ownership of material inputs, intellectual property and outputs for understanding global value chains. Ideally, the economic engagement of all players in the global production chain should be characterized. The 2008 SNA provides only rough guidance on how to determine economic ownership of products and assets, including intellectual property, within the various establishments belonging to one multinational enterprise. To correctly interpret the transfer of economic ownership, more substantial guidance on how to record intra-company movement of products is required. Transfer of risk is considered an important precondition, but the kinds of risks are not explained, i.e. the risk of bankruptcy, liability of product failure and catastrophic events such as oil spills. Also the distinction between legal and economic ownership needs clarification. In many cases economic ownership will coincide with legal ownership. However, the distinction may become particularly important in trying to understand the nature of transactions taking place within multinational enterprises.

20. According to the current international guidelines, ownership of material inputs is the one decisive factor to determine the kind of economic activity of an enterprise outsourcing its production abroad. When owning the inputs the enterprise is supposed to be engaged in manufacturing. If not the enterprise is considered a merchant. Particularly for the so-called factoryless producers, this distinction based on material inputs seems inappropriate. Enterprises that are generally acknowledged as producers of high-tech consumer products will be considered as traders, despite the fact that they may substantially contribute to the value of consumer products. The criterion currently used does not take into account the increasing importance of intellectual property in global value chains.

21. More careful interpretation of the guidelines on defining the economic ownership of inputs (and outputs) within multinational enterprises is needed. Purchasing the inputs is an important indication but not a decisive one. The producing unit may be purchasing its inputs on own account, while the parent ultimately controls the amounts to be purchased and chooses the provider. The ownership of material and other inputs could also be shared between the unit responsible for the processing and the principal. The exchange of experiences between national accountants on how to apply these guidelines in practice is considered highly needed.

22. Recording of intra-company transfers of intellectual property products (IPP) and their capital services is very complex and requires further practical guidance. From a conceptual viewpoint determining the economic ownership of IPP, especially within multinational operating companies, is particularly a point of concern. When multinational enterprises carry out research and development (R&D) in centralised units, and do not apply direct invoice methods to recover costs, headquarters or parent companies may by default be considered the economic owner. For the largest business R&D performers with centralised R&D units and several (foreign) affiliates, making supplementary (rough) estimates in the supply-use framework for intra-company R&D capital services flows may be worthwhile undertaking, especially when statistical sources fail to support mapping these (international) intra-company flows of R&D. The intangible nature of intellectual property also means that the ownership could be assigned to a unit in a low tax country while being used in production somewhere else. This may give rise to the appearance of so-called phantom imports and subsequently distort valued added figures.

23. Statistical treatment of multi-territory enterprises requires more consideration and further guidelines. Multi-territory enterprises operate their activities on a temporary or permanent basis over more than one economic territory. Typical examples of such enterprises are airlines, shipping lines and the creation and operation of cross border infrastructure (e.g. bridges, tunnels). Activities abroad may be run as indivisible operations with no separate accounts or management, so that no separate branches can be identified. The creation of so-called notional units is considered useful to allow valued added and employment to be recorded in the national accounts of the country in which substantial construction projects are carried out. However, splitting the economic activities of multi-territory enterprises into countries on the basis of 'prorating' or the creation of 'notional units', does not match very well with the general national accounting principles of economic ownership. It may require a range of imputed transactions which are often difficult to account for in practice. For large international construction projects, the presence of local site offices that are in command of local operations and with separate accounts is an important precondition for identifying in an appropriate way a separate foreign establishment. In other less obvious cases, identifying separated units for production activities abroad is not advisable. Anyway, the approach followed by tax authorities may give guidance on how to assign the output of these enterprises to individual countries.

## **B. Measurement issues**

24. A number of data and measurement issues have to be carefully considered in respect to recording global manufacturing. The Guide *Impact of Globalization on National Accounts* provides undoubtedly useful guidance and suggests procedures for improving source data, i.e. by direct coverage of multinational activities of a domestic parent company, bilateral or multilateral cooperation in improving business registers and establishing special units on large enterprises within national statistical offices. Several other international initiatives, mentioned in *section II* of this paper will also improve our understanding and measurement capacity in the area of global manufacturing. However, there are still many areas to be studied.

25. Analyzing data sources (e.g. business surveys, international trade statistics, R&D statistics, balance of payments statistics, statistics on foreign direct investment) potentially affected by globalization in close correlation with each other preferably at enterprise level would be useful. Several countries have installed special units to consistently observe the largest and most complex multinational enterprises. One important issue to consider is that individual source statistics are not necessarily based on similar kinds of observation units or concepts. This may complicate their mutual comparability.

26. Another issue to be considered is how to identify companies engaged in international processing and merchanting. A recent study in Netherlands tried to detect companies either engaged in active processing on the territory of the country or outsourcing production abroad. The results showed that the first group of companies substantially outnumber the second one, which leads to the expectation that the latter are less easily identified. This gives rise to concerns about understated exports of companies outsourcing parts of their production may subsequently create unbalances in the supply-use framework.

27. The strict ownership based recording of product transactions implies that observations techniques need to be broadened in order to capture product transactions abroad (particularly those connected to merchanting trade) and assets held abroad (such as inventories). Exchange of experiences between national statistical institutes in this area is undoubtedly crucial.

## **V. Proposal to the Bureau**

28. As shown in the paragraphs above more work has to be done to achieve better understanding of global manufacturing and its impact on the quality of official statistics, and to agree on common statistical treatments for different global manufacturing arrangements. This work needs to be carried out in close international cooperation.

29. The CES Bureau is invited to consider the creation of an expert group to develop conceptual and practical guidance on the unresolved issues related to global manufacturing as described in section IV. Draft terms of reference for the group are provided in document ECE/CES/BUR/2011/NOV/3/Add.1.

30. In doing so, the expert group should study the existing practices of countries in relation to the different types of global manufacturing arrangements. The group should also take into account the work of other international initiatives. Continuing to focus too strictly on manufacturing may leave the impression that services and, more importantly, IPPs have a less important role to play in global production arrangements. Therefore it is recommended that the expert group takes a broader view than is suggested by the title of this in-depth review.

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