

**LINKS BETWEEN
TRADE IN SERVICES AND DOMESTIC PRODUCTION:
CONCEPTUAL AND MEASUREMENT ISSUES**

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INTRODUCTION

As interest in analyzing the service sector has grown internationally, three problems have become increasingly apparent: significant coverage gaps in services data, a lack of coherence between existing data on domestic production and international trade in services, and a lack of international comparability in trade in services data.

The increased focus on services statistics provided the impetus for international efforts to enhance their quality and quantity. The objectives included increasing coverage and promoting greater consistency in the compilation of data on production and trade in services both within and between countries. With the inclusion of services in the GATT negotiations, the Organization for Economic Cooperation and Development (OECD) launched a substantive initiative in 1983 by setting up a working group composed mainly of BOP statistical experts to develop a database on international trade in services. Since then, services also became a focal point with other agencies, such as the United Nations (UN), the International Monetary Fund (IMF), the Statistical Office of the European Communities (EUROSTAT), and the Voorburg Group, where discussions were held to ensure the coordination of efforts by all parties concerned.

Notable among these efforts have been the coordinated revisions of both the UN's System of National Accounts (SNA) and the IMF's Balance of Payments (BOP) Manuals, and the development of a classification system (CPC) where the Voorburg Group has been actively involved.

In the course of the revisions of the SNA and BOP Manuals, a serious attempt has been made to standardize and coordinate basic concepts, definitions, classifications and conventions so as to facilitate better links between the data compiled under these two frameworks. There remain, however, a number of issues related to the reconciliation process which have not yet been resolved conclusively.

Significant efforts have also been undertaken by member countries to improve their services statistics since the early eighties. In Canada, coverage has improved considerably and the coherence between trade and production data is closely monitored. These improvements were helped by the fact that the BOP data are fully integrated with the SNA data, and by a large number of surveys, including trade in services, being carried out by Statistics Canada. A strategic plan, involving a wide range of participants from the agency, has also been put in place to further develop and improve services statistics.

It has been argued that some of the problems of inconsistencies between production and trade can be accounted for by the fact that these data are compiled on the basis of two conceptual frameworks, the BOP and the SNA. While the BOP and the SNA compilers operate under two distinct frameworks, the nature of the problem of incoherence between trade and production data lies fundamentally with other factors.

The primary purpose of this paper is to examine the nature of the differences between the BOP and the SNA data from both the conceptual and measurement points of view, and to offer some suggestions. It is composed of four parts: Part I provides an overview of the basic relevant concepts and definitions in the SNA and the BOP; Part II

examines issues arising from the application of these principles to the SNA and the BOP frameworks; Part III focuses on measurement problems; and Part IV forms the conclusion.

1. An Overview of the Basic Concepts and Definitions

Definition of Services

As an initial step in establishing better data links between domestic production and international trade in services, and greater international comparability among countries, agreement has to be reached on a common definition of services. Such a definition will contribute to the distinction of services from goods and factor incomes and, hence, to the consistent compilation of the BOP and the SNA data on services.

Prior to the current version, the IMF Manual did not require that goods, services and factor incomes be reported separately: thus, it did not have a definition of services. To some extent, this is not surprising given that the BOP focuses primarily on measuring transactions with other countries, and was not overly concerned with differentiating between the sources of these flows in the same fashion as the SNA. Hence, transactions in services were not identified as such.

From the SNA, or supply and demand points of view, however, the distinction between goods, services and factor income is essential. Reflecting on the complex and heterogeneous nature of services, formulating a unique and comprehensive definition for services has not yet been possible. Ongoing attempts to reach such a definition led to several possible approaches. A widely accepted approach defines services on the basis of common characteristics differentiating them from goods and factor incomes. According to T. P. Hill, the distinguishing feature of a service is that its producer adds value not to his own goods but rather to the goods of some other economic unit.¹ Services are generally neither storable nor transferable. Thus, they must be delivered as they are produced which implies direct contact between the producer and consumer. As a result, service production may be constrained by the location of the consumer.

The lack of a unique and all-encompassing definition that distinguishes services from goods and factor incomes has been circumvented by convention in the classification of services. With the increased emphasis on coordination and coherence, the fifth edition of the IMF Manual will introduce a distinction between goods, services and income. Furthermore, the Central Product Classification (CPC) will be the classification used by both the SNA and IMF frameworks. These initiatives constitute a big step towards the integration of production and trade in services statistics.

¹T. P. Hill, "The Economic Significance of the Distinction Between Goods and Services", presented to the Voorburg Group in Stockholm, November 1987.

Definition of Residence

Measuring domestic production and international transactions involve the concept of residence. Residence delineates the boundaries of domestic production and of international transactions. In order to ensure consistency between the SNA and the BOP, it is hence essential that a common and clear definition of residence is adopted in both accounts. The international acceptance and use of a common definition is also crucial for international comparability.

As stated in both the SNA and the IMF Manuals, the concept of residence is based on economic considerations and not on nationality or legal criteria. In the upcoming revised IMF Manual, an institutional unit "is a resident unit when it has a centre of economic interest in the economic territory of the country in question... The conduct of economic activities and transactions over a period of one year normally implies a centre of interest, but the choice of any specific period of time is somewhat arbitrary and it must be emphasized that one year is suggested only as a guideline and not as an inflexible rule." This definition is further and extensively detailed in the IMF documents and is harmonized with the definition in the upcoming SNA Manual. We will revisit the concept of residence in the section on direct investment and trade in services.

Trade in Services and the BOP

Both the BOP and the SNA are ruled by the same fundamental objectives and principles: they both are part of a macro-economic accounting system describing economic activity and market transactions reported on the basis of change in ownership and accrual accounting. Within these overall objectives and principles, the BOP is tailored to respond to specific economic and data needs, as is the case among the various components of the SNA such as Input-Output, Income and Expenditure Accounts or the Financial Flow Accounts. In the BOP, these objectives are the reporting of all economic transactions with non-residents and the corresponding flow of funds. Consistent with these objectives, international transactions in services are reported on a gross basis for BOP purposes presenting the associated receipts and payments separately. This reporting convention for international economic transactions is also consistent with the objective of output compilers as long as the flows of receipts and payments represent an appropriate measure of the services which have been traded. This is not, however, always achieved, as can be seen in some of the cases illustrated in this paper.

2. Application of the Basic Concepts and Definitions to Selected Areas

The Ownership Criterion and the Treatment of Processing and Repair

The measurement of transactions, based on the criterion of change in ownership in their recording, is fundamental to both the BOP and the SNA. The debate in regard to processing and repair has been the treatment of the flows of merchandise crossing the border to be transformed and shipped out again, with no change in ownership occurring.

This question has been discussed at the international level and in member countries, and impacts the coherence between production and trade in services statistics.

It has been argued that not all processing and repair should be classified as service activity, and that this should depend on the extent to which the good is transformed. For example, in the case of a bottler who adds value to a product without actually involving a major transformation to the original good, the activity should be treated as services. However, processing, which renders sausage from beef, involves the transformation of another unit's goods to the extent that the original good is not recognizable. On this basis, some have suggested that processing is akin to a good-producing activity.

The IMF and UN both seem to have agreed that all goods crossing the border should be treated as merchandise trade. However, applying this treatment to the BOP and also to the SNA leaves some questions unresolved. While this convention avoids the measurement difficulties associated with the identification of goods crossing the border with no change in ownership, and promotes a consistent treatment of processing and repair services on which to compile production and trade statistics, it does at the same time generate problems for the BOP and the SNA.

The problems are of both a conceptual and measurement nature. A merchandise import implies an inflow of money in the BOP capital account and inversely a merchandise export implies an outflow. In the case of goods crossing the border for processing, with no change in ownership, the only capital movement recorded would be the equivalent of the value of processing. This implies that offsetting adjustments, equivalent to the value of the good before processing, are made either in the capital or the current account. If these adjustments are made in the capital account, and to the extent that processing is a major activity, this means that imports, exports and trade balances would be artificially and significantly affected sending false signals to decision makers. An alternative solution could be to make the offsetting adjustment within the trade sub-account in the current account transactions. Adjustments would be required across the SNA as well, involving possibly a wide range of variables, such as inventories, which are currently estimated on the principle of the change in ownership. If adjustments are not made, a statistical discrepancy will show between the current and capital account in the BOP, GNE will be inconsistent with GDP estimates, and the production of services associated with processing and repair will not be reflected in exports of services.

The following table illustrates the two situations: recording and not recording a good when it crosses the border.

Table 1

**Impact of Recording Goods Crossing the Border
With No Change in Ownership**

Note: Exports, imports, output do not occur within the same quarter; Good is imported during the first quarter, and processed and exported in the second quarter. Value of the good: \$2,000; Value of the processing: \$500.

SCENARIO 1 No ownership change and the good is not recorded		SCENARIO 2 No ownership change and the good is recorded	
Q1 U.S. good sent to Canada for processing	Q2 Good is processed and returned to U.S.	Q1 U.S. good sent to Canada for processing	Q2 Good is processed and returned to U.S.
BOP			
Current Account			
X	500	-	2,500
M	-	2,000	-
Balance	+ 500	-2,000	+ 2,500
Capital Account			
Balance	-500	-	-500
Discrepancy	-	+ 2,000	-2,000
GDP Income based			
Wages, salaries & profits	500	-	500
GDP	500	-	500
GDP Output based			
Output	500	-	500
Input	-	-	-
GDP	500	-	500
GDP Expenditure based			
Inventories owned	-	-	-
X	500	-	2,500
M	-	2,000	-
GDP	500	-2,000	2,500

In scenario 1, the good is not recorded when it crosses the border. In the Balance of Payments Account, a receipt (\$500) is recorded in the second quarter for the value of the processing with a corresponding outflow of capital in the capital account. GDP increases in the second quarter by the value of the processing (\$500) in the three approaches used to estimate GDP: expenditure based, income based and output based.

Scenario 2 assumes that although the good does not change ownership, its value is recorded when it crosses the border. In the first quarter, the BOP records a current account deficit of \$2,000, and as there are no related capital transactions, this results in a statistical discrepancy of +\$2,000. In the second quarter, a current account surplus of \$2,500 is recorded, while the capital account shows capital transactions of only \$500 corresponding to the value of processing. Consequently, a statistical discrepancy of -\$2,000 appears in the second quarter. GDP estimates based on the income and the output approaches amount to \$500 in the second quarter. However, GDP expenditure-based is -\$2,000 in the first quarter and +\$2,500 in the second quarter, representing the value of the good crossing the border for processing (\$2,000) plus the value of processing (\$500).

Also, in the case where the value of the good crossing the border for processing is not recorded, supply equals demand in both quarters. As illustrated below, this is not, however, the case when the value of the good crossing the border is recorded.

Table 2

Impact on Supply and Demand Estimates

	NOT RECORDED		RECORDED	
	Q1	Q2	Q1	Q2
Supply				
Output	-	500		500
Imports	-	-	2,000	-
Total Supply	-	500	2,000	500
Demand				
Change in inventories	-	-	-	-
Exports	-	+500	-	2,500
Total Demand	-	500	-	2,500

As stated earlier, in the case of goods crossing the border for processing and repair with no change in ownership, adjustments would be required for both the BOP and the SNA, including the balance sheets and the flow of funds accounts. However, these adjustments imply that the amounts are known. The issue is further complicated as similar adjustments would also be required to domestic transactions pertaining to processing and repair.

Adding the requirement to record a good which crosses the border for processing and repair distorts the objectives of the accounts and the analysis of their individual components as there are no economic transactions taking place. The ramifications on the BOP and the SNA, resulting from the exemption of the change in ownership principle for processing and repair, need to be clearly defined and assessed both in terms of articulation and impact in general. From the perspective of the production process, one might argue that the necessity of building production accounts independently from the ownership criterion. This, however, could be achieved with an additional set of production accounts without altering the core BOP - SNA accounts. A core account is not meant to respond to all data needs.

Direct Investment vs. Trade in Services

In general, services are produced and consumed at the same time so that direct contact between producers and consumers of services is often necessitated. From an international perspective, this proximity requirement means that either consumers travel to the service-producing economy or producers travel abroad to provide services to non-resident consumers. In the latter case, services may be delivered through temporary or permanent operations established abroad. If permanent, the producer is then a resident of the country in which it operates.

Whether trade in services occurs directly with the home parent firm or through a foreign affiliate (direct investment) affects how these transactions are treated. Sales of foreign affiliates to residents of the host country are not recorded as BOP international trade because they occur between residents of the same country. However, profits accruing to the parent company from the operations of its foreign affiliates are recorded in the BOP as returns on foreign direct investment abroad. Only direct sales/purchases between residents and non-residents are to be recorded as trade in services, though they may be provided through temporary operations abroad.

The distinction between trade in services and direct investment operations may be problematic in cases where provision of a service may require a temporary presence abroad of more than one year. As noted earlier, in both the UN and IMF Manuals, residency is determined on the basis of the economic territory in which the firm maintains a centre of economic interest. Permanent residency is associated with a presence abroad of one year or more, although not exclusively.

The following describes the definition of residency provided by the Manual in respect to the production activities of enterprises. "Production undertaken by the personnel (and plant and equipment) of a resident enterprise outside its economic territory is to be treated as part of the production of the host country and the enterprise treated as a resident (branch or subsidiary) of that country if

- (i) the enterprise maintains at least one production establishment there which it plans to operate indefinitely or over a long period of time (a guideline is one year or more, applied flexibly...); and

- (ii) among other considerations, maintains a complete and separate set of accounts of local activities (i.e. income statement, balance sheet, transactions with the parent company), pays income taxes to the host country, has a substantial physical presence, receives funds for its work for its own account, etc.

The above considerations also apply to the particular case of construction activity carried out abroad by a resident producer. If they are not present, the activity should be classified as an export of services by the resident enterprise. Production can generate such an export only if the production is classified as domestic production (undertaken by a resident even though the physical process takes place outside the economic territory)."

While the definition of residence described above is very similar to the definition of residence for tax purposes, it remains ambiguous. Would it not then have been simpler to qualify it as based on the taxation criterion? While such a criterion should ease consistency between production and trade in services statistics, it would not, however, adequately reflect the economic nature of the transactions or activities. A resident enterprise may indeed undertake a construction project abroad over a period of two years and fulfil the conditions described in the definition provided above but still not respond to some of the fundamental economic characteristics of the activities and operations of a direct investment firm.

In this example, when the enterprise carries out the project for a period of two years, there is hardly any significant investment involved because the nature of the activity is temporary. Direct investment has not occurred as there is no lasting interest, which would be acquired through the purchase of all or part of the interests of an existing firm or through the establishment of a branch or an affiliate. In the BOP capital account and in the international investment position account, the associated capital flows are treated as direct investment assets abroad, while for the host country, they are treated as foreign direct investment liabilities.

The residence allocation of the production activities should, in our opinion, be allocated on the basis of whether or not these activities are associated with project-oriented contracts. This is the practice in Canada. In terms of coherence between production and trade in services, this requires a close monitoring and articulation of production and trade in services surveys.

Banking and Insurance Services

Banking institutions primarily provide services of an intermediary nature, the value of which is based on explicit service charges (e.g. withdrawal fees) and on the intermediation services which are measured through net interest income. Despite some conceptual and measurement difficulties, banking services, including both explicit and non-explicit services, have long been included in the output measurement of financial services. However, only explicit charges are included as services in the BOP.

All interest receipts and payments reported for BOP are currently included in investment income. Imputations for banking services would involve transferring a portion of the interest in the investment income account to the current account under services. Although this change does not impact the overall current account balance, it seems to attract little interest from BOP compilers given the measurement problems associated with imputation.

Insurance services are essentially intermediary in nature. The sale of insurance involves the insured party paying some amount (premium) in the present in exchange for a promise to be paid a compensatory amount (claim) in the future, should a clearly defined set of circumstances arise. By convention, the output value of this intermediation service has generally been measured on a net basis in the SNA as the difference between premiums received and claims paid.

The adequacy with which trade in services, associated with insurance, can be measured, has not yet been resolved. It is possible that over a specified reporting period, insuring firms pay fewer claims to their foreign clients than they receive in premiums. When this occurs, the estimated value of the insurance service traded, based on premium receipts, less claims paid, might equal the full amount of the premium and, therefore, be overestimated. Furthermore, if claims and premiums are recorded at different times, the estimated value of insurance services may vary greatly from one reporting period to another and may even turn negative. However, it has been suggested that insurance services should be valued in general on the basis of expected claims, reflecting the insurer's own planning horizon. This would require, however, significant adjustments in the current and capital accounts of the BOP as well as in the SNA.

The concept and measurement of financial services in the SNA and BOP are currently under review for the UN and IMF Manuals and imputations are envisaged in the draft IMF Manual.

Engineering Services

The provision of engineering services by a firm involves a number of transactions including materials, labour and services purchased within the host country and materials imported from the home country. While the amounts received by the firms and the payments made to the non-residents abroad respond to the BOP data requirements, they do not, however, adequately reflect trade in services. Although net receipts would correspond better to the concept of trade, they might still include the value of materials purchased from the home country and exported. This implies that the necessary information is collected and made available by BOP compilers so that a proper estimate of trade in services can be derived.

Also, based on our experience, inadequate reporting by firms might also take place sometimes, as firms might include in their payments salaries of home residents working in the host country. These considerations prompted the necessity of properly articulating the questionnaires and defining concisely what is requested from the firms.

3. Measurement Issues

Freight Services

As discussed previously, establishing better links between domestic production and trade in services requires that services be distinguishable from goods and factor incomes. However, if freight charges for the transportation of goods to the customs border of the exporting economy are included in the FOB value of the goods, BOP compilers must be able to reliably separate this value into its merchandise and service components in order to satisfy SNA needs. Yet, the difficulties encountered in separating these items may reduce the level of coherence possible between production and trade in services data.

While the former problem is of greater concern to compilers of the SNA, this convention may also create measurement problems for BOP compilers. Implicit in the convention of trade on FOB border basis is the assumption that resident carriers of the exporting economy handle all transportation to the customs border. Therefore, freight services included in the FOB border value would be recorded as transportation services performed for residents of the importing economy. However, this convention ignores the realities of deregulation, which allow a carrier to operate outside its country of residence. Where carriers of the importing economy have been responsible for the transportation of goods from the plant to the final destination, this convention would result in an overestimation of freight service imports.

In the Canadian Balance of Payments, goods are valued on an FOB plant basis. As a result, inland freight to the customs border of Canada and from the border to the final destination can be treated separately. Despite this, measurement problems still exist. Inconsistencies have become apparent through supply and demand analysis using input-output tables. Despite explicit instructions to report merchandise trade on an FOB plant basis, it has become clear that some of the merchandise values reported include freight and insurance services. This is closely monitored by the compilers of SNA and BOP statistics in conjunction with the survey divisions.

Intra-Firm Trade in Services

Flows of services between a parent company and its foreign affiliates are treated as international trade in services. Transactions of this type account for the largest proportion of Canada's trade in services. However, it is not clear that the services "traded" between related firms have the same economic significance as those between unrelated parties. The management consulting services provided by a parent company to its foreign affiliates is not of the same nature as those which would be provided by an external consulting firm. Also, in an attempt to minimize its tax liabilities, related firms in different countries may transfer resources between them under the guise of services trade. As a result, the type and value of the international service transactions reported may not adequately represent international trade in services. Differentiating between capital, income and services transactions has become an increasingly difficult task for BOP compilers in the case of transactions between affiliates.

These considerations may have significant impact on production and trade statistics and require their close monitoring. From an analytical point of view, it would be useful to provide the transactions between related firms as an additional set of information. This is made available in the Canadian Balance of Payments.

4. Conclusion

The purpose of this paper has been to examine some of the outstanding issues which must be addressed in order to establish better links between domestic production and trade in services data. As outlined earlier, it should be noted that the two frameworks are, in fact, based on the same fundamental economic accounting principles. As compared to the external sector of the SNA, the BOP is just another way of presenting economic transactions with the rest of the world and this is aimed at responding to specific needs of decision makers. In fact, the two frameworks are complementary.

A common definition of services, distinction between services, goods and income, a common classification system for services or a common definition of residency, etc., should not constitute a problem. Since the IMF and the UN Manuals provide the basic conceptual frameworks for compiling the BOP and the SNA data, the current international efforts for consistency between the two frameworks constitute an important step towards attaining an integrated view of services sector activity. The fundamental remaining issues pertaining to the inconsistencies relate, in our opinion, to:

- . data needs required to build the bridge between the BOP and the trade in services. These needs could be met through BOP surveys;
- . the lack of coverage in services in general;
- . the lack of a clear definition of residence for output;
- . the measurement difficulties;
- . the possible gaps associated with the need for a close cooperation among compilers of the BOP, the SNA and survey divisions in general. The SNA might play an active role in this regard as its framework covers all segments of economic activity;
- . the problems associated with the exemption of the ownership criterion for processing and repair. Despite the difficulties associated with the recording of goods crossing the border for processing and repair, the criterion should be maintained. The core program of the SNA and the BOP are not meant to respond to all specific data needs. These could be met by a complementary set of accounts such as production accounts built independently from the ownership criterion to respond to specific issues;
- . the significance and the articulation of international transactions reported by the multinationals. Little attention has been devoted to this. Given their increasing importance, the nature of their operations and the economic characteristics of their behaviour in general as decision makers, they merit special consideration.