

Data Sources and Estimation Methods

4.1. Difficulty in obtaining more accurate source data is the biggest obstacle to improving data on remittances. Any strategy for improving remittances data should, therefore, review current data sources, assess possible other data sources, and develop a data improvement strategy based on data needs and priorities as well as resource constraints.

4.2. The quality of statistical data is often measured primarily by their accuracy, coverage, timeliness, and frequency. Other aspects that compilers have to consider in choosing data sources are their costs and other practical obstacles, such as legal and institutional factors.

4.3. This chapter outlines options for developing a data collection program for remittances data by discussing the main approaches to obtaining data. These are an international transactions reporting system (ITRS), direct reporting by remittance service providers, household surveys, and the use of secondary source data, such as demographic, administrative, and macroeconomic data. The final section provides a tabular comparison of these data sources.

A. International Transactions Reporting Systems

4.4. Unlike many data sources that compilers may have to develop for the purpose of improving remittances data, an ITRS is part of the broader institutional data collection framework of many countries. Where an ITRS exists and produces useful data, compilers are encouraged to evaluate its usefulness in estimating remittances. This section discusses the use of an ITRS in compiling data on remittances and also outlines features of an ITRS, what data can be obtained, and how to address data weaknesses. In countries that do not have an ITRS, this data source is not a current option.²⁹

²⁹The *RCG* does not propose that an ITRS be implemented for the sole purpose of compiling remittances data.

Description of the collection system

4.5. An ITRS is a data collection system that obtains data from banks and enterprises at the level of individual transactions. ITRSs vary from fully comprehensive closed systems to open systems. A fully comprehensive closed ITRS collects data on all resident–nonresident transactions and reconciles them with corresponding changes in asset or liability positions. It must therefore include both cash transactions (which are reconciled with resident banks' foreign currency positions) and noncash transactions (which are reconciled with other assets and liabilities with nonresidents). Open ITRSs are often partially comprehensive, insofar as they do not register all transactions and do not match flows and changes in positions. In this case, additional source data may be needed to reconcile flows with changes in positions.

4.6. Under both open and closed ITRSs, data are generally collected on a mandatory basis from domestic banks and other relevant entities that hold foreign assets or operate in the foreign currency market. These banks and entities are required to file regular reports on all transactions channeled through the foreign exchange payment system, as well as on assets and liabilities with nonresidents. To achieve a good level of coverage, an ITRS should identify virtually all resident units engaged in transactions with nonresidents, and obtain relevant data from them. With a few exceptions, they stem from systems originally designed to monitor and control foreign exchange transactions.³⁰ In some cases, foreign exchange control systems evolved into ITRSs after exchange restrictions were lifted. However, in many cases ITRSs are still strongly linked to control and supervision, with both positive and negative impacts on balance of payments compilation.

4.7. In regard to positive impacts on compilation, ITRSs linked to control and supervision systems are

³⁰In some countries, ITRSs were developed independently from an exchange control system.

less likely to experience problems related to timeliness and noncompliance with reporting requirements because control and supervision usually rely on strong legislation. In addition, such ITRSs do not represent a substantial additional burden in themselves, because data reporting is not an end but instead a by-product of the foreign exchange monitoring and control framework. In regard to negative impacts, when control or supervision are the main purposes of a system, providing data for balance of payments compilation may not be regarded as a core function of the system, and the ITRS data therefore may be less reliable (because statistical needs may be de-emphasized in programs with primarily regulatory or administrative purposes).

ITRS and data on remittances

4.8. Remittance transactions are frequently carried out through the international payments system. In countries with both foreign exchange controls and an ITRS, this means that the transactions are routed through the banking system (or other institutions with foreign exchange licenses and subject to data reporting requirements) and therefore registered in the ITRS. For this reason, the ITRS is often seen by balance of payments compilers as an important and efficient source of information. Provided that the ITRS is reliable, compilers focus on the records of the intermediary banks that carry out the cross-border payments on behalf of other remittance service providers (e.g., MTOs and credit unions) or on their own behalf in order to obtain remittances data.

Remittances captured by the ITRS by transaction channels

4.9. By design, an ITRS can cover only transactions reported by participating institutions through which funds are transferred using international settlement systems. Typically, reporters are commercial banks and other licensed foreign exchange transactors. In many economies, a significant volume of remittances is channeled through international payments systems because banks and other financial institutions settle their payments formally, either on their own behalf or as a service provider for third parties. Where banks and other financial institutions offer remittance services at competitive rates and from convenient locations, and where the regulatory burden for sending and receiving remittances is not high, banking channels have gained importance.³¹

³¹If the originating bank and its partner bank in the receiving country act as the service provider when a cash transfer is made,

4.10. Given that the MTOs use banks for cross-border payments, an ITRS is, in principle, able to capture international flows between and within MTO networks. Nevertheless, a separation between settlement arrangements and information flow, as well as the involvement of clearing centers and netting between regional MTOs, may result in the omission of larger gross flows. These factors also make it difficult for reporting banks to fully identify personal transfers or provide an adequate breakdown by country.³²

4.11. An ITRS may be an effective data collection tool for transactions by credit unions. When credit unions provide remittance services themselves and transfer funds via international payment systems, the transactions can be measured using the ITRS.

4.12. The situation could be different in the case of postal networks. In some countries, national postal services may not fall under the legal authority of financial and statistical authorities and therefore may not be subject to data reporting obligations. Under such circumstances, an ITRS is not an efficient source for the collection of remittances through the postal system. Nonetheless, the ITRS may sometimes be used as a starting point to assess the importance of this transfer channel. The reason is that national post offices normally settle their mutual claims periodically using the international banking system. In countries where privately owned postal banks are subject to the same legal requirements as other banks, their activities can be captured through the ITRS.

4.13. The ITRS would not cover remittances via courier companies, through which cash is delivered physically. In some parts of the world, remittances are transferred through cellular phone charge cards, stored value cards, and also through some newer forms of remittances using cellular phones. An ITRS will in most cases not be able to identify and obtain data on those transactions because the companies involved in the transactions—such as telecommunications firms or

relevant information about the sender and the final recipient may be available to separate the remittance transactions from other business transactions. This is less frequently the case when other agents, such as MTOs, are the point of contact with clients. In any case, banks may find it challenging to distinguish personal transfers from other current transfers.

³²MTOs separate the information flow and financial settlement related to a transaction. Therefore, MTOs can provide very fast remittance services by communicating (e.g., through the Internet) transactions between distant branches. Settlements for numerous transactions can then be batched to a single cross-border net payment.

Table 4.1. Coverage of Remittance Aggregates Through an ITRS

Remittance Aggregate	Data Generally Obtainable from an ITRS
Personal transfers	Current transfers through ITRS reporters (i.e., banks and other financial institutions); net settlements of other formal channels (e.g., money transfer operators); no information on transactions through other channels or transfers in kind
Personal remittances	Current and capital transfers through ITRS reporters; coverage of compensation of employees or expenditure related to short-term work abroad (travel, taxes, etc.) only in exceptional cases (when payments are made through reporting banks and nonresident workers are identified)
Total remittances	Current and capital transfers to households, including social benefits and transfer from NPISHs
Total remittances and transfers to NPISHs	Current and capital transfers to households, including social benefits and transfer from NPISHs, as well as current and capital transfers to NPISHs

Note: ITRS = international transactions reporting system. Transactions are captured only if they are made through institutions that are ITRS reporters; some items may not be readily identifiable although they are included (e.g., current transfers to NPISHs are included but not separately identifiable in current transfers).

retailers—may not operate their internal data systems to detect balance of payments transactions, and are typically not subject to reporting of third-party transactions. Remittances through such channels as hawala, remittances in kind, and cash transported by individuals will also not be captured by the ITRS.

Remittances captured by an ITRS by type of transaction

4.14. Data obtained from an ITRS cover cross-border transactions settled by banks and other financial intermediaries. With a few exceptions, they do not cover transactions by residents and nonresidents settled domestically, especially when no exchange of currency takes place (see Table 4.1). Therefore, an ITRS does not fully cover compensation of employees, nor does it detect what nonresident workers spend on travel or pay in taxes in their host country. At the same time, an ITRS may include data that should not be included in remittances, such as money sent by a nonresident worker from the host economy to a household in the home economy.

4.15. Given the right legal and institutional circumstances, an ITRS may be an effective tool for obtaining data on personal transfers, capital transfers between households (if the identification of households is possible), and current and capital transfers to NPISHs (if the identification of NPISHs is possible).³³

³³However, the output of an ITRS typically does not allow for the breakdown between personal transfers and capital transfers without further information.

It may also enable compilers to identify social contributions and benefits.

4.16. Depending on the design of an ITRS, it may be difficult for reporting institutions to distinguish household-to-household transfers from transactions between households and other sectors. With account-to-account transfers, the institutions may have sufficient information to classify clients in the reporting economy according to sector, but the necessary information may seldom be available for the nonresident counterpart to the transaction.³⁴ In regard to classifying clients in the reporting economy by sector, in many countries the residence status of clients must be provided, because transactions with nonresident accounts are treated differently from transactions between resident accounts for reasons such as legal requirements, anti-money laundering measures, or different fee structures.

4.17. If banks report for clients like MTOs, the sector information and residence status for all individual transactions that relate to a single settlement payment may not be available to the reporting bank (and would need to be requested from the client). Although the reporter could request information about individual clients from the MTO, this could significantly increase reporting burden (and may not result in accurate information).

³⁴In most cases, an ITRS is not able to provide information about the nonresident account holder. For this reason, misclassifications may occur regarding deposits to own accounts abroad, which represent a financial investment, and transfers to other accounts, which may constitute personal transfers.

4.18. Accurately identifying the sector and resident status of transactors is challenging for an ITRS. Without confidence that the residence of transactors can be adequately determined, personal transfers and related supplementary items (personal remittances, total remittances, and total remittances and transfers to NPISHs) cannot be compiled accurately. Furthermore, accurate classification of remittance flows also requires the identification of the sector of even the foreign transaction party. Although this may be a surmountable problem in the case of personal transfers (compilers may find indicators for identifying household-to-household transfers), it may be more difficult to solve for supplementary items (particularly total remittances, and total remittances and transfers to NPISHs) because the originating transactor can be from any sector. Information obtained directly from the transactors may facilitate more accurate classification.

Preconditions for an effective ITRS

4.19. In the absence of an appropriate legal framework that ensures that foreign transactions are channeled through licensed intermediaries and that those intermediaries report transactions data in an accurate and timely manner, incomplete coverage and delayed reporting will lead to low-quality data. It is therefore important that an ITRS be based on a legal framework that supports transactions reporting requirements appropriate to the needs of balance of payments compilation.

4.20. Regarding the ITRS implementation, some data items ideally should be collected in order to ensure the quality of the data. The items that should be included in the reporting system are a reference number for the transaction, the reference period, the identity of the transactors, the identity of the bank accepting the information from the client, the direction of the transaction, the currency used, the transaction value, the classification of the purpose of the transaction, and the country of the nonresident party.

4.21. Some ITRS frameworks allow smaller transactions to be reported in an aggregated fashion, and only larger transactions above a certain threshold are reported individually. Aggregate reporting results in the loss of information and can make the detection of errors more difficult. Remittance transactions are usually small, and it may be difficult to set reporting thresholds at a level that is appropriate for using an ITRS for compiling remittances data.

4.22. It may be most efficient if ITRS data were submitted electronically to balance of payments compiling institutions—for example, through secure Internet access or through specific electronic transmission systems. Data can be submitted in many forms, such as spreadsheets, in simpler systems, or using specific software or online databases in more complex systems. The systems should include coding schemes that require reporters to submit data classified according to pre-defined codes. Data quality analysis procedures, such as automatic consistency checks for codes and for missing and negative figures, for example, may be important in these systems. Data that fail certain basic consistency checks could be automatically rejected and have to be reviewed and corrected by the reporter. Other checks may include the identification of outliers and overall economic consistency of the reported data.

4.23. Electronic reporting facilitates the reporting of individual transactions by an ITRS. Reporting of individual transactions leads to a large data volume and places demands on compilers and their data systems for collecting, checking, and processing the data. Without a sound information technology infrastructure and the use of electronic forms, the costs could be prohibitive. Furthermore, higher levels of automation may help reduce the errors stemming from entry and processing. Manual (or paper-based) reporting systems reduce many of the benefits usually associated with an ITRS—namely, timely data provision at reasonable cost.

4.24. Contact between compilers and data providers is very important in a quality ITRS. This interaction facilitates correct classification of transactions and keeps compilers updated on alterations in operational procedures that can require changes in the data collection system in order to avoid loss of quality and coverage. The classification of transactions is done by reporting entities and, for smaller transactions, is often handled by the bank tellers with input from clients. Misclassification at this stage is one of the most important sources of errors because neither the bank staff nor clients may be familiar with balance of payments definitions.

4.25. For countries that do not have an ITRS, developing a new ITRS is costly. When exploring this option, consideration should be given to collecting more than remittances data alone. An ITRS and the related regulations (reporting requirements and foreign exchange restrictions) carry developmental, operating, and compliance costs (some borne by compiling institutions, some by reporting banks and their clients) that should be carefully evaluated.

Strengths of an ITRS as a data source

4.26. An ITRS may present significant advantages as the basic system for the compilation of remittances.

Timeliness and periodicity

4.27. An important advantage of the ITRS is its capability to deliver information to compilers in a timely and frequent manner, because data are generally registered at the moment of settlement of the transactions. The use of electronic means for collecting information by the reporting agents (banks and other financial institutions) and for transmitting reports to compilers is a precondition for maintaining high levels of timeliness and frequency.

Cost-effectiveness

4.28. In countries that have an ITRS and the appropriate regulatory and institutional framework, including foreign exchange restrictions and well-defined data reporting frameworks, data may essentially be a by-product of exchange controls. In these circumstances, an ITRS is likely to be a cost-effective source of remittances data, even when these controls are lifted. In this case, coverage may slowly erode and alternative data sources may have to be developed.

Data accuracy and accessibility

4.29. A well-structured, comprehensive ITRS tends to measure transactions accurately. In addition, an ITRS without reporting thresholds is, in general, very useful for the compilation of transactions of small amounts such as personal transfers. However, accuracy can be limited by omissions and misclassifications, as discussed below.

4.30. In economies with an ITRS, compilers frequently have useful access to the underlying reported data, which allows for closer data checking and easier follow-up to reporting institutions. This derives from the fact that financial institutions are subject to supervision by central banks who, in turn, tend to have authority to oversee the ITRS and to compile balance of payments estimates.

Weaknesses of an ITRS as a data source

4.31. Compilers should be aware of some general problems that are associated with an ITRS as a data source for remittances. These problems and some possible solutions are described here.

Omissions

4.32. In many instances, household-to-household transactions are conducted primarily through informal channels. In this case, an ITRS, which relies exclusively on remittances sent through formal channels, may present significant omissions, especially in personal transfers. When there are large informal transactions and hence transactions for which neither stock positions nor flows are reported, the ITRS cannot overcome the omissions, whether it is open or closed. In addition, there are cases where even flows through formal channels are only captured partially. This can result from netted settlements of flows through the international payments system. It is important that compilers be familiar with the structure of the remittance market in their economies in order to identify flows that bypass an ITRS and to design appropriate complementary or alternative data sources.

Misclassification

4.33. Misclassifications are a frequently identified problem with ITRS-based compilation systems because intermediaries are responsible for classifying transactions. Small transactions are especially often classified as “transfers,” although they may be payments for goods or services or constitute investments (e.g., savings by residents or nonresidents). Further, it cannot always be assumed that funds transferred through MTOs are exclusively remittances. For instance, transfers to family members studying abroad or transfers to travelers undertaking lengthy trips are frequently made using payment transfer service providers. Because these person-to-person payments are also in small amounts, it may be impossible to distinguish them, in practice, from remittance flows or own personal transfers for intermediary banks or the service providers. Compilers should therefore make appropriate corrections based on benchmark data and other indicators.

Loss of information owing to reporting thresholds

4.34. An important aspect in the context of international remittances and other household-to-household payments is the fact that the average value of these payments is relatively small compared to the value of other transactions collected in the balance of payments. The low value is problematic insofar as it is not unusual that countries that use an ITRS to collect balance of payments data (in total or in part) have implemented reporting thresholds in order to reduce reporting costs and reduce the data compilation burden. The reporting

threshold is a major issue regarding comprehensiveness for the compilation of remittances data.

4.35. There are two types of reporting thresholds—exemption and simplification—that are usually established to limit the statistical burden for the respondents as much as possible.

4.36. Under exemption thresholds, reporters do not have to report the transactions that fall below a predetermined amount. Because these thresholds are often fixed at a value that ensures that a substantial amount of commercial transactions are also exempted, compilers have to face the fact that a significant percentage of remittances may fall below the threshold and cannot be captured by the collection system.³⁵

4.37. Simplification thresholds allow for the reporting of data in batches or in net values, in many cases without the obligation to disclose information that is relevant to the compilation of personal transfers, such as the purpose of the transaction, average amount of remittances, country of origin of remittances, and names of senders or beneficiaries.³⁶ The absence of certain basic information leads to distortions and limitations of the quality of remittances statistics compiled with the use of ITRS data.

4.38. One means of overcoming the problems is to rule that certain types of transactions that fall below the threshold be reported collectively (to replace the exemption by the simplification threshold) and properly identified. In this case, all lower-value transactions classified as personal transfers would be reported.

4.39. Another solution may be to contact the most relevant banks that are known to be active in the remittances business and request that they report all transactions below the threshold that they could identify as remittances. In principle, such a distinction from business transactions is possible if banks, whether acting as agents on behalf of an MTO or as service providers

³⁵In the European Union, cross-border settlements below €12,500 are exempted from reporting obligations. Moreover, the European Commission proposed a new draft regulation asking to increase the reporting threshold up to €50,000 by January 2010 and to complete exemption of payment service providers for balance of payments reporting by January 2012. The draft regulation has been proposed to the European Parliament and Council.

³⁶Batching of data is relevant not only in the context of simplification thresholds, but also when the information flow is separated from the funds flow, which is not rare in the remittances business. In this case, providers of remittance services may intend to batch the small amounts of the individual transfers into a single payment.

themselves, have the necessary details about the sender and receiver (private persons).

4.40. As long as compilers analyze the national remittances market with a focus on major service providers and impose on them only additional information requests, substantial underreporting can be avoided without leaving the “ITRS path.” However, if such a solution cannot be realized, the existence of an exemption threshold may imply the need to resort to a complementary if not alternative data collection system.

Settlements of net amounts

4.41. MTOs, postal savings banks, credit card companies, and some other remittance service providers operating with well-known partners around the globe typically offset their transfers to their partners against the funds they receive from them in order to keep payments as small as possible and thus reduce costs. Multilateral networks also offset third-country claims and liabilities, settling one net position from a central settlement location. Therefore, only the net amounts—not the gross flows needed for the compilation of statistics—are reported. This is particularly problematic for countries that record both significant inflows and outflows of personal transfers.

4.42. A slightly different situation, which resembles the netting issue, arises in the case in which global service providers internalize the cross-border part of the transfer—in other words, running compensating accounts in both the sending and the receiving country. Under these arrangements, the sender in one country credits a domestic account of the MTO or bank, and the receiver in another country is paid out from a domestic account (which is an account of a partner company of the MTO or bank) in that country. The transfer itself is recorded only in the books of the company, and the ITRS system normally cannot capture these internalized transfers.

4.43. However, because compilers can assume that at some point the service provider must transfer funds to stock up the account in the receiving country, the transaction will then be reported within the framework of the ITRS. As long as the time lag between the initial transfer by the sender and the internal compensatory payment by the service provider is not too long, and as long as there are not seasonal patterns to the settlements, the ITRS may still be able to provide the relevant data with acceptable quality. It would become

problematic if such payments were to take place, for example, only on a quarterly or biannual basis. Under such circumstances, it would also be likely that the compensation would no longer be classified by the reporter as an (aggregated) remittance transfer but, instead, as a financial or service transaction between affiliated enterprises. Such a misclassification and the time lag could lead to distortions in remittances flows statistics of the compiling country.

4.44. As in other cases in which the ITRS functions as an indirect data source, in order to avoid underreporting, timing problems, or misclassification in such cases, compilers should contact major service providers in their economy to assess the relevance of this problem and to establish specific reporting requirements if necessary.

Lack of bilateral data

4.45. It is possible to encounter difficulties in obtaining reliable data on partner countries when using an ITRS because settlements are often made through third countries. Overseas clearing centers account for a large share of settlements made by MTOs.

4.46. This shortcoming of the ITRS could be solved by approaching the major MTOs for data with a country breakdown according to the final receivers of the funds. Although this information is available to MTOs, extracting and providing it will pose an extra reporting burden and may result in MTOs rejecting information requests from compilers. Under such circumstances, compilers may consider it best to focus on the most significant flows stated in the ITRS and resort to estimations for less relevant figures based on other available sources.

B. Direct Reporting by Money Transfer Operators

4.47. Direct reporting refers to the practice of obtaining data from a group of transactors directly instead of indirectly from settlement facilities. In the case of remittances, direct reporting has further advantages compared with compilation based on an ITRS alone. These include better information on gross flows (outbound and inward) and on the geographical distribution of counterparts, and greater detail and accuracy of the data collected, because the information is directly provided by the information holders, without any intermediate communication step. Also, direct reporting, considered as the collection approach based on reports

of entities directly involved in remittance transactions, has been shown to be a tool to improve the quality of statistics in a cost-effective way.

4.48. This section discusses direct reporting by MTOs as a data source for the compilation of statistics on remittances. It also provides general guidelines for the design and implementation of such reporting systems. Section A discussed how an ITRS can obtain data on the settlements of MTOs; hence, the transactions of MTOs are indirectly reported by banks involved in the settlements. An ITRS captures only settlement data and therefore has incomplete coverage, and data obtained from direct reporting by MTOs can, in principle, cover all transactions channeled through MTOs (and be used to augment data obtained from an ITRS) but, by definition, will not include transactions through other channels.

Description of the collection system

4.49. Direct reporting by MTOs can be an effective data source if MTOs account for a large share of remittance transactions in the reporting economy and if an appropriate legal environment can be established to ensure that reporting requirements can be established and enforced. In many countries, MTOs play a dominant role in the remittance industry, and direct reporting seems particularly appropriate to obtaining data from them. Because transactions by banks are often covered by an ITRS, direct reporting is also a useful supplement to an ITRS, because it addresses some common weaknesses of an ITRS relating to aggregated and netted settlement payments. It is important to note, however, that a direct reporting system could be implemented not only for MTOs but also for any type of remittance service provider (Box 4.1).³⁷

4.50. MTOs handle complex payments flows with numerous partner countries, resulting in complex mul-

³⁷In some countries, direct reporting replaced a traditional ITRS, which relies on the monitoring of cross-border settlements, as the main collection strategy. This evolution stems from the recognition of the loss of accuracy of ITRS information because of the introduction of innovative techniques of liquidity management, especially among large companies. In an effort to reduce settlement costs, these companies increasingly adopt procedures of centralized clearing and netting of multilateral flows (e.g., cash pooling). In many countries, raising exemption thresholds for bank reporting further contributes to the need to lessen the dependence of balance of payments compilers on banks and, consequently, a more central role is assigned to reporting by nonbank institutions. For information about direct reporting methodologies in balance of payments in the European context, see Eurostat (2003).

Box 4.1. Direct Reporting by Different Remittance Service Providers

Direct reporting by MTOs is particularly useful because it overcomes the problem that data on MTOs reported in an ITRS normally reflect netted settlements rather than gross underlying transactions. Direct reporting can be set up specifically for the purpose of compiling data on remittances and can focus on the transaction-by-transaction information flow between participating MTOs.

Direct reporting can, in principle, also be applied to entities other than MTOs. For example, direct reporting by other remittance service providers such as banks and post offices could be useful even if MTOs account for a relatively

large share of total transactions. Direct reporting of transfer receipts by NPISHs would help to estimate “total remittances and transfers to NPISHs.” However, the transactions of NPISHs, banks, and other entities are typically covered by existing data sources such as an ITRS or surveys.

Also, informal institutions, such as those involved with hawala, could in principle report on their transactions. In practice, direct reporters are more likely to be formal entities because reporting obligations (and the definition of the reporting population) are more easily established and enforced with legal entities.

tilateral operations with an extensive use of netting of payments. Direct reporting is a promising approach for compilation of remittances data because it can take advantage of the information flow between the national centers of the international MTO network. MTOs exchange information about each transaction; the information flow is therefore more extensive and detailed than the financial flow resulting from settlement transactions. In addition, MTO data can provide useful information to be used in combination with other data sources to estimate remittance-related transactions.

Design and implementation of the collection approach

4.51. MTOs carry out a large volume of household-to-household transfers. This section discusses how a system of direct reporting can be designed and implemented to obtain data on the transactions through MTOs. It should be noted, however, that it is challenging to properly record remittance transactions through MTOs and that this data source will not capture the whole universe of such transactions.

4.52. As a start, compilers have to identify the target population for the direct reporting system on the basis of coverage and expediency. MTOs are usually franchise operations with numerous agents and subagents in each country. Agents are direct franchisees or subsidiaries of an international MTO company, whereas subagents are subordinate to a national agent. Subagents provide the branch network through which extensive services are delivered. In principle, each subagent or MTO branch could be required to report transactions data. However, it appears more effective to prefer agents as the statistical units, because they are smaller in number and can report equivalent information, because the administra-

tive process requires agents to know all relevant details about customers and transactions.

4.53. Next, compilers have to determine the nature of the data collection because both census and sample surveys are possible. The number of agents operating in each country is often relatively small, typically ranging from 10 to a few hundred. It seems therefore feasible to conduct a census survey. However, when national circumstances require it, such as because of cost constraints, a sample survey can be considered. In this case, if a strong concentration of the market shares exists, it should be ensured that all of the largest MTOs by market share are included in the sample.

4.54. With both a census and a sample survey, a first step in collecting data from MTOs is to build a list to identify all elements of the target population (in sample approaches the list is named “sample frame”). The list is readily available in countries where the regulatory framework requires the registration or licensing of MTOs with monetary or other financial authorities. In countries where MTOs are registered only as companies, but not as financial entities, the identification of the target population may require a search of the company registry. However, all major MTOs tend to be well known and are easily identified.

4.55. Then, compilers have to decide the frequency of data collection based on data needs and practical constraints. The decision on the frequency of the data collection is country specific. Data needs depend on, among other things, the importance of remittances for the compiling economies and the fluctuation of remittance transactions throughout a year. However, resource constraints and legal or institutional problems in direct reporting could pose practical prob-

lems for frequent data reporting. A quarterly reporting schedule may be sufficient to satisfy data needs without excessive resource requirements. Some countries may be in a position to implement a reporting schedule with higher periodicity. Irrespective of the frequency of the data collection, MTOs should be able to provide high-frequency data without excessive efforts. For instance, MTOs should provide monthly transactions data covering the reporting period, even if this period exceeds a month.

4.56. Direct reporting of MTOs transactions data allows the gathering of detailed information on remittances, because this information is embedded in MTO administrative records. Aggregate transactions of MTO agents can be generally broken down by the following attributes:

- Date of transaction
- Direction of flows (outbound or inward)
- Country of destination (for outward flows) / of origin (for inward flows)
- Transaction amount
- Transaction purpose

4.57. The desired level of detail of the geographical breakdown varies from country to country and will be usually determined by national and international requirements. Of course, the purpose of payments should also be recorded to aid correct classification of data entries. However, not all countries require that MTOs record the transaction purpose, and the assumption is often made that all transactions through MTOs are personal transfers. In cases where no reliable information on the purpose is available, compilers should seek to verify that these transactions are remittance related. For this purpose, a small survey could be used to establish benchmark data on the stated purpose of transactions through MTOs, including the assessment of transactors' residence and other relevant criteria.

4.58. In addition to the aggregate amount of remittances, the number of transactions can normally also be collected from agents.³⁸ This allows the calculation of the average amount of remittances, which is a useful variable for modeling approaches and for analytical

³⁸However, the identification of the actual number of "individual" remittances sent may be difficult, because sometimes the sender transfers the remittances of several family members in a single payment.

purposes. Further, basic socio-demographic variables on the transactors, such as nationality, sex, and age, may also be collected if they are recorded by MTOs (which depends on documentation requirements in the compiling economy). Users of balance of payments and of remittances data find tabulations of these data useful for analytical purposes. Therefore, compilers may wish to collect and disseminate these data as a courtesy. These and other data details obtained from MTO direct reporting are also useful complements to other data sources and estimation approaches.

4.59. The reporting rules should clearly state the reporting currency to be used or the criteria to be followed in this respect if more than one currency is used in data reporting. Reporting data in the domestic currency of the compiling economy is the most obvious choice. However, using another currency may be useful if remittance transactions with a dominant partner country take place in that country's currency, or if foreign currency is widely used in the domestic economy. Also, some countries compile balance of payments statistics in currencies other than their own, and it may follow that data reported by MTOs should be denominated in that same currency. For compiling remittances data, the reporting currency is not relevant in itself, but it is important to ensure that there is no ambiguity.

4.60. The reporting rules should also require that both the transaction amount and associated service fees are specified. Reporting MTOs should indicate the total amount paid by remitters, the amount accounted for by all types of commissions and fees (including exchange rate spreads), and the amounts paid to receivers. Commissions, fees, and exchange rate spreads are remunerating the activity of all the involved parties. Therefore, commissions and fees are earned by subagents and agents in two countries (and indirectly perhaps also by the central settlement unit in a third country). An MTO agent in one country may not know the fees and commissions charged by another agent in the partner country. It is therefore not always possible to determine all transactions costs, but reporting agents should at least specify fees and commissions paid in the reporting economy. More detail is usually available because all MTO agents involved in a transaction generally know the net amount that is delivered to the final beneficiary.

4.61. Compilers should ensure that appropriate reporting channels are available that ensure timely responses and limit the reporting burden. Submission of data by

electronic means, especially through the Internet, ensures fast data transmission and ease in uploading and processing data. In the case of subagents, especially in developing countries or regions with poor infrastructure, reporters should be given more flexibility in order to minimize the burden and encourage reporting. Subagents could report data in any form convenient for them, including hard copies or CD-ROMs sent by mail or courier.

4.62. In most cases, compilers should also standardize the format and software application (or compatibility) that MTOs will use to extract data from their records and report it to the compiling agency. The standardization of data-processing applications ensures that data can readily be uploaded by the compiler and reduces the likelihood of errors in data entry. Exceptions may be considered for smaller MTOs with less developed technology.

4.63. As with all direct reporting schemes, the success of the operation also requires appropriate communication with the reporters. Clear instructions, periodic briefings, and assistance from compilers through a help desk structure can significantly improve the outcome of the activity. Compilers should also have a list of contacts at the reporting MTOs so the queries and data inconsistencies can be addressed quickly and informally. Compilers should strive to establish a productive, trusting relationship with their counterparts at the reporting MTOs.

Institutional arrangements for data collection

4.64. Regulatory aspects related to the MTO channel were discussed in Chapter 2. The type of supervisory authority determines how an agreement between MTOs and the national authorities can be reached to share information. A variety of public agencies, in various countries, have the responsibility to supervise MTOs and other remittance service providers: central banks, financial or anti-money laundering supervisors, local authorities, and custom and tax authorities.

4.65. Although MTOs are subject to some kind of supervision in most countries, this does not guarantee the provision of information useful for compilation purposes. Countries often adopt a regulatory framework directly addressing statistical activities, with a set of statistical regulations. They define the institutions responsible for the various statistical domains, the type of information to be collected, the population of respondents, and their statistical obligations. Sanctions are sometimes imposed for missing or incorrect reporting.

4.66. Central banks (or other banking supervision agencies) have the authority to obtain data from the financial sector, and so banks and other financial intermediaries are obliged to report statistical information on their operations. Consequently, in most countries central banks are able to conduct indirect data collections on MTO payments, through the information on cross-border settlement that banks undertake on behalf of MTOs. The authority to obtain data would extend to direct reporting from MTOs only in countries where the banking or another supervisor has regulatory authority over MTOs. Strict foreign exchange regulations may also make MTOs subject to transactions reporting.³⁹

4.67. Countries where the financial regulator (e.g., the central bank) is also a balance of payments compiler and supervisor of MTOs are in a strong position to impose direct data reporting obligations for statistical purposes. This assumes that the regulatory framework permits data to be obtained for statistical purposes, or that information reported for supervisory needs can be adapted for statistical purposes, respecting the relevant confidentiality rules.

4.68. However, in many countries the statistical mandate and the supervisory authority are not vested in the same institution. This may be the case in countries where a national statistics agency and not the central bank compiles balance of payments statistics. National statistics agencies are typically mandated and empowered by a statistics law to obtain data from all relevant resident units. The statistics agency therefore relies on the enforceability of the statistics law, not on supervisory power, to obtain relevant data from MTOs. National statistics agencies also may have direct access to related data sets, such as migration and demographic data, household survey data, and other data sets that are potentially useful for complementing and cross-checking remittances data.

4.69. Before introducing a direct reporting system for MTOs, compilers should confirm that the regulatory or legal powers at their disposal provide sufficient authority to require MTOs to supply all relevant data. The legal provisions have to be broad enough to include detail on transactions and they have to be enforceable. Despite the focus on legal powers, compilers should

³⁹Countries with strict foreign exchange rules often have an ITRS. If MTOs are not directly covered in the ITRS, a supplemental reporting system for MTOs would be a useful complement to the ITRS.

Table 4.2. Coverage of Remittance Aggregates Through Direct Reporting by MTOs

Remittance Aggregate	Data Generally Obtainable from MTOs
Personal transfers	Current and capital transfers through MTOs; no data on other modes or transfers in kind
Personal remittances	Current and capital transfers through MTOs; no coverage of compensation of employees or expenditures related to short-term work abroad (travel, taxes, etc.)
Total remittances	Mainly current and capital transfers between households; no coverage of social contributions and benefits or other transactions not solely involving households
Total remittances and transfers to NPISHs	Mainly current and capital transfers between households; very little information on transactions involving NPISHs

Note: When capital transfers between households occur, they are usually larger than current transfers and they may be more likely to be channeled through banks than through money transfer operators (MTOs). Money sent by nonresident workers to their home countries through MTOs may be misclassified as personal transfers.

seek to limit the reporting burden and build a cooperative relationship with all data reporters.

Coverage by type of transaction

4.70. Direct reporting from MTOs as a data source can address only part of the statistical needs related to remittances. The data source is partial by definition because it can provide information only on the payments sent through the MTO channel. This limitation of coverage, even if mitigated by the fact that MTOs in some countries are a very important mode of remittance transactions, must always be taken into account when direct reporting is part of a statistical program to improve remittances data.

4.71. The second relevant characteristic of data obtained from direct reporting by MTOs is that they can provide information mainly on household-to-household payments. Even though potentially they constitute a general purpose payment channel, and therefore can be used by all institutional sectors (firms, government, and so forth), the main activity of MTOs is the transfer of funds between households. This limits the coverage of other items that are required, such as compensation of employees, social contributions and benefits, and transfers involving NPISHs (Table 4.2).

4.72. In summary, direct reporting by MTOs can provide data on personal transfers—that is, current transfers between households, transacted through MTOs. The data that MTOs may provide would exclude personal transfers transacted through banks, informal channels of payment, or in-kind remittances. Direct reporting by MTOs may capture data on capital trans-

fers, although this is less likely because capital transfers are more likely to be channeled through banks.

4.73. The data from MTOs may include data on short-term workers abroad sending money home, although these funds are not personal transfers. These flows could be seen as linked to the concept of compensation of employees less taxes, travel, and other expenses related to short-term employment abroad. It is important that compilers estimate compensation of employees as well as travel, taxes, and other related items on a gross basis.⁴⁰

4.74. MTOs normally carry out transactions in cases where both of the parties are individuals. Therefore, they are not a good source of information on payments of taxes, travel, social contributions, and benefits. Current and capital transfers involving NPISHs and other nonhousehold sectors are also unlikely to be captured. In addition, MTO agents usually do not keep precise records on the specific purpose of a transaction. Therefore, data obtained from MTOs are not easily classified into capital and current transactions and do not permit compilers to separate easily transfers from other transactions. The assumption is often made that most trans-

⁴⁰The potential coverage of compensation of employees less related expenses requires some explanation. In addition to residents (including migrants), the MTO channel may also be used by nonresident short-term workers to transfer funds to their origin countries. The money sent by short-term workers could be regarded as the “net income” of wages less taxes, social contributions, transport, and travel expenses paid abroad. However, MTOs cannot always accurately distinguish short-term workers and resident migrant workers. Furthermore, short-term workers are more likely to take their earnings with them on return to the home country, instead of sending them through institutional channels.

actions passing through MTOs are current transfers, but this assumption may be weak.

4.75. Although MTOs cannot provide data on all remittance-related components (and types of flows), and the classification of transactions is less detailed than compilers would prefer, these data may be useful in estimating current transfers sent by migrants to their country of origin. Although the definitions are not perfectly aligned with those of *BPM6*, data obtained from MTOs can lead to a substantial improvement in capturing transactions by migrants, who account for the bulk of all personal transfers and remittances.

Strengths of direct reporting by MTOs as a data source

4.76. Direct reporting is a promising approach for collecting data on the operations of MTOs with good detail on individual remittance payments. Direct reporting can be used as the main data source in countries where compilers can determine that MTOs are a dominant transaction mode for remittances.

Practicality

4.77. Most countries have a statistics law in place that allows the establishment of direct reporting requirements without further legislation. Reporting requirements can then be established and enforced using the authority of the balance of payments compiling agency.

Cost-effectiveness

4.78. Direct reporting is usually not expensive for reporters and compilers. Although it requires an additional reporting activity, the reporting burden is low and the number of reporters normally is not large.⁴¹

Timeliness and frequency

4.79. Monthly data are often available shortly after the end of the reference period. Depending on the technological methods used by MTOs to compile and report

⁴¹A strategy to reduce reporting costs could be to promote the collaboration between statistics compilers and MTOs at an international level, instead of relying on the information provided by the MTO agents resident in the various countries. In principle, this centralization of the collection of information could allow compilers to obtain more homogeneous and consistent information on the transfers carried out by MTOs across many countries. In fact, a coordinated but relatively modest project could result in useful data for a large number of countries, including some that would not be able to establish direct reporting by MTOs at a national level.

data, the timeliness and frequency of data reporting can approach that of an ITRS.

Reliability and accuracy

4.80. Data obtained from MTOs are reliable when compared with those from other data sources. Although not all remittance transactions can be captured, those routed through MTOs are in principle fully covered. Some transactions through MTOs may not reflect personal transfers or remittances. Adjustments should be made to data reported by MTOs, where appropriate, for overcoverage and undercoverage.

Compatibility with other sources

4.81. Direct reporting by MTOs is a very useful tool for addressing the weaknesses of other data sources. In particular, the identification of each individual transaction avoids information loss caused by the batching and netting of transactions that affect remittances data collected through an ITRS. Also, the use of detailed MTO data allows a correction of the distortions in geographical breakdown of data obtained from the ITRS. In some countries, thresholds are applied to reduce the statistical reporting burden in relation to small-amount cross-border settlements.⁴² Such thresholds often cause significant information loss in relation to remittances, whose amount is typically very small. In countries where the exemption threshold applies only to bank settlements, direct report from MTOs may fill the information gap.

Weaknesses of direct reporting as a data source

Classification errors: Residence of transacting parties

4.82. MTO agents cannot always reliably establish whether payments originate from short-term workers who are nonresident in the country where they originate the transaction or from migrants who are resident there. MTOs ask customers about the place of usual residence or get this information from their identity documents, but a correct assessment, consistent with balance of payments definitions, cannot always be assured. This weakness may imply, for example, that funds transferred by short-term workers to families of origin (who are both resident in the country of origin) are mistakenly included in “personal transfers.”

⁴²See paragraphs 4.34–4.40.

Classification errors: Purpose of transaction

4.83. Compilers may find evidence that suggests that a significant share of transactions through MTOs are household-to-household transfers, in most cases to the families of origin of the senders. Nonetheless, substantial transaction amounts through MTOs may not be related to remittances. For example, MTOs can be used to make payments related to the purchase of goods or other commercial activity. Also, if a temporary worker sends a portion of his or her income back to the household in the home economy, care must be taken to avoid including this in personal transfers. (The net compensation of the temporary worker should be included in remittances, but the transaction involving the MTO should not be included in transfers, because that would cause double counting in remittances.) Compilers should try to periodically validate the classification of transactions reported by MTOs and may find it useful to establish an adjustment factor for reported data to improve the estimate of personal transfers. An analysis of microdata on individual transactions provided by MTOs would allow an analyst to characterize the distribution of amounts and to establish the adjustment factor.

Problems in establishing effective reporting

4.84. In most countries, the implementation of MTO direct reporting may not pose unusual problems, whereas in others, it may be less straightforward. In many countries, MTOs are not supervised (or licensed) by the financial authorities. Even if they are supervised, in some cases, no useful statistical information is reported by them to the authorities.⁴³

Role and concentration of MTOs in the remittance market

4.85. If MTOs are not an important conduit for remittance transactions, direct reporting by them would not provide adequate data for estimating remittances (and may not be an important element in a data source

⁴³See, for example, the work by de Luna Martinez (2005). In particular, using the findings of a survey of 40 central banks of developing countries, Martinez reports that although MTOs participate in the market in 39 out of 40 countries, central banks collect information from MTOs in only 15 countries (38 percent). By contrast, in 40 countries remittances are paid by banks and in 36 of these countries (90 percent) the central banks collect information from them. Moreover, the legal and regulatory framework related to MTO transactions sometimes exclusively focuses on anti-money laundering aspects; for this reason, MTOs are obliged to report only transactions above a certain amount.

strategy). However, even in countries where MTOs are important, the MTO sector can be so diverse or fragmented that effective reporting relationships are difficult to establish. This could be the case particularly when MTOs have strong regional or ethnic affiliations and little national presence.

C. Surveys of Households

4.86. Well-designed surveys of households can be a valuable source of information for compilers of remittances data. They can be used to improve the quality of data directly, and provide more detailed insights into the nature of flows and their impact because they can provide information on the mode of transaction and the volume and direction of flows. They may be useful as a direct data source, to improve the accuracy of estimates, to better understand remittance flow mechanisms, and to provide estimates of parameters for use in econometric modeling techniques.

4.87. This section of the *RCG* describes methods that may help the compiler obtain data on remittances directly from such surveys. It describes the different options available, including the use of existing surveys and surveys that are specially commissioned. It discusses their strengths and limitations when they are used for balance of payments compilation purposes. However, it does not attempt to provide a full discussion of the methodology for conducting household surveys; for this, many existing reference sources are available.⁴⁴

4.88. It should be noted that household surveys are most commonly used to estimate personal transfers. However, they may also be useful for compiling personal and total remittances; issues relating to the estimation of these items are considered at the end of the section.

Description

4.89. Compilers have several options for using surveys of households. They can survey households that receive remittances, or they can survey households that send remittances. They can use an existing survey, by including specialized questions or modules (Box 4.2), or identify households in the target population. Useful surveys for this approach are usually nationally rep-

⁴⁴For instance, see United Nations (2005a and 2005b). See also the resources available through the International Household Survey Network at www.surveynetwork.org.

Box 4.2. Including Remittance Variables in Household Surveys

Household surveys offer the opportunity to obtain data on remittances and other related social and economic variables (including migration). Although these data are not directly related to the compilation of remittances data in the balance of payments framework, they can be valuable in helping data users understand the relationship between remittances, migration, and factors such as employment status and social background.

Variables that compilers may consider including in their survey of individual remittance senders include:

- Employment status, including self-employed workers, employees (of which: those employed by foreign affiliates and, if possible, intra-corporate transferees)
- Country of residence
- Country of birth
- Length of time in country of residence
- Kind of economic activity of (employing) enterprise (at least distinguishing service industries)
- Level of education

When remittance recipients are surveyed, the survey could seek information on the relationship with the originating party, which could be:

- Relatives who are expected to return to the receiving household
- Relatives who emigrated permanently
- Other individuals
- Government
- Nonprofit institutions serving households
- Enterprises

The purpose for which remittances are made could be broken down into the following:

- Consumption
- Investment in property or a business
- Alimony
- Pension
- Other gifts or donations

Compilers should recognize, however, that adding questions may make the survey more costly, reduce the response rate, and lower the quality of responses. The usefulness of gathering additional data should therefore be balanced against the primary objective of compiling data on the volume of remittances.

representative and often conducted by national statistical offices. On the other hand, compilers can commission specialized surveys, such as surveys of either those who send or those who receive personal transfers, or subgroups of these populations.

Methods

Estimating receipts using existing surveys

4.90. The use of existing surveys is an attractive option for surveying remittance-receiving households because it is likely to be less costly than mounting a specialized survey, and from the compiler viewpoint it is a much simpler process. Adding questions or modules to a nationally representative sample survey can be done by incorporating the questions within the main questionnaire, or administering a special questionnaire to a subsample of households that are identified as receiving remittances. For data users, the addition of questions to existing surveys also allows the relationships between personal transfers and other variables collected in the survey to be analyzed and researched. Such surveys are often nationally representative and conducted at regular frequencies, although in some cases the period between surveys is more than

one year, which makes them difficult to use to provide direct estimates for balance of payments purposes. In this case, they may be more useful to provide data to cross-check or supplement estimates made from other sources. For many countries, suitable surveys may not exist or may not be conducted on a regular basis. Useful survey types that may be encountered by the compiler are described below, along with some of the issues that arise when using these surveys.

Labor force surveys

4.91. Labor force surveys are often large-scale annual or quarterly surveys with questions related to employment, unemployment, and working conditions. In many countries, they include data on household income. Labor force surveys often include modules on specific topics such as unpaid work, vocational training, labor migration, or remittances.

4.92. The surveys are typically run by a national statistical office or other official body. Many developed countries conduct a regular labor force survey, but relatively few are conducted regularly in developing countries because of resource constraints. The International Labour Organization has recently developed

Box 4.3. Adding Questions to the Ghana Living Standards Survey 2005–06

A module of questions on migration and remittances was inserted into the 2005/06 Ghana Living Standards Survey. This is a large, nationally representative household survey covering 9,000 households; the migration module included 45 questions and was administered to a subsample of 4,000 of these 9,000 households, drawn randomly. The survey included questions on personal transfers for former migrants (those returned in the past five years) and questions on personal transfers (in cash and in kind) from current migrants (see below). The survey included both internal and international migrants, though it was possible to differentiate.

Questions relevant to former migrants currently resident in household

If (NAME) was working or working and studying outside the household, where did (NAME) live and work?

During the last 5 years, for how long did (NAME) live and work outside your household?

When (NAME) lived and worked outside your household, did he/she send money to your household?

How did (NAME) usually send this money to your household?

How much money did (NAME) send to your household per year?

Questions to head of the household about current migrants

Is/are there any household members who is/are currently living outside your household? (list)

For each migrant

At present, where does (NAME) live and work?

How long has (NAME) lived and worked there? (years)

Does (NAME) send any money to your household?

Who in your household usually receives this money?

How does (NAME) usually send this money to your household?

In the past year, how many times has (NAME) sent money to your household?

In the past year, how much money in total has (NAME) sent to (head of household/spouse/others)?

Does (NAME) send/bring goods to your household?

What is the value of goods that (NAME) has sent/brought to your household in the past year?

For all migrants

Since (NAME/S) went outside to work, did you receive remittances from him/her/them for (list, e.g., education, putting up housing unit, etc.)?

a migration and remittances module for use in labor force surveys (the module has already been applied in Thailand and Armenia).

Income and expenditure surveys

4.93. Income and expenditure surveys tend to be large-scale surveys that include questions on either income or expenditure, or sometimes both. In some countries these are annual surveys, but in many countries they occur with less frequency. They are often used to update the weighting patterns in consumer price indices and to produce measures of household welfare. Important examples of these surveys include the European Surveys of Income and Living Conditions (Eurostat), the Living Standard Measurement Study (LSMS), and Integrated Household Surveys conducted in developing countries. LSMS surveys are often infrequent and conducted at intervals of five years or less, and are considered to be part of a subgroup of multi-topic surveys. These surveys often include questions on personal transfers and other relevant items as part of the collection of data on income and expenditure

patterns, although to collect detailed data a specific module may be added (as, for instance, in the case of Ghana; see Box 4.3). A key advantage of collecting data on personal transfers through multi-topic surveys is that links can be made with other variables, such as poverty or other measures of welfare.

Demographic surveys

4.94. Many developed countries run annual general household surveys to collect data on demographic and social variables. They are often less frequently run in developing countries, although two internationally sponsored surveys—the Demographic and Health Surveys sponsored by the United States and the Multiple Indicator Cluster Surveys run by the United Nations Children’s Fund—are worth special mention and are run regularly in many countries with the time interval of four to five years. Most demographic surveys do not collect income or expenditure data, so they may not be suitable for collecting information on remittance flows directly. However, they may collect data on migration or on the foreign-born population, which may be useful

Box 4.4. The Survey on Overseas Filipinos as a Rider to a Labor Force Survey

The Philippines Labor Force Survey (LFS) is a nationwide survey of households undertaken by the National Statistics Office every quarter each year, to provide information on the labor force and its characteristics. Overseas employment statistics have been compiled since 1993 from the Survey of Overseas Filipinos (SOF), which is a “rider” survey to the October round of the annual LFS. SOF respondents are drawn from the full sample of the LFS and include overseas workers who left to work abroad; overseas Filipino workers (OFWs) are listed in the LFS as members of the household, whether or not they are present in the household at the time of enumeration. The LFS was selected as an appropriate instrument for monitoring overseas employment because it shows the effect of overseas employment on the total employment situation of the country.

As of 2007, the SOF uses the 2003 master sample with a sample size of 51,000 households. This is deemed sufficient to provide reliable information on the number of OFWs and their characteristics at the national and regional levels. The 2003 master sample uses a multistage design, and the sampling frame is based on the Enumerator Area Reference File of the 2000 Census of Population and Housing because it contains the number of households by enumerator area in each *barangay* (the smallest political unit into which cities and municipalities in the Philip-

pinas are divided). Sample barangays are selected during the first stage, stratified by the country’s 17 administrative regions. Sample enumeration areas are selected for the second stage, and sample households are selected at the third stage in each stratum for every domain. The sampling design results in a self-weighting representative sample of households, where each household has an equal probability of selection.

The survey is conducted through personal interviews with the overseas Filipinos, their relatives, or any member of the household who knows the person who went abroad. It uses a two-page questionnaire containing socio-economic characteristics (i.e., sex, age, marital status, highest educational attainment, and occupation), place of work abroad, amount of remittances (in cash and in kind), and modes of remittances (i.e., banks, local recruitment agency office, door-to-door, friends/relatives/coworkers, carried on person). A control form is also used to determine the households to be interviewed, such as those with members overseas.

It should be noted that the SOF does not cover overseas workers who have relocated their entire families abroad because they will not be part of the sample. Also, the SOF captures information on only remittances sent, and not the total salary received.

for cross-checking purposes or for deriving parameters for econometric models.

Surveys conducted by private market research companies

4.95. In these surveys, balance of payments compilers may be able to “buy” questions on a specific topic and for a specific target group (e.g., households, or migrants and short-term workers) at relatively low cost. Prices may be set per question, giving compilers flexibility to match costs with their budget, although the number of questions that may be purchased by a single survey client is often limited. In some countries these surveys are conducted with high frequency, so that quarterly estimates can be obtained. Surveys of this kind can also be used by compilers who use ITRS or other non-household survey methods as their primary source of remittances data, because they provide a relatively cheap way of obtaining information about other transfer channels and about transmission behavior (e.g., to determine if hand-carried cash is significant) or the frequency of transfers. Questions and statistical methods are usually designed in close cooperation with the research company. Sampling and enumeration methods (e.g., face-to-face interviews,

telephone interviews) vary and particular care must be taken to ensure unbiased and representative results that have statistical validity.

Estimating receipts using specialized surveys

4.96. An alternative approach to using existing surveys is to use the results from specialized surveys of migration, where they exist, or to commission specialized surveys of receivers. In some cases, surveyors may choose to target specific subgroups, such as transfers from particular countries (remittances corridors). Another common approach to sampling is to use an existing survey to develop the sample, by asking a question to identify the household as a member of the target population (see Boxes 4.4 and 4.5 on survey samples in the Philippines and Albania). This approach is most efficient when the target population is evenly distributed throughout the general population.

Estimating payments using existing surveys

4.97. Existing surveys may be able to yield data from sufficient numbers of migrants and short-term workers to enable the estimation of total payments, particularly

Box 4.5. A Specialized Remittance Survey for Remittance Receivers in Albania

The National Survey of Family Remittances in Albania is a multipurpose continuous survey that collects information on a range of topics from households that receive personal transfers. It is commissioned by the Bank of Albania, and conducted by the Albanian Institute of Statistics (INSTAT), to provide information on the volume, origin, frequency, and destination of personal transfers from Albanians living abroad; on the utilization of banking system and money transfer operators for making transfers; and on the use of the transfers by households. Remittances are an important source of income for many Albanian families, with about a quarter estimated to receive personal transfers, mostly from Albanians living in Greece and Italy. The survey is designed to obtain information on the size of inflows, the geographical breakdown of these flows, channels used, how households use the money, the proportion of transfers compared to total household income, frequency of transfers, and the socioeconomic characteristics of recipients. It is designed to be conducted each year, and the sample is a subset of the Albanian Living Standard Measurement Study (LSMS), a nationally representative sample of resident households. The results of the remittances survey are extrapolated to the LSMS survey.

The sample is drawn from the sample of the LSMS survey, which has a two-stage cluster design and a sample size of about 3,600 households. Those LSMS households

that are found to have received transfers from the sample for the specialized remittance survey are interviewed by INSTAT using a special questionnaire designed by the Bank of Albania. The questionnaire has five sections: general household information, household income, inflows, use of remittances or savings, and other quantitative questions. Households are asked to estimate average monthly income and to recall total annual receipts for the previous year. Response rates have been very high—close to 100 percent of those households identified—with interviewers often making repeat visits. Survey results were scaled to the resident population of Albania using weights derived for the LSMS. The cost of the survey was around US\$28 per household. The survey has provided in-depth data as well as data that can be used to relate remittances to other household characteristics. The survey benefited from the use of personal interviews, which clearly helped maintain high response rates.

Despite the impressive response rates, the major problem with the survey is the underreporting of remittances by households. Responses given by household were not verified against other sources. Other problems encountered were that the household composition was not always the same between the two surveys, because of the difference in timing between the LSMS and remittances surveys. In some cases households had moved in the intervening period. The survey was also very time consuming.

if the proportion of migrants and short-term workers in the population is high. Few countries obtain estimates through this approach, however, because the cost of adding specific questions on remittances in such surveys may be high and the incidence of migrants and short-term workers from specific countries is often too low to enable meaningful estimation of bilateral flows. Countries have, however, used existing surveys to estimate propensities to remit, and have used them in demographic models.

Estimating payments using specialized surveys

4.98. Surveys that target migrants and short-term workers (or households with members who make remittances abroad) are not commonly used to producing estimates of remittances, but are potentially an important and cost-effective data source. Questionnaire content can be carefully controlled, and sample sizes need not be as large as surveys, which are designed to be representative of the whole population. They rely on good sampling design, to be able to identify a relatively rare target population. They may be more suitable in countries where the

migrants and short-term workers from a few countries or regions are dominant, or in countries where migrants and short-term workers are known to be clustered in particular regions. They may also be useful in situations where a suitable sampling frame exists.

Design considerations for specialized surveys (payments and receipts)

4.99. The first design consideration for any specialized survey is the population of concern. This could be households who receive personal transfers from abroad, or perhaps more practically, households with members who work abroad, including those engaged in short-term or seasonal work. This population is often relatively rare in the general population; for instance, in the 1990s the proportion of migrants and short-term workers was at most 6.5 percent in three-quarters of all countries. The next consideration is to determine how to generate a representative sample. If a list of households of the target population (or a close proxy) exists, then sampling is straightforward and standard methods can be used based on this sampling frame.

Table 4.3. Illustration of Disproportionate Stratified Sampling: 10 Percent Sample of 280 Enumeration Areas

Stratum	Number of Enumeration Areas	Mean Proportion of Target Population in Each Strata	Proportional Allocation (10% sample) A	Disproportional Allocation B	Adjusted Disproportional Allocation C
1	10	0.1	1	10	5
2	20	0.05	2	10	6
3	50	0.01	5	5	8
4	200	0.001	20	3	9
Expected proportion of target population in sample			0.01	0.06	0.03

4.100. Several surveys, including the New Immigrant Survey in the United States, the Longitudinal Survey of Immigrants to Australia, and the Longitudinal Immigration Survey in New Zealand, have used administrative records of legal immigrants. Some surveys have used other proxy methods to list migrant populations, such as the identification in the telephone book of family names from specific countries. However, in most cases, sampling frames will not be available or sufficiently accurate. There are three main approaches, which are briefly described here: disproportionate stratification with two-phase sampling, snowball or chain-referral sampling, and aggregation point sampling.⁴⁵

Disproportionate stratification with two-phase sampling⁴⁶

4.101. Disproportionate stratification is normally a two-stage process: survey clusters are selected through disproportionate stratified sampling, and then two-phase sampling is used to list households in those clusters that are members of the population being surveyed. The sample can then be drawn from those lists. The idea behind this method is to ensure that sufficient respondents from the population form part of the sample; and that it is possible to assign a probability of selection to each respondent.

4.102. Standard stratified sampling would involve sampling clusters within groups of similar clusters, such as those with similar prevalence of the survey population (i.e., households that send or receive international transfers). However, in the case of a rare population, this may

not yield sufficient numbers of population households, so the strata that have the greatest occurrence of population households are “oversampled.” Table 4.3 illustrates this method in a stratified sample of 280 enumeration areas (or clusters) where the average prevalence of migrants and short-term workers in the population is 1 percent. A standard sample (column A) would be expected to yield just one household from the target population for every 100 listed; however, a sample that “oversamples” stratum 1 and 2 (column B), in this case using the relative number of the target population in each strata, is expected to yield six households from the target population for every 100 listed, significantly reducing costs. Finally, the statistically optimal allocation recommended by Kish (1965) (where the sample is selected in proportion to the standard error of interest) leads to allocation C when that variable is the proportion of the target population. With care, sample weights can be constructed so that estimates obtained from the sample can be adjusted to give estimates that are representative of the target population.

4.103. The key requirement for this method to work well is the existence of information about the prevalence of the target population within enumeration areas. Countries with strong population registration systems may be able to obtain such information, or it may be possible to construct this information from a recent population census.

4.104. Once the enumeration areas have been selected, the list of actual households in the sample is derived through a two-phase process. This process involves initial listing of households in each area, with a screening process of some kind; for instance, listed households may be asked whether or not they send or receive transfers, or whether or not they are a migrant or short-term

⁴⁵For a full exposition of sampling methods, see Kish (1965).

⁴⁶This is the method recommended in Bilborrow and others (1997).

worker household. The sample of the target population is then drawn from this screened list. Although this method results in a sample of the target population, it should be noted that identifying a final sample can be an onerous (and often expensive) task because of the listing stage. The two-phase approach was adopted in the case of a specialized remittances survey in Albania (Box 4.5) by screening an existing nationally representative sample used in a large-scale multitopic survey. In this case, disproportionate stratification was not employed because the prevalence of the target population in the overall population is relatively high (about 25 percent).

Chain-referral or “snowball” sampling

4.105. Chain referral is a common method of obtaining samples of rare populations in the absence of good sampling frames. In this method, an initial sample of respondents (“seeds”) is identified and is used to obtain referrals to other members of the target population.

4.106. Samples generated from this method have some attractions to the surveyor: there are relatively few prerequisites, and they are cheaper to construct than two-phase samples because there is no intermediate household listing step. However, for these samples to be successful, members of the target population must be able and willing to make such referrals; this is not always the case when surveying migrant groups. Furthermore, the sample will represent the network of linked respondents rather than the target population, and it may be difficult to assign accurate probabilities of selection to respondents.

Aggregation point or intercept sampling

4.107. Aggregation point sampling relies on identifying the target population at specific locations, or “aggregation points.” Strictly speaking, this is not a household survey method but a survey of individuals, but the approach has been used widely for surveying rare populations. It usually involves a sampling scheme that selects aggregation points that are representative both geographically and temporally. In the case of estimating personal transfers, migrants could be interviewed as they cross border points, or at other locations they may frequent. The United Kingdom, for instance, conducts a continuous migration survey of this type at border crossings, called the International Passenger Survey. This method was also used in a survey of Ghanaians and Egyptians in Italy, sponsored by Eurostat and carried out by the Netherlands Interdisciplinary Demographic Institute.

4.108. The method is cost effective and may improve the response from individuals who are not often in the household. The approach may be effective in obtaining information on transactions other than transfers. Seasonal workers could, for example, be asked to provide information on both their earnings and their travel expenses. A case study from Bulgaria provides a good example of the multiple data items that can be obtained from aggregation point or intercept sampling (see Box 4.6).

4.109. However, samples can be representative only of those who visit the aggregation points, and there is the potential for bias (for instance, certain groups of migrants and short-term workers may be present at the aggregation points more frequently than others). It is also possible for respondents to be interviewed more than once, and it is important to calculate and apply weights to compensate for this problem. A further disadvantage is that surveys of this type typically have a short questionnaire, because respondents have less time to answer than they would during a home visit.

Remittances captured by type of transaction

4.110. In general, household surveys are normally associated with the estimation of the old balance of payments concept of workers’ remittances and the new concept of personal transfers. The measurement of capital transfers, social benefits, compensation of employees, travel and other expenses related to short-term work abroad, and transfers from nonprofit institutions is much less developed. Although it should be possible to estimate some of these items from surveys, there is very limited practical experience at present (see Table 4.4).

4.111. Some problems do arise in the application of standard concepts and definitions. These include the fact that the household concept and the residence rules used in *BPM6* and in migration and demographic statistics do not always match family concepts. For instance, a household member can be absent for more than one year but still be considered by the household to be a member and its main source of income.

Strengths of data obtained from household surveys

Inclusiveness of data

4.112. The merits of using household surveys as a data source for compilers include the potential for collecting data on transfers sent through both formal and informal channels (by asking questions of either the sender or receiver of the funds).

Box 4.6. Estimating the Compensation of Short-Term Workers Abroad in Bulgaria

Large numbers of Bulgarians travel to other countries for short-term work and send remittances through informal channels. This pattern has been triggered by unemployment in Bulgaria and easy access to tourist visas for stays in European Union countries for three months. The Bulgarian National Bank (BNB) uses a model to estimate the “compensation of employees” and “net compensation of employees” that are sent through informal channels to Bulgaria by short-term workers abroad. The BNB uses this model to supplement the data on personal transfers that it collects from an international transactions reporting system.

The BNB obtains monthly information from the Bulgarian Border Police on the number and destination countries of Bulgarians who travel abroad for the purpose of tourism. Many of these Bulgarians are, however, actually traveling abroad with a tourist visa for short-term unauthorized employment. In order to separate the Bulgarians traveling abroad for short-term employment from genuine tourists, the BNB surveys Bulgarian tour operators and estimates the number of Bulgarian tourists using foreign tour operators based on a household survey of tourists. By combining the information on national and foreign tour operators, the BNB is able to estimate the number of Bulgarian tourists traveling abroad, by country. The BNB subtracts the number of Bulgarian tourists from the border police data to derive a monthly estimate of the numbers of Bulgarian workers who travel to other countries for short-term unauthorized employment. The BNB assumes these workers stay for three months because this is the length

of their tourist visa. The BNB then estimates the total number of Bulgarian short-term workers abroad in a given month as those who moved abroad that month plus those who moved abroad for the previous two months.

The BNB estimates gross monthly compensation of employees for each destination country by multiplying the estimate of the number of Bulgarians who travel to each country for short-term employment by the monthly minimum wage for that country. When minimum wages were plotted against a comparative price level index, three distinct groups of destination countries were evident, one high wage and high living cost, one medium wage and medium living cost, and one low wage and low living cost. The BNB calculates coefficients representing the cost of living as a percentage of minimum wages for one country, for which detailed information was available on the cost of living, from each of these groups. For high- and medium-wage countries, the BNB used information on the cost of living for students, obtained from financial guides for students. For low-wage countries, the BNB used data on subsistence-level cost of living obtained from official statistical publications. The BNB produced estimates for the expenditures of these workers by applying the appropriate percentage coefficients to the minimum wages of each of the countries in the three groups. Finally, the BNB calculated net compensation of employees by subtracting these expenditures from the gross compensation of employees, by country.

Direct control over data definitions

4.113. In addition, surveyors have more direct control over the information collected, because it is not a by-product of administrative or financial systems. In countries where questions can be added to regular surveys, fresh data on remittances can be obtained whenever the household survey is administered.

Availability of useful circumstantial data

4.114. Surveys can also provide insights about how remittances are transmitted and for what purposes they are used, which can be useful information for the balance of payments compilers when evaluating the coverage of data obtained from other sources. Surveys may also provide information to help estimate bilateral flows.

Weaknesses of data obtained from surveys

4.115. The following general issues need to be understood by the compiler when using data from any household survey.

Sampling error

4.116. There is the possibility of sampling error, particularly where the target population under study is relatively rare and the number of respondent households in the sample is small. The target population may not be uniformly distributed among the population. Special sampling techniques may be needed to identify them and include them in statistically representative samples. In some cases, existing national surveys cover only the household population for whom the sampled address is the main residence. In this circumstance, short-term workers may not be included in the sample.

Non-sampling errors

4.117. There is the possibility of non-sampling error. The most significant error is that information on personal transfers may be underreported, because these data are often considered sensitive by respondents. Households that contain undocumented migrants and short-term workers or receive income from undocumented work-

Table 4.4. Coverage of Remittance Aggregates Through Household Surveys

Remittance Aggregate	Data Generally Obtainable from Household Surveys
Personal transfers	Current transfers reported by households
Personal remittances	Current and capital transfers reported by households, although households may not be able to provide sufficient information for separating current and capital transactions; compensation of employees and expenditure related to short-term work abroad (travel, taxes, etc.) if short-term workers are present
Total remittances	Current and capital transfers to households, including social benefits
Total remittances and transfers to NPISHs	Current and capital transfers to households, including social benefits and transfer to NPISHs

Note: Misreporting may be prevalent in all data items.

ers abroad may be reluctant to participate in household surveys. In some cases, migrants and short-term workers may be excluded from the sampling frame altogether when they are not part of formal households but are living in communal group quarters. Even when households participate, the survey respondent may not report undocumented workers in the list of household members. Questions often require respondents to recall amounts sent in previous periods, which is known to reduce accuracy.

Representativeness

4.118. Samples may not represent the desired target population. In the case of aggregation point sampling, for example, the sample represents the population of all those who frequent locations of the type chosen. If the remittance behavior of this group differs from the whole population, then the resulting estimates obtained in this way will contain a bias. Furthermore, remittances of undocumented migrants and short-term workers are of interest, but they may not be included in samples.

Data compatibility

4.119. Balance of payments concepts and definitions need to be considered when designing surveys or using survey results, and carefully compared to the concepts and definitions used in surveys. For instance, identifying residents and nonresidents may be difficult (e.g., household members who are resident abroad for less than one year may be considered nonresident by the household head), and components required to calculate total remittances (social benefits, pensions, travel expenses) may not be easily collected or identified. Compilers may need to advise surveyors on suitable questionnaire design (for instance, to ensure that the relevant components of remittances can be estimated).

Costs

4.120. The costs of using household surveys vary greatly between countries, in line with the cost of enumeration and the cost of obtaining technical advice. Obtaining estimates with greater precision usually requires larger samples, which increases costs or decreases freshness. Adding questions to an existing survey may be the cheapest method of obtaining household survey data, but resulting usable sample sizes may be small unless consecutive samples are pooled because households making or receiving personal transfers are likely to be relatively rare. Specialized surveys vary in cost according to the sampling method used; the use of disproportionately stratified two-phase sampling is likely to be the most accurate but also the most costly, with chain-referral sampling less expensive, and aggregation point sampling the least expensive.⁴⁷

Overcoming some weaknesses

4.121. Household surveys are likely to be most useful where there are large flows through informal channels, or where data are not available from an ITRS or reporting from MTOs or banks. In these situations the compiler should first review whether household surveys may be useful in estimating remittances for balance of payments purposes; this is best done in conjunction with the central statistical agency. The following checklist may be helpful in this process:

⁴⁷This view is supported by empirical evidence from an experimental survey of Brazilians of Japanese origin conducted in 2006, where a survey of 500 questionnaires was estimated to cost US\$142,000 for a random, stratified survey; \$67,000 for a chain-referral survey; and \$20,000 for an aggregation point survey (McKenzie and Mistiaen, 2007).

- (a) Review existing surveys to assess the extent to which they capture information on remittances, and the extent to which they can be used (including the timeliness and periodicity of their data).
- (b) Consider the addition of questions on personal transfers and remittances to existing official surveys.
- (c) Consider the purchase of questions in multiclient surveys run by private companies or research groups.
- (d) Consider a specialized survey of households or individuals or, if specific remittances corridors are very large, a specialized survey of remittance senders in important countries. In the case of surveys of remittance senders, determine whether a suitable sampling frame exists.
- (e) Estimate the required sample sizes of remittance senders or receivers, likely response rates, and response bias, given their distribution among the population and other characteristics (pilot surveys may help determine these estimates).
- (f) Estimate the extent of other non-sampling errors, such as underreporting or problems in recalling amounts sent or received.
- (g) Review the cost of the different options, compared with the potential benefit in terms of improving the estimates of remittances.
- (h) In remittance-sending countries, is there a suitable sampling frame that identifies the location of migrants and short-term workers or the foreign-born population?

D. Indirect Data Sources

4.122. The previous sections described the use of direct measurements as data sources for compiling statistics on remittances. Direct measurement relies on an agent, such as ITRS reporters including banks or MTOs, to classify and report transactions routed through them; or on the parties to a transaction, such as households covered in a household survey, to report their transactions. There are situations in which direct measurement of remittance transactions is difficult or impractical. For example, a country may not have an ITRS, and reporting channels other than MTOs may play a dominant role. Household surveys may be too expensive or impractical for institutional or cultural

reasons.⁴⁸ Hence, the options for direct measurement of remittance transactions are very limited. Data items for which direct measurement is not an option are often estimated based on secondary data.

4.123. This section discusses the use of indirect data sources (also called “secondary data”) in estimating remittance transactions. Such estimation processes can be based on a wide variety of secondary data, including existing balance of payments items not relating to remittances, observable economic data, or demographic data. Depending on the nature and availability of secondary data, estimation approaches can be tailored to the needs and possibilities of each compiling economy. Secondary data sources can be used to estimate all relevant remittance items or to fill gaps when data obtained from direct observation are known to be incomplete (see also Chapter 5).

Description of the approach

4.124. Estimation approaches are also referred to as models, reflecting the fact that they are a representation or description of a system or process designed to show its structure or workings. A model’s framework is typically based on logic and mathematics. As in other fields, such as the natural and social sciences, models are simplified frameworks designed to illuminate complex processes. This section distinguishes three modeling approaches for estimating flows of remittances:

- Demographic models are based on demographic data. They rely mainly on population registers, administrative data, censuses and population surveys, and surveys of the immigrant population.
- Econometric models are a second approach to estimating remittances. Compilers would identify the determinants of remittances for which data are available, then specify a mathematical model to estimate remittances based on these determinants.
- Residual models rely on accounting identities. These models typically estimate remittances from current account or monetary data and assume that imbalances are explained by unobserved remittance flows.

⁴⁸One would expect that the prevalence of informal transfers would increase the importance of supplementing the ITRS and direct reporting with other data sources or the use of other approaches. If factors such as illegal migration, informal economic activities, avoidance of taxes, or regulations are encountered, households are unlikely to reveal full information in surveys, too. Surveys can be impractical for other reasons, too, including costs, time delay, and complications with statistical methods (such as identifying a relevant population or sample).

Box 4.7. Estimating Personal Transfer (Payments) by the United States

The United States is host country to a large number of migrants and short-term workers, and large remittance flows originate there. However, there are no direct data sources; remittances data are therefore estimated by the United States Bureau of Economic Analysis (BEA) using demographic and household survey data and a model. The BEA assumes that the foreign-born population represents the relevant population of transfer senders in the United States because the foreign-born are most likely to have a personal link to foreign residents. The estimates of personal transfers include all current transfers from resident to non-resident households, regardless of the means of transfer.

The model contains four variables: the foreign-born adult population (on an individual basis), the percentage of the foreign-born population that sends remittances, the income of the foreign-born population, and the percentage of income sent by the foreign-born population as remittances. The foreign-born population and the income of the foreign-born population are based on source data from the United States Census Bureau's annual American Community Survey, a detailed household survey. The percentage of the foreign-born population that send remittances and the percentage of income sent are BEA estimates based on various studies. These studies highlight a variety of demographic characteristics that have a clear impact on sending behavior.

The BEA model assumes that selected characteristics of the foreign-born population (i.e., duration of stay in the United States, family type, country of origin, and gender) affect the percentage of the foreign-born population that sends remittances, the percentage of income sent, and, therefore, the estimates of personal transfers. The model

assumes that the percentage of income given remains constant over the duration of stay in the United States, although the percentage differs depending on whether the person sending the remittances has his or her children living with him or her. This assumption permits transfers to vary directly with income, all else held constant. The model also assumes that the percentage of income remitted is significantly higher for persons from less developed countries in close proximity to the United States (especially Mexico and the Caribbean) because the lower costs of migration from these areas allow relatively more poor families to migrate to the United States. And the model assumes that the percentage of the foreign-born population that remits decreases as the duration of stay increases.

To estimate personal transfers, the BEA first arranges countries into four remitting groups, based on each nation's per capita income and proximity to the United States. The four groups reflect different levels of remitting: low, moderate, high, and highest. Using data from the studies mentioned above, the BEA assigns to each group a percentage of income remitted. The percentage of population that remits is held constant across the four groups. The BEA then multiplies the estimate of each country's foreign-born population, arrayed by the demographic characteristics discussed above, by the percentage of the foreign-born population that remits in order to obtain the population of remittance senders. The BEA then multiplies the average per capita income of the foreign-born population by the percentage of income remitted by those who remit in order to obtain per capita personal transfers. Finally, the BEA multiplies per capita transfers by the population of remitters to obtain total personal transfers.

4.125. This section describes each of these three modeling approaches, illustrates case studies of existing models used by balance of payments compilers, and points out the opportunities for devising new models and estimation approaches based on local conditions. Under each of these three approaches, a compiler can distinguish between the modeling of remittances receipts from a given country (credit side) and the modeling of remittances payments to a given country (debit side).

Demographic models

4.126. A compiling country could estimate personal transfers by multiplying the population of remittance senders by an average per capita amount sent. If, however, the country does not have these data available, the country could use demographic data associated with personal transfers to estimate these variables.

This section first discusses the merits and challenges associated with using this approach to estimate remittances. It then discusses some of the demographic variables associated with giving behavior. This section also includes case studies that illustrate how compilers from Bulgaria and the United States are using demographic models to estimate remittances (Boxes 4.6 and 4.7).

4.127. As noted in earlier chapters, personal transfers are difficult to measure for several reasons. One reason is that personal transfers are typically characterized by a large number of elusive transactors making small but frequent transactions. Such transactions are difficult to measure using surveys, both because it is difficult to locate the transactors and because it is difficult to obtain reliable responses from them. Another reason is that a substantial portion of personal transfers flows

through informal channels, such as the hand delivery of cash, rather than formal channels, such as banks.

4.128. One advantage of a model-based approach that multiplies an estimate of the number of individuals who send remittances by an estimate of their per capita transfers is that it allows a country to capture personal transfers through both formal and informal channels. Another advantage is that estimates can be based on demographic data that are often detailed and timely. The drawbacks of this approach stem from the challenges in measuring the population of senders, who may not always be legal residents, and from data obtained for the other variables, which are typically collected on household surveys and may not be reliably reported by the household.

4.129. In regard to the first drawback, many countries have a large foreign-born population that is difficult to identify and accurately measure, especially when migrants and short-term workers reside in a country illegally. Many migrants and short-term workers are not authorized to work in the country in which they are residing. This leads to several problems when attempting to measure the size of the foreign-born population, their average income, and, ultimately, their personal transfers. This population is difficult to locate and accurately measure; they may be migratory with no fixed address; they may live in group homes in which the total number of residents is unclear; they may have large families that are undercounted; and they may elude survey takers altogether for fear of deportation.

4.130. In regard to the second drawback, compilers face the challenge that migrants and short-term workers may not provide reliable estimates of the amount they send home or their income. For example, it is often the case that migrants and short-term workers underreport their income in surveys of low-income populations. Moreover, migrants may tend to overreport the amount they send home in order to conform with social norms or with their own sense of what they should be sending. Another challenge is that this modeling approach requires frequent surveys of the migrant population on the amount they send home—more precisely the percentage of income sent—and the percentage of the population that sends remittances to ensure the estimates are sensitive to changes in giving behavior over time or to sudden spikes and subsequent drop-offs that may result from significant events abroad such as natural disasters. There may also be significant spikes in

cash and in-kind transfers from NPISHs and corporations when a disaster strikes.

4.131. In summary, the accuracy of this approach depends, in large part, on the accuracy of the data reported in household surveys. The accuracy of the survey results will depend on how well the sample represents the general population and the degree to which respondents provide accurate information about their giving behavior. Numerous demographic characteristics are thought to be associated with personal transfers, and there is general agreement on the effect of many of these variables on the amount given. These variables include, among others, country of birth, ethnicity, duration of stay abroad, income, gender, legal status, and the presence of children in the household. Compiling countries that do not collect this type of demographic information might consider using demographic information collected by partner countries as a proxy for the demographic characteristics for their remittance-sending population. The United States model, which is described in a case study, provides one example of an approach for estimating personal transfers sent to households in other countries.⁴⁹

Country of birth or ethnic background

4.132. It is generally assumed that personal transfers are more likely to be made by the foreign born. Therefore, the key demographic information used in estimation models tends to be the size of the foreign-born population. This information is often available from source data. It is possible that compiling economies will need to adjust these data if there are significant transfers by second- and third-generation migrants from certain ethnic groups or if certain parts of the foreign-born population do not engage in this activity. Typically, a model will estimate the size of the sending population based on a percentage of the total foreign-born population. However, it is possible to construct a model that applies data on average personal transfers (including those who do not give at all) to total foreign-born population. Compilers can use households or individuals as the

⁴⁹The United States model is based on variables that are collected by the United States. Compiling countries that have additional data could expand the model to incorporate additional variables that could affect personal transfers, such as number and type of family members in the home country. Countries that do not have the range of demographic data used by the United States could use a model based on the United States approach but with fewer variables.

base unit of the foreign-born population (or adjusted foreign-born population). The choice of base unit is generally made on the basis of availability of data but also has implications for the way in which the model is defined.

Income

4.133. Income is the primary determinant of the capacity to send remittances. Models may use assumptions of the percentage of income that is sent, applied to data on the income of the foreign-born from different countries or ethnic groups, to estimate per capita transfers. The type of data on income available from the source data and used in the model affects the assumptions made about the percentage of income given. For example, if gross income is used in the model, the percentages assumed to be given should be lower than if net disposable income is used. Other key demographic variables that can affect levels of income include gender and the presence of children in the household.

Gender

4.134. When personal transfers are estimated on an individual basis, gender affects the level of income of the remittance sender. Females often have lower average incomes than do males.

Presence of children

4.135. The presence of children in the household increases household expenditures and therefore decreases the available income from which to send remittances. Children also increase the likelihood that migration will be permanent, and shift the economic focus from the country of origin to the household in the host country.

Duration of stay

4.136. The duration of stay in the host country negatively affects the percentage of the population that sends remittances and their amount. Senders who have been in the host country for many years are less likely to give than are those who have recently arrived because connections and obligations to family and friends in the country of origin tend to diminish over time. Although the motivation of the foreign born to send remittances tends to decline with the duration of stay, their capacity to do so often increases because their income tends to increase over time.

Country of origin

4.137. The percentage of income given is likely to vary between different ethnic and foreign-born populations. Generally, this information will be built into any model-based estimation. The percentage of income given is significantly higher for persons from developing countries than for those from developed countries, and it is also higher for those in close proximity to the host country. The percentages of income given by country background can be obtained from large household surveys or targeted small-scale, often academic, studies.

4.138. Compilers could adapt the principles discussed in the previous section and illustrated in the case studies to construct their own models. For example, a compiler could adapt the model for outward transfers as a model for inward transfers by using their own data, or obtaining partner country data, on their adult foreign-born population abroad and that population's average income. If the compiling country chooses to use partner country data, it could be found that a large proportion of personal transfers flows from a limited number of partners. Also, compilers could consider using benchmark data obtained from other countries with similar migration patterns. The compiling country could then use demographic data covering the proportion of the population that sends remittances and the percentage of income sent, adjusted to fit the characteristics of their population, to complete the model.⁵⁰

Econometric models

4.139. An econometric model is a simplified mathematical representation of relationships in the economy expressed as equations. The equations explain how one economic variable can change as a result of changes in other key variables. As a simple example, an econometrician might construct a model to establish relationships between variables, such as remittances and family income, and then use this model to estimate

⁵⁰For example, the United States compilers used a variety of studies, conducted both within the United States and abroad, to estimate the percentage of foreign-born population that regularly sends remittances. The estimates derived from these studies are perhaps applicable to the remittance-sending population in other countries with comparable demographics. Similarly, the United States used a variety of studies to estimate the percentage of income remitted. A compiling country could consider modifying the percentages used by the United States based on the information from these studies and the circumstances of that country. When using third-country data, compilers need to adjust benchmarks to account for the specific features of their own country and ensure that estimation results are plausible.

remittances at different points in time at different levels of income.

4.140. Econometric modeling of remittances may be a particularly useful tool in countries where data collection systems are imprecise. Moreover, a compiler can use econometric models to supplement information from other compilation methods. An econometric model can also contribute to a better understanding of the economic, social, and political mechanisms that determine the volume of remittance flows.

4.141. In order to construct a robust econometric model, a compiler requires data on remittance flows (possibly from an ad hoc survey) and their determinants, and specialized statistical expertise to define the model, to select and employ the appropriate model estimation technique, and to interpret the results.

4.142. In general, the economic variable under study (known as the dependent or endogenous variable) is presented as a function of a number of explanatory (or exogenous) variables:

$$Y = f(X_1, X_2, \dots, X_k), \quad (1)$$

where Y is the dependent variable (e.g., remittance flows), X_i ($i = 1, \dots, k$) are the variables that explain changes in the dependent variable, and f denotes the type of function describing the relationship between the dependent and the explanatory variables.

4.143. In order to formulate an econometric model of remittance flows, an econometrician may use knowledge of social sciences such as economics or sociology to select the determinants of remittances. Mathematical and statistical knowledge is necessary to determine the type of function (f) and the technique to be used to estimate the function.

Determinants of remittance flows (explanatory variables)

4.144. A compiler who plans to construct an econometric model of remittance flows could turn to previous studies as a guide for identifying possible explanatory variables.⁵¹ The relative economic

⁵¹See, for example, Schiopu and Siegfried (2006) and Bouhga-Hagbe (2004). Most studies in the literature on remittances have focused on the estimation of econometric models relating to “workers’ remittances” (referring to the concept of remittance transfers used in *BPM5*) credits (receipts) of a given country or a panel of countries. The modelling of the debit side has not been widely pur-

sued. An exception is the work by Faini (1994), who analyzes the determinants of remittance payments by various groups of immigrants resident in Germany. The determinants of remittance flows may differ in models for credits and debits.

situation in the home and host countries as well as demographic variables related to migration are typically cited as important explanatory variables. Some possible explanatory variables are listed below. As is the case for other types of models, the availability of data for constructing the explanatory variables will depend, in part, on whether the econometrician is building a model to estimate total remittance flows to or from the rest of the world, or whether the econometrician is building a model to estimate remittances to or from a given country (bilateral flows).

- *Income differential*: The income differential between the sending and receiving countries may help explain remittance flows. One would expect this variable to enter the model with a positive sign: the larger the differential, the larger the flows. The ratio of GDP per capita can be used as a proxy for the income differential between sending and receiving countries.
- *GDP growth differential*: In addition, GDP growth differential may also play an important role in determining the flow of remittances because this variable may serve as a proxy for the relative growth potential of the sending and the receiving economies. One would expect this variable to enter the model with a positive sign: the larger the GDP growth differential, the larger the remittance flows, because individuals in the sending country may increase the amount given when they deem their prospects for the future to be relatively favorable.
- *Migration and related demographic statistics*: Bilateral data on stock of migrants and short-term workers for each country pair and related demographic statistics, such as their average duration of stay, gender, and skill level, are possible determinants of remittance flows. For example, because income is strongly correlated with human capital, information about the skill levels of migrants and short-term workers is important.
- *Remittance cost*: Costs vary widely between countries and among institutions involved in the transfer. One would expect this variable to enter the model with a negative sign: the lower the cost, the larger the remittance flows.
- *Rate of return on real estate*: A natural proxy for the return differential on nonfinancial assets

sued. An exception is the work by Faini (1994), who analyzes the determinants of remittance payments by various groups of immigrants resident in Germany. The determinants of remittance flows may differ in models for credits and debits.

would be the bilateral difference in the rate of change in house prices, because sending funds for housing one's family back home is an important reason for remitting.

- *Exchange rate differentials:* Changes in exchange rate in sending or receiving countries may influence the volume of remittance flows.
- *Dual exchange rates:* Existence of dual exchange rates in the origin or destination country may influence choices about the amounts of remittances and their transaction channel.

Building the model

4.145. A simple econometric model describing a linear relationship between remittance flows and their determinants can be expressed as follows:

$$Y = \alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + \dots + \alpha_k X_k + \varepsilon, \quad (2)$$

where Y represents remittance flows (either credits or debits), X_i are the selected determinants of remittances, α_i are the coefficients showing how changes in the determinants influence the remittance flows, and ε is an error term showing that part of Y that cannot be estimated by the explanatory variables. The reference (dependent) variable of the model could be the total remittances sent or received by a country in a given period (time-series analysis) or the remittances sent or received by a country to or from a group of countries in a year or period (cross-sectional or panel data analysis).

4.146. Mathematical transformations of some determinants, such as converting the variables to logarithmic form, might be necessary to guarantee a better fit of the model. A linear model as described in equation (2) might not always be the best option. Depending on the censored nature of the dependent variable and the stationarity of the explanatory variables, other types of models might be considered. Statistical analysis of the determinants (e.g., analysis of issues such as multicollinearity, stationarity, endogeneity, or variability) as well as an analysis of the type of relationship between them and the remittance flows will be necessary in order to select the relevant determinants and the type of model to be implemented. This, consequently, will determine the estimation technique to be applied in order to estimate the coefficients (α_i) and determine the level of remittance flows. Various statistics describing the goodness of fit should be analyzed to determine the best model.

Residual models

4.147. Remittances may also be estimated using models that measure all flows that generate inflows and outflows of foreign exchange other than remittances. Such a model can be based on relevant balance of payments items or monetary data and associated accounting identities. This approach therefore rests on the assumption that, once all observable inflows and outflows have been recorded (including remittances reported through formal intermediaries), discrepancies are most likely unobservable remittances.

4.148. In its simplest form, such a model could then derive remittances as the residual under the assumptions that foreign exchange inflows equal foreign exchange outflows and that all foreign currency inflows are converted to domestic currency for use in the domestic market (see Box 4.8 on a residual model used in Albania). This basic version of the model can be expanded to account for changing cash balances and other observable factors. For example, changes in the cash balances of the financial sector or estimates of household savings in cash can be used to account for temporary imbalances between inflows and outflows.

4.149. A residual model based on monetary data would, in principle, account for all remittances received in financial form, including cash as long as it is exchanged domestically. A residual model based on balance of payments data will identify all remittances as long as goods and services obtained from these remittances (received in cash or in kind) are recorded fully in balance of payments statistics.

4.150. Residual estimations are a low-cost approach to estimating missing data. In principle, this approach accounts for remittances sent through formal and informal channels. It is therefore very attractive for countries with limited resources and scarce alternative data sources.

4.151. However, this approach has severe drawbacks. It relies on the accuracy of data on which the estimation is based. Any errors or omissions in that data will be reported as remittance flows and true errors or omissions remain invisible, making data checks more difficult. For example, an underreporting of exports would automatically result in an overestimation of remittances; because the current account balance remains unchanged, neither error can easily be detected.

Box 4.8. Estimating Remittances as a Residual in Albania

Remittances constitute the largest current account credit for Albania, yet there are few direct data sources. Remittance inflows are received partly through the banking system but mostly through informal channels. The inflows of foreign exchange are converted into the domestic currency, the lek, by banks, bureaus of exchange, or informal markets.

The Bank of Albania (BoA) uses a model that estimates remittances as a residual of inflows and outflows of foreign exchange. The residual inflow serves as their estimate of remittances. The methodology relies on two assumptions: first, recipients convert their remittances to lek for domestic use; second, foreign exchange inflows are equal to outflows (there is no change in the net holdings of foreign exchange outside the banking system).

The following table illustrates how the BoA estimates remittances as a residual:

Inflows		Outflows	
Cash remittances (unknown)	(CR)	Cash imports ²	(CI)
Cash exports ¹	(CE)	Cash travel (debit) ¹	(CTD)
Cash travel (credit) ¹	(CTC)	Other cash imports in services ¹	(OCI)
Other cash exports in services ¹	(OCE)	Other outflows of foreign exchange ³	(OOFX)
Other inflows of foreign exchange ³	(OIFX)		

¹Not channeled through banking system.

²Cash imports are total imports (excluding goods imported as aid, for processing, or financed by trade credit) minus imports that are financed by payments through the banking system.

³The net change in the position of foreign exchange holding by banks and bureaus of exchange.

Hence, $CR = CI + CTD + OCI - CE - CTC - OCE + NetFX (OOFX - OIFX)$. Eighty percent of remittances received through banks and financial institutions (RB) are assumed to be converted on the parallel market, and therefore are included in the estimated cash remittances (CR). The remaining 20 percent are not converted; therefore, these inflows of remittances are not included in CR. Hence, the BoA method adds 20 percent to CR to calculate estimated personal remittances (EPR), where $EPR = CR + 0.2 * RB$.

The EPR, in principle, matches the balance of payments concept of personal remittances. Therefore, the BoA divides this estimate into “personal transfers” and “net compensation of employees” to record these components in the balance of payments accounts by assuming that 90 percent of EPR are personal transfers and 10 percent are “net compensation of employees:”

$EPR * 0.9 =$ personal transfers;

$EPR * 0.1 =$ compensation of employees minus related taxes, social contributions, and transport and travel expenditures.

Note: The applied percentages (90 percent and 10 percent) were estimated based on ad hoc surveys conducted by the BoA at bureaus of exchange and banks.

4.152. Further, cash balances of domestic sectors are often difficult to estimate but are an important component of this model. In many countries, currencies other than the domestic legal tender circulate and are widely accepted for domestic transactions. Therefore, the private sector holds undisclosed amounts of foreign currency. Fluctuations in these cash holdings, if undetected, would result in misalignments of the residual model.

4.153. Perhaps the most fundamental drawback is that the model cannot distinguish between the purposes for which money is sent. Migrants sending money to

their country of origin may be supporting family members or they may deposit money in their accounts or purchase assets such as real estate. Cash inflows could also relate to the repatriation of profits from smaller and informal enterprises. All these flows would mistakenly be classified as “personal transfers” by a residual model when in fact investment activities are taking place.

Remittances captured by type of transaction

4.154. Estimation approaches and models can be specified to cover any item; the real constraint is the

Table 4.5. Coverage of Remittance Aggregates from Indirect Data

Remittance Aggregate	Data Generally Obtainable from Indirect Data
Personal transfers	Prime focus of many residual and demographic models
Personal remittances	Personal transfers, compensation of employees, and expenditure related to short-term work abroad are estimated by some approaches
Total remittances	Social benefits and transfers involving NPISHs could be estimated; actual transactions data may be available but not separately identified
Total remittances and transfers to NPISHs	Social benefits and transfers involving NPISHs could be estimated; actual transactions data may be available but not separately identified

Note: Any transaction can, in principle, be estimated indirectly.

availability and reliability of source data (see Table 4.5). In practice, estimations are more frequently used to obtain data on items that are difficult to measure directly (and the *RCG* recommends that direct measurements be used where feasible). The use of estimations on the basis of indirect data is probably most useful for transactions involving households and individuals. Transactions by households and individuals, especially when operated through unofficial channels, are more difficult to measure directly.

Strengths of estimates based on indirect data

Universal coverage

4.155. Estimations can cover remittances sent through formal and informal channels.

Low costs through use of existing data

4.156. Indirect data are often available without further costs (especially if they are based solely on readily available administrative data), and estimation procedures are typically not expensive. The estimates can be based on demographic data that are detailed and timely in some countries. However, if additional data have to be specifically obtained (e.g., through surveys), costs can be substantial.

Flexible data specifications

4.157. Model-based approaches are flexible. Compilers can design models to fill gaps in data sources or to provide global totals. For example, compilers may have reliable data for remittances sent through financial institutions but not through other channels. One could construct a model to estimate the remittances through these channels. In another case, compilers may have data covering remittances sent to one partner country but not to all other countries. One could construct a

model to estimate remittances to all the other countries. Further, estimation methods can be designed to measure a specific type of remittances in conformance with the balance of payments definition, such as personal transfers or personal remittances.

Bilateral data may be obtainable

4.158. If census- or survey-based data of the remitters' economy of origin are available, good-quality regional and partner country estimates may be obtainable.

Econometric models promote a deeper understanding of remittances

4.159. Estimated coefficients of econometric models enable a better understanding of the relationship between relevant economic, social, and political factors and the remittance flows. These factors are represented by the model's explanatory variables. However, econometric models depend on good-quality raw data, which can be difficult to obtain.

Estimates are reasonable

4.160. Model-based approaches can often ensure that the estimates of remittances are within reasonable bounds. For example, models that estimate remittances based on information covering the population of remitters, their income, and an assumption on their propensity to remit can ensure that per capita remittances are reasonable.

Weaknesses of estimates based on indirect data

Source data remains critical

4.161. Only reliable input data can lead to sound estimates, regardless of the sophistication of an estimation method or econometric model. Demographic

models, which often rely on estimates of the migrant population, suffer from weaknesses in demographic input data. Econometric models depend on the quality of the data on remittances (such as the dependent variable). Shortcomings with an econometric model's explanatory variables, such as measurement errors and the degree to which they are correlated, can lead to inaccurate coefficients and affect their statistical significance. Residual models are most susceptible to input data weaknesses and will distort data if there are errors or omissions.

Assumptions are not verifiable

4.162. Indirect data are converted to remittance estimates using a set of assumptions. These assumptions should be plausible, but it is often not possible to test or verify them in practice. Moreover, assumptions

are often fixed over long periods and therefore do not reflect changes over time.

Results are often not verifiable

4.163. Because models are specified in such a way that their estimates are plausible, it is often difficult to verify their results.

Residual models

4.164. Residual models are extremely sensitive to measurement errors of the other flows and mis-specifications in underlying assumptions. A change of assumptions alone can often change remittance estimates substantially (and there may be no firm basis for choosing between assumptions). Misclassifications are also likely to occur because a residual model esti-

Table 4.6. Summary of Data Source Characteristics

	ITRS	Direct Reporting	Surveys	Secondary Data
Cost-effectiveness	Low costs if an effective international transactions reporting system (ITRS) is already in place	Reasonable costs if number of required reporters is limited	Household surveys are costly; lower-cost approaches can provide useful data as complement to other sources	Much secondary data are freely available but compilation may require additional surveys
Timeliness	Very timely if adequate reporting and data-processing facilities are used	Reasonably timely, depending on reporting infrastructure	Surveys typically take time to conduct and to process	Very timely if data used are timely
Frequency	Very frequent if adequate reporting and data-processing facilities are used	Quarterly reporting is achievable with sound reporting infrastructure	Frequency is often not optimal, mainly because of costs	Frequency depends on the choice of source data
Accuracy	Accurate within the limitations of coverage (with adequate coding and processing procedures)	Good accuracy of covered transactions if properly classified	Accuracy often disappointing, with underreporting as a result of recall and other problems	Potentially lower accuracy than other methods; lack of direct measurement and of data checks
Coverage	Transactions through some channels only; poor coverage with a high reporting threshold; poor coverage of compensation of employees and travel-related items	Good coverage of transactions through the channel covered	Depends on survey design; covers all channels and all types of remittances if well designed; good coverage difficult to achieve	Variable; depends on type of data and local circumstances
Conformity with definitions	Reasonable, but good classification of transactions may be difficult to achieve	Good, but proper classification of transactions may be difficult to achieve	Very good, but depends on survey questions and enumeration	Average to low because secondary data sources often follow different concepts
Other risks and constraints	High demands on regulatory and institutional environment; at risk from exchange liberalization	Legal environment must support reporting requirement	No proven methodology; low response rates; underreporting	Use of data in estimation models depends on unverifiable assumptions; lack of cross-checking

mates the volume of flows that escaped observation but does not provide information on the purpose of the transaction or the parties to the transaction.

Bilateral data are not always reliable

4.165. To the extent that models rely on ITRS data, the regional and partner country breakdown will likely be distorted as a result of settlement through financial centers.

E. Summary Table

4.166. Direct measurement of remittances—through transactions reporting or surveys—may be considered preferable to estimating data from indirect sources as long as measurement is feasible. Factors such as the costs of measurement, the timeliness of obtaining data, and legal and institutional factors determine whether direct measurement is feasible.⁵² If any factors strongly discourage

⁵²For instance, legal factors determine whether transactions reporting is enforceable, and cultural factors determine whether surveys are likely to yield credible data.

direct measurement, estimation and modeling approaches can present themselves as the more practical approach.

4.167. In practice, compilers will often not choose between different data sources for remittances but instead combine different sources and estimation methods to achieve better coverage. This means that direct measurements will be used where practical and they will be supplemented by estimates where they are not.

4.168. To guide compilers in choosing approaches and data users in interpreting results, this section summarizes the merits and drawbacks of all approaches and provides a comparison in tabular format (Table 4.6). The table displays the most typical characteristics of different data source approaches against important criteria. It should be noted that such a summary omits much useful detail and the table cannot do justice to all different circumstances and examples of using different data sources. Users of the *RCG* are therefore advised to consult the relevant chapters on each source and use this table as no more than a reminder of the main findings.