III

Research Strategy of Discrepancy Study

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1. GENERAL CONSIDERATIONS

Since the most immediate assignment of the Working Party was to study the discrepancy in the investment income accounts, nearly all of the initial planning of the study was concerned with this category. Research into the origins and significance of the investment income account discrepancy proceeded on two general levels. On one level, there was a need to study the ways in which changes in the economic and political environment over time might be affecting trends in real and financial international transactions, possibly causing increasing difficulties for statistical measurement. On a second level, the concentration was on the details of the data available for specific transactions at particular times. From the beginning, the Working Party wished to place the emergence of the discrepancy in the context of changes in the overall economic environment. Explanations were sought for the growth in the discrepancy in the reporting of international investment income.

As described in Chapter I, a global view of balance of payments accounting for 1977–83 showed, in addition to a cumulative reported deficit on current account, a cumulative surplus of *recorded* capital inflows over *recorded* capital outflows. Such a discrepancy did not exist for 1964–76, when the global current account discrepancies were small. This broad perspective on the international accounts lends support to the view that countries are better able to record capital inflows than capital outflows, especially when capital flows become larger and more complicated. This tendency alone would generate a greater *reported* level of income paid than of income received, and this phenomenon seems to have become important at a time when a heightened international flow of capital has occurred. This tendency for underreporting of capital outflows has been reinforced since 1979 by the proliferation of offshore and other financial centers and the introduction of financial instruments that are more difficult to encompass in the existing statistical frameworks. Under these conditions, the compilation of international financial and income flows obviously becomes more difficult. However, the countries that receive cross-border financing via financial intermediaries most often remain able to collect information on these capital inflows, while the capital outflows are more erratically recorded by the authorities of the countries in which the capital exporters reside. One reason for this difference is that income payments, when identified, are generally not taxable to the payor, whereas receipts *are* subject to tax, so that owners of these assets have a greater stake in concealing their existence from the home country than from the host country. Moreover, capital exporters may extensively use free or illegal exchange markets, while the balance of payments accounts are frequently based mainly on transactions in the official market. Probably the bias toward more complete recording of income debits was also magnified after the mid-1970s by rising interest rates and expectations of growing tax burdens.

It has been suggested that some systematic biases in the accounting process might lead to discrepancies. For instance, the Technical Staff has analyzed the manner in which income data are compiled to check on the possibility that either increased volatility of exchange rates or the sharp appreciation of the U.S. dollar over the period could result in the type of discrepancy that has appeared in the accounts. On examination, it could be shown that these were not important factors (except possibly for discrepancies in accounting for reinvested earnings). However, as exchange rates change radically, it becomes increasingly difficult to separate income credits or debits from capital flows when assets are bought or sold, since their values often include accrued interest. An important problem of this type is associated with the growing use of discounted or zero-coupon bonds.

Several analysts had also approached the overall discrepancy from the point of view that some systematic tendency existed and might be overcome by applying a rule of thumb: for instance, that omissions of credits might be estimated as proportional to the amounts of credits that were, in fact, reported by different countries or areas. Such arbitrary procedures give results that eliminate discrepancies, by definition, but they contribute nothing to understanding the reasons for discrepancies or the steps that might be taken in the future to improve the underlying data. After reviewing such procedures and hypotheses, the Working Party determined they could not aid in the carrying out of its basic task—which was to establish credible adjustments that could be made to specific country or area accounts. Thus, the essential foundation of the task of the Working Party was to deal with the detailed data bases available at the Fund and elsewhere, and to examine critically the quality of the raw data and the process by which the data were tabulated and aggregated across countries.

2. ORGANIZATION OF DATA BASE AND ANALYSIS

An obvious first step in the conduct of this project was a close examination by the Technical Staff of all the existing data and related material. This was done initially for the international income accounts, and subsequently for the shipping and official transfer accounts. For the income accounts the main tasks were to organize the Fund's data base into formats most useful for this project and, as a closely related effort, to organize a parallel data base for stocks of cross-border assets and liabilities. The results of these efforts, in a highly condensed form, appear in Appendix V.

One of the troublesome aspects of the organization of the data base was that there were frequently two or more versions of the same statistic. This applied not only to the data at the country level but also to the aggregated data that yielded the measure of the global discrepancy on current account. There are different measures of that discrepancy published by the Fund itself (in Part 2 of the *Balance of Payments Statistics* Yearbook and in the periodic *World Economic Outlook*) and by the OECD (Appendix I). Indeed, the Fund data are in a constant state of revision, with country submissions accumulating and Fund estimating procedures being applied. Similar problems arise in dealing with the International Banking Statistics (IBS) published monthly by the Fund in *International Financial Statistics* (*IFS*). As described in Appendix I, it was decided to stabilize the basis of the statistical work of the Technical Staff by adopting the published balance of payments data for 1983 appearing in the 1985 edition of the *Balance of Payments Statistics* Yearbook, and the IBS data for 1983 primarily as they appeared in the June 1986 issue of *IFS*. In later chapters it is noted that substantial revisions reported after that date have been incorporated in the work of the Technical Staff but have not been carried back into the original data base.

When the available information on income debits and credits was examined in detail, the first result was the identification of (1) a long list of situations in which the data were either missing or clearly misspecified, (2) statistical practices that were out of step with the Fund's *Manual*, and (3) deficiencies in the aggregation of data. Some of these were minor, but quite a few have a significant impact on measurement of the global current account discrepancy and the investment income component. The Technical Staff was able to clarify many of these situations with the help of the Bureau of Statistics and the countries concerned, but a number of cases of importance still require further exploration. In fact, one of the important results of this project is that it will provide a better basis for continued dialogue between the Bureau and reporting countries.

Some of the larger anomalies were revealed by attempts to make bilateral comparisons, or, where necessary, comparisons with regional geographic data where countries published such data or made it available via the special questionnaire described below. Unfortunately only a few countries provide geographic detail of their international transactions, and even when they do, the principles for making such breakdowns are so disparate that comparisons are far from exact. Among the problems are the intervention of financial intermediary centers and the attribution of transactions to the country of the currency used for payment or to denominate the asset. Nevertheless, such comparisons can be quite helpful if used with discretion. In fact, a great deal of the work by the Technical Staff on direct investment income flows and some of the results in other areas are based on the inferences that can reasonably be drawn from the geographic detail that is available.

The most powerful research technique for exposing inconsistencies in the reporting of portfolio income is the association of data on income flows with data on stocks of cross-border assets and liabilities. Such comparisons have occupied much of the research effort of the Technical Staff. The most important body of data on international asset and liability stocks is the data collected from banks by national authorities and assembled by the BIS and the Fund, as well as by national authorities. The income paid or received on these accounts has become by far the largest of the portfolio income flows. The data for these banking positions are available in considerable detail and relatively quickly (Appendix III).

Data for stocks of other portfolio assets are difficult to establish, and the Technical Staff has used a variety of sources and methods to establish reasonable benchmarks. These efforts are described in Chapter V. In general, the data could be estimated more easily from the side of the debtors. Data on stocks of official reserve assets or official obligations, and the related incomes, are relatively well established.

The basic analytic process involved for portfolio income was to determine the stocks of securities and banking assets and liabilities, to apply rates of return, and then compare those results with the income data provided by individual countries. It was usually not possible to match such flows directly as between particular borrowers and lenders, but it was possible, within a reasonable margin for error, to determine whether regional or global data on income flows bear the indicated relationship to the underlying stocks. By and large the debit income entries seemed to be credible when compared with independent data on stocks of liabilities, requiring only relatively small upward adjustments, but there was widespread underreporting of credit entries.

With respect to the *shipping account discrepancy*, there are several tests that can be applied to determine whether entries are reasonable, but the detailed data needed to conduct those tests effectively are only partially available. On the debit side it is possible to relate the total freight paid on imports to the value of imports and to judge whether the ratio fits the norms for all countries. However, the debit entry in the international accounts applies only to imports carried in foreign vessels— a breakdown not available in many cases from the data ordinarily reported—so that additional data must be obtained, as was done using the questionnaire issued by the Working Party. Checking the credit side of the shipping account for any country may be more difficult, because the vessels or other transportation facilities operated by residents not only have earnings related to the exports of that country but also have earnings from cross-trades among foreign countries. In this case one basic reference point would be an accurate measure of the capacity of the carriers operated by each country, so that the share of that country in total freight earnings could be estimated. Such data are not currently available in a form consistent with balance of payments definitions, but the Working Party has explored the possibility of developing them from existing industry records. In the absence of precise data of that type, the analysis of the Working Party was aimed at indicating the relationship between the understatement of shipping credits and the apparent capacity of the carriers operated by countries not reporting this item to the Fund—the "missing" fleet. Such results are rather judgmental but they lay the groundwork for more detailed studies.

A similar problem exists in attempting to identify the sources of the smaller net discrepancy in the *"other" transportation account*. Under this heading countries should report as debits the expenditures of their carriers in foreign ports and as credits the expenditures in their ports by foreign carriers. Examination of the reported data indicates that many countries seem to understate their receipts of this type. The Working Party has developed an estimating process that points to the most likely cases of underreporting, but actual corrections will require much more detailed country-by-country analysis. On the other hand, such port expenditures by the "missing" fleet are also absent from the record, and a basis for estimating them must be developed.

The research strategy for dealing with the discrepancy in the *unrequited transfer accounts* involved rather different approaches, but one common element was the use of a questionnaire to elicit as much detail as possible on the types of transfers that were taking place. (See Appendix VIII.) Moreover, at an early stage in the program of the Working Party, the Development Assistance Committee (DAC) of the OECD conducted a survey to assist in locating the most likely targets for research into the discrepancy. Of course, the DAC operates primarily with data supplied by donor countries and uses somewhat different definitions and coverages than the Fund, and direct comparisons with balance of payments reports were not attempted. Nevertheless, on the basis of these two surveys it should be possible to improve the comparability of DAC data and balance of payments data in the period ahead. The questionnaire exposed some large specific discrepancies, especially those involving several international institutions, which can be remedied once the necessary accounts are assembled. In addition, there are some types of transfers (pensions, withholding taxes, remittances of alien workers) that characteristically result in one-sided reporting and for which the Fund should be able to devise methods for reducing the reporting discrepancies. For the longer run, the Fund, together with the DAC, will need to develop a program for matching the data on transfers as compiled from the sides of the donors and recipients.

Such a comparison could not be done in the time available to the Working Party, but it will be an essential prerequisite to devising an explanation of the remaining discrepancy.

3. USE OF QUESTIONNAIRES AND CONSULTATIONS

One of the early decisions of the Working Party was that the available data base was not sufficiently detailed or well-defined to provide a firm foundation for the close analysis that would be required. Consequently, as noted above, it was determined to amplify the available data by means of questionnaires explicitly designed to expose gaps or inconsistencies in reporting by national compilers, to encourage corrections or modifications of faulty reporting to the Bureau of Statistics, and to relate the balance of payments data to other data that could serve as a check on internal consistency. The first and most elaborate questionnaire covered the investment income accounts, and at a later stage questionnaires were issued to cover the transportation and unrequited transfer accounts. In addition to rather detailed breakdowns of the available data, the questionnaires were intended to encourage estimation of data not previously reported and to serve as a means of collecting descriptions of the sources and methods currently in use. Copies of the questionnaires and some tables based on them appear in Appendices II, VII, and VIII. The questionnaires were sent to countries whose income or other transactions seemed likely to have a significant effect on the global discrepancy.

Returns on the income questionnaires received from many countries were quite complete and provided a very useful basis for improving the data base and tying together the income flows and the underlying stock data. The collection of data on stocks as identified by national compilers provided data or estimates not otherwise available and also facilitated the evaluation of the compilation procedures employed in each country. Moreover, the questionnaires served as a reference point for consultations between the Technical Staff and national compilers, and should continue to serve that purpose as the Bureau and compilers pursue further adjustments of reported data. Sizable corrections to the reported income data were based on the questionnaire responses, as shown in Chapters IV and V. The other questionnaires also received very satisfactory responses and may serve as models for future work on these accounts.

In addition to the use of questionnaires to elicit new data and explanations of data, the Working Party found that discussions with the national compilers focusing on the particular discrepancies under study were very useful for clearing up misunderstandings and encouraging modifications in procedures. During the project the members of the Technical Staff, sometimes together with members of the Working Party, visited a broad cross-section of the countries under study, though concentrating mainly on those countries whose transactions were large enough to have a significant effect on the global accounts. These visits were quite brief—usually one or two days—and were sometimes supplemented by correspondence or follow-up visits. Where possible this activity was coordinated with the regular missions of the staff of the Fund. An effort was made to meet whenever possible with responsible officials in each country visited, in order to encourage familiarity with the work and responsibilities of the compilers and to stimulate support where greater effort was needed.

In light of its experience with the use of questionnaires and with brief visits to countries where there might be statistical problems, the Working Party believes the Fund should consider the advisability of using similar concentrated inquiries across countries as part of its regular statistical procedures when it becomes apparent that some improvement in one of the balance of payments accounts may be required. A very considerable file of detailed information on each country studied in connection with this project has been collected by the Working Party and should also be of value to the Bureau as work on reducing the discrepancies continues.

4. DATA ON ASSET AND LIABILITY STOCKS

The derivation of estimates of cross-border income payments or the verification of data pertaining to such payments or receipts depend to a considerable degree on the availability of reliable information on the underlying stocks of cross-border assets and liabilities. The largest component of such stocks in recent times has been the amounts placed with nonresident banks or borrowed from nonresident banks, and it is fortunate that the statistics on these positions have been steadily improved through the efforts of national authorities, the BIS, and the Fund. However, data on other types of cross-border assets and liabilities are of variable quality and have not been subjected to the same degree of analysis and cross-checking. Perhaps the most effort has been devoted to establishing the outstanding debts of some of the heavily indebted developing countries, and several compilations of such debts have been prepared. (See Appendix IV.)

For its purposes the Working Party found it necessary to compile as much information on international assets and liabilities as possible, both from published sources and as part of its questionnaire on income. The data assembled by the Working Party on this subject are brought together in Appendices II and V. Although there are obvious gaps and inconsistencies (in the sense that a complete matrix of all cross-border assets and liabilities is unattainable with the information at hand), these data are perhaps the most comprehensive now available, though not the most detailed for particular types of assets and liabilities.

The Working Party understands that the Bureau of Statistics has intensified its work in this area and that the next edition of the *Balance of Payments Statistics Yearbook* will contain position data for a large number of countries. This is a welcome development and promises to provide an improved basis for evaluating flow data in both the current and capital accounts. In addition, individual countries should be encouraged to construct reconciliation tables showing the changes in assets or liabilities that tie in to the balance of payments accounts, as well as changes, such as valuation or coverage adjustments, that should not enter the balance of payments accounts.