

**Economic and Social Council**Distr.: General
24 June 2015

Original: English

Economic Commission for Europe

Conference of European Statisticians

Group of Experts on National Accounts

Fourteenth session

Geneva, 7-9 July 2015

Agenda item 3

Country experiences in dealing with global production in economic statistics

**Strategies for collecting information related to Global
Production**

Prepared by Statistics Canada

Summary

Changes in technology, trade agreements, multi-national organizational structures and government policy have significantly altered the way firms operate. Firms are now operating with a global rather than domestic mindset. Macroeconomic accounting frameworks, which measure domestic product, national income and trade, have recently been updated to better capture the increasingly global activities and international inter/intra-connectedness of firms, governments and individuals. Data collection vehicles need to be updated so that they can provide the informational building blocks needed to populate these revised frameworks. Over the last year Statistics Canada has been developing and is in the process of testing a number of questions related to global production, goods for processing and merchanting that could be combined with Statistics Canada's existing data sources and collection vehicles to better capture the global activities of Canadian businesses. This paper outlines the proposed questions and the collection vehicles that will be used to interface with the respondents.

I. Motivation

1. Changes in technology, trade agreements, multi-national organizational structures and government policy have significantly altered the way firms operate. Firms are now operating from a global rather than domestic perspective. Macroeconomic accounting frameworks, which measure domestic product, national income and trade, have recently been updated to better capture the increasingly global activities and international inter/intra-connectedness of firms, governments and individuals. Data collection vehicles need to be updated so that they can provide the informational building blocks needed to populate these revised frameworks.

2. In 2012, Statistics Canada revised the Canadian System of Macroeconomic Accounts to comply with the 2008 System of National Accounts and the Balance of Payments Manual Version 6. This revision resulted in a significant number of improvements to the CSMA including the expansion of the asset boundary to include research and development and military weapons systems; the addition of a set of sector accounts for the non-profit institutions serving household, financial corporations and non-financial corporation sectors; and significant presentational changes and classification updates to better align with the 2008 SNA. While a significant amount of work was done to implement the new standard a number of 2008 SNA and BPM6 recommended changes related to global production arrangements were not implemented. The most important of these centers on what the 2008 SNA refers to as goods for processing and merchanting.

3. Statistics Canada chose not to implement these recommendations for two pragmatic reasons. The first reason was that the majority of Canada's major trading partners had not yet implemented the 2008 SNA and if Canada moved to the new treatment it would bring about large asymmetries in Canada's trade flows when compared with these major trading partners. The second reason revolved around the availability of data required to implement the 2008 SNA recommendation. Not only did Statistics Canada not have the available data, Statistics Canada had not yet determined what it needed to collect, how to collect it and how to use it once it was collected. Before any implementation of goods for processing or merchanting is considered the agency has to undertake some conceptual and operational development and testing.

4. Given the integrated nature of Statistics Canada's statistical system the implementation of goods for processing, merchanting and the broader measurement of global production involves the cooperative effort of macroeconomic accountants, business and trade statistics compilers and operational experts. As a means to facilitate agency wide discussion among these groups Statistics Canada established a globalization subject matter committee which was mandated with the task of adjusting the agency's statistical infrastructure and conceptual framework to better capture global production arrangements in the agency's various program.

5. Over the last year Statistics Canada has been developing and testing a number of approaches to collect information related to global production that could be integrated with Statistics Canada's existing data sources and collection vehicles to better capture the global activities of Canadian businesses. This paper outlines the vehicles and tools Statistics Canada will be testing over the next year to determine how best to collect the information that will permit the agency to more accurately account for global production arrangements. The focus of this paper is on modifications Statistics Canada is considering making to its establishment based business surveys.

II. Key Definitions

6. The activities associated with global value chains, global production, global supply chains are as wide and diverse as the definitions used to describe them. For the purposes of this testing exercise Statistics Canada focused its effort on collecting information related to the imports and exports of processing services, merchanting activities and global production arrangements. The definitions used throughout this testing exercise are presented below.

(a) Exports of processing or manufacturing services on the physical inputs of clients outside of Canada

Represents the sale of processing or manufacturing services or custom work, which comprises assembly or transformative work undertaken to the specifications of a foreign client using some or all of the client's inputs, whether they are sent from outside of Canada or sourced within Canada. The foreign client **must own and supply all or some of the raw materials and intermediate goods, and own the finished goods**. This business receives a payment from the foreign client for the processing or manufacturing service work performed.

(b) Imports of processing or manufacturing services on all or some of the physical inputs provided by the Canadian business

Represents the purchase of processing or manufacturing services or custom work, which comprises assembly or transformative work undertaken by a foreign entity according to the specifications using inputs supplied by the Canadian business. Raw materials or intermediate goods could be sent directly from Canada or sourced from outside of Canada; however, the Canadian business must own and supply all or some of the raw materials or intermediate goods, and own the finished goods as well as record these costs in its accounting books.

(c) Merchanting

Represents arrangements by which your firm purchases a good abroad and subsequently re-sells the good "as is" without the product entering Canada. This business also records the cost of the goods and the revenue from the sale of these same goods in its accounting books.

(d) Other global arrangements for manufacturing finished goods (factoryless goods production)

Represents arrangements by which the Canadian business coordinates the production of a good by supplying product designs and specifying the requirements for raw materials or intermediate goods to a foreign firm(s) who is responsible for assembling the good and returning the finished goods to the locations based on the Canadian business' instructions. This business should not own nor supply any raw or intermediate materials that were used for processing or production abroad, but it does supply design, pattern paper, sample, drawings, or other intellectual properties; it should own the finished goods; and it should also control the distribution channel. This business also records the cost of the goods and the revenue of the sale on the goods in its accounting books.

III. Collection Vehicles used by Statistics Canada

7. Statistics Canada has a number of collection vehicles at its disposal that it can use to collect information related to global production. The two primary sources include business survey instruments and administrative data Statistics Canada receives from the Canada

Revenue Agency (CRA) – the revenue authority and Canadian Border Services Agency (CBSA) – the customs authority.

8. Within the business survey program there are two main categories of business survey collection vehicles used by Statistics Canada. The first is an establishment based survey program (annual and sub-annual) which collects detailed information related to industry outputs, intermediate consumption along with business characteristic information such as class of customer (households, business, governments) and geographic distribution of sales. The primary use of these surveys is to construct Canada's annual national, provincial and territorial supply and use tables. The second category of business surveys are enterprise based survey's (annual and quarterly) which collect an income statement and balance sheet from Canadian incorporated businesses. The primary use of these surveys is to construct Canadian quarterly and annual financial flow and balance sheet accounts for the corporate sector as well as Canada's balance of payments and international investment position.

9. While the administrative data (specifically customs declarations) will remain a primary source of information to measure trade flows, in the case of Canada, supplemental information is required to properly measure the growing incidence of global production. Statistics Canada has developed and is testing questions on both the establishment based surveys and the enterprise based survey that will enable the Canadian System of Macroeconomic Accounts (CSMA) to adopt the 2008 SNA recommendations related to global production. The remainder of this paper outlines the modifications Statistics Canada is considering making to its establishment based surveys. The testing and modifications the agency is considering making to its enterprise based survey are the topic of another paper.

IV. Data Collection Strategy

10. Statistics Canada has developed eight 'global production modules' that it can add to any of its establishment based business surveys. The intention of these modules is to provide the CSMA with the information it requires to adopt the 2008 SNA and BPM6 recommendations related to imports and exports of processing services and merchanting as well as ensure global production arrangements are properly recorded in Canada's supply and use tables and system of national and international accounts. The following outlines each of the modules.

A. Module 1: Do you engage in Global Supply and Production Chain Activities?

11. Before asking any questions related to global production a general set of questions related to global supply and production activities are asked to all firms in the sample. Given Statistics Canada annual business survey program has around 40,000 respondents, the vast majority of which do not engage in global activities, there was a need to undertake an initial stratification before routing the respondents to the six global production modules. Respondents that answer 'no' to this section will move on to other components of the questionnaire whereas those that respond 'yes' will be directed to a given global production module. Within this first module it is important to accurately define global supply and value chains to ensure that those involved in these activities get routed to the subsequent section of the questionnaire. Statistics Canada has drafted and is testing the following questions:

Figure 1
Global Production Filters

1. From #{StartDate} to #{EndDate}, did this business perform processing or manufacturing services for **clients outside of Canada**?

Definition of processing or manufacturing services is the assembly or transformative work undertaken to the specifications of a foreign client using some or all of the foreign client's inputs, whether they are sent from outside of Canada or sourced within Canada. Note: The foreign client must own and supply all or some of the raw materials and intermediate goods, and own the finished goods. This business receives a payment from the foreign client for the processing or manufacturing service work performed.

Yes --- (go to section A)

No

2. From #{StartDate} to #{EndDate}, did this business **pay foreign entities** to perform processing or manufacturing services **outside of Canada**?

Includes: Processing or manufacturing services or custom work which was undertaken by a foreign entity according to this business's specifications and using inputs supplied by this business, whether these are sent from Canada or sourced from outside of Canada. Note: this business must own and supply all or some of the raw materials or intermediate goods, and own the finished goods, as well as record these costs in its accounting books.

Yes --- (go to section B, E, and G)

No

3. From #{StartDate} to #{EndDate}, did this business **purchase goods outside of Canada** and sell them in foreign markets **without** having the goods physically enter the economic territory of Canada?

Includes: the finished goods that were purchased and resold "as is" outside of Canada without any further transformation. This business also records the cost and the revenue from the sale of these same goods in its accounting books.

Yes --- (go to section C, E, and G)

No

4. From #{StartDate} to #{EndDate}, did this business sell finished products that were manufactured outside of Canada on its behalf **without supplying raw materials**?

Note: This business should not own nor supply any raw or intermediate materials that were used for processing or production abroad, but it does supply design, pattern paper, sample, or drawings, or other intellectual properties; it should own the finished goods; and it should also control the distribution channel. This business also records the cost and the revenue of the sale on the finished products manufactured abroad in its accounting books.

Yes --- (EQ design: go to section D, E, G)

No

5. #{EndDate}, did this firm hold inventories abroad?

Include: The inventories that are recorded in this business's accounting books, but physically located outside of Canada at the beginning or the last day of the reporting period.

Yes --- (go to section E)

No

6. During the reporting period, did this business engage in any other global supply and production chain activities not mentioned above?

Include: managing or selling projects, or providing product designs, intellectual properties, distribution or other services for this global business and other international clients.

12. If the respondent responded 'yes' to the above question(s) they are directed through the remaining applicable global production modules.

B. Modules 2 and 3: Do You Export or Import Processing Services on the Physical Inputs of Foreign Clients or of the Canadian Business?

13. In order to properly record the imports and exports of processing services on the physical inputs of others two things must be measured. First, the compiler is required to derive a measure of the processing service. This is generally straight forward. Second, the compiler may need to undo some transactions that are already recorded in the macroeconomic accounts, specifically transactions related to exports of goods and services. This is more difficult given the volume of transactions and the by commodity by country detail that is often associated with these transactions.

14. When developing this module of the questionnaire Statistics Canada had to make the choice between collecting aggregate information and detailed commodity by country information. One of the more important survey vehicles Statistics Canada uses to construct its macroeconomic accounts is an annual survey of manufactures (ASM). The ASM collects information on the outputs and inputs by detailed commodity from firms classified to manufacturing industries. A stylized layout of the questionnaire is shown in Table 1 and Table 2.

Table 1
Sales of goods manufactured

<i>Description</i>	<i>Commodity Code</i>	<i>Unit of Measure</i>	<i>Quantity</i>	<i>Value</i>

Table 2
Purchases of raw or intermediate materials and components to be used in manufacturing process

<i>Description</i>	<i>Commodity Code</i>	<i>Unit of Measure</i>	<i>Quantity</i>	<i>Value</i>

15. Ideally, in order to be able to properly adjust the import and export transactions to an ownership basis additional questions and definitions need to be added to these modules. Under the sales of goods manufactured module Statistics Canada would require the respondent to include commodities that it produced but did not own along with whether or not these commodities were exported or remain in Canada. In addition, for commodities it produces and does own Statistics Canada would require respondents to indicate if the goods were exported and if they were exported if they changed ownership. An example of a potential modification is presented in Appendix A.

16. It was determined that asking the respondent to provide this level of detail by commodity would place an undue response burden on them. Instead, Statistics Canada decided to test a more aggregate approach where it proposes to collect aggregate measures of processing services and the total value of outputs and inputs owned / used by foreign clients.

17. Figure 2 represents the questions that were tested in order to obtain information regarding the export of processing services.

Figure 2
Revenue from (exports of) processing or manufacturing services on raw materials or intermediate goods owned by foreign clients

Section A

1. What was the **revenue for processing or manufacturing services** from clients **within and outside of Canada** on raw materials and intermediate goods owned and supplied by clients?
*Report all amounts in **thousands** of Canadian dollars.*

a. Revenue earned from clients outside of Canada ----- \$ _____,000
 b. Revenue earned from clients in Canada \$ _____,000
 Total revenue \$ _____,000

2. Of the #{RevProcMftServ_1a} of revenue received from clients outside of Canada, what was the percentage breakdown of total revenue **by country of client**?
Please select the top three countries that contributed the largest percentage of revenue for the processing or manufacturing services.

	Country of Client	Percentage
a. Country 1	(dropdown)	_____%
b. Country 2	(dropdown)	_____%
c. Country 3	(dropdown)	_____%
d. All other countries		_____%
Total percentage		100%

3. What was the total estimated **value of raw materials or intermediate goods** received from clients outside Canada that were used for processing?
Note: The value of raw materials or intermediate goods that were imported into Canada should be the same amount reported as per Customs declarations, while the value of those sourced within Canada should be reported or estimated by this business.
*Report all amounts in **thousands** of Canadian dollars.*

a. Originated outside of Canada ----- \$ _____,000
 b. Originated in Canada ----- \$ _____,000
 c. Total value ----- \$ _____,000

4. Of the #{ValRawMatGood} estimated **value of raw materials or intermediate goods** received, what was the percentage breakdown of the total estimated value by commodity and its corresponding country of origin?
Note: Provide a brief description of the top 5 commodities that contributed to the largest percentage of the total estimated value of raw material or goods by country of origin. The country of origin could be Canada if the commodities received originated in Canada.

	Commodity description	Origin of commodity by country	Percentage
a. Commodity 1	_____	(dropdown)	_____%
b. Commodity 2	_____	(dropdown)	_____%
c. Commodity 3	_____	(dropdown)	_____%
d. Commodity 4	_____	(dropdown)	_____%
e. Commodity 5	_____	(dropdown)	_____%
f. All other commodities			_____%
Total percentage			100%

5. What was the estimated **value of the finished goods after processing that were shipped outside of Canada** without ownership change?
Note: the value of finished goods shipped outside of Canada after processing should be the same amount as per Customs declaration.
*Report all amounts in **thousands** of Canadian dollars.*

\$ _____,000

Figure 2 (continued)

Exports of processing services on physical inputs owned by foreign clients

6. Of the #{ValFinGood_1} estimated **value of the finished goods**, what was the percentage breakdown of the total estimated value by finished goods and its corresponding country of destination?

Note: Provide a brief description of the top 5 finished goods that contributed to the largest percentage of the total estimated value of the finished goods by country of destination.

	Finished goods description	Destination of finished goods by country	Percentage
a.	Finished goods 1	(dropdown)	_____ %
b.	Finished goods 2	(dropdown)	_____ %
c.	Finished goods 3	(dropdown)	_____ %
d.	Finished goods 4	(dropdown)	_____ %
e.	Finished goods 5	(dropdown)	_____ %
f.	All other finished goods		_____ %
	Total percentage		100%

7. What was the estimated **value of finished goods after processing that were shipped or sold in Canada** on behalf of the foreign client without ownership change?

*Report all amounts in **thousands** of Canadian dollars.*

\$ _____,000

8. Of the #{ValFinGood_2} estimated **value of finished goods**, what was the percentage breakdown by commodity?

Please provide a brief description for the top 5 finished goods that contributed to the largest percentage of the total estimated value of finished goods.

	Commodity description	Percentage
a.	Commodity 1	_____ %
b.	Commodity 2	_____ %
c.	Commodity 3	_____ %
d.	Commodity 4	_____ %
e.	Commodity 5	_____ %
f.	All other commodities	_____ %
	Total percentage	100%

9. This is a summary of your total estimated value of finished goods after processing.

Please review the values and if needed, press the 'Previous' button at the bottom of the page to navigate to the previous pages to make any modifications.

\$ CDN

a) Total estimated value of the finished goods after processing **shipped outside of Canada without change in ownership as reported in question 5.** \$ _____,000

b) Total estimated value of the finished goods after processing **shipped or sold in Canada without a change in ownership as reported in question 7.** \$ _____,000

Total estimated value of finished goods after processing (automatically calculated a+b)

18. The information that is collected in the above module will be use develop a series of balance of payments adjustments to the customs based International Merchandise Trade Statistics such that:

- The value reported as “revenue for processing or manufacturing series for clients outside of Canada” represents the value that will be used to measure the exports of processing or manufacturing services on the physical inputs of foreign clients.
- The “estimated value of raw materials or goods received from foreign clients that were originated outside of Canada and used for processing” will be removed from the imports of goods flow.
- The estimated value of raw materials or goods received from foreign clients that were originated inside Canada and used for processing” will be added to the imports of goods flow.
- The “estimated value of finished goods after processing shipped or sold in Canada without a change in ownership” will be added to the import of goods flow.
- The “estimated value of finished goods after processing shipped outside of Canada without a change in ownership” will be removed from the export of goods flow.

19. The reciprocal set of questions was also asked regarding the purchase of processing services on the physical inputs of Canadian business. These are showing in figure 3.

Figure 3
Expenses from processing or manufacturing services on physical inputs owned by this business

1. What was the total **cost of processing or manufacturing services** provided by entities **within and outside of Canada** on raw materials or intermediate goods owned by this business?
*Report all amounts in **thousands** of Canadian dollars.*

a. Payments made to service providers outside of Canada \$ _____,000
 b. Payments made to service providers in Canada \$ _____,000
 Total cost \$ _____,000

2. Of the #{CostProcMftServ_1a} cost of processing or manufacturing services, what was the percentage breakdown by country of processing?
Note: select the top 3 countries that contributed the largest percentage of cost of processing or manufacturing services.

	Country of processing	Percentage
a. Country 1	(dropdown)	_____%
b. Country 2	(dropdown)	_____%
c. Country 3	(dropdown)	_____%
d. All other countries		_____%
Total percentage		100%

3. What was the estimated value of raw materials or intermediate goods this business owned that were **exported from Canada**, provided to the foreign service provider and used as an input for their processing activities?
Note: the value of raw materials or intermediate goods that were exported from Canada should be the same amount reported as per Customs declarations
*Report all amounts in **thousands** of Canadian dollars.*

\$ _____,000

4. Of the #{ValRawMatIntGood_3} estimated value of raw material or intermediate goods, what was the percentage breakdown by commodity and its corresponding destination of processing?
Note: Provide a brief description for the top 5 commodities that contributed to the largest percentage of the total estimated value of raw material or intermediate goods by country of processing.

	Commodity description	Destination of Commodity by country of processing	Percentage
a. Commodity 1	_____	(dropdown)	_____%
b. Commodity 2	_____	(dropdown)	_____%
c. Commodity 3	_____	(dropdown)	_____%
d. Commodity 4	_____	(dropdown)	_____%
f. All other commodities			_____%
Total percentage			100%

Figure 3 (continued)

Imports of processing services on physical inputs owned by foreign clients

5. What was the estimated **value of raw materials or intermediate goods** this business owned that were **sourced outside of Canada without physically entering Canada**, provided to the foreign service provider and used as an input for their processing activities?
*Report all amounts in **thousands** of Canadian dollars.*

\$ _____,000

6. Of the #{ValRawMatIntGood_5} estimated value of raw material or intermediate goods, what was the percentage breakdown of the estimated value by commodity and its corresponding country of origin?
Note: Provide a brief description of the top 5 commodities that contributed to the largest percentage of the total estimated value of raw materials or intermediate goods by country of origin.

	Commodity description	Origin of Commodity by country	Percentage
a.	Commodity 1	(dropdown)	_____ %
b.	Commodity 2	(dropdown)	_____ %
c.	Commodity 3	(dropdown)	_____ %
d.	Commodity 4	(dropdown)	_____ %
e.	Commodity 5	(dropdown)	_____ %
f.	All other commodities		_____ %
	Total percentage		100%

7. What was the estimated value of finished goods (without ownership change) that were shipped or sold outside of Canada on behalf of this business after processing?
Note: The value of finished goods returned to Canada after processing should be the same amount reported as per Customs declarations.
Report all amounts in thousands of Canadian dollars.

\$ _____,000

8. Of the #{ValFinGood_7} estimated value of the finished goods, what was the percentage breakdown of the estimated value by finished goods and its corresponding country of destination?
Note: Provide a brief description for the top 5 finished goods that contributed the largest percentage of the total estimated value of the finished goods by country of destination.

	Finished goods description	Destination of finished goods by country	Percentage
a.	Finished goods 1	(dropdown)	_____ %
b.	Finished goods 2	(dropdown)	_____ %
c.	Finished goods 3	(dropdown)	_____ %
d.	Finished goods 4	(dropdown)	_____ %
e.	Finished goods 5	(dropdown)	_____ %
f.	All other finished goods		_____ %
	Total percentage		100%

9. What was the estimated value of the finished goods after processing that were returned to Canada without ownership change?
Note: The value of finished goods returned to Canada after processing should be the same amount reported as per Customs declarations.
*Report all amounts in **thousands** of Canadian dollars.*

\$ _____, 000

Figure 3 (concluded)

Imports of processing services on physical inputs owned by foreign clients

10. Of the #{ ValFinGood _9} estimated value of finished goods, what was the percentage breakdown by commodity?
Please provide a brief description for the top 5 finished goods that contributed to the largest percentage of the finished goods value that returned to Canada.

	Commodity description	Percentage
a. Commodity 1	_____	_____%
b. Commodity 2	_____	_____%
c. Commodity 3	_____	_____%
d. Commodity 4	_____	_____%
e. Commodity 5	_____	_____%
f. All other commodities	_____	_____%
Total percentage		100%

11. Summary of your total estimated value of finished goods after processing.
Please review the values and if needed, press the 'Previous' button at the bottom of the page to navigate to the previous pages to make any modifications.

	\$ CDN
a) Total estimated value of the finished goods after processing sold outside of Canada without change in ownership as reported in question 7.	\$ _____,000
b) Total estimated value of the finished goods after processing returned to Canada without a change in ownership as reported in question 9.	\$ _____,000
Total estimated value of finished goods after processing	(automatically calculated a+b)

20. The information that is collected in the above global production module will be use develop a series of balance of payments adjustments such that:

- The value reported “cost of processing or manufacturing services provided by foreign entities outside of Canada on raw materials owned by this business” represents the value that will be used to measure the imports of processing services on the physical inputs of others.
- The “estimated value of raw materials or goods this business owned that were exported from Canada, provided to the foreign service provider and used as in input for their processing activities” will be removed from the exports of goods flow.
- The “estimated value of raw materials or intermediate goods this business owned that were sourced outside of Canada without physically entering Canada, provided to the foreign service provider and used as an input for their processing” will be added to the import of goods flow.
- The estimated value of “finished goods after processing returned to Canada without a change in ownership” will be removed from the import of goods flow.
- The estimated value of “finished goods after processing shipped or sold outside of Canada without a change in ownership” will be added to the export of goods flow.

21. A numerical example regarding the use of modules 2 and 3 is provided in appendix A.

C. Module 4 (Section C): Do You Engage in Merchanting Activities?

22. This module (or fourth) was developed for testing relates to merchanting activities. The questions that will be tested are shown in Figure 4

Figure 4
Merchanting

<p>1. What was the cost of goods purchased outside of Canada for resale in foreign markets? <i>Include only goods purchased for resale "as is" (no transformation) in foreign markets and without the goods physically entering the economic territory of Canada.</i> <i>Report all amounts in thousands of Canadian dollars.</i></p> <p>\$ _____,000</p>																																			
<p>2. Of the $\#\{\text{CostGoodsPurc}\}$ cost of goods purchased outside of Canada for resale, what was the percentage breakdown of the estimated value by commodity and its corresponding country of origin? <i>Note: Provide a brief description for the top 5 commodities that contributed the largest percentage of the total estimated value of cost of goods purchased outside of Canada for resale by country of origin.</i></p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 20%;">Commodity description</th> <th style="width: 20%;">Origin of commodity by country</th> <th style="width: 30%;">Percentage</th> </tr> </thead> <tbody> <tr> <td>a. Commodity 1</td> <td>_____</td> <td>(dropdown)</td> <td>_____%</td> </tr> <tr> <td>b. Commodity 2</td> <td>_____</td> <td>(dropdown)</td> <td>_____%</td> </tr> <tr> <td>c. Commodity 3</td> <td>_____</td> <td>(dropdown)</td> <td>_____%</td> </tr> <tr> <td>d. Commodity 4</td> <td>_____</td> <td>(dropdown)</td> <td>_____%</td> </tr> <tr> <td>e. Commodity 5</td> <td>_____</td> <td>(dropdown)</td> <td>_____%</td> </tr> <tr> <td>f. All other commodities</td> <td></td> <td></td> <td>_____%</td> </tr> <tr> <td>Total percentage</td> <td></td> <td></td> <td>100%</td> </tr> </tbody> </table>					Commodity description	Origin of commodity by country	Percentage	a. Commodity 1	_____	(dropdown)	_____%	b. Commodity 2	_____	(dropdown)	_____%	c. Commodity 3	_____	(dropdown)	_____%	d. Commodity 4	_____	(dropdown)	_____%	e. Commodity 5	_____	(dropdown)	_____%	f. All other commodities			_____%	Total percentage			100%
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<p>3. What was the revenue from the goods that were resold outside of Canada after being purchased abroad? <i>Report all amounts in thousands of Canadian dollars.</i></p> <p>\$ _____,000</p>																																			
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	Commodity description	Destination of commodity by country	Percentage																																
a. Commodity 1	_____	(dropdown)	_____%																																
b. Commodity 2	_____	(dropdown)	_____%																																
c. Commodity 3	_____	(dropdown)	_____%																																
d. Commodity 4	_____	(dropdown)	_____%																																
e. Commodity 5	_____	(dropdown)	_____%																																
f. All other commodities			_____%																																
Total percentage			100%																																
<p>5. Summary of your total estimated value of goods purchased and resold abroad. <i>Please review the values and if needed, press the 'Previous' button at the bottom of the page to navigate to the previous pages to make any modifications.</i></p> <table style="width: 100%; margin-top: 10px;"> <tr> <td style="width: 80%;"></td> <td style="text-align: right;">\$ CDN</td> </tr> <tr> <td>a) Total cost of goods purchased outside of Canada for resale in foreign markets as reported in question 1.</td> <td style="text-align: right;">\$ _____,000</td> </tr> <tr> <td>b) Total estimated value of the goods resold outside of Canada after being purchased abroad as reported in question 3.</td> <td style="text-align: right;">\$ _____,000</td> </tr> <tr> <td>Total estimated value of merchanting</td> <td style="text-align: right;">(automatically calculated b-a)</td> </tr> </table>					\$ CDN	a) Total cost of goods purchased outside of Canada for resale in foreign markets as reported in question 1.	\$ _____,000	b) Total estimated value of the goods resold outside of Canada after being purchased abroad as reported in question 3.	\$ _____,000	Total estimated value of merchanting	(automatically calculated b-a)																								
	\$ CDN																																		
a) Total cost of goods purchased outside of Canada for resale in foreign markets as reported in question 1.	\$ _____,000																																		
b) Total estimated value of the goods resold outside of Canada after being purchased abroad as reported in question 3.	\$ _____,000																																		
Total estimated value of merchanting	(automatically calculated b-a)																																		

23. This information that is collected in module 4 will be used to develop a series of balance of payments adjustments such that:

- The “cost of goods purchased outside of Canada for resale in foreign markets” will represent the negative exports of goods under Merchanting
- The “value of goods that were resold outside of Canada after purchasing abroad” represents the positive value of exports under merchanting.
- The difference between the two represents the net exports of merchanting services.

D. Module 5 (Section D): Do You Have Other Global Arrangements for Manufacturing Finished Goods?

24. This module that was developed to ask the respondent to answer a number of questions related to their other types of production arrangement abroad. The key difference between this module and the Processing section (Module 3) is that the Canadian businesses **are not involved in** any raw or intermediate materials that were used for processing or production abroad; however, **it does supply design, pattern paper, sample, drawings, or other intellectual properties. It owns and has the ultimate control on the distribution and marketing channels of the finished goods.** These businesses also record the cost and the revenue of the sale on the finished goods in its accounting books.

25. The production arrangement module is broken down into,

- Cost, origin and ownership of finished products manufactured outside of Canada
- Destination of final products manufactured globally

26. The specific questions that were tested are shown in Figure 5.

Other global arrangements for manufacturing finished goods

Figure 5
Cost, origin, ownership, and revenue from the final products manufactured abroad

Include: the cost and the revenue from selling the finished goods that were manufactured and recorded in the accounting books by this business.

Note: this business should not own nor supply any raw or intermediate materials that were used for production; however, it does supply design, pattern paper, sample, drawings, or other intellectual properties; it should own the finished goods; and it should also control the distribution channel.

1. What was the total cost of this business on manufacturing finished goods for sale?
Include: the cost on all the finished goods that were manufactured for sale within and outside of Canada and recorded in the accounting books by this business.
*Report all amounts in **thousands** of Canadian dollars.*

a. Manufactured outside of Canada	\$ _____,000
b. Manufactured in Canada	\$ _____,000
Total value	\$ _____,000

2. Of the #{CostFinProd_1a} value of the goods that were manufactured abroad, what was the percentage breakdown by finished goods and its corresponding country of manufacturing?
*Note: Provide a brief description for the top 5 finished goods that contributed to the largest percentage of the total estimated value of cost of goods manufactured **outside of Canada** by country of manufacturing*

	Finished goods description	Destination of finished goods by country	Percentage
a. Finished goods 1	_____	(dropdown)	_____%
b. Finished goods 2	_____	(dropdown)	_____%
c. Finished goods 3	_____	(dropdown)	_____%
d. Finished goods 4	_____	(dropdown)	_____%
e. Finished goods 5	_____	(dropdown)	_____%
f. All other finished goods	_____		_____%
Total percentage			100%

3. Of the #{CostFinProd_1a } value of the goods that were manufactured abroad, what was the percentage breakdown by owner?
***Definition of owner** is the one who records the cost of the final goods manufactured abroad in its accounting books*

a. Owned by this business or its affiliates inside Canada	_____%
b. Owned by this business’s majority-owned subsidiaries outside of Canada	_____%
c. Owned by this business’s other affiliates outside of Canada	_____%
Total foreign manufactured goods	100%

4. Of the #{CostFinProd_1a } value of the goods that were manufactured abroad, what was the percentage breakdown by final destination?

a. Brought back to Canada	_____%
b. Sold outside of Canada	_____%
Total foreign manufactured goods	100%

5. What was the estimated **revenue from selling the foreign manufactured goods**?
*Report all amounts in **thousands** of Canadian dollars.*

a. Sold outside of Canada	\$ _____,000
b. Sold in Canada	\$ _____,000
Total value	\$ _____,000

6. Of the # {ValForMfta} value of the foreign manufactured goods that were sold outside of Canada, what was percentage breakdown by country of destination?
Note: Provide a brief description of the top 5 finished goods that contributed to the largest percentage of the total estimated value of the finished goods that were sold outside of Canada by country of destination.

	Finished goods description	Destination of finished goods by country	Percentage
a. Finished goods 1	_____	(dropdown)	_____%
b. Finished goods 2	_____	(dropdown)	_____%
c. Finished goods 3	_____	(dropdown)	_____%
d. Finished goods 4	_____	(dropdown)	_____%
e. Finished goods 5	_____	(dropdown)	_____%
f. All other finished goods	_____		_____%
Total percentage			100%

27. The information that is collected in the above global production module will be used to develop a series of balance of payments adjustments such that:

- The value reported “the **total cost** of this business on manufacturing finished goods for sale” for which “the goods that were manufactured abroad” and “sold outside of Canada” represents the value that will be used to measure the imports of Canadian owned finished goods that were sold abroad.
- The estimated value of “**revenue** from selling the foreign manufactured goods” that took place “sold outside of Canada” will be added to the export of goods flow.

E. Module 6 (Section E): Measure of Inventories Held Abroad

28. This module was developed for testing relates to inventories that stored outside of Canada for processing, merchanting and other production related activities. This information that is collected in module 6 will be used to reflect all the raw materials or goods, that are under Canadian ownership but temporarily held outside of Canada, can be included in the Canadian supply-use tables. The questions that will be tested are shown in Figure 6.

Figure 6
Inventory

Please report the value of inventory that was held outside of Canada in thousands of Canadian dollars at the beginning and end of the reporting period.			
<i>Report all amounts in thousands of Canadian dollars.</i>			
		Opening	Closing
		‘000 CAN\$	‘000 CAN\$
1	Raw materials and components Include: non-returnable containers and other shipping and packaging materials	_____	_____
2	Goods and work in process	_____	_____
3	Finished goods manufactured	_____	_____
4	Goods purchased for resale, as is	_____	_____
5	Other inventories — please specify:	_____	_____
6	Total inventories	_____	_____

F. Module 7 (Section F): Other Global Production Activities That Were Not Covered

29. This section aims to capture if any other global production activities abroad that were not captured in the previous modules; if so, Statistics Canada will conduct further research in the next round of study.

Figure 7

Brief description of any other global production activities

Please provide a brief description of this business’s main production activities abroad that were not reported above.

G. Module 8 (Section G): Characteristics of Canadian Companies Involved in Global Production Activities

30. This last module was developed to interview respondents about their global business operations at the field testing period. These questions are asked in order to provide an up to date profile of the firm. Statistics Canada will use this information to update its business register so that it can maintain an updated list of firms in the Canadian economy engaged in global production activities. This information can then be used to in the future to stratify survey’s aimed at measuring the activities of these firms. The questions are broken down into,

- Ownership of intellectual property products
- Ownership of final products manufactured globally
- Statistical reporting

31. The specific questions that were developed are shown in Figure 8 through 10.

Figure 8

Ownership of intellectual property products

1.	Did your business own the intellectual property (designs, patents, copyrights, trademarks, etc.) associated with processing or manufacturing contracted abroad?	Yes (all) <input type="checkbox"/> Yes (some) <input type="checkbox"/> No <input type="checkbox"/>
2.	Did your business own the intellectual property (designs, patents, copyrights, trademarks, etc.) associated with processing services provided to foreign firms	Yes (all) <input type="checkbox"/> Yes (some) <input type="checkbox"/> No <input type="checkbox"/>
3.	Did this business own or control labour or physical capital associated with processing or manufacturing within Canada?	Yes (all) <input type="checkbox"/> Yes (some) <input type="checkbox"/> No <input type="checkbox"/>

Figure 9

Ownership of final products manufactured globally

1.	Did this business record the sale of the final products manufactured abroad on its consolidated financial statements?	Yes <input type="checkbox"/> No <input type="checkbox"/>
2.	Did your business contract out the majority of the production of its goods to third parties?	Yes (all) <input type="checkbox"/> Yes (some) <input type="checkbox"/> No <input type="checkbox"/>
3.	Was your business able to decide which foreign plants can be used to manufacture the final products?	Yes (all) <input type="checkbox"/> Yes (some) <input type="checkbox"/> No <input type="checkbox"/>
4.	Was your business able to decide who can supply raw or intermediate materials for the products manufactured abroad?	Yes (all) <input type="checkbox"/> Yes (some) <input type="checkbox"/> No <input type="checkbox"/>
5.	Was your business able to decide which distributor or retailer could sell the final products globally and at what retail prices?	Yes (all) <input type="checkbox"/> Yes (some) <input type="checkbox"/> No <input type="checkbox"/>
6.	Did your business contribute the largest share of value-added ¹ of the final products manufactured abroad?	Yes (all) <input type="checkbox"/> Yes (some) <input type="checkbox"/> No <input type="checkbox"/>
7.	Did your business assume the inventory risks and non-performance of final products and services related to production or distribution?	Yes (all) <input type="checkbox"/> Yes (some) <input type="checkbox"/> No <input type="checkbox"/>

F. Enterprise or Establishment

32. The final set of questions being tested are being used to determine whether or not the information outlined above is best collected at the enterprise or establishment level. It is assumed that in many cases it is the enterprise rather than the establishment that will be able to reported information related to global production. As such the questions in figure 10 will be tested on both the establishment based surveys as well as an economy wide enterprise survey.

Figure 10

Statistical Reporting

1.	Is this business also able to report worldwide sales, production, inventory, cost of goods sold, and employment?	Yes <input type="checkbox"/> No <input type="checkbox"/>
2.	Is this business able to report these same statistics by country?	Yes <input type="checkbox"/> No <input type="checkbox"/>

V. Conclusion

33. Statistics Canada is committed to adopting the 2008 SNA and BPM6 recommendations related to global production. Statistics Canada did not implement these recommendations in 2012 when it converted to the 2008 SNA standard because it did not have the required data sources to implement the recommendations and many of Canada's major trading partners had not yet convert to 2008 SNA.

34. Given that many countries have now adopted the new international standards and are working on the global production recommendations, Statistics Canada will move forward in

adopting the new treatment associated with global production arrangements as the agency places a high priority on international capability. The first step in adopting these recommendations is the development of an infrastructure that will provide the high quality and detailed information required to develop the new series. This paper outlines a number of questions that Statistics Canada will be testing with key respondents to determine the best way to collect the required information. Once the results of the testing of these questions is complete Statistics Canada commits to publishing the results so that the international community can benefit from what Statistics Canada will learn from its dialogue with its respondents.

Appendix A: Integration of the above information into the Canadian System of Macroeconomic Accounts

Currently, Statistics Canada uses information from the Canadian Border Services Agency (CBSA) along with a series of Balance of Payments adjustments to measure the import and export of goods within the Canadian System of Macroeconomic Account (CSMA). As noted earlier Statistics Canada does not follow the 2008 SNA recommendation regarding imports and exports of processing services and imputes a change in ownership when goods cross the border.

The export and imports of processing service on the physical inputs of others modules identified in the first section of this paper are intended to provide information that Statistic Canada can use to measure the imports and exports of processing services as well as adjust the customs data Statistics Canada uses to compile its trade in goods measures to a change in ownership basis. Given the aggregate measures do not provide the same level of country and commodity detail (200 commodities and 30 principal trading areas) found on the customs based data a number of models are required to provide the granularity needed. This next section of the paper outlines how the above information will be used to derive benchmark estimates of exports and imports of processing services by country as well as how adjustment factors will be used to remove the relevant transactions from the customs based statistics.

The best way to illustrate how this information will be used is through the use of an example. For the purposes of our example, assume the following fictitious transactions related to Canadian Exports and Imports obtained from Customs declarations.

Table 3
Fictitious Exports Transactions

<i>Transaction</i>	<i>Exporter</i>	<i>Commodity</i>	<i>Country</i>	<i>Value</i>
1	Firm 1	Parts and Accessories of phone	Hong Kong	1,000
2	Firm 2	Parts and Accessories of phones	US	2,000
3	Firm 3	Automobiles	US	10,000
4	Firm 4	Automobiles	Japan	10,000
5	Firm 5	Crude Petroleum	US	15,000
6	Firm 5	Crude Petroleum	China	5,000
7	Firm 3	Automobile parts	US	2,000
Total				45,000

Table 4
Fictitious Import Transactions

Transactions	Importer	Commodity	Country	Value
1	Firm 3	Automotive Engines	US	1,000
2	Firm 4	Automobile Tires	France	10,000
3	Firm 3	Automobiles	Germany	5,000
4	Firm 1	Phones	Hong Kong	5,000
5	Firm 6	Parts and accessories of phones	US	4,000
6	Firm 7	Televisions	Taiwan	6,000
7	Firm 8	Apparel	Philippines	10,000
8	Firm 5	Refined Petroleum	US	20,000
Total				61,000

Assume also that the following information was obtained from respondents to Statistics Canada's annual business survey program using the collection vehicles noted above.

Table 5
Exports of Processing Services

<i>Respondent</i>	<i>What was the revenue for processing or manufacturing services for clients outside of Canada</i>	<i>Total estimated value of finished goods after processing</i>	<i>What was the total estimated value of raw materials or goods received from clients outside Canada that were used for processing?</i>	<i>What was the estimated value of the finished goods after processing that were shipped outside of Canada without ownership change?</i>	<i>What was the estimated value of finished goods after processing that were shipped or sold in Canada on behalf of the foreign client without ownership change</i>
Firm 1					
Firm 3	9000	10,000	1000	100	0
Firm 4					

Table 6
Imports of Processing Services

<i>Respondent</i>	<i>What was the cost of processing or manufacturing services provided by foreign entities outside of Canada on raw materials owned by this business</i>	<i>What was the estimated value of raw materials or goods this business owned that were exported from Canada, provided to the foreign service provider and used as an input for their processing activities</i>	<i>Total estimated value of finished goods after processing</i>	<i>What was the estimated value of the finished goods after processing that were returned to Canada without ownership change?</i>	<i>What was the estimated value of finished goods (without ownership change) that were shipped or sold outside of Canada on behalf of this business after processing</i>
Firm 1					
Firm 2					
Firm 3					
Firm 5	5,000	15,000	40,000	50%	50%

Using the information in table 5 and 6 and linking it to table 3 and 4 by the enterprise identifier we are able to estimate the value that should be removed from the exports and imports of goods. One way to envision this is by assuming the microdata sets can be linked by firm identifier. The resulting merged datasets and adjustments therefore appear as follows:

Table 7
Fictitious Export Transactions

<i>Transaction</i>	<i>Exporter</i>	<i>Commodity</i>	<i>Country</i>	<i>Value</i>	<i>Total estimated value of finished goods after processing</i>	<i>What was the estimated value of raw materials or goods this business owned that were exported from Canada, provided to the foreign service provider and used as an input for their processing activities</i>
1	Firm 1	Parts and Accessories of phone	Hong Kong	1,000		
2	Firm 2	Parts and Accessories of phones	US	2,000		
3	Firm 3	Automobiles	US	10,000	10,000	
4	Firm 4	Automobiles	Japan	10,000		
5	Firm 5	Crude Petroleum	US	15,000		15,000
6	Firm 5	Crude Petroleum	China	5,000		
7	Firm 3	Automobile parts	US	2,000		
Total				20,000		

Table 8
Fictitious Import Transactions

<i>Transactions</i>	<i>Importer</i>	<i>Commodity</i>	<i>Country</i>	<i>Value</i>	<i>What was the estimated value of the finished goods after processing that were returned to Canada without ownership change?</i>	<i>What was the total estimated value of raw materials or goods received from clients outside Canada that were used for processing?</i>
1	Firm 3	Automotive Engines	US	1,000		1,000
2	Firm 4	Automobile Tires	France	10,000		
3	Firm 3	Automobiles	Germany	5,000		
4	Firm 1	Phones	Hong Kong	5,000		
5	Firm 6	Parts and accessories of phones	US	4,000		
6	Firm 7	Televisions	Taiwan	6,000		
7	Firm 8	Apparel	Philippines	10,000		
8	Firm 5	Refined Petroleum	US	20,000	20,000	
Total				40,000		

Summarizing the above information results in the following changes in the International Trade transactions

Table 9
Imports and Exports on a change in ownership basis

<i>Accounting Treatment</i>	<i>Exports of Goods</i>	<i>Imports of Goods</i>	<i>Net Trade in Goods</i>	<i>Exports of Services</i>	<i>Imports of Services</i>	<i>Net Trade in Services</i>	<i>Total Net Trade</i>
Current Treatment	45,000	61,000	-16,000	0	0	0	-16,000
2008 SNA recommendation	20,000	40,000	-20,000	9000	5000	4000	-16,000