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Problems and challenges experienced by European institutions in the balance of payments compilation process

The continuous internationalization of economic activity raises demand for the balance of payments statistics – a concise summary of the country's economic relations with the rest of the world. At the same time, the increasing complexity of business operations impedes the ability to obtain high-quality data that reliably reflects the actual volume of cross-border flows. The study aims to identify the main methodological challenges experienced by the European reporting institutions (primarily central banks) in the process of the balance of payments compilation. The most problematic balance of payments components were identified through the analysis of the metadata responses provided individually by 41 European compilers, gathered on the standardized forms prepared by the International Monetary Fund. Despite the large methodological diversity, it was possible to distinguish two universal dimensions of methodological difficulties – the inaccessibility of data related to specific areas and the inability to compile it in full accordance with the IMF's guidelines.

Keywords: balance of payments, International Monetary Fund, International Merchandise Trade Statistics

JEL classification: F00, B41, C82

Introduction

The need for external trade statistics arose at the beginning of the 14th century along with the rapid development of early mercantilist doctrines [Pippenger, 1973, p. 6][1]. The compilation of reliable, official macroeconomic statistics became especially important after the First World War, with the increasing involvement of governments

[1] Under the mercantilist doctrine the main goal of international trade was the accumulation of the precious metals, which were associated with the wealth of a country. Consequently, the utmost importance was assigned to the positive balance of trade, where exports regularly exceeded imports [Pippenger, 1973, p. 6].

in economic processes [South African Reserve Bank, 2002, p. 1]. In its current form, the balance of payments serves as a powerful tool for economic analysis, providing extensive information about the country's economic relations with the rest of the world. The external sector statistics are especially important for central banks and monetary authorities, allowing them to, i.a., assess the vulnerability to external shocks, understand and predict the exchange rate movements, or explain changes in the money supply [IMF, 2004, pp. 170–171; Van den Bergh, 2009, p. 115].

The wide use of the balance of payments statistics emphasizes the need to constantly monitor their accuracy, reliability, and relevance to the end user. The objectives could not be achieved without the international harmonization of the compilation methodology, ensuring the international comparability of data. Unified standards for the balance of payments reporting were first introduced in 1922 when the League of Nations began gathering data from the respective governments [Alves, 1967, p. 541]. Later that task was inherited by the International Monetary Fund (IMF), which cyclically publishes the subsequent editions of the *Balance of payments manual* (BPM – currently BPM6), along with the more technically oriented *Balance of payments compilation guide*[2]. Furthermore, to enhance both the quality and transparency of the compilation practices, the IMF developed a set of Data Standards Initiatives (e-GDDS, SDDS, SDDS Plus), which oblige the participants to prepare publicly accessible methodological notes (metadata) on, i.a., the legal environment, the scope of the data, concepts, and definitions, as well as quality management policies. Concerning the EU and EFTA, similar information (with recommendations) is gathered by Eurostat and published regularly in its annual *Quality reports on balance of payments (BOP), international investment position (IIP), international trade in services (ITS) and foreign direct investment statistics (FDI)* [Eurostat, 2021] and *European Union balance of payments and international investment position statistical sources and methods* [ECB, 2016], authored by the European Central Bank.

The purpose of the study is to identify the biggest challenges in the balance of payments compilation process through the information provided by official European compilers in the standardized questionnaires developed by the IMF and ECB. The results will allow to identify the balance of payments components at risk of a lower practical relevance of the data. From a cognitive perspective, the study provides insight into the structure and content of the balance of payments, as well as the rarely discussed methodological principles of its compilation and the institutional framework governing its development.

[2] The IMF is currently working on the 7th edition of the manual, the publication of which is planned for March 2025.

1. Methods

As mentioned, the external flows of the highest difficulty from the methodological perspective were identified with the complementary use of two sources of information. The basis for the analysis comprised the responses of 41 European countries to standardized metadata questionnaires developed by the IMF[3]. Each form consists of two main parts:

– the general section, where the countries disclosed information related to the legal framework, the agency responsible for the balance of payments compilation, adherence to basic reporting principles, and data coverage for each institutional sector,
– the specific section, presenting the solutions and difficulties related to the specific types of transactions, following the standard balance of payments accounts layout.

The findings obtained through the IMF questionnaires were supplemented by the conclusions drawn from the quinquennial report prepared by the European Central Bank, called *European Union balance of payments and international investment position statistical sources and methods* [ECB, 2016], which contains methodology used by 28 EU member states pertaining to:

– institutional environment – professional independence and mandate for data collection,
– statistical processes – adherence to basic BPM methodological principles, definitions, sources and methods, and internal consistency of data.

In both cases, the analysis was limited to methodological aspects – data coverage, statistical techniques, and accounting principles employed. In the case of the standardized IMF questionnaire, the level of methodological difficulty was determined based on the compilers' ability to implement guidelines set by the IMF for a given type of flow or institutional sector. The results of the analysis will be presented in an order corresponding to the balance of payments structure and pertain to:

– merchandise trade and service flows recorded on the current account,
– remaining current account components – primary and secondary income,
– financial flows – foreign direct and portfolio investments, financial derivatives, other investments, reserve assets.

The degree of BPM6 implementation was most often expressed as a percentage, representing the fraction of European countries adhering to a given rule.

The investigation of the non-standardized ECB questionnaire was mainly complementary, intended to assess the subjective importance given by the compilers to the problems identified at the previous stage of the study. The subject of analysis was the *Coverage gaps and room for improvement* section, in which the compilers

[3] A detailed list of European countries participating in the survey is provided in Appendix 1.

identified an arbitrary set of obstacles observed in their practice. At this stage, the analysis sought to identify the balance of payments components mentioned in that context by at least two national compilers.

2. Results

2.1. The IMF metadata questionnaire

2.1.1. Current account – the merchandise trade and service flows

The proper recording of merchandise trade flows can be described as potentially challenging, which primarily stems from significant conceptual and methodological discrepancies between BPM6 and the main source of obtained data – the International Merchandise Trade Statistics (IMTS). The IMTS system recommends that all goods be recorded at the time they enter or leave an economic territory [IMF, 2014, p. 73], which does not have to coincide with the change of economic ownership, as required in the BPM6[4]. Therefore, the correct use of ITMS data for balance of payments purposes will require several adjustments from the reporting body, including:

– exclusion of the goods temporarily exported or imported with no change of ownership involved: goods for storage, repair, or processing; migrants' personal effects; goods imported for projects by non-resident construction enterprises, if the project is not substantial enough to constitute their branch (an recording the flow on a construction services account),
– determining the time of ownership change in the case when it substantially differs from the moment of crossing the customs border: this applies in particular to the registration of non-monetary gold (which is often exchanged without physical delivery), as well as the recording of high-value capital goods (i.e. ships, heavy machinery).

The second significant divergence between the IMTS and BPM6 statistical principles is the valuation of goods imported into the economy. In the case of BPM6, the uniform principle for merchandise goods valuation is the market value at the customs frontier of the exporting economy, i.e. the free on board (FOB) price [IMF, 2009, p. 156]. The IMTS recommends, however, determining the statistical value of exported goods in accordance with the free on board rule, and that of imported ones – as the cost, insurance, and freight (CIF), simultaneously encouraging compilers to calculate their FOB-type value as supplementary information [United

[4] According to BPM6, the change of ownership takes place when the parties enter the goods in their books as a real asset and make a corresponding change to their financial assets and liabilities [IMF, 2009, p. 155].

Nations, 2011, p. 40][5]. Correct registration of the merchandise trade flows will therefore require reducing the value of imported goods derived from the IMTS system by the value of freight and insurance. As these values are heavily determined by the transaction's characteristics (e.g. distance travelled, type of goods transported, mode of transport), the IMF advocates adjustments on the most disaggregated level possible to the compiler [IMF, 2009, p. 156].

The full summary of conceptual and methodological differences between IMTS and BPM6 that have fallen within the scope of the IMF metadata questionnaire is presented in Table 1.

Table 1. The comparison of fundamental statistical principles between the IMTS and BPM6

Item	IMTS	BPM6
valuation of imports	CIF (cost, insurance, freight)	FOB (free on board)
goods for processing	included, regardless of ownership status	excluded, if there is no change of ownership involved
migrants' personal effects	recommended to be included	excluded, if there is no change of ownership involved
non-monetary gold	included, based on the physical movement of goods	included, regardless of the physical movement of goods
exports/imports of international organizations located in the economy	included	excluded, as they are not considered a resident of the host economy
goods imported for projects by non-resident construction enterprises	included	excluded, if there is no separate entity involved
goods entering/leaving the economic territory illegally	excluded, with the suggestion to be estimated separately	recommended to be included
high-value capital goods	included, recorded at the time they enter or leave an economic territory	included, recorded

Source: [IMF, 2014, pp. 74–75].

The degree of practical implementation of the guidelines presented in Table 2 is highly heterogeneous. A routinely implemented adjustment, confirmed by 100% of the respondents, was the CIF to FOB conversion in relation to imported goods. The comment section related to the merchandise trade measurement provided examples of the following methods employed to extract the transport and insurance component from the CIF price:

– using a fixed conversion factor for CIF to FOB value,

[5] A FOB-type valuation includes FOB (for goods dispatched by sea or inland waterway) and FCA (for goods dispatched by other means of transports). Analogously, the CIF-type valuation is based on CIF or CIP delivery terms [IMF, 2009, p. 156].

– using variable conversion factors, depending on the direction of trade exchange (e.g. for intra- and extra-EU trade; CIS countries[6]),
– using a highly individualized conversion factor depending on different transaction parameters (e.g. country of origin, mode of transport, weight of the goods).

Usual adaptations to the BPM6 principles also encompassed the exclusion of the goods for processing without a change in ownership (incorporated by 78% of reporting institutions) and the estimates for the flows of illegal or smuggled goods (63.4%). Among the few examples of methods for estimating illegal merchandise trade flows (disclosed mainly by states of the former Soviet bloc) were:

– using estimated unregistered trade rates obtained through a foreign trade survey,
– using the commodity flow model to compare the sum of imports and production with the sum of consumption, exports, and changes of stocks; the excess of the former over the latter implies unrecorded merchandise exports, and the opposite – unrecorded imports,
– using expert estimates based on multiple inputs: volumes of sale of consumer goods to individuals, turnover, number of privately imported cars, taxes and duties paid by individuals, and data on the country's main trade partners.

The remaining solutions recommended by the IMF were incorporated much less frequently – the prevalence of their implementation is summarized in Table 2. The respondents, however, did not discuss the methods of adjustment and did not provide reasons for abandoning their use.

Table 2. The scope of adjustments to the BPM6 principles undertaken by European countries

Adjustment	Frequency
deduct insurance and freight components from goods imports at CIF value to arrive at FOB value	100.0%
exclude goods for processing without change in ownership	78.0%
include estimates for illegal or smuggled goods	63.4%
include transactions in non-monetary gold that involve a change in ownership but do not involve the physical transfer of gold	39.0%
exclude migrants' personal effects	34.1%
exclude exports/imports of international organizations located in the economy	22.0%
exclude goods imported for projects by non-resident construction enterprises	19.5%

Source: Own calculations based on: [IMF, 2023].

The questionnaire section related to cross-border service flows was limited to the sources of data and an optional comment section. As such, the most methodologically challenging items within the "services" category were identified based on the prevalence of indirect methods of estimation, combining multiple sources

[6] CIS – Commonwealth of Independent States, a regional intergovernmental organization in Eurasia formed after the dissolution of the Soviet Union in 1991.

of data. In addition to values of transport and insurance services obtained through the previously discussed CIF to FOB conversion, indirect calculation is required for financial intermediation services indirectly measured (FISIM) charged by the lenders or deposit-takers. The value of the service component is derived as the difference between the interest payable/receivable on loans or deposits and the amount that would apply if the reference rate were used [IMF, 2009, p. 174]. Statistical models are used to determine the value of money spent by foreign visitors, where the basis for estimation is the number of overnight stays and the traveller's average daily expenditure. The expenses of residents travelling abroad are obtained through household surveys and analysis of the external operations of domestic banks (ITRS), irrespective of their form (cash, debit and credit card, checks, transfers, etc.).

2.1.2. Current account – primary and secondary income flows

Among the remaining components of the current account, a lot of methodological challenges are posed by the "personal transfers" recorded on the secondary income account, containing cash or non-cash flows between households residing in different economies[7]. The most common method of determining the value of personnel transfers (or, more precisely, remittances of migrant workers) is statistical modelling, indicated as the main source of data by 31.7% of European countries. An estimation obtained in this way utilizes multiple inputs: information obtained from the banking system, surveys, censuses, migration, customs and administrative data, insurance premiums, etc. An obstacle in collecting the data is the low average value of money transfers (often falling below the reporting threshold) and the large share of money transferred through informal channels, estimated to constitute as much as 35–75% of the officially recorded transfers [Freund, Spatafora, 2005, p. 1].

Some challenges also pertain to two main components of primary income – "investment income" and "compensation of employees". In the case of the former, the issue was the inability (or unwillingness) of compilers to record the investment income on an accrual basis, where the flows are recorded at the time economic value is created, transformed, exchanged, transferred, or extinguished [IMF, 2009, p. 35]. Contrary to the recommendations, investment income was often recorded on a cash or due-for-payment basis, which may not reflect the cyclicality and continuity of the provision of financial assets. In the case of the latter, the problem lies in the calculation of compensation of seasonal and cross-border workers (undertaken by 80.5% of countries), which was typically estimated with the use of complex statistical models, combining the information related to:

[7] Household and non-profit institutions serving households have been identified as the most challenging sector from the methodological standpoint – around 50% of surveyed national compilers pointed out to significant gaps in the data coverage in this area.

– the number of foreign employees and the average salary in the sectors they represent,
– average tax rates and/or total tax revenues,
– the average amount of insurance premium and the value of total premium receipts from non-residents employed in the country.

The estimation was based on the data obtained from direct reporting questionnaires, immigration offices, insurance, tax, and customs authorities, local government statistics (related to the number of work permits issued), as well as bilateral partner data.

2.1.3. Financial flows

The balance of payments financial account shows the (net) flows of financial assets and liabilities between residents and non-residents of the reporting economy. There are two ways to determine the value of cross-border financial flows:
– directly, based on the value of current transactions,
– indirectly, where the values of transactions are derived from changes in stocks, with adjustments for exchange rate, price, etc.

The majority (70.7%) of countries relied on the first method of compilation, gathering the data through direct reporting/surveys of various frequencies: monthly (31.7%), quarterly (53.7%), and annual (46.3%). Complementarily, depending on the type of transaction, the following data sources are used:
– foreign direct investment: company reports or financial statements (mentioned by 85.4% of the respondents), media reports (63.4%), ITRS (43.9%),
– portfolio investment: surveys of custodians (65.9%), administrative-based or regulatory reports (39.0%), stock exchange data (26.8%),
– other investment: ITRS or bank reports (20.7%), administrative-based or regulatory reports (8.1%).

Concerning specific financial account components, the most difficulties pertained to financial derivatives and the cross-border activity of special purpose entities (SPEs), both characterized by the lowest data coverage[8]. In the case of the former, the coverage was described as comprehensive by 58.5% of the respondents, with 10% of them completely omitting the item in the compilation process. The accessibility of data was even worse with regard to the subcategory of financial derivatives – employee stock options, offered to employees as a form of remuneration [IMF, 2014, p. 160]. Although the coverage of special purpose entity data seems satisfactory (full or partial coverage was declared by 82.9% of the respondents), numerous gaps in the SPE section can raise some questions about the compilers'

[8] BPM6 defines special purpose entities as "flexible legal structures in particular jurisdictions, which offer various benefits that may include any or all of low or concessional tax rates, speedy and low-cost incorporation, limited regulatory burdens, and confidentiality" [IMF, 2009, p. 58].

attitude towards developments in this area. The majority of European reporting institutions have refused to provide the required information regarding institutional collaboration for facilitating the collection of resident SPE cross-border statistics, sources of data, or definitions used.

Table 3. Level of data coverage in relation to financial derivatives and employee stock options

Financial derivatives	
comprehensive	58.5%
partial	31.7%
not covered	9.8%
Employee stock options	
yes	14.6%
no	46.3%
no (insignificant in the economy)	39.0%

Source: Own calculations based on: [IMF, 2023].

2.2. ECB questionnaires

Largely in line with previous observations, the synthesis of European Central Bank questionnaires [ECB, 2016] portrays the household sector as particularly challenging from the compilation standpoint. Difficulties can be attributed mainly to the lack of a direct source of information (as households are generally not obliged to report) and the limited availability of data on transactions (mainly outward portfolio investments) carried out directly with non-residents, without the involvement of national intermediaries. It is worth noting that the latter is not specific to households, but can be generally applied to all private-sector residents. Some countries take measures to obtain this data indirectly, using bilateral partner data from the databases of the Bank for International Settlement.

Table 4. Cross-border transaction types indicated by the EU-28 as the most problematic from the balance of payments compilation perspective

Type	Number of countries	Percent of countries
transactions of households	17	60.7%
transactions in the insurance sector	8	28.6%
FISIM	8	28.6%
portfolio investments of residents without intermediation of a domestic institution	7	25.0%
real estate purchased abroad	4	14.3%
goods sent abroad for processing	3	10.7%
transactions of SPEs	2	7.1%

Source: Own calculations based on: [ECB, 2016].

Another problem area identified by a significant percentage (28.6%) of European countries concerns international transactions in the insurance sector. The reasons for non-coverage include the lack of significance in a given economy and/or severe methodological deficiencies in this area. Many countries (28.6%) also do not

undertake efforts to separate the service component (FISIM) from the prices of loans or deposits. The issues mentioned at least twice also include cross-border transactions of SPEs (7.1%), real estate purchased abroad (14.3%), and inability to determine the processing margins for goods (10.7%). The last of these problems is most likely related to the methodological changes introduced with the sixth edition of the BPM manual.

Conclusions

Despite the long history of use, balance of payments statistics remain challenging to compile. The degree of adherence to the methodological principles proposed by the IMF in the sixth edition of its *Balance of payments manual* is highly individual and largely depends on the country's internal capacity, as well as its legal and institutional environment. Despite the large methodological diversity, it was possible to distinguish two universal dimensions of methodological difficulties, which include:

- general inaccessibility of data sources related to specific sectors, entities, or flows,
- inability to compile data in full accordance with the IMF's guidelines.

In the first category, the highest importance can be assigned to the cross-border transactions of the household sector, which, due to the low average value, typically remain under the reporting thresholds. The biggest risk of inaccuracies (probable underestimation of the actual value) in this regard pertains to the "secondary income – personal transfers" item, which refers solely to the households' cross-border flows. In broader terms, the risk of underestimation was also present in the case of foreign assets acquired (and held) without the intermediation of domestic institutions. Low data coverage was also observed in the case of the cross-border activities of special purpose entities, as well as the financial derivatives and employee stock options. Lack of direct data sources enforces the use of complex estimation methods, which may lead to measurement errors.

In terms of strict adherence to the IMF guidelines, it is worth noting the considerable conceptual inconsistencies between the BPM6 and the IMTS, which universally serves as the primary data source on merchandise trade. The implementation of adjustments included in the metadata questionnaire (e.g. inclusion of illegal trade estimates) varies considerably, which negatively impacts the international comparability of balance of payments statistics, as well as the practical relevance of bilateral mirror data. What is more, a relatively large group of the respondents did not separate the service component (FISIM) from the pure interest payable or receivable, which might artificially inflate the corresponding "investment income"

entries within the primary income account, with the opposite effect for the "financial services" account.

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Appendix 1. European countries participating in the IMF metadata questionnaire

Country	Last updated	Reporting institution	Country	Last updated	Reporting institution
Albania	6 Nov 2018	Bank of Albania	Luxembourg	9 Nov9 2016	Banque centrale du Luxembourg
Austria	23 Aug 2018	Oesterreichische Nationalbank	Malta	26 Sep 2018	National Statistics Office
Belarus	23 Nov 2022	National Bank of the Republic of Belarus	Moldova	3 Jan 2023	National Bank of Moldova
Belgium	11Jan 2023	National Bank of Belgium	Montenegro	26 Sep 2018	Central Bank of Montenegro
Bosnia and Herzegovina	27 Feb 2023	Central Bank of Bosnia and Herzegovina	Netherlands	7 Oct 2015	De Nederlandsche Bank
Croatia	7 Mar 2017	Croatian National Bank	North Macedonia	2 Nov 2021	National Bank of the Republic of North Macedonia
Cyprus	3 Aug 2015	Central Bank of Cyprus	Norway	23 May 2016	Statistics Norway
Czech Republic	13 Jan 2022	Czech National Bank	Poland	22 Oct 2012	National Bank of Poland
Denmark	16 Oct 2019	Danmarks Nationalbank	Portugal	8 Nov 2021	Banco de Portugal
Estonia	1 Nov 2018	Bank of Estonia	Romania	13 Jan 2022	National Bank of Romania
Finland	23 Nov 2022	Statistics Finland	Russian Federation	22 Feb 2022	Central Bank of the Russian Federation (Bank of Russia)
France	21 Sep 2015	Banque de France	Serbia	26 Sep 2018	National Bank of Serbia
Germany	7 Feb 2018	Deutsche Bundesbank	Slovak Republic	17 Oct 2012	National Bank of Slovakia
Greece	7 Aug 2019	Bank of Greece	Slovenia	24 Dec 2014	Bank of Slovenia
Hungary	5 Nov 2020	Magyar Nemzeti Bank	Spain	9 Feb 2022	Banco de España
Iceland	18 Sep 2019	Central Bank of Iceland	Sweden	27 Feb 2023	Statistics Sweden
Ireland	7 Oct 2022	Central Statistics Office	Switzerland	15 Oct 2015	Swiss National Bank
Italy	22 Feb 2022	n/a	Turkey	5 Nov 2020	Central Bank of the Republic of Turkey
Kosovo	25 Aug 2022	Central Bank of the Republic of Kosovo	Ukraine	26 May 2021	National Bank of Ukraine
Latvia	11 Jan 2023	Bank of Latvia	United Kingdom	2 Dec 2022	Office for National Statistics
Lithuania	11 Oct 2019	The Bank of Lithuania			

Source: [IMF, 2023].