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Measuring Global Production

Global Production – Israel

Prepared by the Israel Central Bureau of Statistics

Summary

The document by Central Bureau of Statistics of Israel explains how data on ‘merchandising’ and ‘production by a subcontractor abroad’ are collected through an international trade in services survey. The questionnaire includes a separate part for measuring the international trade in goods that have not passed through the borders of the Israeli customs. The main data source for the international trade in goods – the goods’ export and import data – are transmitted from the customs to the statistical office on an ongoing basis, but there is no registration of goods bought and sold abroad, if they do not cross the borders of Israel.

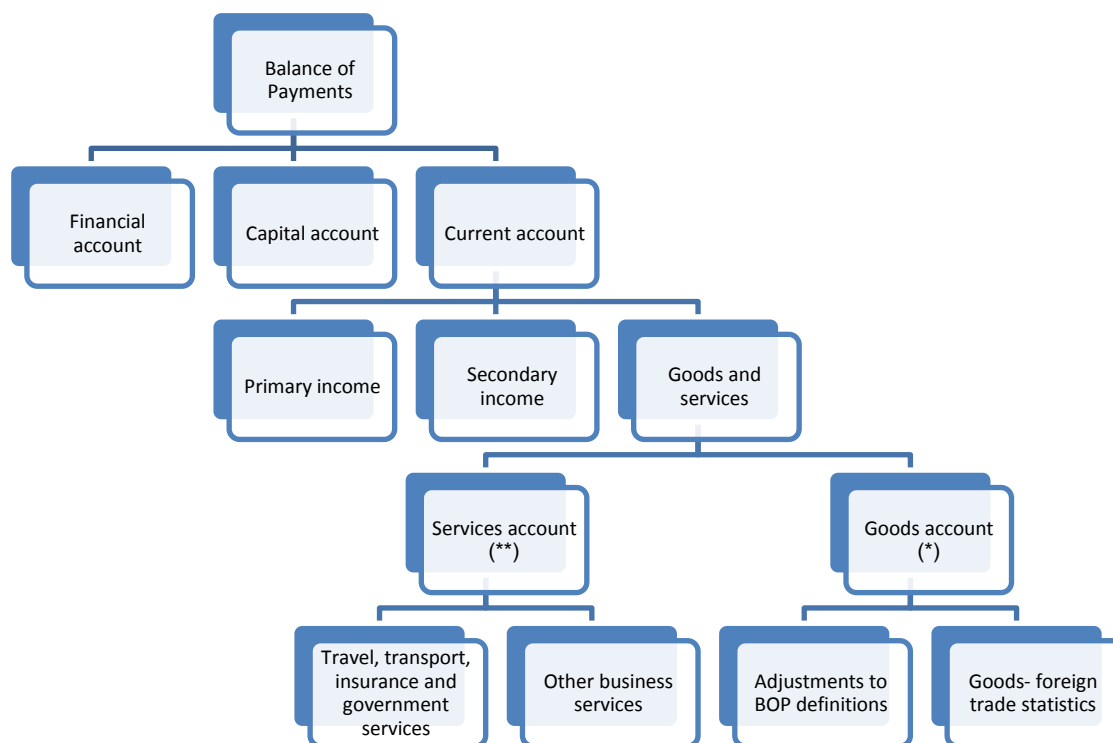
I. Background

1. Recent years have seen an expansion of globalization and global production. Globalization is an on-going process leading to new types of global production arrangements. An increase in the volume of trade that does not necessarily pass through a country's borders is a part of this process. The data of this volume has not been estimated separately, which has created a continuously expanding sub-coverage.
2. Full transparency of the data on international trade in goods and services is essential and indispensable, because these figures will be included in the calculation of the gross domestic product (GDP) and contribute to the estimation of the GDP.
3. The Israel Central Bureau of Statistics (CBS) measures the volume of international trade in goods. The main data source is the movement of goods through customs, excluding movements to and from the Palestinian Authority. Data from the Customs authority on exports and imports of goods are transferred to the CBS on an ongoing basis. However, there is no registration and/or documentation of goods bought and sold abroad if the transactions are not carried out through the borders of the State of Israel. Therefore, in the past international trade data included only exports and imports of goods which passed through the customs borders.
4. The CBS identified the need to assess those data and as a result added another report in the annual survey of international trade in services. The additional part relates to international trade in goods that do not pass through the borders of the State of Israel.

II. International Trade in Services Survey

5. *Services are the result of a production activity that changes the conditions of the consuming units, or facilitates the exchange of products or financial assets. Services are not generally separate items over which ownership rights can be established and cannot generally be separated from their production (BPM6).*
6. International trade in services is conducted differently than international trade in goods. In contrast to goods, services are intangible, and usually are not registered at the customs borders. As a result, no record of trade in services exists. Instead, services are estimated indirectly in various ways. The CBS uses the following sources: administrative data, International Transactions Reporting System (ITRS), direct reporting of enterprises and the International Trade in Services Survey. In combination, the sources provide all the information about international trade in services. In Israel, all the databases include a company number (ID), which is identical in all sources, so that it is possible to link records from different databases.
7. The classification of services is according to the Extended Balance of Payments Services (EBOPS) classification.
8. The services account is composed of five components: travel, transport, insurance, government services and other business services. Travel, transport, insurance and government services are calculated on the basis of administrative data, ITRS and direct reporting of enterprises. Other business services are calculated on the basis of the International Trade in Services Survey.

Balance of payments accounts affected by global production



(**) This account will be affected in the future

1. Frequency

9. The survey is conducted annually to obtain data on international trade in services by type and by country. In addition, the survey is the only source of information about goods that do not pass through Israel's borders.

2. The survey population

10. The population of the survey covers only the business sector. The survey population includes all business companies in Israel that engage in export and/or import of services.

11. Significant data on exports or imports of services are used as a marker and to detect trade in goods that do not pass through Israel's borders. Companies in Israel are obliged to report on revenues exempted from value added tax (VAT). This data includes mainly revenues from export. It is used to identify goods and services that did not pass through the Israeli border.

12. The sampling frame is based on a list of enterprises which are identified from various data sources, and are combined and linked to the national statistical office's Business Register:

- ITRS - transaction data of export and import services by enterprises.
- Enterprise surveys - Globalization survey, research and development (R&D) survey and previous results of International Trade in Services Survey.
- Vat and customs files – In Israel, revenues exempt from VAT are generally revenues from exports of goods and services. This means that transactions involving exports

of goods that did not pass through Israel's border, or services not registered at the border, will be recorded under revenues exempt from VAT, while there will be no customs registration. The data on revenues exempt from VAT are combined with customs data on exports of goods by exporter, in order to obtain the difference as a first estimation of missing exports data. The gap between the VAT data and the customs data for each company is used to evaluate exports of services or goods that did not pass through Israel's borders. The existence in Israel of a common "company number", used both by VAT and Customs authorities, as well as by other institutions, facilitates the comparison of data.

13. Because the transactions are complicated, the collection of data in these surveys often involves visits to the enterprises or personal telephone interviews.

III. Steps in Data Collection of Global Production

14. The process of collecting and registration of goods and services that did not pass through Israel's borders was complicated. Therefore, it was carried out gradually and continued for several years. The process can be divided into three stages.

1. First stage – collecting partial data on merchanting and “fabless” companies

15. According to SNA1993 and BPM5, merchanting is recorded under services as a net value – the difference between the sale and purchase values. Merchanting was one of the items reported on in the International Trade in Services Survey until 2009. In addition, a separate estimation was made for "fabless" companies, due to the growing importance of such companies in Israel. "Fabless" refers to a semiconductor development enterprise that designs and markets finished products, which are produced by nonaffiliated enterprises in another country. Statistically, fabless producers were treated in Israel in the same way as a company engaging in merchanting. The fabless producers included only semiconductor companies, and did not include all the factoryless companies. The estimation was based on the direct reporting of several companies to the CBS and valuation for other companies engaged in the field and identified by lists provided by the manufacturers' association. It should be noted it is difficult to find these companies because they transform the nature of their operations quickly.

2. Second stage – adapting to SNA2008 and BPM6

16. The second stage was improvements made in connection with the adaption of the new guides for national accounts and balance of payments - SNA2008 and BPM6. The first change was to transfer merchanting from the services account to the goods account, and record merchanting companies trade as negative exports (purchase value) and positive exports (sale value). The second change was to distinguish between goods for processing and trade of factoryless companies. This change required a new data series, but there was still no systematized data source for them. An interesting phenomenon was discovered during the International Trade in Services Survey for 2007. Companies reported on global production voluntarily, without any special section for this in the questionnaire. This data was used as the first database on global production. However, the coverage did not give a full picture of global production, since it was not a part of the formal questionnaire. In this stage, all the data was recorded in the goods account – goods under merchanting.

3. Third stage – Collecting detailed data in surveys

17. In an effort to cover the entire spectrum of international trade in goods that do not pass through Israel's borders, additional reporting tables in the questionnaire of International Trade in Services Survey were required.

18. This was not an easy survey to conduct, because the questionnaires were relatively heavy, and the enterprises had to provide data that are usually not presented in financial reports. But over time relationships with the enterprises were established and response rates have been satisfactory.

19. The questionnaire was adapted to the three global production arrangements that are common in Israel: Merchanting, goods for processing and factoryless enterprises.

A. The new questionnaire

20. The questionnaire of International Trade in Services Survey is divided into five parts:

- (i) General data on the company
- (ii) Exports of services, by type and country
- (iii) Imports of services, by type and country
- (iv) Merchanting
- (v) Manufacturing services on physical inputs by subcontractor abroad

21. There are two filter questions:

1. "Do you also manufacture your own goods in your company (not through subcontractors)? Yes/No".

The purpose is to check if the company is factoryless or manufacturing.

2. "Are the raw materials inventory or the inventory of products in process connected to the production of the subcontractors abroad recorded in your company's financial statement? Yes/No".

The purpose of this question is to examine the principle of ownership. If the raw materials inventory is recorded in the domestic company, then it is goods for processing, otherwise, it is merchandise.

22. From the *Guide to Measuring Global Production*: "There are at least two important borderline cases to consider in the context of merchanting. The first is when the good under ownership of the merchant is subject to further transformation or processing, which changes the nature of the good. In this case, the entity can no longer be considered to be engaged in merchanting. Instead, the unit should be treated and classified as a manufacturer. The resulting arrangement has similarities with goods sent abroad for processing"¹.

23. All the information collected is kept, but there is no separation between the different types of global production arrangements. All the data are published under Merchanting (positive export and negative export) in the goods account (Table No. 1).

¹ Guide to Measuring Global Production, paragraph 2.39

Table 1
Adjustments to Exports of Goods- Israel, \$ Million

	<i>Annual data</i>			
	2014	2013	2012	2011
1. Exports of goods (f.o.b.) adjusted to balance of payments	63,336	62,672	62,784	64,987
1.1 Net exports according to foreign trade statistics	57,668	56,871	53,972	58,132
1.2 Exports to the Palestinian Authority	3,257	3,495	3,608	3,520
1.3 Coverage adjustments to exports	2,411	2,306	5,204	3,335
Thereof: Net exports of goods under merchanting	1,679	1,603	1,720	1,479
<i>Goods sold under merchanting</i>	5,146	5,107	5,339	5,013
<i>Goods acquired under merchanting or manufacturing fees incurred</i>	-3,467	-3,504	-3,619	-3,534

24. The data required complex processing and periodic comparisons. Consequently, the data for 2009-2011 were published together at the same time only in 2015.

25. The process of producing the data series included several testing procedures and then examination, in order to provide quality data.

26. Some of the tests were as follows:

- (i) Crossing the various data of merchanting and manufacturing services on physical inputs by subcontractor abroad. Checking that there isn't dual reporting.
- (ii) Comparison by company with survey results from other years.
- (iii) Comparison between the customs data of the companies and the companies report in the survey. Checking that companies do not include goods that already passed through Israel's borders. If the compiler needs further clarification after checking the questionnaire, this is clarified by speaking with the company over the phone.
- (iv) Over time, companies sometimes changed their company number, or started/stopped reporting under parent company. These changes can occur during the year and we need to identify them to make adjustments.

27. After all the examinations were completed, the next step was data processing.

B. Data processing

28. Every part in the questionnaire needed to be included in the appropriate section of the goods account.

29. Merchanting:

- Value of goods purchased abroad- registered as negative export under "goods under merchanting".
- Value of goods sold abroad- registered as positive export under "goods under merchanting".

30. Manufacturing services on physical inputs by subcontractor abroad:

- Value of manufacturing services abroad- recorded as negative export.

- Value of goods dispatched to nonresidents for manufacturing is already recorded in the customs data as exports of goods. These data are deducted from the exports of goods data, because the goods did not change ownership, rather, they were only transferred for the production process.
- Value of goods purchased abroad that were transferred to the subcontractor abroad for the production process, without passing through Israeli borders, was added to the imports of goods data.
- Value of manufactured goods sold abroad on behalf of the company without passing through the Israeli border was recorded as positive export.
- Value of goods that were produced by subcontractors abroad and were returned to Israel after the manufacturing process was already recorded in the customs data as imports of goods, but the goods did not change ownership. The fee was previously included in the manufacturing services, so these data were deducted from the imports of goods data.

31. The adjustments for exports and imports of goods were recorded under the goods account in the balance of payments.

C. Estimations

32. The data were published four years after the end of the surveyed year. Therefore, estimations must be done for the following years based on the recent survey. The estimations calculated were based on data from VAT files that the companies report every month to the tax authority. The results from the last survey were extrapolated using the differences between the VAT data in the year of the survey and the current VAT data for each company.

D. Results

33. The net exports of goods under merchanting constitute about 2% of the total exports of goods in Israel (Table No. 1).

Table 2

Data of enterprises engaged in global production

	<i>Economics activities</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>
Number of enterprises in the sample	Industry	60	71	96
	Trade	24	28	56
	Services	27	25	28
Total number of enterprises in the sample		111	124	180
Volume of trade of merchanting by enterprises out of total merchanting (net)	Industry	63%	52%	58%
	Trade	8%	5%	7%
	Services	29%	42%	35%
Net exports of goods under merchanting		851 M\$	1,170 M\$	1,479 M\$

34. The enterprises from the trade sector comprised an average of 25% of the sample, but were responsible for approximately 7% of the volume of trade of merchanting by enterprises out of total merchanting (net). This can be explained by the profit margin in trade. The value added of trade enterprises is usually lower than value added of industry or service enterprises. This explanation is derived from the gaps between the economic activities in terms of products, productions costs and income generated from them. The profit is a result of combination of low production costs and higher revenues of products which involved R&D, know-how, designs, etc.

E. Problems

- Detection and identification of companies engaged in global production. Companies identified constitute the basis for creating the survey population. A separate survey for global production needs to be created.
- Right now we do not have a population of companies engaged in global production, so no separate sample exists. Currently, the sample is derived from the population, while it should be reversed. We only find out who is engaged in global production during the survey, apart from companies we identified in the past and were included in the sampling.
- During the collection of data from the enterprises it also became clear that the distinction between merchanting and global manufacturing is not very clear to the respondents in the enterprises. The enterprises needed further guidance, thus, the questionnaire needs to be refined in the future.
- It is difficult to decide who owns the goods during the manufacturing process. The respondents in the enterprises do not know or misunderstand the question, or perhaps do not dedicate the required attention. There exists a concern of accepting unreliable responses. The ownership principle leads to measuring problems. This presents the need for more guidelines in the questionnaire in how to use the questionnaire.

F. Suggestions for Improvement/Recommendations

- Capture global manufacturing in the framework of enterprise surveys. Adding a filtering question in business surveys to identify companies engaged in global productions, for example, products and materials survey.
- Creation of a separate survey for global production.
- Add a supplementary questionnaire for reporting on exports of manufacturing services in the questionnaire.

G. Case study

35. A few examples of enterprises operating in Israel and engaged in global production:

(a) The subsidiary in Israel received raw materials from the parent company abroad. The Israeli company completed part of the production process and sent the product back to the parent company. The company in Israel does not own the goods or the knowledge connected to the production. They only perform the manufacturing process, which changes the physical form of the goods. The fee they receive is called "cost-plus" (a pricing strategy in which the selling price is determined by adding a specific dollar amount markup to a product's unit cost). This is the company's only income, and it is received entirely from the parent company. How should it be recorded in the balance of payments?

(b) A textile enterprise from Israel designs the clothes and develops special materials for the production process. Part of the production or all the production process is carried out by a subcontractor abroad. For the most part, the enterprise sells the final manufactured good to a third country (the subcontractor ships the product directly to this country).

(c) A data security enterprise from Israel develops special products that combine hardware and software. Most of the payment received for these products is related to the software development components. Hardware is manufactured by a subcontractor abroad, where the software is installed as well (the Israeli company owns the software).

36. In examples 2 and 3, the Israeli enterprises own the knowledge, the R&D (which was performed in Israel), and occasionally patents related to the products. Nevertheless, the companies do not own the raw materials during the production, and according to the change of ownership principle, the value of these services are treated as goods under merchanting. Additionally, the companies do not always know how to define the raw materials in the process (for the ownership principle). One can consider the R&D and know-how as intangible "raw materials" and as a result the process abroad will be considered as manufacturing services. The enterprises in Israel have produced the intellectual property but it was not revealed when we recorded the trade as goods under merchanting.

IV. Conclusions

37. In recent decades the world has become a global village where it is easier to communicate and work with different places in the world, without being physically present where the transaction is made. Consequentially, some of the new global production arrangements, which were not previously fully recorded, need to be defined.

38. Explicit definitions of production arrangements enable the start of a practical way of implementing the definition and development of the estimation of goods and services, including goods that do not pass through Israel's borders.

39. This document focuses on global production arrangements of goods as part of the global production arrangements which includes the services as well. The subcontracting production of services requires separate attention.

40. The result of our current estimation shows that about 2% of Israel's total exports of goods are goods that do not pass through Israel's borders. The process of change is important, despite the low percentage observed in Israel. First of all, it seems that the phenomenon is growing and it is important to start measuring it before it constitutes a more substantial part of the accounts. Secondly, the inclusion of these data increased the value of

the exports of goods and reduced the deficit in the goods account of Israel. As a result, it influences the GDP and other measures as well.

41. However, there are still difficulties and problems in the process and methodology. Corrections and adjustments are needed to improve the quality of the collection, processing and production of data. One change already made is an update of the questionnaire. In the questionnaire presented here in the Appendix, there is no clear distinction made between goods sent for processing and the factoryless. The new questionnaire includes an additional filter question which distinguishes between these two classes.

42. The main recommendation is to create a separate survey for goods that do not pass through Israel's borders. A separate survey avoids dependence on and the problematic use of populations and a sample designed for measuring international trade services, but unsuitable for the measurement of goods. A separate survey would require creating a separate population. Additionally, there is the need to create a filter question to appear in other business surveys. Such a question is not likely to increase the burden of response, but is valuable for the purpose of identifying and creating a database of companies engaged in this field.

43. Another recommendation is to consider the R&D and know-how as intangible "raw materials" for the ownership principle. For factoryless companies which produced and own the intellectual property during the production abroad, the fee will be considered as import of manufacturing services and not as goods under merchanting.

44. In addition, part of the work was organizing meetings at the companies. During the meeting, the company's operations are explained, international working relationships are presented, and the CBS explains what data is needed and how to categorize each activity. Each company is unique and the practices in this area are varied, and meetings contributed to a better understanding. Israel has a comparative advantage relative to other countries due to the relatively small size of the country and the ability to learn directly from the companies and create more high-quality data.

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Appendix

The questionnaire:

The sums must be reported in one of the following currencies: ☐ Shekels ☐ Dollars ☐ Euro (Check with ✓)

If the transactions were originally in a different currency, do not note the currency before the conversion.

Note if the report is in: ☐ Regular numbers ☐ Thousands ☐ Millions (Check with ✓)

International Trade in Goods

If your company purchases goods abroad and later sells them abroad, without them passing through the borders of the State of Israel, note the following data:

Price of the goods abroad:

	Country	Country	Country	Country	Country	Country	Total (Equal to section C in Import of Services Survey, p.7)
Value of goods purchased abroad							

Price of the goods abroad:

	Country	Country	Country	Country	Country	Country	Total (Equal to section C in Export of Services Survey, p.5)
Value of goods sold- selling price							

Manufacturing services on physical inputs by abroad subcontractor

Israel companies which produce goods through abroad subcontractors, deal with product development, design, technical specifications, marketing, etc. while the actual production is carried out by abroad subcontractors (including intermediate stages).

If your company produced goods through abroad subcontractors in 2011, please complete the following data:

Price of the goods abroad:

	Country	Country	Country	Total	Out of which:	
					Payments to related enterprises	Payments to enterprises which are not related
Value of manufacturing services abroad (the total sum which was transferred to the subcontractor abroad for the goods produced)						
Value of goods dispatched to nonresidents for manufacturing						
Price of the goods purchased abroad and which were transferred to the abroad subcontractor, for the production process, without passing through Israeli borders						

Sales of goods abroad

	Country	Country	Country	Total	Out of which:

					Revenue from related enterprises	Revenue from enterprises which are not related
Value of manufactured goods sold abroad on behalf of your company						

Returning goods to Israel:

Value of goods which were produced by abroad subcontractors during 2011 and which were returned to Israel after the manufacturing process.	
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- Do you also manufacture your own goods in your company (not through subcontractors)? ☐ Yes ☐ No
- Is the raw materials inventory or the inventory of products in process, connected with the
production by the abroad subcontractors, recorded in your company's financial statement? ☐ Yes ☐ No