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Services

Introduction

12.1 Rapid technological advances in the past few decades in transport, telecommunication, computer, and information services, including the development of the Internet and electronic commerce, and innovations in creation and packaging of financial instruments, combined with an increased trend towards globalization, have resulted in significant cross border exchanges at more distant locations and access of business companies to wider markets. Better communication and transport have also facilitated the movement of people for the purposes of tourism, migration, employment, and trade. These phenomena have resulted in an explosive development of service industries and an unprecedented growth in the volume of international trade in services, including in the context of international investment. Currently, services constitute about one-fifth of worldwide trade in balance of payments terms.

12.2 The chapter covers general aspects of data collection and compilation for all services categories, including separate discussions on services with more complex transactions and multiple data sources that require a specific treatment. It also captures the emergence of new data sources (e.g., electronic commerce) and adaptations in the application of statistical methodologies to changing circumstances.

12.3 The structure of the chapter follows the order of the main standard services components but takes into consideration the relative importance of various services in the international trade. The next three sections cover manufacturing services on physical inputs owned by others, transport, and travel, respectively; all other types of services are grouped under other services and are described in “Other Services.” The last section is dedicated to e-commerce.

12.4 “Other Services” presents (1) a general description of data sources and methods that could be used to compile the items included in this category and

(2) separate descriptions on some of the more complex transactions recorded in these items—namely, construction, treatment of intellectual property, foreign exchange services (part of financial services), operating leasing (part of other business services), and government goods and services n.i.e. Detailed descriptions of compilation of cross border insurance and pension services and financial intermediation services indirectly measured (FISIM) are provided in the separate, dedicated Appendices 2 and 3, respectively.

Manufacturing Services on Physical Inputs Owned by Others

12.5 The *BPM6* stipulates that the manufacturing fee received by companies for the manufacturing activity undertaken on goods owned by other companies be classified as a service. The manufacturing services represent the value of the contract between the owner of the goods and the manufacturer. However, gross values of goods associated with manufacturing services should be identified as supplementary items in economies where they are significant. Recording of gross values of such goods is described in Chapter 10 of the *BPM6*.

12.6 The services provided by the manufacturer may also be referred to as contract manufacturing, toll manufacturing, or toll services. These terms reflect an arrangement where some of the manufacturing activity is undertaken by one company on behalf of another. Thus, the goods being manufactured are not owned by the manufacturing company; rather, the manufacturing company is engaged in the provision of a service for a manufacturing (contract) fee.

12.7 In contrast, the *International Merchandise Trade Statistics: Concepts and Definitions 2010 (IMTS 2010)* recommends as follows:

... that in all cases goods for processing, as well as goods resulting from the processing (compensating products in customs terminology) are to be

included in the merchandise exports and imports of the countries at their full (gross) value.¹

12.8 Recognizing the needs of balance of payments statistics, where manufacturing services on physical inputs owned by others should be recorded, the *IMTS 2010* encourages economies to undertake the following:

. . . explicitly identify (preferably by special coding) in their trade statistics goods for processing as well as goods resulting from such processing where no change of ownership takes place. However, it is recognized that such identification may not be all-inclusive and the obtained information may not be internationally comparable as (a) merchandise trade statistics compilers may not have adequate sources of data (especially in cases when the appropriate customs procedures are not used) and (b) national definitions of such procedures may differ significantly.

12.9 However, customs declarations currently used by most economies do not facilitate the recording of the manufacturing services, and there may be differences between the actual value of manufacturing services and value obtained from customs declarations as difference between the value of the goods before processing and the value of the goods after processing. Therefore, even if economies were to follow the encouraged guidelines of international merchandise trade statistics (IMTS) on recording goods for processing, the resulting data may not be adequate for estimating manufacturing services. It should be noted that manufacturing services on physical inputs owned by others records only the manufacturing services and not the difference in the value of the goods before and after processing. In this regard, using data from IMTS may not be a viable option.

12.10 Based on these recommendations, it would be very difficult to estimate the manufacturing services using only customs-based merchandise trade statistics. The information provided by customs declarations could be, nevertheless, useful in combination with other methods, or alternatively as input in a data model (by major type of manufacturing) used in combination with regular benchmark surveys to validate the model outcomes.

12.11 The *BPM6* recommends that the movement of goods under the processing arrangements to be identified as supplementary items for both the owner and the provider of manufacturing services—that is, they should be recorded as follows:

Goods for processing in the reporting economy
Goods returned (CR), Goods received (DR)

Goods for processing abroad
Goods sent (CR), Goods returned (DR)

12.12 In this manner, they can be compared with the results of the enterprise survey and maintain a link with the IMTS data. In addition, continuing to record these data in the IMTS is necessary so that they can be excluded from the total of transaction in goods to exclude double counting.

12.13 It is possible that some goods will be manufactured in one economy, then be sent to another economy for further manufacturing, and then either be returned to the owning economy, returned to the economy where the initial manufacturing was undertaken (either for further manufacturing or for final sale), or sent to a third economy (for further manufacturing or for final sale). Indeed, it is possible that the goods never enter the economy of the residence of the owner as all the manufacturing is entirely done abroad. Until final sale, the goods should be recorded as being owned by the original party throughout and the various fees recorded under *manufacturing services on physical inputs owned by others* between the manufacturing economy and the economy where the owner is resident.

12.14 The difference between the value of the goods before processing and the value of the goods after processing may differ from the value of manufacturing services for various reasons, including the following:

- Sale of goods after processing in the economy of the manufacturer or to a third economy; in such cases, the value of the processed goods that are returned to the owner is diminished by the value of goods sold to the economy of the manufacturer or to a third economy, the latter being separately recorded as exports by the owner of the goods
- Incorrect assessment of the values of goods sent and returned; since there is no sale or purchase of

¹*IMTS 2010*, paragraph 1.20.

the goods, the values recorded by customs at the time of import and reexport are notional values, whose balance probably does not differ by the amount of the processing fee received (resulting in balance of payments errors and omissions). Also, these values may be assessed differently by the customs authorities of the economy of the sender and the customs of the economy of the receiver

- Recording of the goods before and after processing across different periods
- Inclusion of holding gains or losses; holding gains or losses accrue to the owner of the goods. However, it is likely that the changes in the value of the goods while in the possession of the manufacturing company could be included in the value of the goods and hence be mistaken for part of the manufacturing services. For example, if the price of oil changes substantially after the manufacturer takes possession of the consignment, then the value of oil after manufacturing would include the price increase, the manufacturing services, and the value of other inputs
- Scrapping of the goods while in the possession of the manufacturer; these goods may be included in the value of goods sent but excluded in the value of goods returned
- Inclusion of manufacturer's overheads in the value of the goods after processing;² the manufacturing services should include overhead costs only to the extent they relate to the processing of the goods
- Value of brand names in goods after processing; for example, a shoe manufacturer's logo adds value to the goods after processing. However, this value should not be included in the manufacturing services
- Inclusion of the value of materials sourced from the economy of the manufacturer; materials procured by the processor as inputs in the production process and that may be sourced from the economy of the manufacturer (or sourced from third economies and then transported directly to

the economy of the manufacturer) are included in the overall cost of production. It may be that only a portion of their value is reflected in the manufacturing services, the rest being inputs in other processing activities including on its own.

12.15 In collecting data on manufacturing services, the compiler also needs to be careful to differentiate manufacturing undertaken on own account from manufacturing undertaken on goods owned by others. In the former case, the processor may purchase supplies of goods and raw materials from one or more foreign suppliers (recorded in general merchandise) and undertake assembly and processing of the goods, and the final product is sold on the account of the manufacturer. In this case, the manufacturer would have taken ownership of the goods and therefore is not engaged in contractual work.

12.16 In many cases, the companies engaging in manufacturing services may be identifiable by the special taxation arrangements that may be in place for their benefits. These arrangements normally entail the provision of special tax and duty concessions on their production and purchases, or outright duty exemptions. Thus, raw materials and other inputs may be imported duty-free and the company may operate under a lower corporate tax structure than other similar companies in the economy. Because of the preferential tax rates offered to these companies, the importation and production process may be closely monitored by the customs and tax authorities so that they cannot freely engage in commerce (by selling some of their inputs or outputs) with other companies that do not qualify for concessions. Thus, these companies may operate only in special locations that may be referred as export processing zones or free zones. The factory undertaking the manufacturing may sometimes be referred to as a bonded factory, implying that the goods are held in bond by the customs authorities. For example, in Mexico, these factories are referred to as *maquiladora*, named after the system under which these companies were established in the 1960s. However, the compiler should note that many companies may be engaged in manufacturing services without necessarily being in such special locations.

12.17 The compiler should note that there may be cases where the companies operating in special locations and receiving such concessions may actually

²Overhead costs include expenses related to the operation of a business. Most commonly, overhead costs include accounting fees, advertising, depreciation, insurance, interest, legal fees, rent, repairs, supplies, taxes, telephone bills, travel, and utilities costs.

own the goods being manufactured. They may purchase inputs domestically and from the rest of the world, manufacture goods, and sell these manufactures to one client overseas. This output would not qualify as manufacturing services.

12.18 There may be cases of technology transfer³ between a direct investor in economy A and an affiliate in economy B without which the affiliate would not be able to undertake production. The production process may involve the use of raw materials and other inputs obtained from the direct investor or from other sources acquired by the affiliate. The direct investor may then be responsible for marketing the goods after production. The mere existence of a direct investment relationship and the affiliate's reliance on the technology of the direct investor do not imply the provision of manufacturing services. The affiliate may be able to acquire goods on own account and may be contracted to sell/transfer the final output only to the direct investor. In that case, the manufacturing activity would be recorded on the books of the affiliate as manufacturing on own account.

12.19 The compiler should also make the distinction between the goods associated with manufacturing activities and those under merchanting. For merchanting, the gross values of the goods acquired and sold are included in goods (as negative and positive exports, respectively). In the case of goods associated with manufacturing services, there is no change of ownership, unless the parties later agree otherwise, in which case the sales of the finished products would be recorded under general merchandise (the manufacturing fee would be paid as agreed in the initial contract). Furthermore, there may be cases where the goods under a merchant's ownership may be subjected to certain manufacturing services that changed the condition of these goods, in which case the purchases and sales should be recorded under general merchandise instead of merchanting.

Collecting Data on Manufacturing Services

12.20 Data on manufacturing services on physical inputs owned by others can be collected through an

enterprise survey, IMTS, and an international transactions reporting system (ITRS). Administrative sources also can provide useful information (see model form 7).

12.21 Enterprise surveys generally represent the most efficient method to collect information on manufacturing services. The compiling agency may conduct dedicated surveys to collect data on the value of the manufacturing services as well as the value of the goods sent and received for processing. The latter would be useful to adjust the goods account to measure merchandise trade on a change of ownership basis. As noted previously, companies engaged in manufacturing services may operate under special customs and tax regulations; therefore, when collecting the information, the compiler should exert care to identify the concessions given to companies operating in special locations and properly record external transactions.

12.22 Customs declarations currently used by most economies for IMTS do not facilitate the recording of the manufacturing services. A possible solution is for economies to amend their customs declaration forms to require that traders report the value of the manufacturing services on the goods being traded. However, this is a possible long-term solution as there are various factors that will have to be considered before this option is pursued. Customs declaration forms may be designed according to legal specifications that underpin trading arrangements, and it may be difficult to adjust these forms solely for statistical purposes.

12.23 An ITRS may provide some information on the value of the manufacturing services. However, the compiler should ensure that this amount does not include payments for other goods and services. Thus, the ITRS may need to be adjusted to collect specific information on the manufacturing services and to exclude all other transactions payments between the manufacturing company and the company owning the goods.

12.24 The manufacturer may be required to provide statements to the tax authorities on its income and expenses as part of the close monitoring that may be in place due to its receipt of tax concessions. Such statements may be available from the customs authorities or the tax authorities. These agencies may also be able to identify the value of the manufacturing

³Technology transfer includes patenting, licenses, know-how, technical assistance and the provision of research and development services. See OECD, *Measuring Globalization: OECD Handbook on Economic Globalization Indicators*, 2005.

services from the relevant tax on provision of such services.

12.25 The gross value of goods for processing, both of the goods sent for processing (raw materials) and goods returned to the economy of origin after the completion of processing (finished products), should be identified as supplementary items in economies where they are significant. These values could be identified in IMTS, in enterprise surveys, or in a supplementary inquiry in an ITRS.

Transport

12.26 Transport includes passenger, freight, and other transport services provided by residents of one economy to residents of another economy. The *BPM6* recommends that transport be classified by mode of transport (namely, sea, air, and other, which includes rail, road, inland waterway, pipeline, space transport, and electricity transmission). It also recommends that these categories be classified further by what is carried (namely, passenger or freight), and by other auxiliary services related to the transportation of the mentioned categories. Transport also includes postal and courier services.

Ownership and Operation of Transport Equipment

12.27 To properly record transport services in the balance of payments, it is necessary to distinguish between the owner of mobile equipment⁴ and the operator of the equipment. The owner is generally the company that has legal title to the equipment. The company that controls the operation and movement of the equipment is regarded as the operator. The operator is usually responsible for supplying a crew, maintaining equipment in proper working order, and deciding when, and to which location, the equipment will be moved.

12.28 The owner and the operator may be the same or different companies. As separate companies, they may be residents of different economies. In some cases, a chain of leasing arrangements may separate the owner from the operator of the equipment. As in a

financial lease, the lessee of mobile equipment is considered the economic owner for balance of payments purposes, because a change of ownership is presumed. If a parent company transfers mobile equipment to a branch located abroad, the branch is—for balance of payments purposes—considered the owner if the equipment is recorded in the books of the branch. Ships registered under flags of convenience should be attributed to the legal owners; however, the flags of convenience used by companies do not determine the residence of the owner or operator. The residence of the company that operates the ships is determined according to general criteria as defined in the *BPM6*, paragraphs 4.131–4.135, and it may not necessarily be the same as the company that owns the ships, such as where the ship operator has an operating lease from the ship owner, who is resident in another economy.⁵

Transport Arrangements

12.29 Owners and operators may enter into a number of leasing or chartering arrangements. Various terms are used to describe these arrangements, but a broad description should suffice for purposes of the *Guide*. For balance of payments purposes, only leases with crew are included under transport; operational leases (without crew) and financial leases are classified elsewhere (see also section ahead on operating leasing).

12.30 There are bare boat or *bare bottom charter arrangements* whereby an owner leases a vessel to an operator, who is responsible for equipping the vessel and supplying the crew.

12.31 These leases usually cover long periods but may also cover short periods. For all lease types, the compiler should make sure the leases are leases with crew and not operating (without crew) or financial leases, before including them under transport. If, for example, a vessel is legally owned by a bank or other type of financial institution, the compiler should, for balance of payments purposes, usually regard the vessel as being economically owned by the lessee (financial lease).

12.32 There are *time charter arrangements* whereby a vessel is leased to an operator who provides a crew.

⁴In this case, and provided the equipment is rented without the crew, the compiler should record operating lease payments, which are made by the operator to the owner, under other business services—operating leasing services.

⁵Most commonly encountered are ships, aircraft, drilling platforms, and railway rolling stock.

The bare boat or bare bottom charter is a form of time charter. A time charterer may also lease a vessel from a bare boat charterer. For balance of payments purposes, the time charterer should be regarded as the operator, although if there are several time charters involved, the charterer supplying a crew is regarded as the operator.

12.33 In addition, there are *voyage charters*. For example, an exporter or an importer may hire, for a single voyage, a vessel to ship a bulk commodity such as wheat or minerals. The voyage charterer has no responsibility for operation of the vessel and is not, therefore, considered the operator. A variation of voyage charter, space charter, or slot charter consists of an arrangement in which space on the vessel, rather than the whole vessel, is hired. Payments for voyage, space, and slot charters should be recorded as freight under transport.

12.34 In the case of the aircraft industry, there are two main leasing types:

- *Wet leasing* (covers provision of an aircraft, complete crew, maintenance, and insurance for which payment is by hours operated), which is normally used for short-term leasing (for balance of payments purposes recorded under transport)
- *Dry leasing* (covers provision of an aircraft without insurance, crew, ground staff, supporting equipment, maintenance, etc.), which is more usual for the longer-term leases and is recorded, for balance of payments purposes, under operating leasing services—other business services. The aircraft industry also uses combinations of wet and dry when, for example, the aircraft is wet-leased to establish new services and then, as the airlines flight or cabin crews become trained, they are switched to a dry lease.

Freight Services

12.35 Freight relates to the movement of goods, and the compiler should distinguish among freight on imports, freight on exports, and other freight. Other freight relates to the carriage of goods where there is no change of ownership. The freight costs incurred by the exporter and importer are defined in the *BPM6*, paragraph 10.78. To meet the *BPM6* specifications and conventions, the compiler needs to make the following estimates:

- For credits—(1) total earnings on exports by resident carriers for transportation of goods outside the economy border and (2) total earnings on imports by resident carriers for transportation of goods within the exporting economy border
- For debits—(1) total earnings on exports by nonresident carriers for transportation of goods within the economy border and (2) total earnings on imports by nonresident carriers for transportation of goods outside the exporting economy border

12.36 The definitions of these estimates are the result of the valuation of imports and exports at f.o.b. The delivery terms of the contract between the exporter and the importer may not be on the f.o.b. basis, but ultimately the importer pays for the goods and all transportation (and insurance) costs whatever the delivery terms, either directly to a resident or nonresident carrier or to the exporter, who then makes the arrangements (again either with a resident or nonresident carrier). Some imputations are implied—for example, if an exporter arranges for a nonresident carrier to transport imported goods to the final destination in the compiling economy, a transportation debit is imputed. Examples of the treatment of freight services are presented in Box 10.3 of the *BPM6*. The *Guide* provides guidance on the estimation of freight services for exports and imports in Tables 12.1 and 12.2 in terms of resident carriers earnings on exports (credits) and nonresident carriers earnings on imports (debits). Broad adjustments to the estimates to take account of transportation costs within the exporting economy border can be made by consultations with a small number of large resident freight carriers. Conceptually, a corresponding counterpart adjustment to currency and deposits should be made in the financial account.

12.37 The service charge for freight may be recorded separately or included in the c.i.f. value of goods, depending on the delivery terms specified in the contract. If recorded separately, this represents the actual market transaction, and it is very useful for users and analysts when comparing against the freight data derived from the c.i.f. to f.o.b. adjustment (for more details on the valuation of freight transport services on a transactional basis, see *Manual on Statistics of International Trade in Services 2010 (MSITS 2010)*, paragraphs 3.107–3.110).

Passenger Transport Services

12.38 With regard to transport of persons, the compiler must distinguish between international services (included in passenger services) and domestic services (included in travel).⁶ The service is deemed to be provided by the company that is actually running the flight or the boat ride (the operating carrier) and not by the company that initially sells the ticket and cashes the income (the plating carrier in interlining⁷) or those that sell the ticket (the marketing carriers in the case of code sharing agreements⁸). Nevertheless, the income generated for the marketing carriers as well as the corresponding expenses for the operating carrier or the plating carrier may also be balance of payments transactions (included in transport services—other; in Extended Balance of Payments Services (EBOPS) classification they are classified under other supporting and auxiliary transport services).

Pipeline, Electricity, and Space Transport

12.39 Pipeline transport and electricity cables have many features in common. Fixed infrastructure is used for providing transport services rather than mobile equipment. The cables and pipeline may run through international waters as well as within economies. The usual criteria are applied to identifying the residence of the service provider where cables and pipeline run within an economy. The operator may have no physical presence in the host economy, creating difficulties in using a survey to collect data on the activity, in which case revenue authorities may be able to provide data on the value of the services provided.

⁶Passenger services provided within an economy are treated as travel services when provided by operators who are residents of that economy for nonresidents and as passenger services (part of transport services) when provided by nonresident operators for residents.

⁷Interlining (also known as “interline ticketing”) is a voluntary commercial agreement between individual airlines to handle passengers traveling on itineraries that require multiple airlines. Carriers that participate in airline alliances almost always have interline agreements with each other. However, direct competitors can also benefit from interline agreements. When a ticket is issued for an interline itinerary, one of the carriers marketing flights in that itinerary will be selected by the ticketing agent as the “plating carrier.”

⁸Code sharing agreements usually refer to numbering a flight with the airline’s code even though the flight is operated by another airline. They must have interline agreements with all other carriers in the itinerary to allow a single ticket to be issued. Contrary to interlining, the code share relationships can affect whether an interline ticket (or e-ticket) can be issued.

12.40 Space transport is essentially concerned with delivery of satellites into orbit. Change of ownership of a satellite can be regarded as having taken place when it is delivered to the buyer. The f.o.b. value of the satellite is its value at the border of the exporting economy. If the satellite is launched from the economy of manufacture, the cost of transporting the satellite to the launching site should be included in the f.o.b. valuation. The cost of launching the rocket should be treated as freight services. If the satellite is launched in a third economy, the freight charges would include costs (including the cost of the launch rocket) incurred between the f.o.b. valuation and the satellite reaching orbit in space. If the satellite is launched from the owner’s economy, there would be no international freight component for delivering the satellite into orbit because the service provided would be a resident-to-resident transaction. If the rocket is sold to the resident by a nonresident, the cost of the rocket should be shown as an import of goods. Details of costs involved should be readily available from the principals, who should be easy to identify.

Other Transport Services

12.41 Other transport services include supporting and auxiliary transport services that are not directly provided for the movement of goods or people, some of which are also provided by transport operators (see also *MSITS 2010*, paragraphs 3.104–3.105). The operators of mobile equipment visiting ports will, for example, incur various port charges and acquire goods and services, such as fuel (bunkers), provisions and catering services (all included in goods), and loading and unloading services⁹ (included in transport services—other). In addition, if an agent looks after an operator’s affairs while the vessel is in port, the operator will be charged for the agent’s services (included in transport services—other). Other port expenses may also be incurred by operators and by owners; these should be identified and recorded in the balance of payments as appropriate. While in port, the crew may purchase goods and services for their own use; these expenditures should be identified and included in travel under business travel.

⁹Loading and unloading expenses should include any demurrage expenses.

12.42 In addition to expenses incurred in port, other expenses, such as commissions paid to selling agents for sales of passenger fares and freight services (other transport), may be incurred by nonresident operators.

12.43 Table 12.1 sets out items in transport services and outlines data sources and methods that could be used to compile them. Data on mode of transport should be readily attainable from any of the sources. The sources and methods summarized in the table are subsequently explained in more detail.

Freight and Insurance on Imports

12.44 The balance of payments compiler should measure international freight services provided by nonresident transport operators on imports of the compiling economy as these services are part of freight debit items. However, when it is not possible to measure these services directly, the compiler may measure total international freight on imports and

deduct those services (if any) provided by resident transport operators. It may also be necessary to measure total international freight in order to adjust imports of goods that have been measured on a c.i.f. basis to the preferred f.o.b. basis.

12.45 While insurance premiums¹⁰ on international freight are not part of transport, there is a close relationship between these premiums and the freight services themselves. Because of this relationship, it is often convenient to estimate these two items at the same time.

12.46 The compiler may use several methods to estimate freight and insurance premiums on imports, and these are set out in Table 12.2. Many of these methods require detailed collection and/or assembly

¹⁰The compiler should make sure that the insurance premiums are broken down into service charge (insurance services) and net premiums (secondary income), as explained in Appendix 2, “Insurance Transactions and Positions.”

Table 12.1 Methods for Estimating Transport¹

Description	Source and method of compilation
Sea, air, and other transport <i>Passenger</i>	<i>Services Provided by Resident Transport Operators (credit)</i> Data could be collected—through an enterprise survey or an ITRS—from resident operators. Fares earned from nonresident passengers on domestic transport should be excluded and included in travel. Alternatively, a data model based upon the number of nonresident passengers carried by resident operators, passengers economies of origin and destination, and average fare rates could be used.
	<i>Services Provided by Nonresident Transport Operators (debit)</i> Data could be collected—through an enterprise survey or an ITRS—from branches of nonresident operators or ticket selling agents. Ideally, data should be collected on earnings, rather than a ticket sales basis. Gross data should be recorded—that is, before the deduction of commissions. Alternatively, a data model on numbers of resident passengers carried by nonresident operators and classified by destination and data on average fares could be used.
Freight Freight on exports and imports of the compiling economy	<i>Export Freight Services Provided by Residents (credit)</i> Data could be collected, through an enterprise survey or an ITRS, from resident operators. If an ITRS is used, freight paid on exports by exporters to resident operators should be measured and added to freight on exports. Alternatively, a data model could be used. <i>Import Freight Services Provided by Nonresidents (debit)</i> This item could be collected through an ITRS if it provides a breakdown of import costs and if the amounts paid to resident operators by nonresident exporters are deducted. Alternatively, freight on imports could be measured by approaching, via an enterprise survey, branch offices and agents for nonresident operators. Another way to derive this item is to estimate total freight on imports (see Table 12.2 for various methods) and to deduct from this estimate the income earned by resident transport operators from freight on imports. The latter item could be collected through an enterprise survey.

Table 12.1 Methods for Estimating Transport¹ (concluded)

Description	Source and method of compilation
<i>Other</i> Other earnings by transport operators—for example, salvage	<i>Services Provided by Resident Transport Operators (credit)</i> Data could be collected—through an enterprise survey or an ITRS—from resident operators. <i>Services Provided by Nonresident Transport Operators (debit)</i> Data could be collected through an enterprise survey or an ITRS, either by approaching branch offices and agents for nonresident operators or by approaching resident users of the services.
Services provided to transport operators—for example, agent fees and commissions; loading, unloading, and demurrage charges; and port charges	<i>Services Provided to Resident Transport Operators (debit)</i> Data could be collected from the operators through an enterprise survey or through an ITRS. Alternatively, a data model could be used. <i>Services Provided to Nonresident Transport Operators (credit)</i> Data could be collected from the branch offices or agents of the nonresident transport operators, from the resident companies providing the services, or from official sources (such as port authorities). Rules should be clearly defined so that there is no omission or duplication in reporting. Alternatively, a data model ² based on related information could be used. Even if the owner is not the operator (the unit determining the residency in the case of services delivered from a base), in a port of call, the owner may have expenditures that should be included in this item.
Postal and courier services	Data could be collected from the companies that provide postal and courier services through an enterprise survey or an ITRS. Recording of these services on imports and exports of merchandise follows the same principles as for other freight services (gross basis, f.o.b. valuation).

Source: IMF staff.

¹The table provides the general description of sources and methods. The applicability depends on the economy's circumstances.

²A data model may not be suitable in the case of code sharing, where each bilateral contract is unique and refers to a specific segment and where the international market of passenger air transport is changing rapidly.

of data, and it may not be possible to undertake the work required on a regular or timely basis. Therefore, until data become available, the compiler may have to estimate freight and insurance premiums on imports by: (1) calculating ratios of freight and insurance premiums to total imports (or to groups of commodities imported) from a detailed analysis and (2) extrapolating ratios for more recent periods. Factors such as changes in freight and insurance rates, capacity, type of transport, and the commodity composition of imports should be taken into account.

Alternative bases for collecting passenger fares

12.47 To measure passenger fares, which will typically be the largest component of passenger services, the compiler has two broad options: to collect information on the basis of overall travel revenue value or to collect information on the basis of ticket sales. Regardless of the basis used, the data provider should report revenue or sales before the deduction of commissions.

12.48 It is common for an airline ticket sold by one airline (the validating or plating carrier¹¹) to be used by a passenger on a number of airlines when segments of the journey are traveled on airlines other than the airline issuing the ticket. This practice is called interlining. If there is no interlining between the companies involved, then separate tickets have to be issued. It is also common for airlines to operate certain segments under a code share agreement. A code share flight is a commercial flight that is operated by one airline (the operating carrier), but marketed by others (the marketing carriers). Therefore, for balance of payments purposes, the compiler should—when possible—obtain data on revenue earned by an airline from residents of other economies rather than data on sales by an airline to residents of other economies and clarify payments

¹¹The plating carrier collects the entire fare from the customer and is responsible for distributing the proceeds to other carriers in that itinerary only as those carriers carry the passenger. Only the plating carrier is responsible for paying commission to the issuing agency, and only based on the fare associated with the portion of the itinerary flown by the plating carrier.

Table 12.2 Methods for Estimating Freight and Insurance on Imports**Option 1. Extract data from IMTS**

Some IMTS record both the f.o.b. and c.i.f. values of imports (see model form 3.2); therefore, the values of freight costs and insurance premiums can be directly taken from IMTS. (However, some method is needed to identify freight costs and insurance premiums separately.) When both valuations are not reported as a matter of course, it may be possible to analyze the supporting import documentation supplied to customs to obtain freight costs and insurance premiums. Such analysis could be achieved by means of a properly designed sample survey of the customs records. In some economies, import documentation may also provide the name or registration of the vessel carrying the imported goods. The compiler could match this information against lists of vessels operated by residents; if no match is found, it could be assumed that the freight service was provided by a nonresident operator.

Option 2. Collect, from importers, data on freight and insurance premiums paid on imports

Data could be collected from importers through enterprise surveys or an ITRS. In an ITRS, the basic breakdown of freight and insurance costs could be collected on a supplementary basis, or the ITRS could be used as a basis for identifying certain importers that could be approached on a sample or selective basis. Alternatively, enterprise surveys could be used to obtain across-the-board measures or selective data on commodities, modes of transport, and/or operators.

Option 3. Collect freight data from branch offices or agents of nonresident operators

Through enterprise surveys, data could be collected from branch offices or agents of foreign transport operators on the value of freight and the value and volume of imports. These data could be categorized by type of cargo (containerized, bulk, etc.) or commodity carrier, the economy from which the goods were consigned, and the mode of transport. Unfortunately, agents for nonresident operators may not always have these data in respect of their principals. Therefore, although enterprise surveys represent a partial approach in some cases, they could be useful to identify freight for selected commodities and/or modes of transport.

Option 4. Analyze trade flows, freight, and insurance rates

Tables on the value (c.i.f. or f.o.b.) and volume of imports broken down by commodity, mode of transport, and economy from which the goods were consigned could be derived from IMTS. Freight and insurance premium rates could then be applied to these to derive freight costs and insurance premiums. Freight and insurance premium rates could come from several sources, including trade journals, any of the sources described elsewhere in this table, partner economy data for the major commodities imported, as available, or surveys of industry prices. (These surveys could range from highly sophisticated surveys to small selective surveys, including periodic surveys of major players.) In this option, some cells of data may be very accurate, but other cells may be less accurate. This is a good example of a data model approach.

Option 5. Use an arbitrary ratio approach

Some compilers may consider it unnecessary to measure freight and insurance accurately and may therefore apply somewhat arbitrary ratios to determine the value of freight and insurance on imports. For example, they may assume that freight is x percent of the value of imports and insurance premiums are y percent. To the extent that these ratios are inaccurate, there will be a misclassification of current account debits between imports and freight and insurance. This method of ratio estimation should be avoided. Most analysts would find accurate data on transport costs to be an advantage. By undertaking even a small survey of selected importers, more reliable estimates could be generated.

Option 6. Extrapolate from residents' experiences

Data on freight and insurance premium rates could be collected, through enterprise surveys or an ITRS, from resident transport operators and insurance companies. These data could be broken down by commodity, mode of transport, economy of origin, and so forth and used in conjunction with option 4, for example, to derive the amounts earned by nonresidents.

Source: IMF staff.

among airlines caused by interlining and code sharing. It may be possible to collect such data as airlines keep records on revenue generated by economy of sale.

12.49 The compiler must make a simple, but not altogether unreasonable, assumption that tickets sold

in a particular economy are sold to residents of that economy and adjustments made to estimates as necessary, by using surveys of travelers. In the case of interlining and code sharing agreements, the compiler should consider adjusting the data based on the distribution of proceeds among the airlines under

such agreements. However, as not all airlines earning revenue from residents of a particular economy will have offices in that economy, it may be difficult for the compiler to obtain complete coverage of passenger fare revenue earned by nonresident operators from residents of the home economy. In such situations, the compiler should seek alternative sources to complement the information.

12.50 An alternative means of measuring passenger fare revenue earned by nonresident operators is to collect information on the total value of tickets sold in the compiling economy and deduct from this total value the earnings of resident carriers. An estimate of ticket sales may also be derived from a household budget survey or other surveys of individuals. It may be possible to approach airlines with offices in the compiling economy and travel agents who place business directly abroad with nonresident carriers to obtain data on total ticket sales—but this measure should be used with caution. Many tickets are purchased and not used; therefore, allowance should be made for refunds as well as for the time lag between ticket purchase and its use. Additionally, the compiler must be aware that in most economies, rapid changes are underway, including the increasing use of Internet (e-commerce) to purchase tickets (see “Other Services”). In some cases, passenger fares may be a component of package tour payments, and the compiler may, in consultation with travel industry representatives, have to separate passenger transport (to be included under transport) from other components of the value of the package (to be included in travel).

Transport activities of resident transport operators (exports)

12.51 Proper measurement of these transactions typically requires a direct approach to operators. Such an approach would be similar to the approach that is outlined in Chapter 2 on enterprise surveys. Information on balance of payments transactions of resident transport operators will often be available, through enterprise surveys or an ITRS, from the operators themselves. An ITRS would measure transactions made by these companies through the banking system. In addition, these companies are likely to have numerous balance of payments transactions that bypass an ITRS or are recorded on a net basis. Also, payments by nonresidents to resident operators for transport of the compiling economy’s

imports are not to be included in balance of payments because freight of transported goods outside the exporting economy border is deemed to be paid by the importing economy. Therefore, a correction should be made to ITRS data so that freight credits are not recorded. As mentioned in paragraph 12.36, a corresponding counterentry should be registered conceptually under currency and deposits in the financial account.

12.52 It may also be necessary to approach resident transport operators for information on transactions that go beyond the scope of balance of payments. For example, freight undertaken by residents on imports could be deducted from total freight on imports to estimate the services provided by nonresidents (freight imports) (see also *MSITS 2010*, paragraphs 3.107–3.110).

12.53 When actual data on balance of payments transactions are unavailable, data models utilizing related information could be established. For example, data on passenger fare earnings of resident operators could be estimated by multiplying appropriate fares by numbers of nonresident passengers carried by resident carriers and classified by economy of origin/destination combinations. After a total earnings figure is determined, balance of payments expenses, such as commissions on ticket sales and port charges associated with these earnings, could then be determined by applying ratios of expenses to earnings or values per number of operations (e.g., takeoffs equal to number of flights). Such ratios could be determined in consultation with industry representatives or by an analysis of historical data.

12.54 Until data from operators or data models become available, it may be necessary for the compiler to extrapolate the relevant transport series. The extrapolation could be accomplished by establishing the historical relationship between transport series and other aggregates (e.g., passenger fares to nonresident arrivals or freight services to imports). Similar methods could be used to project the transport services. For best results, volumes and prices should be projected separately. Extrapolations and projections should take into account factors affecting the demand for services, known as changes in capacity and changes in prices. This might be particularly relevant for quarterly estimates or anticipated estimations.

Transport services associated with nonresident operators (imports)

12.55 Balance of payments transactions of nonresident transport operators with the compiling economy are typically more difficult to measure than those of resident operators. Nevertheless, by using a well-designed ITRS, an enterprise survey of agents and branches of nonresident operators, certain official sources, data models, or a combination of these sources, it should be possible to compile reliable estimates for relevant components in the balance of payments.

12.56 Data on freight services on imports that are provided by nonresident transport operators could be obtained from agents and branches of nonresident operators or from importers themselves. Enterprise surveys or an ITRS could be used for either approach. However, if an ITRS is used, it would be necessary to estimate the value of international freight services included in amounts paid by importers to nonresident exporters. Such amounts, which may be available from importers, should be added to freight debits actually measured in an ITRS.¹² Data on payments made by nonresidents to resident operators for transport of imports should be deducted from freight on imports rather than recorded as freight credits. Also, it would be important to identify in the ITRS, or through a supplement to the ITRS, any payments made in domestic currency by importers to nonresident transport operators.¹³ If, on the other hand, enterprise surveys of agents and branches of nonresident operators are used, the compiler should be satisfied that coverage is adequate and that branches and agents are fully aware of relevant balance of payments transactions of com-

panies for which they act. If this is not the case, alternative strategies should be investigated.

12.57 An alternative method for estimating import freight services provided by nonresidents is to estimate total freight on imports (as previously described) and to deduct from the estimate freight services provided by resident transport operators. The latter could be collected through a supplement to an ITRS or through enterprise surveys. This may be the most effective way to measure freight on imports.

12.58 In some economies, customs records provide information, such as name and Lloyd's number, on vessels carrying the economy's imports. From this information, it should be possible to identify vessels operated by nonresidents.¹⁴ If customs data can also be used to measure freight on imports—for example, by taking the difference between imports c.i.f. and imports f.o.b. and deducting an estimate for insurance premiums—these data could be matched with information on the vessel to determine freight services provided by vessels operated by nonresidents.

12.59 Data on passenger fares could be collected by approaching branch offices and ticket selling agents of nonresident operators. Alternatively, total ticket revenue earned from the transport of residents by nonresident operators could be estimated by: (1) multiplying, by average fares, the number of resident passengers (classified by destination of travel and mode of transport) who are leaving and entering the compiling economy, and (2) deducting earnings by resident operators. Data on the number of passengers may come from migration statistics or from other statistics, such as reports by airports or airline operators, on arrivals and departures.¹⁵ Data on average fares could, with allowances made for different fare structures, be obtained from travel agents or airline companies.

12.60 Other earnings for services provided by nonresident operators could be measured by using an ITRS, an enterprise survey of resident users of these

¹² Alternatively, these amounts could be calculated by estimating total freight on imports (see Table 12.2) from which one deducts import freight fees earned by residents (an item that could be derived from enterprise surveys) and importer payments to nonresident transport operators (an item that could be obtained from an ITRS).

¹³ Nonresident transport operators often maintain domestic currency accounts with resident banks. Payments for services provided to residents may be paid into these accounts, and payments for services acquired from residents may be made from these accounts. Any withdrawals from these accounts by nonresident operators therefore reflect net, not gross, balance of payments transactions. Consequently, it is necessary to measure the flows through these accounts in order to derive correct balance of payments entries.

¹⁴ Vessels operated by residents could be identified from information provided by resident operators; all other vessels could be assumed to be operated by nonresidents.

¹⁵ When migration statistics are used, allowance should be made for the possibility of a more complete accounting for arrivals than for departures.

services, or an enterprise survey of local agents of nonresident transport operators.

12.61 Data on services provided to nonresident transport operators could be collected through an ITRS, through a survey of resident providers of these services or of local agents of nonresident transport operators, or through official sources (such as port records).

12.62 Alternatively, for some or all of the services, a data model could be developed. The compiler could establish a set of cost ratios, such as of agent fees, loading and unloading services, or various taxes and charges to freight on imports and/or exports. Such analyses should be performed on the basis of commodity and mode of transport. Historical data could be used to establish ratios, or local agents and branch offices of nonresident transport operators could be approached on a selective basis. Next, shares of freight on imports and exports carried by nonresident operators should be established. Information for imports should be available from the relevant balance of payments item. For exports, information may be available from IMTS, or an estimate could be made on the basis of discussions with, or a collection from, a representative group of importers and exporters.

12.63 After nonresident shares of freight on exports and imports are established, relevant ratios would be applied to these shares for the purpose of estimating values of services provided to nonresident operators.

12.64 Alternatively, for some services (such as port charges) provided to nonresidents, the value could be obtained by: (1) estimating the value of total services provided to all operators and (2) deducting from this estimate the value of services provided to resident operators (data on the latter could be collected from resident operators).

12.65 Some of the methods previously outlined will require collection and/or assembly of detailed data, and it may not be possible to undertake the work required on a frequent or timely basis. Therefore, until data become available, the compiler may have to extrapolate certain transport services.

12.66 Passenger fares and related statistical data series could be extrapolated by using ratios that reflect the historical relationship between passenger fares (in constant prices) and arrivals and departures. Results

should be inflated by using a price index for passenger fares. Other transport services could be extrapolated by using ratios of services to various volume aggregates (such as import and/or export volumes) and adjusting for price changes.

Travel

Description and Classification

12.67 Travel covers expenditure by residents of one economy that are traveling in another.¹⁶ These expenditures should be classified as business and personal travel because, in the national accounts, frequently (but not always) the former represents an intermediate expenditure of business and the latter represents final consumption expenditure of households.¹⁷ In addition, an alternative breakdown of travel by product group (goods, local transport services, accommodation services, food-serving services, other) may be identified by the compiler. This breakdown allows for closer links with other macroeconomic statistics, in particular the supply and use tables in the national accounts (see *BPM6*, paragraph 10.95).

Data Sources and Methods

12.68 Four broad approaches could be used to measure travel expenditure, and these are summarized in Table 12.3. These approaches could be used individually or combined. The first approach is based on the instruments used to pay for travel, and the most common instruments considered are credit and debit cards. Another approach measures the total value of the expenditure including the types of goods and services acquired by residents traveling to economies other than their own, as well as flows of traveling residents as recorded at the borders. A third approach uses partner economy data, and the fourth approach uses a data model, which may combine all the aforementioned.

12.69 Some economies use an ITRS as the main data source to measure travel. However, in some economies, the individual transaction threshold set for an

¹⁶For a complete description of balance of payments travel items, see Chapter 10 of the *BPM6*.

¹⁷More strictly, in the case of business travel, the related goods and services are considered to be consumed for the benefit of the employer of the traveler rather than that of the traveler.

Table 12.3 Estimating the Travel Component

Type of approach	Credit	Debit
Instruments used to measure expenditures by individuals traveling outside their economy of residence	Enterprise surveys or an ITRS could be used to measure expenditures of nonresidents traveling in the compiling economy and using principally credit and debit cards, although travelers checks, foreign currency notes and coins, and bank accounts held with domestic banks could also be used if relevant.	An ITRS could be used to measure expenditures of residents traveling abroad and using principally credit and debit cards, and information on prepaid tours and packages, although travelers checks, foreign currency notes and coins, and bank accounts held with domestic banks could also be used if relevant.
	Estimates may be required for travel financed by domestic currency acquired abroad by nonresidents traveling in the compiling economy or from income earned by nonresidents in the host economy. (Information could possibly be obtained from surveys of travelers.) Supplementary estimates may also be required for travel goods and services provided to specific categories, such as students and medical patients that would cover education- and health-related expenditures, including goods and services in kind, such as scholarships and other aid provided to nonresident students. (Information could possibly be obtained from surveys of students or educational institutions or from official records.)	Estimates may be required for travel financed from accounts held abroad or earnings acquired abroad by residents and travel services provided to specific categories, such as students and medical patients that would cover education- and health-related expenditures, including goods and services in kind, such as scholarships and other aid provided to students. Such estimates could be obtained from surveys of travelers. Alternatively, in surveys of returned residents, the recourse to the instruments used for expenditure might be useful to minimize memory recall effects. Partner economy data may also be used, in particular, for economies specialized in certain types of services, such as health- or education-related services. (Information could possibly be obtained through representative offices, consulates, etc.)
Expenditure by types of goods and services acquired by residents traveling abroad	This approach is typically used in surveys of nonresidents traveling in reporting economy. These are mostly applied at the border, but might also be used at collective accommodation or tourism attractions. Alternatively, surveys of tourism companies such as hotels, domestic airlines, restaurants, etc. could be used if these companies can identify nonresident expenditure. Those could be reconciled with surveys of travelers using a similar type of approach for reconciling sources, as that used in the Tourism Satellite Account.	This approach would typically be restricted to surveys of returned residents, either at the border as they return, or within a household survey.
Partner economy data	A partner economy's travel debits in respect of the compiling economy could be used to contrast and check the compiling economy's travel credits visàvis the partner economy.	A partner economy's travel credits in respect of the compiling economy could be used to contrast and check the compiling economy's travel debits visàvis the partner economy. This is in particular useful in the case of students or medical patients traveling to partner economies that are specialized in certain types of services, such as health- or education-related services. (Information could possibly be obtained through representative offices, consulates, etc.)
Data model	Most data models involve assigning a per capita estimate of expenditures to estimates of the number of nonresident short-term traveling individualstypically obtained from migration statistics.	Most data models involve assigning a per capita estimate of expenditures to estimates of the numbers of residents traveling abroadtypically obtained from migration statistics.

Source: IMF staff.

ITRS may be too high to properly cover travel-related expenses.¹⁸ Moreover, some travel components such as personal expenses of short-term workers abroad are not captured by an ITRS. Persons traveling abroad now rely less on resident banks for services transactions such as the purchase of traveler's checks or foreign currency notes. Instead there is an increasing use of credit and debit cards. In addition, there is an increasing use of prepaid package tours¹⁹ that are paid for in the economy of the traveler using domestic currency. Generally, these modalities of payment can be easily captured through the ITRS; however, complementary information (e.g., surveys covering travel agents) may be needed to properly identify and allocate the amounts by service type. On the contrary, payment in cash (domestic or foreign currency) carried by travelers is more difficult to capture. Given the insufficiencies already noted, economies using the ITRS should ensure supplementary data sources or models are employed to measure the travel item.

12.70 Another problem with the reliance on a strict ITRS is that it is difficult to determine the breakdown between business and personal travel. Additionally, an ITRS needs to be supplemented by other sources to obtain such data as expenditure financed from income earned in the host economy, expenditure by others on behalf of the individual traveling abroad, and travel goods and services provided in kind or on own account.

12.71 In respect of traveler's checks and credit and debit cards, the compiler should ensure that data are reported on a gross basis—that is, before the deduction of commissions on traveler's check sales or commission on transactions. Collection rules should be designed to ensure that there is no overlap or duplication of the information captured. When compiling data on the export of travel services, data on settle-

ments of transactions by nonresidents using traveler's checks and credit and debit cards could be easily derived from an ITRS. A short investigation could be previously undertaken to determine the pattern in using these modalities of settlement by nonresidents visiting the compiling economy. Very often, nonresidents use credit cards for major transactions, such as hotel or acquisition of expensive gifts, while cash is withdrawn from an automatic teller machine for settlement of smaller expenses. Also, nationals living abroad may return more or less regularly for vacation or around certain holidays. During their stays, they may use preponderantly debit cards to withdraw cash for their current expenses and also for gifts to relatives (personal transfers). If a pattern of spending and visiting peaks during the year is identified among the population of visiting nationals, reliable estimates may be produced for the travel component related to debit/credit card settlements after the part related to personal transfers has been removed.

12.72 Surveys may be used to collect information from tourism businesses that provide services to non-resident individuals. These surveys may have to be supplemented by other sources to obtain such data as expenditure by short-term nonresident workers, visitors and other short-term individuals traveling abroad to relatives and friends that do not use services of organized tourism businesses, students, and medical patients as they might behave more as residents in terms of their expenditure patterns. Furthermore, in some economies, certain groups of individuals abroad (such as students and medical patients) may be significant. As the expenditure of these individuals may be substantially different from the expenditure of others, it may be necessary to conduct separate surveys targeting these special categories. As an alternative to surveying tourism businesses, the compiler may use household surveys to measure the expenditures of travelers.

12.73 An expansion of tourism statistics to include other short-term individuals traveling abroad that are not visitors²⁰ is discussed in Chapter 3. When surveys

¹⁸For example, in the case of EU27, in 2011, frontier surveys and credit card data are the main sources for compiling the travel item. Settlement data also play an important role in a few European Union (EU) member states (in particular, these data are important in eastern and central European member states, and in hybrid data collection systems). However, a survey undertaken in March–April 2011 of EU member state balance of payments compilers indicated that settlements data are being replaced by direct reporting systems due to increases in the reporting threshold pertaining to settlements data.

¹⁹Passenger fares (transport services) may be a component of package tour payments, in which case the compiler will have to find a way to properly distribute them between the two service components.

²⁰*Tourism Satellite Account: Recommended Methodological Framework 2008* defines the “visitor” as “a traveler taking a trip to a main destination outside his/her usual environment for less than a year and for any main purpose (business, leisure or other personal purpose) other than to be employed by a resident company in the country or place visited.” The “visitor” category covers both overnight visitors (tourists) and same-day visitors (excursionists).

of travelers are used as primary sources of information, information could be collected directly on actual goods and services acquired by individuals abroad. Indirectly, the information on travel-related expenses incurred by individuals abroad may be obtained through the instruments used for payment. The former approach is recommended when travel debits are measured by surveying residents upon their return from travel abroad, or when travel credits are measured by surveying nonresidents as they depart from the compiling economy. Surveys of returning residents are preferred as they are likely to retain appropriate financial records of their trips or are able to provide reasonable estimates. Border surveys are increasingly used in many economies, in particular where tourism is an important activity. The range of data collected by such surveys varies according to the design and frequency. Generally, such surveys collect information structured according to the primary purpose of travel (business, health care, education, leisure, other) and categories of expenses. More details could be added for tourism purposes—that is, to define the structure of individuals traveling abroad by categories (overnight visitor or same-day visitor) and their respective expenses.

12.74 Partner economy data (mirror statistics) could serve as a supplementary source data when compiling an economy's travel credits or debits. It is assumed that at least one of the two partner economies actually collects "primary" travel data. Very often, statistics on visitor and other short-term individuals traveling abroad numbers by economy of origin and their average expenses compiled by neighboring economies or economies of frequent destination could be taken into account. However, the methods of compiling these statistics may vary from economy to economy and could range from border surveys to household surveys. Asymmetries in partner economy data may occur not only because of different methodology but also because of other factors such as the sample size of surveys, recording intervals, or estimations models. Given these considerations, the mirror statistics should preferably be used as a supplementary source.

12.75 A data model to measure travel could be constructed using various data, primarily the number of visitor and other short-term individuals traveling abroad and estimates of per capita expenditure. Data

on number of visitors and other short-term individuals traveling abroad are typically available from tourism statistics. Alternatively, various transport operators, such as airline and bus companies, may be able to provide partial information on the number of persons carried inbound and outbound, and from these data estimates could be derived on the number of nonresidents (visitors and other short-term individuals traveling abroad, to estimate travel credits) and the number of residents. However, it should be noted that these data are not always accurate as the transport operator may not always collect information on the residence of the customer. Furthermore, when collected, the information may relate to the nationality of the customer and not the residence. Estimates of per capita expenditure could be obtained from occasional surveys of persons who travel. If necessary, separate data models may be designed to measure education and/or medical services based on information from relevant institutions or special surveys (e.g., survey of students).

12.76 Tourism statistics provide a potential alternative data source, which might be used to partly estimate travel, in particular some of its components. Moreover, data sources used for compiling the tourism satellite account (2008 SNA), for example, are also likely to be relevant for balance of payments statistics. However, in order to enable the use of tourism statistics, the differences in terms of the coverage between balance of payments definitions, on the one hand, and tourism statistics as used in the *International Recommendations for Tourism Statistics 2008 (IRTS 2008)* (as well as in *Tourism Satellite Account: Recommended Methodological Framework 2008*), on the other, need to be understood.

12.77 IRTS 2008 uses the concept of "usual environment" as an additional criterion to residence. The concept is designed to exclude from tourism statistics persons who travel regularly between their place of residence and place of work (e.g., border or seasonal workers), who study (individuals studying abroad for more than one year), or who visit other places as part of their regular life routine, although these places may be in different economic territories.

12.78 There are also some additional differences in terms of the coverage of expenditure between travel (BPM6) and tourism (IRTS 2008) expenditure. Some of the main differences in the BPM6 are as follows:

- *Travel* includes imputed values of products (such as accommodation²¹) that may be provided free of charge. It includes the acquisitions of goods and services by border, seasonal, and other short-term workers (i.e., persons in an employer-employee relationship²² with a unit resident in the visited economy). It also includes acquisitions by students and medical patients (as well as their accompanying dependents) away from their economy of residence for a period of one year or more. Tourism expenditure, as defined, excludes these items.²³
- *Travel* excludes purchases of valuables and consumer durables above a customs threshold by residents traveling abroad (see also Chapter 5 on IMTS). Tourism expenditure, as defined, includes all such purchases irrespective of the threshold. *Travel* also excludes expenditure on international passenger transport (included under *passenger transport*); tourism expenditure includes such expenses in the case of visitor and other short-term individuals traveling abroad.

12.79 The *BPM6*, as does the *Manual on Statistics of International Trade in Services 2010 (MSITS 2010)*, excludes migrants from its definition of individuals traveling abroad, and tourism statistics similarly exclude migrants from its definition of visitors. Regarding refugees, following an identified intention to stay in their place of refuge for one year or more, they are identified as migrants in the *BPM6* (paragraph 4.128) and in the *MSITS 2010* (Annex V, paragraph 16), whereas tourism statistics exclude refugees in all cases, as they are considered to be within their usual environment.

12.80 To highlight the link between balance of payments and tourism statistics, the *BPM6* and *MSITS 2010* include a supplementary item, tourism-related services in travel and passenger transport. This supplementary item includes travel expenditures and international transport of visitors—both overnight visitors (tourists) and same-day visitors (ex-

cursionists). It consequently excludes acquisition of goods and services by the following business-travel categories: border, seasonal, and other short-term workers (including crews of ships, aircrafts, oil rigs, etc. stopping off or laying over)—that is, those in an employer-employee relationship with a unit resident in the economy visited, as well as passenger transport payable by border, seasonal, and other short-term workers.²⁴

12.81 If statistics compiled on services are to be used for compiling the tourism satellite account, or vice versa, adjustments will be needed for these differences in coverage. However, it is important to note that the data sources used for compiling the tourism satellite account are also likely to be relevant for balance of payments statistics.

12.82 When data from these sources are not available in time to compile series of travel data for the most recent periods, extrapolation methods may be used. Data models of the type described previously are often used in extrapolations (and interpolations). The extrapolations are derived by adjusting the base period estimates for price changes and exchange rate changes. However, these extrapolations do not take account of changes in expenditure patterns over time or changes in the market composition of visitors and other short-term individuals traveling abroad—that is, their economy of origin. The expenditure patterns of visitors and other short-term individuals traveling abroad in any given period would vary substantially based on their economy of origin.

Other Services

12.83 Other services include construction; insurance; financial services; charges for the use of intellectual property n.i.e.; telecommunication, computer and information services; other business services; personal, cultural, and recreational services; and government goods and services n.i.e. provided by residents of one economy to residents of another economy. The

²¹For example, the imputation for time-sharing arrangements (see *BPM6*, paragraph 10.100).

²²The employer-employee relationship is discussed in more details in Chapter 13.

²³Although the imputed values are excluded from the concept of tourism expenditure, they are included in the tourism consumption concept.

²⁴The *BPM6* and *MSITS 2010* also recommend an alternative presentation of *travel*, by product, according to the following categories: *goods*; *local transport services*; *accommodation services*; *food-serving services*; and *other services*. A further breakdown of “*travel, other services*” into *health services* and *education services* is also suggested.

complete list recommended by the *BPM6* is set out in Table 12.4 of this chapter.²⁵

12.84 Data sources and methods that could be used to compile items in *other services* are described ahead. In addition, a discussion follows on some of the more complex transactions recorded in these items—namely, construction, treatment of intellectual property, foreign exchange services (part of financial services), operating leasing (part of other business services), and government goods and services n.i.e. Detailed descriptions of compilation of FISIM and insurance and pension services are provided in Appendices 2 and 3, respectively.

Data Sources and Methods

12.85 Table 12.4 summarizes data sources and methods that could be used to compile items in other services. Depending on the system design, an ITRS can provide a comprehensive source of many balance of payments transactions in services and is used in some economies as the main data source. However, in some cases, the individual transaction threshold set for an ITRS may be too high to adequately cover expenses related to many services. Moreover, the ITRS may have difficulties in ensuring a proper coverage or classification by service type at the level of detail required. If an ITRS is used, supplementary information may often be needed, such as enterprise surveys and other (official) sources. Whatever approach is adopted, collections should be designed in accordance with identified information needs.

12.86 In an ITRS, some inherent problems require attention if the compiler is to measure transactions in other services accurately. Many international transactions in services do not necessarily involve cash payments and merely give rise to entries in intercompany accounts. Such situations may occur, for example, when transactions in other services take place between companies in a direct investment relationship. The compiler should ensure that transactions settled through these accounts are reported in the system and that the gross entries giving rise to these transactions are recorded. Reporters may record certain transac-

tions on a net basis—that is, after certain costs, such as finance charges and commissions, have been deducted. On other occasions, data may be commingled. For example, data from an ITRS may commingle the amount paid for a security and financial service. Clear rules are required to ensure that reporters supply data according to balance of payments requirements—that is, services (and other transactions) need to be separately identified, and provided on a gross basis. Classification of transactions may be a problem as persons completing an ITRS form may be overburdened by the level of detail requested in the form. A well-designed ITRS should address these issues.

12.87 A specialized type of ITRS relevant to measuring expenditures of nonresident government entities and international institutions located in the compiling economy (government goods and services n.i.e.) is a survey of banks to report on the value of transactions passing through accounts of foreign governments and international institutions.

12.88 An enterprise survey can be selective (e.g., concentrating on important players or a sample of a particular industry, such as insurance) or broadly based (e.g., covering all companies that may provide or use international services). Also, it is important to note that a large share of companies engaged in international trade in services can be found among companies undertaking other international business activities. Chapter 3 discusses the enterprise survey covering transactions in other services. To overcome problems inherent in the enterprise survey, the compiler should set an objective of obtaining complete coverage of the different types of services, and develop a clear set of reporting rules to avoid omission or duplication of data. Good survey design, which is discussed in Chapter 2, is thus essential.

12.89 Official sector data (essentially government accounting records) could be used to measure expenses of diplomats and other representatives abroad, defense expenditures abroad, and expenditures for other services abroad.

12.90 For measuring the expenditures of non-resident government entities and international institutions located in the compiling economy, partner economy data obtained from balance of payments compilers in partner economies or surveys of foreign embassies and international institutions could be

²⁵ A full description of each of these items is provided in Chapter 10 of the *BPM6*, and a more detailed description is provided in the *MSITS 2010*. The latter may prove useful for compilers willing to compile more detailed services statistics.

Table 12.4 Compilation of Items in Other Services

Description	Source and method of compilation
Maintenance and repair services n.i.e.	An enterprise survey or an ITRS could be used to compile this item. Special attention should be made to distinguish these services from the repair and maintenance recorded under the construction activity or those related to computers included under computer services. See relevant survey model forms in Appendix 8.
Construction	An ITRS or enterprise survey could be used to compile this item. If an ITRS is used, particular care should be taken to measure transactions involving bank accounts of construction companies in the host economy, because some of these companies may meet the criteria for treatment as residents. More generally, a survey collecting data on construction could jointly collect information on foreign direct investment and other nonresident-resident transactions. Special note should be taken of the treatment of construction activity, which is discussed in paragraphs 8.61–8.63 of Chapter 8 and further in this chapter
Insurance services	An enterprise survey or an ITRS could be used to obtain the underlying premiums and claims data necessary to compile this item. The most comprehensive data could be obtained from surveying resident insurance companies, in particular for estimating the exports of insurance services and for estimating reinsurance imports and exports. Such surveys would collect data on the nonresident policyholders share in premiums, claims, and reserves. However, the same information will not be possible for the import of insurance services where the providers of the insurance services are nonresident to the compilers economy. Thus estimates have to be based on ratios available from the domestic insurance sector, information derived from ITRS, or partner economy data, as possible. Data from an ITRS will capture premiums paid and claims received on a cash basis. See Appendix 2, Insurance Transactions and Positions, for a discussion of how relevant source data are manipulated in order to derive estimates of insurance services.
Financial services Explicitly charged and other financial services, except FISIM Financial intermediation services indirectly measured (FISIM)	An ITRS or an enterprise survey could be used as a primary source to compile the first item. Care should be taken to ensure that financial service fees are reported separately from underlying financial transactions, particularly if an ITRS is used. If primary source data are unavailable, this item could be estimated by applying appropriate ratios to various measures of financial activity involving nonresidents. If significant, the collection of supplementary information will probably be necessary to derive estimates of foreign exchange services when the service element is implicit in transactions rates. The treatment of these services is described further in this chapter. Compilation of the FISIM estimate requires detailed information on position data on loans and deposits, by maturity structure and currency, as well as the identification of relevant interest rates used by financial corporations. A description of the compilation of FISIM is presented in Appendix 3.
Charges for the use of intellectual property n.i.e.	An enterprise survey or an ITRS could be used to compile this item. The breakdown of these services and their treatment is described further in this chapter.
Telecommunication, computer, and information services	An enterprise survey or an ITRS could be used to compile this item. Care should be taken to ensure the gross reporting of transactions.
Other business services: Research and development Professional and management consulting services Technical, trade-related, and other business services Operating leasing	An ITRS or an enterprise survey could be used to compile these items. For the compilation of research and development services, the discussion in Research and Development in this chapter is relevant. For leasing, it is important to note the different treatments of financial and operating leasing. (The treatment of financial leasing is discussed in Chapter 10.)
Personal, cultural, and recreational services; audiovisual and related services; other personal, cultural, and recreational services	An ITRS or an enterprise survey could be used to compile these items.

Table 12.4 Compilation of Items in Other Services (*concluded*)

Description	Source and method of compilation
Government goods and services n.i.e.	For debits, most information could be obtained from an ITRS or from official sources (as discussed in paragraphs 6.12–6.14 of Chapter 6). For credits, information could be obtained from balance of payments compilers in partner economies, surveys of embassies (see Collections on Goods and Services Statistics in Chapter 3), an ITRS, or a data model. Further in this chapter is presented additional information on the compilation of this item.

Source: IMF staff.

used. Alternatively, some form of estimation based on a data model may be used.

Construction

12.91 Construction should be recorded in the balance of payments when a company undertakes construction activity in an economy other than the one in which it is resident, and in which the activity carried out is not substantial enough to recognize it as a separate institutional unit (see also Chapter 8). Establishing the residency of the construction companies (or its related company) is thus the first step in determining the proper treatment of transactions typical of a company engaged in construction activity in an economy other than the one where its headquarters is located.

12.92 A construction company established in one economy may undertake the construction of large-scale projects (e.g., plant, buildings, bridges) in another economy either through a direct investment relationship (creating a foreign branch in that economy or through subsidiary or associate companies in that economy), or by directly undertaking the work itself. If the construction company undertakes the work itself (via an unincorporated site office, for example), its activities may be regarded either as a direct investment activity or as an export of services by that company, depending on circumstances.

12.93 If certain criteria are met the work undertaken is to be treated as having involved the creation of a separate institutional unit—a branch—resident in the economy where the activity is being carried out, which is a direct investment enterprise (DIENT). Such criteria (as recommended in the *BPM6*) could be as follows:

- (1) The project extends over a period of at least one year.
- (2) The maintenance of a complete and separate set of accounts for the activity (i.e., income statement, balance sheet, transactions with the parent company, etc.)
- (3) The activity being subject to tax in the host economy
- (4) The existence of a substantial physical presence
- (5) The receipt of funds for its work for its own account, and so forth.

12.94 If some of the aforementioned criteria are not met, the activity is to be treated as an export by the construction company. The decision is based on the weight of the evidence for a set of criteria and not on any single criterion; for example, it would be very difficult to identify a branch if for the construction activity a separate set of accounts cannot be prepared or maintained. Construction activities involving major projects (bridges, dams, power stations, etc.) that are carried out through unincorporated site offices, in many cases, meet the criteria of a DIENT and thus are treated as part of the production of the host economy, not as an export of services to that economy. Chapter 8 discusses the residency aspects together with a comparative treatment of the most common transactions specific to the construction activity in both cases, first, where the company conducting the construction project is a resident of the host economy (direct investment relationship), and second, where the construction activity is conducted by a nonresident company in the compiling economy.

12.95 The value of construction recorded in the balance of payments should equal the gross value of output by the producing company. It should include the value

of all goods and services used as inputs to the work, other costs of production, and the operating surplus that accrues to the owners of the construction company.

12.96 As discussed in Chapter 10 of the *BPM6*, it is recommended that construction be disaggregated into construction abroad and construction in the compiling economy. *Construction abroad* includes the gross value of the construction work for nonresidents by companies resident in the compiling economy (export of construction, credits). The goods and services acquired from residents of the host economy by those companies are recorded in the balance of payments of economy of residence of construction company under construction abroad debits (i.e., construction-related expenditure in the host economy by the company conducting the project²⁶).

12.97 *Construction in the reporting economy* includes construction work for residents of the compiling economy by nonresident construction companies (import of construction, debits). The goods and services acquired by the nonresident construction company from residents of the compiling economy for projects in the reporting economy should be recorded as construction in the reporting economy credits (whether these goods and services were previously acquired by the residents from within or outside the compiling economy). As part of the inputs into the construction work, the construction company may choose to purchase some of the goods and services in its home economy, in which case these still constitute part of the value of construction. However, because they have not been purchased from residents of the host economy, they are excluded from goods and services purchased in the host economy and, equally important, will not be recorded as debit transactions²⁷ by the host economy.

²⁶Includes expenditures on goods and services that were procured from the host economy where the construction activity is taking place. Imported goods and services from a third economy are recorded as imports. Goods and services brought directly into the host economy by the construction company are not balance of payments transactions.

²⁷It should be noted that the merchandise trade statistics will generally include the value of goods imported into the host economy for use on the construction site as imports under the general and special trade systems. In the case of goods purchased by the construction company in its home economy and shipped to the construction site, an adjustment must be made to the merchandise trade statistics so as to exclude the value of any such goods from the balance of payments—goods component.

12.98 Depending on the method of data collection used, it may not be possible to identify separately the goods purchased from residents of the home economy and from those of the host economy. For practical reasons, the compiler may need to estimate a breakdown, or otherwise attribute all goods purchased to either the host or the home economy of the construction company. Also, it may not always be possible to identify the purchase of goods and services separately from labor costs (which should in principle be recorded under primary income if an employer-employee relationship is established—see Chapter 13). In this case, the compiler will need to estimate a breakdown or, alternatively, allocate all costs either as goods and services or as compensation of employees (for employees that are residents in the host economy). Where a nonresident construction company employs workers from third economies for projects in the host economy, their salaries will not be recorded as compensation of employees by the host economy since it is intended that they be employed for the duration of the construction project, which by definition should be less than one year. Both subcomponents of construction cover the work performed on construction projects and installations by a company in locations outside the economic territory of the company.

12.99 Finally, it is important that the compiler ensures that the gross flows giving rise to the credit and debit aggregates for the construction services are recorded. In other words, the construction credits would result from summing up the credit flows from construction abroad and from construction in the compiling economy. Similarly, the construction debits would consist of debit entries from construction abroad and from construction in the compiling economy.

12.100 Example 12.1 presents the recording of construction. Table 8.7 of Chapter 8, which shows the range of balance of payments entries that should be recorded for construction activity, should be consulted for additional details.

12.101 As discussed in paragraphs 10.103 of the *BPM6*, if the external operations of a construction company are substantial enough, a separate branch, resident in the host economy, will be constituted. This will usually give rise to a direct investment relationship between the parent and the branch. The

Example 12.1 Recording of Construction Activity in Balance of Payments

This example assumes information is available to distinguish all cost-related components and attribute the balance of payments transactions as appropriate. A company from economy A undertakes a construction project in economy B for a period of six months¹. The total value of the project is 34,500 units of domestic currency, and the following costs are incurred by the construction company:

Materials purchased from residents of economy A	18,000
Materials purchased from residents of economy B ²	1,000
Acquisition of materials from residents of economy C ³	2,000
Services procured in economy B (including equipment rental) ²	3,000
Wages and salaries paid to residents of economy A ⁴	4,500
Wages and salaries paid to residents of economy B	1,000
Total cost of inputs	29,500
Gross operating surplus accruing (profit)	5,000
Total gross value of construction work	34,500

The gross value of construction work is calculated as the sum of the inputs into the production process (goods and services consumed as inputs, and labor) and the gross operating surplus accruing to the producing company. Thus, the value of construction is 34,500 units. The following transactions should be recorded in the balance of payments of economies A and B:

Economy A (construction abroad)			Economy B (construction in host economy)	
Current account	Credit	Debit	Credit	Debit
Goods		2,000 ⁵		
Services				
Construction services	34,500	4,000 ⁶	4,000 ⁶	34,500
Primary income				
Compensation of employees		1,000	1,000	
Financial account	Net acquisition of financial assets	Net incurrence of liabilities	Net acquisition of financial assets	Net incurrence of liabilities
Other investment				
Currency and deposits	27,500		5,000	
Reserve assets ⁷				
Currency and deposits			–34,500	

¹This example also covers the case of construction work (excluding repairs to existing premises) for an embassy undertaken by a resident unit of the economy where the foreign embassy is located (see BPM6, paragraph 10.177).

²This is a transaction between a resident and a nonresident, as the company from economy A is not resident in economy B.

³These imports are not to be recorded in the merchandise trade of the economy B, as they are imported by a nonresident unit. They are, however, recorded as imports by the economy A.

⁴Wages and salaries are paid directly in their accounts in economy A.

⁵Covers acquisition of goods from economy C.

⁶Includes materials purchased in economy B (1,000) and services procured in economy B (3,000).

⁷It is assumed that the work is undertaken for the government of economy B and paid out of reserve assets.

treatment and measurement of construction activity in the balance of payments in respect of direct investment relationship is discussed further in Chapter 8.

Financial Services

12.102 As stated in Chapter 10 of the *BPM6*, financial services covered under this heading refer to financial intermediation, auxiliary services, and other financial services, other than those associated with insurance and pension funds. These services are almost exclusively provided by banks and other financial corporations, because of the usually stringent supervision associated with their provision. Conversely, financial institutions rarely produce other services, a fact that is important in data collection.

12.103 Financial services may be charged for explicitly or implicitly, and some transactions in financial assets may involve both explicit and implicit charges (for more details, see *BPM6*, Chapter 10). In the case of financial intermediaries, the funds necessary to engage in such activities are obtained not only by taking deposits but also by issuing bills, bonds, or other securities. These funds, as well as own funds, are used to acquire mainly financial assets not only by making advances or loans to others but also by purchasing bills, bonds, or other securities. As mentioned in Table 12.4, care should be taken to ensure that charges for financial service are reported separately from underlying financial transactions, particularly if an ITRS is used.

12.104 For many financial services, explicit fees are charged, and thus estimation does not require any special calculation. They may be derived either from an ITRS or from bank statements. Surveys on financial claims on and liabilities to nonresidents may also collect the explicit fees charged on financial transactions in these instruments (see Appendix 8, model form 14).

12.105 Implicit charges for financial services have to be measured indirectly. Ignoring the implicit charges for financial services may lead to understating the value of such services and also distorting related financial flows (investment income or financial account recordings). The most common implicit charges result from (1) estimation of margins on buying and selling transactions; (2) expenses related to asset management that are deducted from property income receivable, in the case of asset-holding com-

panies; or (3) margins between the interest rate and the reference rate on loans and deposits (FISIM). A description of these services is provided in the relevant section of Chapter 10 in the *BPM6*. The subheader ahead describes the treatment of financial services associated with transactions in financial instruments having a spread between their buying and selling prices. The treatment of FISIM is described in Appendix 3.

Margins on Buying and Selling Transactions—Foreign Exchange Services

12.106 This type of service is often related to the activities of dealers in financial instruments such as foreign exchange, shares, bonds, financial derivatives, and other financial instruments. The dealers' charges often are included indistinguishably in the financial transactions to which they relate—that is, the amounts actually paid or received. The service charge that is to be separated from the actual amount paid for the financial transactions is calculated as the difference (margin) between the reference price and the dealer's buying price at the time of purchase, and the difference between the reference price and the dealer's selling price at the time of sale. The reference price is usually a mid-price (i.e., an average—see ahead) between the buying and selling prices.

12.107 Debt securities such as bills and bonds are often traded on organized markets (see Chapter 10). A service charge is levied when securities are acquired and sold by brokers/financial institutions. The service charge represents in each case the margin added to the estimated market value of the security that makes up the purchase price (or ask price) or the price offered to the seller (the bid price). Prices of securities may change rapidly, and to avoid including holding gains and losses in the estimation of the service margins, it is important to calculate the margins on sales and purchases in terms of mid-prices. The mid-price of a security is the average at a given point in time between the bid and ask price. Thus the margin on the purchase of a security is one half of the difference between the bid and ask prices of the security at the time of the purchase, and the margin on the sale is the other half of the difference between the bid and ask prices of the security.

12.108 As stated in Chapter 3 of the *BPM6*, transactions denominated in foreign currencies should be converted at midpoint rates applicable at the times of

the transactions. When a transactor sells or buys foreign currency to or from a foreign exchange dealer (or bank), the dealer will buy at the buy rate and sell at the sell rate. Dealers derive income from the difference (or spread) between buy and sell rates. The *BPM6* recommends use of the midpoint rate because the spread reflects the provision of services. If actual buy and sell rates were used to measure transactions, a distortion could be recorded in balance of payments numbers.

12.109 For example, a dealer sells 100 units of foreign currency to importers (to pay for imports) for 101 units of domestic currency, buys 100 units of foreign currency from exporters for 99 units of domestic currency, and thereby makes a profit of 2 units of domestic currency. If importers and exporters converted their international trade transactions by using the relevant sell and buy rates, the following transactions would be recorded in the balance of payments:

	Credit	Debit
Goods	99	101
Net errors and omissions	2	

12.110 In the foregoing example, it is assumed that the dealer converted transactions at the midpoint rate; if the dealer also used the buy and sell rate, the offsetting item would be recorded as a transaction in external financial assets. Nevertheless, an apparent deficit in goods would be recorded in spite of the fact that the economy paid, in foreign currency terms, exactly the same amounts for both imports and exports.

12.111 The problem is avoided if both the exporter and importer convert transactions by using the midpoint rate.

	Credit	Debit
Goods	100	100
Net errors and omissions		

12.112 If foreign exchange dealers and their counterparts are residents of different economies, service transactions equal to differences between actual buy or sell rates and the midpoint rate should be recorded in the balance of payments of transactor economies. For example, if a foreign exchange dealer in economy A sells 100 units of foreign currency to a resident of economy B for 102 units of domestic currency (financial services exports of 2 units to B), and a dealer in economy A buys 100 units of foreign currency from residents of economy C for 97 units of domestic cur-

rency (financial services exports of 3 units to C), the following transactions should be recorded in the balance of payments of economy A:

	Credit	Debit
Financial services		
<i>Provided to economy B</i>	2	
<i>Provided to economy C</i>	3	
	Net acquisition	Net
	of financial	incurrence of
	assets	liabilities
Financial account		
Other investment		
Currency and deposits		
<i>Of economy B*</i>		-102
<i>Of economy C**</i>		97

*It is assumed that economy B purchases the foreign exchange with domestic currency that is held in accounts with banks in economy A.

**It is assumed that economy C deposits the domestic currency received into accounts with banks in economy A.

12.113 Dealers may also earn profits because they take speculative positions. For example, they may buy and hold currencies because they expect the value to rise. However, this speculative profit is capital in nature and should not be recorded as income.

12.114 The direct collection of information on balance of payments transactions attributable to foreign exchange trading may be difficult. Resident consumers of the services are unlikely to know the values of those services implicitly purchased from nonresident dealers, and, in many cases, resident dealers will be unable to supply information on services provided to nonresidents. A data model, which would enable the compiler to calculate estimates of foreign exchange services by multiplying the average spread between midpoint and buy/sell rates by the volume of foreign exchange transactions with nonresidents, may have to be used. Information on spreads could come from discussions with dealers. Information on volumes of foreign exchange transactions could be obtained either from the institution responsible for supervising and regulating the foreign exchange market or from market participants. The compiler may also consider consulting the statistics collected by the BIS from central banks on the triennial global survey on foreign exchange and derivative market activity.²⁸ The

²⁸The objective of this survey is to obtain information on the size and structure of the foreign exchange and derivative markets. The most recent survey was carried out in 2010, and the BIS has announced its intention of coordinating the ninth survey in 2013.

frequency of the BIS survey is relatively low; however, it could provide useful information as a reference point.

12.115 When a resident dealer transacts with a non-resident other than a dealer, a financial service credit entry should be recorded. When a nonresident dealer transacts with a resident other than a dealer, a financial service debit entry should be recorded. When a foreign exchange transaction occurs between a resident dealer and a nonresident dealer, transactions may occur at the midpoint between buy and sell prices, with neither dealer selling services to the other. At other times, one dealer will act as the price-maker (producer) and the other will be a price-taker (consumer). In economies where such transactions are significant, the compiler should endeavor to identify separately those transactions in which the resident dealer is the price-maker (service credits are recorded) from those in which the dealer is the price-taker (service debits are recorded).

12.116 In practice, many transactions in balance of payments recordings may be reported at buy and sell rates; thus, errors are introduced into the accounts. Such errors may not have a significant impact in the current account unless the economy is a major provider of foreign exchange services to nonresidents. However, in the financial account, such errors could have a significant impact in economies where the turnover of transactions is high. Therefore, the compiler should examine reporting practices and make adjustments to the accounts (or publish findings) when serious misreporting occurs.

Charges for the Use of Intellectual Property

12.117 Intellectual property products are largely the results of research and development, computer software and databases, and entertainment, literary, or artistic originals.²⁹ Intellectual property products

often are subject to substantial international trade. Commonly the international flows relate to copies of intellectual property products, such as packaged software, and musical and film recordings (including products provided over the Internet; see e-commerce under the “Travel” section of this chapter) or the services provided by them, but trade in originals,³⁰ such as research and development, can be important. Given their growing importance, ensuring the accurate measurement of exports and imports of intellectual property products is essential.

12.118 The *BPM6* records transactions in originals and copies of intellectual property products and related services in the goods and services account. Chapter 10 of the *BPM6* describes the categories in which they are recorded, and Table 10.4 of the *BPM6* lists the intellectual property products by major categories and indicates their treatment according to the licensing type and/or whether the ownership rights are transferred. This breakdown indicates whether the payments/revenues related to the intellectual products are treated either as charges for the use of intellectual property services, other relevant services (e.g., computer or audiovisual services), capital account transactions, or transactions in goods (e.g., noncustomized software products provided on physical media).

12.119 One of the most important sources for estimating payments and other related charges for the use of intellectual property products is business surveys (collected as license fees, royalties, and other fees under various licensing agreements). If relevant, the survey may be designed to collect data separately on various types of licensing agreements, such as unilateral licensing, cross licensing,³¹ or patent pools.³² All types involve an agreement by the owner of a patent (licensor) to allow another party (licensee) to use, or reproduce and sell a patented invention without transferring the ownership. In the context of economies’ experience with data collection in the framework of global production, the globalization survey for multinational companies

²⁹ As indicated in the 2008 SNA, paragraph 10.98, they may also result from mineral exploration and evaluation, but in the vast majority of cases such products are not subject to international transactions. Such exploration transactions are often by nature resident-resident (i.e., a notional direct investment enterprise established in the host economy acquiring from a resident of the host economy the rights to use the results of mineral exploration and evaluation). In some cases, yet, the residential status of the mineral exploration service provider may not be known (e.g., geologists tend to travel around the world for relatively short periods of time). In general, services incidental to mineral prospecting and explorations can give rise to international transactions; these are usually recorded under *Technical, trade-related, and other business services* (see *BPM6*, paragraph 10.152, or *MSITS 2010*, paragraph 3.245).

³⁰ Originals and copies of intellectual property products are introduced as distinct products.

³¹ Cross licensing agreements involve an exchange of two or more patent portfolios and are typically used to allow the mutual use of patents by multiple patent holders in order to secure freedom of operation. Neither party pays monetary royalties to the other party, the aim being to create a barrier to entry for new entrants.

³² Patent pools typically consist of the collection of patents required to offer a product or service.

conducted by Organisation for Economic Co-operation and Development (OECD) economies is considered a suitable source for international transactions to be reported under charges for the use of intellectual property, if it provides separate data on international flows of intellectual property products.

12.120 Payments for the acquisition of intellectual property products under a license to use or to reproduce and/or distribute may be made in one single (large) payment, in several installments over the period of contract, or in a large initial payment followed by a series of small payments in succeeding years. The recording of payments should follow the substance of the license agreement in terms of time for recording (see *BPM6*, paragraph 10.139). In practice, it may be feasible to record the payments only when they are made. The recording of such payments in balance of payments would be as charges for the use of intellectual property, except for computer, audiovisual, or other similar intellectual property when the license to use is included in the product sold (i.e., sold to consumers with no reproduction/distribution license attached to it). The latter are recorded under the relevant goods or services items (e.g., mass produced computer software with right to perpetual use should be included under goods; downloaded or online use of computer software should be included under services (see *BPM6*, Table 10.4, for more details).

12.121 When the indications are that the ownership rights are transferred as well, the recording of transactions is different (see ahead). The recording is further complicated by the fact that some of the intellectual property products, such as software, can be recorded either as goods or services. Also, capital account transactions involving the acquisition and disposal of marketing assets,³³ for instance, can be difficult to separate from services transactions recording charges for the use of intellectual property. It is thus recommended that business surveys on services cover all flows related to transactions in these products in a comprehensive manner. Depending on its relevance for the economy, separate surveys by type of intellectual property products may be undertaken (i.e.,

separate surveys for computer, research and development, or audiovisual, as such industries have a completely different functioning).

12.122 The information required for the compilation of related flows can also come from other sources, including customs statistics or the ITRS (depending on its design). The compiler should be mindful of the coverage of each source and avoid double counting where sources overlap.

12.123 The breakdown of the main types of intellectual property products internationally traded follows the EBOPS classification described in the *MSITS 2010*. The treatment of each of the subcomponents is as follows.

12.124 *Franchise and trademark licensing fees* generally cover all payments and charges for the use of marketing assets,³⁴ most notably trademarks and franchises. The charges related to trademarks cover both the initial fee and annual fees for the domain name registration for the Internet, as applicable. They also include fees for sponsorship of related events if the fee is for the right to use the logo or trademark. For example, a sponsor of the Olympics would include the payments of sponsorship fees if this conveys the right to use the Olympic logo, in advertising, or to place such a trademark on its products. Generally, payments for franchise and trademark licensing include an aspect of property income (e.g., putting a nonfinancial, non-produced asset at the disposal of another party) besides the service itself. In practice, the entire payment would be treated as a charge for the use of intellectual property unless additional information is available to allow the breakdown.

12.125 If the ownership rights are transferred (i.e., for existing logos, domain names, or trademarks), the balance of payments records the transactions as acquisition/disposals of nonproduced, nonfinancial assets in the capital account.

12.126 *Licenses for the use of outcomes of research and development* cover fees and charges for the use of proprietary rights arising from research and development. In the *BPM6*, research and development

³³ Marketing assets include brand names, mastheads, trademarks, logos, and domain names.

³⁴ With reference to the rights to sell products under a particular trademark, brand name, or signature.

transactions are recorded either as charges for the use of intellectual property or research and development services. The research and development component that is part of the former relates to licenses to reproduce and licenses to use outcomes of research and development. In practice, it may be difficult to differentiate all payments for licenses to reproduce from the sale of proprietary rights (research and development services), as in some cases the former will represent sales of proprietary rights.

12.127 Licenses to reproduce and/or distribute computer software cover the charges for the authorized reproduction and/or distribution (through licensing agreements) of produced software originals. For example, a manufacturer pays for the right to include the software on the computers that it produces, in which case the payment would be a license to reproduce and/or distribute provided by the owner of the original software and recorded in balance of payments as charges for the use of intellectual property. But a license to distribute does not cover the sale of a copy of a computer software package that is purchased by an individual or company for individual use. The sale of the software (customized) for individual or personal use is recorded in computer services. Mass-produced, noncustomized software sold on physical media with the right to perpetual use is included under goods.

12.128 Licenses to reproduce and/or distribute audiovisual and related products, which cover two product categories: (1) audiovisual and related services and (2) other related products, such as original works of authors (e.g., translation rights), painters, sculptors, and so forth, other than those relating to products of an audiovisual nature. The first category of products covers fees and charges for the authorized reproduction and/or distribution, through licensing agreements, of produced audiovisual originals or prototypes (e.g., cinematographic works and sound recordings, including drama performances, musical performances, sporting events, etc.). Also included are rights relating to the reproduction and/or distribution of recordings of live performances on radio, television, cable, and satellite broadcast.

12.129 In the case of major events, such as the Olympics, the payments for the rights to broadcast it

live often extend over several years prior to the event. However, the cumulative amount of the prepayments made with the institution responsible for the organization of the event will be recorded under the charges for the use of intellectual property during the period in which the event is actually taking place, the individual payments made over the prior-to-event years being recorded under trade credit and advances.

12.130 Retransmission rights for sport events are also covered under this heading. However, licenses to use audiovisual products that cover, for example, transactions in audiovisual products provided on physical media (CDs, DVDs, etc.) and other audiovisual services will be separately recorded as transactions in goods (CDs, DVDs carrying the right to perpetual use) or audiovisual and related services, recording transactions such as fees to actors (unless employees of the company making the payments), payments to encrypted television channels, and so forth.

12.131 Statistics on international transactions related to intellectual property services are difficult to separate from other related activities. In particular, the arrangements for intragroup services may sometimes entail transferring goods or intangible property. In some cases, such as know-how contracts containing a service element, it may be very difficult to determine where the exact border lies between the ownership transfer and licensing of intellectual property.

12.132 Exploiting patents or other intellectual property products via licensing generates important cross border transactions between various institutional units, much of these flows reflecting transactions among affiliated companies located in different economies. This is one of the areas posing considerable statistical challenges because the monetary transactions in the intellectual property products are rarely recorded by either party, either implicitly or otherwise. It should also be noted that in the presence of cross licensing agreements, only net figures can be derived (often zero). Where the phenomenon is significant, the compiler should attempt, as possible, to input values for the gross flows using available data on fees charged to third parties.

12.133 Depending on the modality of conveying the rights from one party to another, either entirely or via a license to use or reproduce, a number of

possibilities for recording the transaction arise. Most often, the following cases³⁵ are encountered:

- Provision of access to the intellectual property products through a license agreement between the provider and the recipient in exchange for a fee that is observable in monetary terms; these flows should be recorded in the balance of payments under the charges for the use of intellectual property products with a counterentry under financial account.
- Provision of license to reproduce without a visible fee, either by (1) the parent to a foreign subsidiary with the expectation of receiving property income in the future or (2) the foreign subsidiary to the parent in return to previous foreign direct investment; in both cases, the estimated value of expected fees should be recorded under charges for the use of intellectual property and the counterpart transaction under the direct investment equity capital.

12.134 Accounting for international flows related to intellectual property products poses many challenges, including difficulties in determining the economic ownership of intangible products. A particular case could be, in the context of multinational companies, diverting the production and management of licensing of such products to subsidiaries located in other economies to maximize their revenues. Moreover, the flows between affiliated companies may be partially or entirely missing from financial reports, and the values of such records may not necessarily reflect the market value of the companies involved in the flows, leading thus to underestimated values.

12.135 In the case of flows between unaffiliated companies, records may exist in cases of sales or leasing, but due to their intangible nature, these products are not always tracked and registered in customs, banking, and similar administrative data, and may also not be evaluated at market prices. The OECD's publication *Handbook on Deriving Capital Measures of Intellectual Property Products* treats in more detail statistical challenges related to movements of intellectual property products between affiliated companies

in different economies. However, further research at the international level to clarify the existing standards is needed, and the Task Force on Global Production is currently working on developing some guidance in the field.

Research and Development

12.136 The internationally recognized standards for the collection and use of research and development statistics are set by the *Frascati Manual: Proposed Standard Practice for Surveys on Research and Experimental Development* (Paris: OECD, 2002). These standards are further developed in the OECD's publication *Handbook on Deriving Capital Measures of Intellectual Property Products*, which follows the 2008 SNA line, introducing for the first time the expenditures on research and experimental development as capital formation. The balance of payments adopted a broader notion of research and development services that encompasses the *Frascati Manual's* research and development (the outputs of research and development as treated by 2008 SNA) and technical services that may also give rise to patents (e.g., other testing and product development activities that may give rise to patents). Further details on the breakdown of this product category are provided in the *MSITS 2010* (paragraphs 3.237–3.239) following the EBOPS classification.

12.137 Valuation of research and development should take into account all expenditure undertaken in the process of production. Since much of the research and development is carried on own account, by convention, the best measure for its valuation is at cost, unless the market value is observed.

12.138 Surveys specifically designed to capture research and development activities that may be undertaken by both market and nonmarket performers are one of the most important data sources for estimating international trade in these services. The surveys identify the transfers of funds to/from abroad related to the performance of research and development and could in principle identify the economic nature of these transfers. Other source data could be industry-specific surveys targeting data from specialized business companies on their revenues from exports, for instance. Companies whose main activity is different from research and development can be surveyed separately using questionnaires that would cover, among

³⁵ More details are covered in the OECD's publication *Handbook on Deriving Capital Measures of Intellectual Property Products*.

other information on their research and development, exports and imports. However, research and development surveys may fail to capture companies that import research and development services but do not carry out research and development themselves, and companies that own (and potentially export and import) economic rights to outputs of research and development they did not develop themselves (e.g., patent trolls).

12.139 General trade surveys covering all services would, however, capture these activities, provided the survey clearly identifies the activities and related external flows at the desired level of detail.

12.140 In many economies, an important segment of research and development is covered by public research organizations, including universities, which may be classified in the government or nonprofit sectors. Specific surveys could be designed to collect data on international trade in research and development. At present, most research and development surveys do not include questions on payments (domestic or international) for the transfer of economic ownership of research and development outputs carried out in the past.

12.141 Depending on its design, the ITRS would also capture research- and development-related flows. In this context, it is important to distinguish the payments for a transfer of economic ownership of research and development outputs (research and development services), and charges for the use of research and development outputs (classified under charges for the use of intellectual services).

12.142 Given existing shortcomings in the currently available data sources for international trade in research and development services, the compiler may undertake supplementary studies or cross source comparisons to improve the estimates.

Other Business Services: Operating Leasing

12.143 Paragraphs 10.153–10.157 in Chapter 10 of the *BPM6* describe the distinctive features of operating leasing. Leasing is an important source of finance for many businesses. Distinguishing operating leasing from financial leasing is important because the former relates to payments for services whereas the latter is a purely financial transaction. It is important to consider the terms and conditions of operating leases,

as in some cases they may closely resemble a financial lease (leases that last for all or most period of the expected service life of the underlying asset, and where the lessee assumes the risks and rewards of ownership, such as maintenance costs). In these cases the transactions should reflect the economic, rather than legal, reality. Although similar, a financial lease is seen as the sale of a product for a loan, and therefore the transactions concerned are excluded from services. The treatment of financial leasing is discussed in Chapter 10.

12.144 Using the ITRS as source data may not be sufficient to distinguish the operating leases from financial leasing in estimating the cash flows related to leases. In the case of operating leasing, the lessee does not acquire the economic ownership of the underlying assets. Consequently, the lessee's balance sheet does not show any assets or liabilities in respect to the lease contracts; the lessee simply acquires the right to use the underlying assets, reflected by lease payments (operating lease service).

12.145 Further distinctions from operating leasing should be made in the following cases:

- Rental of buildings by international organizations, embassies, and so forth (included in government goods and services n.i.e.)
- The leasing of telecommunications lines or capacity (included in telecommunications services)
- The rental of mobile equipment (ships, aircrafts, etc.) with crew (included in transport)
- Rental of dwellings for accommodation and vehicles to nonresidents during their stays in economies other than their economies of residence (included in travel)
- License payments for the right to use intangible assets, such as software and intellectual property, are included under specific headings (included in computer services, charges for the use of intellectual property n.i.e., etc.)
- Rent of land and other natural resource lease (included in other primary income); the allocation of the payment for the leasing of dwellings with land, when there is no objective basis for splitting it between rent on land (primary income) and rental on the dwellings (operating lease or government goods and services n.i.e. if leased by international organizations, embassies,

and so forth), is done in the favor of the component with the highest value. More elaboration on rent can be found in Chapter 13, paragraphs 13.98–13.104

- Marketable operating leases may create new contracts (assets) when the right can be transferred or subleased; in such cases, the lessee sells the right and thus realizes the price difference (included in capital account—contracts, leases, and licenses).

12.146 The correct identification of the type of lease covered by the terms of contracts of business companies is essential. If an enterprise survey is used, care should be taken not to overlap with the information already captured through ITRS.

Mobile oil rigs and floating production, storage, and off-load vessels (FPSO)

12.147 The hiring of (offshore) mobile oil drilling rigs and floating production, storage, and off-load (FPSO) vessels is likely to be on a long-term basis, thereby implying a financial lease arrangement that involves an imputed change of ownership (with the result that the rig or FPSO should be recorded as an import/export of a good). In fact, FPSOs are often refitted to the specifications of individual fields. In other instances, more often for onshore work, rigs are hired for relatively short periods and without crews.

12.148 The mobile drilling rigs and FPSOs should be treated the same as shipping vessels or aircraft leased, without crews, from their principals. In practice, the onshore rigs can be readily identified from records of port authorities, and relevant data should be available from operators or lessees. Offshore rigs and FPSOs may not be captured by the port authorities as they may never enter harbor. However, as they are usually hired by only a few exploration companies, they can usually be identified through other sources of information. The services provided by mobile oil drillings rigs hired with crews should be classified as other business services.

Government Goods and Services Not Included Elsewhere

12.149 The balance of payments treatment and sources for information on the three main types of transactions recorded in this item are described

subsequently. Due to practical difficulties in distinguishing some of the government-function-related services that are supplied by and to government units, by convention they are classified under this heading. Where possible, such services should be classified to relevant services (see *BPM6*, paragraph 10.179).

Government Expenditure Abroad (Debits)

12.150 Data on government expenditure abroad should be available from an ITRS or from official sources (see Chapter 6).³⁶ Should the data not be timely, it may be necessary to extrapolate certain series—in which case government expenditure policies, budget decisions, and trends in historical data should be considered.

12.151 Local expenditures of diplomats and other government personnel posted abroad should also be recorded as debits for government goods and services n.i.e. Estimates of these expenditures could be based on the wages and so forth—details of which should be available from government records—paid to these persons and an assumption about the percentage of wages spent on such expenditures.

Expenditure by Foreign Governments and International Institutions Located in the Compiling Economy (Credits)

12.152 This expenditure could be measured by using an ITRS or by using a survey of foreign embassies and international institutions. (See paragraphs 3.94–3.97 of Chapter 3 for details on surveys of foreign embassies and international institutions.) In each case, source data may provide only broad aggregates or partial data. Therefore, the compiler may have to establish a data model that uses data from these and other sources.

12.153 For example, from analyzing historical data, the compiler may observe a relationship between the numbers of foreign embassy staff and expenditures by foreign governments. Timely information on staff numbers, which may be available from an economy's Ministry of Foreign Affairs, could be used to derive current estimates of expenditure by multiplying the staff number by the historical data ratio. Allowances

³⁶ Wages and salaries paid by embassies and so forth to local staff—that is, residents of the host economy—should be recorded as compensation of employees in the balance of payments.

should be made for such factors as inflation. Alternatively, a sample survey of cooperative embassies may provide information on the relationship between staff numbers and expenditures, and that ratio could be multiplied by total staff numbers to derive an overall estimate.

12.154 As with the compiling economy's government expenditure abroad, wages and salaries paid by foreign governments and international institutions to local staff and to long-term international staff should be classified as compensation of employees. In certain sources, such as an ITRS, it may be difficult to separate these wages and salaries from related expenditures. However, it may be possible to determine, either from an occasional analysis of data from other sources or from discussions with certain embassies, a ratio for dividing total expenditure into appropriate components.

12.155 Local expenditure of diplomatic and similar personnel stationed in the compiling economy should also be recorded in government goods and services n.i.e.³⁷ Previous observations about measuring the expenditure of compiling economy officials stationed abroad are also pertinent here.

Services Associated with the Provision of Technical Assistance and Aid

12.156 As noted in paragraphs 10.179 and Box 10.6 of the *BPM6*, the value of goods and services, including the administrative costs incurred in the donor economy as a result of providing technical assistance and aid, should be included under specific services provided (e.g., computer services within the telecommunication, computer, and information services or under professional and management consulting services within other business services). Technical assistance provided by government or an international organization is classified under government goods and services only when not specified to a specific service and if the technical assistance personnel are

employed by the donor government or an international organization. Chapter 14 presents some examples of recording technical assistance in balance of payments.

12.157 The balance of payments compiler of the donor economy could obtain information on the costs and type of provided services from official sources, such as records of the aid agency. In the recipient economy, the balance of payments compiler could obtain information from the embassy of the donor economy or the relevant domestic ministry or agency. Information on several related transactions could also be obtained from an ITRS (e.g., current transfers to government received through the banking system) or from customs (data on imports of materials and equipment). An alternative source would be to use OECD's Official Development Assistance (ODA) records,³⁸ which show these costs unclassified by recipient economy. A particular recipient economy's share of the domestic administrative costs of a particular donor economy could be calculated by applying to total administrative costs the ratio of the recipient economy's grants to total grants provided by the donor economy. Care should be exercised by the compiler to avoid duplication of amounts when using more than one source.

E-commerce

12.158 An increased use of credit and debit cards and other similar payment means in settling transactions via the Internet or other computer-mediated networks, more widely known as electronic commerce (e-commerce), has been noted recently in many economies. This payment method is used by both business companies and households/individuals, and the products purchased through e-commerce may include a wide range of goods and services (e.g., travel arrangements, e-books, online games, online insurance, etc.). In principle, charges for electronically delivered products are included in services, while goods ordered by electronic means and supplied across the border are generally classified as goods (except for some products, such as software products, obtained with a nonperpetual license to use).

12.159 There are a number of practical challenges in measuring international e-commerce transactions, in particular those undertaken by the households: (1) these are usually small-scale transactions that may

³⁷Persons working in international institutions cannot be residents of these institutions. All staff of international institutions staying in the host economies for 12 months or more should be regarded as residents of those host economies. Persons staying in host economies for less than 12 months should be regarded as residents of the economies in which they maintain permanent households—typically their economies of origin.

³⁸More details on ODA are provided in Chapter 7.

not be captured via ITRS; (2) settlement payments may be on a net basis (possibly via a clearing house) or nontraditional payment systems—payment card network—may be used; (3) households surveys may not properly capture these transactions or data may be collected indistinguishably for domestic and international transactions made via the Internet; (4) shipment of goods may be made via postal and courier services; and (5) it is difficult to estimate the fees associated with transactions intermediated by trade e-platforms, such as eBay or Amazon.

12.160 The compiler should make efforts to identify these transactions within the available source data and allocate the amounts to the relevant goods or services entries. As possible, shipping charges associated with e-commerce should be allocated to relevant transport

services, and financial services associated with e-commerce should be included in financial services.

12.161 Some economies have established special surveys collecting data separately from business companies on the use of electronic forms of payments for their sales and purchases. To the extent such surveys distinguish the international transactions from the domestic ones, they may be a good source for the balance of payments. Where the phenomenon is widely spread, special surveys may be designed to capture the main agents facilitating these transactions covering both traditional circuits and the nontraditional payment systems. Household surveys may also be a source of information for e-commerce. The compiler should be mindful of the coverage of each source and avoid double counting where sources overlap.