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Trade in services by mode of supply: definitions, collection strategies and preliminary results

by Ekaterina Niman and Mitra Rostami

Introduction

International trade in services is covered by a set of rules documented in the General Agreement on Trade in Services (GATS). GATS is a multilaterally-agreed upon legal framework for trade in services, which provides a system of enforceable obligations and commitments for services trade that apply to all members of the World Trade Organization. The GATS defines trade in services as the supply of a service through any of the four modes of supply: cross border, consumption abroad, commercial presence, and the presence of natural persons.

Both trade analysts and policy makers have expressed a strong need for more comprehensive data on trade in services in the context of interconnected economies. Data by mode of supply would allow trade negotiators to identify strengths and weaknesses within the service sector and provide a better vantage point for further negotiations. For trade analysts these statistics are needed to better understand the effect of services trade on economic development and globalization.

Currently, Statistics Canada does not publish trade in services by mode of supply. Given the growing importance of trade in services, Statistics Canada is addressing this data gap with this release of trade in services by mode of supply.

Statistics Canada has undertaken work to develop new estimates of trade in services by mode of supply. This article summarizes the work done in this area so far. It provides definitions of the four modes of service supply; identifies which modes can be used to deliver the categories of services currently published by Statistics Canada; discusses strategies for collecting trade data by mode of supply; and provides preliminary results.

Definition of modes of supply

The definition of trade in services in GATS covers the four modes of supply. Distinctions among these modes are based on whether the service supplier and the consumer are present in the same country or different countries when the transaction occurs.

Mode 1: Cross-border supply

Cross-border supply, takes place when a service is produced in one country but consumed in another one. Similar to traditional trade, when a good is delivered across a border both the supplier and the consumer remain in their respective countries. For example, a law firm may deliver legal advice by telephone or through the internet to a client overseas, or an individual from one country may purchase and download a computer game from a software firm residing in another country.

Mode 2: Consumption abroad

Consumption abroad, takes place when services are consumed in the country where they are produced. The consumer or his/her property are abroad when the service is supplied. For example, a tourist may visit a museum while abroad or the property of a consumer, such as a ship, may be sent abroad to be repaired.

Mode 3: Commercial presence

Commercial presence, takes place when a service supplier establishes a presence abroad in order to provide services. For example, a financial institution may open a branch in another country in order to provide financial services there. Transactions in services under mode 3 are not included in Canada's international trade in services estimates. The information on mode 3 is rather available through the Foreign Affiliate Trade Statistics (FATS) program. Sales of foreign-owned firms in the domestic economy (payments) and sales of domestic-owned firms in foreign economies (receipts) are used as estimates for mode 3.

Foreign Affiliate Trade Statistics: commercial presence

Statistics on mode 3 (commercial presence) are available through the Foreign Affiliate Trade Statistics (FATS) program. Operating revenues of foreign majority-owned affiliates in Canada and sale revenues of Canadian majority-owned affiliates abroad operating in the service-producing sector can be used to measure activities related to mode 3. In 2015, revenues from foreign-owned firms of the service sector operating in Canada were \$577.4 billion compared with \$327.8 billion for revenues of Canadian-owned firms of the service sector operating abroad. These values are larger than the combined values of the three other modes of services imported and exported. However, revenues from FATS are not comparable to trade in services because they could include, for example, sales of goods for the wholesale and retail trade sectors or gross revenues rather than net revenues for the insurance sector.

Mode 4: Presence of natural persons

Presence of natural persons, takes place when an individual is present abroad in order to provide a commercial service. The service is produced in the country where it is consumed. For example, an engineering consultant may travel abroad to oversee aspects of a building project or an employee of a software firm may be sent abroad to deliver information technology services.

Simplified allocation approach

Acknowledging the need for information on trade in services by mode of supply, the latest revision of the *Manual on Statistics of International Trade in Services (MSITS 2010)* (<https://unstats.un.org/unsd/tradeserv/TFSITS/manual.htm>) includes a detailed description of the four modes. As a guide to a first estimation of the distribution of trade in services by mode of supply, *MSITS 2010* also proposes a simplified allocation of service categories, as recorded in the balance of payments, by dominant modes of supply.

Balance of payments transactions cover modes 1, 2, and 4. Therefore, theoretically, it is possible to derive information on services transactions by mode of supply from balance of payments services statistics. However, the challenge in applying the simplified allocation approach is that many categories of services in the balance of payments can be delivered through a number of modes.

For example, an engineering firm can provide a design to its client over an email (mode 1) and then subsequently send an employee to assist with the implementation of the design (mode 4). In the current balance of payment statistics, both activities would be recorded under the same category of engineering services. When considering the allocation by mode of supply, additional information and analysis for these kinds of transactions are needed to determine how modes can be separated.

While not perfect, the simplified allocation approach provides a guide on how service transactions could potentially be allocated to each mode.

Canada's mode of supply estimates using the simplified allocation approach

Based on the simplified approach, services categories are allocated to one or several modes of supply, depending on the category. Table 1 shows that while some categories of services are associated to one unique mode, many categories are associated to more than one mode. Service categories are based on the *Extended Balance of Payments Services Classification (EBOPS 2010)*, and are the same service categories used in Statistics Canada's current data on international transactions in services.

Table 1
International transactions in services with mode of supply allocation

Service categories	Assumed modes of supply allocation
Telecommunications services	Cross-border supply
Insurance services	Cross-border supply
Financial services	Cross-border supply
Charges for the use of intellectual property	Cross-border supply
Non-financial commissions	Cross-border supply
Equipment rentals	Cross-border supply
Travel	Consumption abroad
Maintenance and repairs	Consumption abroad
Transport	Cross-border supply, Consumption abroad
Computer and information services	Cross-border supply, Presence of natural persons
Management services	Cross-border supply, Presence of natural persons
Advertising and related services	Cross-border supply, Presence of natural persons
Research and development services	Cross-border supply, Presence of natural persons
Audio-visual services	Cross-border supply, Presence of natural persons
Other personal, cultural and recreational services	Cross-border supply, Presence of natural persons
Government services	Cross-border supply, Presence of natural persons
Architectural, engineering, and other technical services	Cross-border supply, Consumption abroad and Presence of natural persons
Miscellaneous services to business	Cross-border supply, Consumption abroad and Presence of natural persons
Construction services	Presence of natural persons

Source: Statistics Canada.

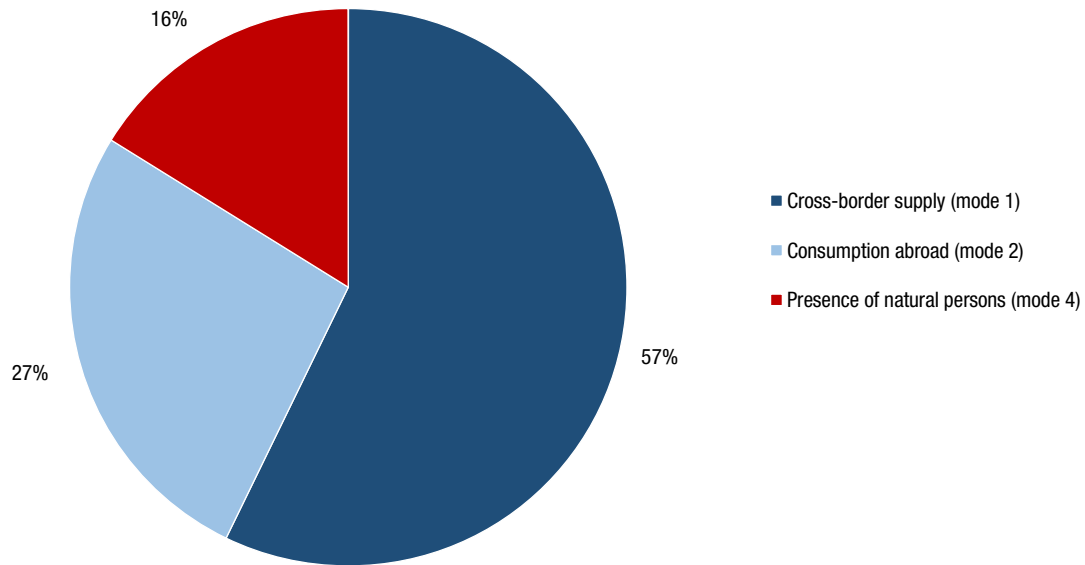
In order for data on mode of supply to be estimated using the simplified allocation approach, particularly for categories of services associated to multiple modes, assumptions need to be made on the proportion of services allocated to each mode.

For this exercise, the proportion of services allocated to each mode was done drawing on work done by Eurostat.¹ Their method consisted of attributing *EBOPS 2010* service categories based on an estimate of how specific service items are most probably supplied to consumers by exporters (importers) in the economy. For example, research and development services are assumed to be delivered via modes 1 and 4 and are estimated at 75% and 25%, respectively, based on Eurostat assessment of how they are likely supplied.

Once each mode and their proportion were defined, modes 1, 2, and 4 were estimated using Balance of payments data. The results show that in 2016, 57% of Canadian exports of services were delivered through mode 1, 27% through mode 2, and 16% through mode 4 (Chart 1). On the imports side, 58% of services were consumed via mode 1, 31% via mode 2, and 11% via mode 4 (Chart 2). Tables 2 and 3 show the value of exports and imports by mode of supply since 2011.

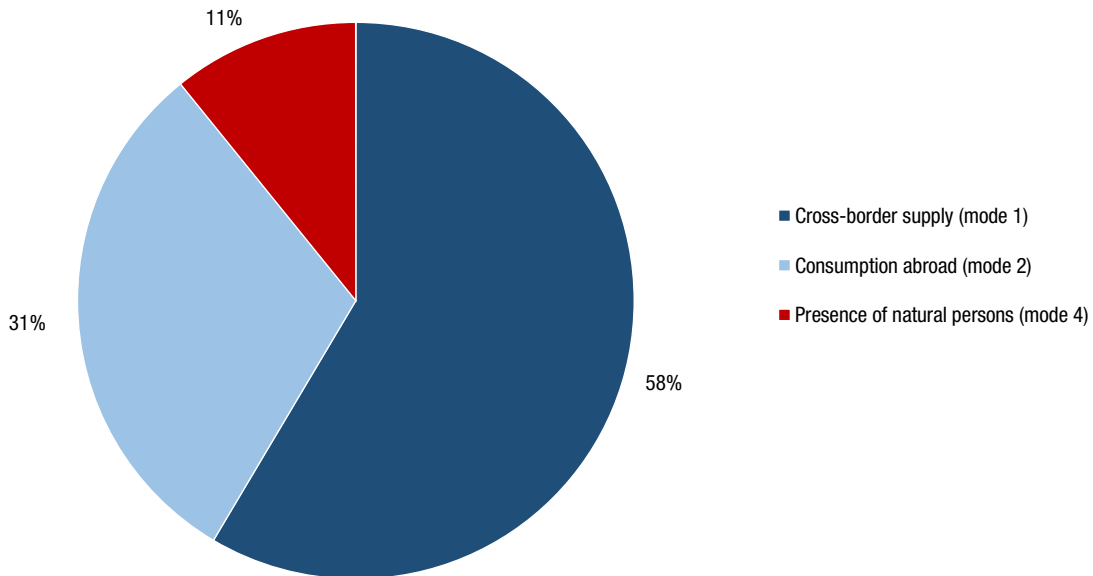
1. Rueda Cantuche, J.M., Kerner, R., Cernat, L. and Ritola, V. "Trade In Services by GATS Modes of Supply: Statistical Concepts and First EU Estimates" (http://trade.ec.europa.eu/doclib/docs/2016/december/tradoc_155119.pdf), Note Issue 3, Directorate General for Trade, European Commission, 2016.

Chart 1
Exports of services by mode of supply, 2016



Source: Statistics Canada.

Chart 2
Imports of services by mode of supply, 2016



Source: Statistics Canada.

In terms of the distribution of services by mode, mode 1 is mostly used for exports related to transport, financial services and management services. Travel accounts for the majority of services traded via mode 2, with transport and maintenance accounting for most of the remainder. Computer and management services make up almost half of services exported via mode 4, followed by transport.

Collection strategies

While the simplified allocation approach provides a guide to produce estimates of the distribution of international services by mode of supply, this method has limitations since it relies on assumptions about service delivery. In order to produce estimates of better quality, Statistics Canada concluded that the best and most optimal strategy to generate such estimates would be to use administrative data sources, and when not available, survey data.

Administrative data

While Statistics Canada plans on adding a new module in its trade in services survey to measure exports by mode of supply, administrative data are available and deemed to be of good quality to estimate imports by mode of supply. Statistics Canada plans on using the T4A-NR tax file to estimate delivery of services by mode 4. The most common combination of modes includes mode 4 and some other mode. Given the T4A-NR file provides information on mode 4, it is possible to use this information to subsequently derive imports by all modes.

T4A-NR data contain information provided by Canadian entities on their payments for services provided in Canada by non-residents. The information includes gross payments for services received, country of residence of the service provider and industry of the service provider. Based on the definition of mode 4, the T4A-NR tax file represents an appropriate source for the estimation of imports of services provided through mode 4. Using the information provided by the tax data, imports by all modes can be derived, and used to improve and modify the ratios defined in the simplified allocation approach. Preliminary work based on administrative data show that imports of services by mode 4 would be lower than those estimated with the simplified allocation approach.

Survey data

Exploratory work undertaken by other countries, such as the European Union, the United States, and Germany also reveal that the simplified allocation approach has limitations. All the exploratory studies conclude that the best approach to develop robust estimates by mode of supply is to collect data through existing survey activities.

In recent years, the United States, Spain, India, and New Zealand implemented changes to their respective surveys and included an additional question regarding modes of supply. Their experience suggests that the survey approach is a viable alternative to the simplified allocation approach and it produces better estimates of the distribution of modes of supply.

Statistics Canada is building on these experiences by designing a mode of supply module to be included in its International Transactions in Commercial Services survey. The objective is to include this module for reference year 2018, for which collection will begin in April 2019.

Taking into consideration the response burden while ensuring the collection of quality and detailed statistics, Statistics Canada is aiming to ask respondents for the percentage of their revenues from commercial services that are delivered remotely to foreign parties. In other words, the percentage of commercial services supplied via mode 1. This question will only be asked for services associated with multiple modes, as per the simplified allocation method, particularly cross border supply (mode 1) and presence of natural persons (mode 4). Using this information, exports by all modes can be derived, and used to improve and modify the ratios defined in the simplified allocation approach.

Conclusion

The move to develop statistics on international supply of services by mode of supply is driven by the need of GATS trade negotiators for high quality detailed information that can be used to support negotiations and to monitor the impact of services trade agreements. While statistics that are currently produced by Statistics Canada offer a wealth of information on trade in services flows by trading partners and by types of services, they lack in identifying how the services are supplied. Statistics Canada is addressing this gap through the use of a combination of survey and administrative data sources and will be in a position to publish new estimates of services by mode of supply in the coming years.

Table 2
Exports of services by mode of supply, simplified allocation approach

	2011	2012	2013	2014	2015	2016
	millions of dollars					
Cross-border supply (mode 1)	49,272	51,806	54,158	56,741	59,624	62,785
Consumption abroad (mode 2)	20,563	21,946	22,526	24,369	26,638	29,209
Presence of natural persons (mode 4)	14,521	15,472	16,452	17,197	17,540	17,735

Source: Statistics Canada.

Table 3
Imports of services by mode of supply, simplified allocation approach

	2011	2012	2013	2014	2015	2016
	millions of dollars					
Cross-border supply (mode 1)	60,444	62,884	65,277	68,882	73,865	78,312
Consumption abroad (mode 2)	34,629	36,834	38,189	40,238	41,342	40,980
Presence of natural persons (mode 4)	11,080	12,128	12,771	13,442	14,050	14,476

Source: Statistics Canada.