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Handbook for a System of Extended International and Global Accounts (SEIGA)

Overview of Major Issues

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Overview of Major Issues Needing Resolution for Developing a Handbook for a System of Extended International and Global Accounts (SIEGA)

Introduction

This paper provides a brief overview of major issues that need resolution in order to provide guidance for developing the Handbook for a System of Extended International and Global Accounts approved by the United Nations Statistical in 2015 (Commission Decision 46/107). Most are broad, rather than narrow technical issues. They focus on major issues related to "the concepts, accounting rules, classifications and accounts which facilitate the compilation of a set of regional (multi-economic territory) or global accounts." (Terms of Reference for the U.N. Expert Group on a Handbook for a System of Extended International and Global Accounts) As suggested by the Commission, the handbook, and the major issues to be addressed, are in part guided by the schematic framework (see Annex Table 1) presented in the Report of the Friends of the Chair Group on the Measurement of International Trade and Economic Globalization (E/CN.3/2015/12). Many of the issues are also drawn from reports and papers on the measurement of globalization by the United Nations Statistical Division, the United Nations Economic Commission for Europe (UNECE), the Organization for Economic Co-Operation and Development (OECD), EUROSTAT, the International Monetary Fund (IMF), the Bank for International Settlements (BIS), country statistical units, and researchers (see selected references).

Purpose of the SEIGA

Many, if not most, questions related to the scope, concepts, definitions, and methods of a set of statistics can best answered by reference to the purpose of the statistics. What policy, business, or research questions are the statistics intended to answer? Providing answers to such questions through a continuous process of updating is essential to maintaining the relevance of economic statistics.

National Accounts, which were born out of the policy needs of the Great Depression, and Balance of Payments Accounts, their statistical cousin, have been continuously updated to provide an accurate, timely, and relevant picture of the economy. However, in recent years, globalization has revealed gaps in these statistics that hobble important dimensions of policy, business, and political decisions. Examples include:

- Trade, investment, and development policies based on gross trade flows and bilateral balances that distort the value-added contributions of trade to nations income and growth;
- Monetary and financial regulatory policies based on cross-border financial flows, and positions, that distort the ultimate ownership and composition of assets and liabilities and cross-border risk (as revealed by the financial crisis);

- Tax and investment policies based on gross flows and intra-firm transfer prices, especially for intellectual property, that distort the underlying flows of production, investment, and income;
- Environmental and energy policies based on trade and production classifications that fail to provide a clear picture of the geographic distribution of the production and income and ownership (property rights) associated with polluting activities that distort estimates of the international costs and benefits of these activities and policies based on these estimates.
- Critical materials, food safety, and national security policies based on gross flows that fail to provide information on the production and value-added trail of key products that are vital to designing adequate health, safety, and security measures in today's global environment.
- Business and financial decisions based benchmarking to gross real and financial flows, and positions, and classification systems that distort returns, risk, competitive position, and critical linkages.
- Political opinions and decisions based on distorted information regarding international trade, finance, and the environment.

These issues notwithstanding, the existing national and international accounts continue to provide essential data to guide macroeconomic and other policies. Overburdening them by trying to have them address the wide range of measurement issues posed by globalization would reduce their usefulness for key fiscal, monetary, regulatory, and other policy issues. The solution is likely to be a set of extended, or supplemental, satellite account that complement the core accounts and address policy questions and needs not met by existing statistics.

Unit of Measurement

Most of the measurement research has attempted to answer questions arising from globalization have recommended Global Value Chains (GVCs) as an organizing framework. In line with these recommendations the handbook will build on the reports of the UN Friends of the Chair Group on International Trade and Economic Global Statistics, the UNECE Task Force *Guide to Measuring Global Production*, the work of the OECD expert group on extended Supply-Use tables, the report of EUROSTAT on GVCs and economic globalization, and work by academic researchers and researchers in national statistical offices.

Building on this body of work, the Handbook will follow a Global Value Chain (GVC) approach. GVCs are taken as the organizing framework since they cut across geographic borders and measure those global economic activities, goods and services, which belong together in the global value (production/supply) chain. These links are not measured using the national geographic accounting rules in the SNA and BPM. Measurement of economic interdependencies within and across countries -- between upstream design and downstream assembly or between investment, job creation, income and intellectual property -- requires measurement of GVCs. Similarly, if we want to understand the interdependencies within and across countries for global retailers, financial and

nonfinancial service providers, as well as horizontally-integrated enterprises, the GVC is the appropriate organizing framework.

This focus on GVC's has important implications for data collection and estimation. Most of the key decisions made by global manufacturers and global service providers are made at the enterprise rather than the establishment, or plant, level. As a result, for multi-establishment firms, data on profits, research and development, transfer pricing, final product pricing, design, financing, advertising, and the rest of the links in global value chains are only available at the global enterprise level. As a result, the central unit of measurement in the handbook will be on the global enterprise rather than the national establishment.¹

While the primary focus needs to be on the global enterprise, such data will need to be supplemented in the near-future, and in the long-term, by establishment-based data. Large multinational enterprises generally have multiple product lines "produced" in a global value chain at many different affiliated and unaffiliated establishments in many different locations. As a result, the classification of global enterprises into industries and products has to be at a fairly aggregate level for broad industry groups and even at this level the result is often a grouping of heterogeneous firms that only vaguely resemble one another.

Since many important policy and business issues -- such as capital, labor, energy, materials, output, productivity, and wages -- often relate to industries and products, broad heterogeneous industry and product data can be a problem. As noted by the OECD expert group on extended Supply-Use tables, broad heterogeneous MNC data is also a problem for input-output analysis, and related trade-in-value estimates, which rely on an assumption of homogeneity. In the short-run, it may be best to build on existing data on the consolidated operations of large multinational enterprises with affiliated and unaffiliated parties supplemented by indirect I-O based estimates that apply judgmental and research-based adjustments to establishment data and related I-O coefficients.

Longer-term, linked enterprise and establishment data, along with expanded survey information on value-added chains and firm characteristics are likely to provide more comprehensive, consistent GVC data. The first priority is probably the development, or improvement, of enterprise-organization business registers that allow the linkage of parent enterprises with subsidiary establishments. This data will permit the development of aggregates that allow a cross-walk from enterprise to establishment data.

It also possible that by gathering additional information on the characteristics of establishments in global enterprises, indirect estimates of global value-chains -- roughly consistent with global enterprise data -- could be constructed from the "bottom-up."

1. For single establishment enterprises, there is no distinction between enterprise and establishment.

Satellite accounts, modifications to SNA and BPM, or Stand-Alone Accounts

A number of recent globalization studies, guidelines, and reports have suggested that for issues related to alternative concepts or definitions, such as the treatment of the transactions and positions of global enterprises as a whole, the "most likely way forward would be by way of supplementary tables (UNECE, EUROSTAT, OECD 2011, A4.12). The soon-to-be released UNECE *Guide to Measuring Global Production* makes similar suggestions in their recommendations for future work (UNECE ECE/CES/2015/2/Add.1). The recent meeting on Globalization of Experts on National Accounts Meeting also suggested that the new concepts associated with globalization are increasingly difficult to deal within existing national and that they may be best tested in satellite accounts.

Satellite accounts have the advantage of providing a supplementary framework for developing new measures, without overburdening or reducing the accuracy or consistency of the core accounts. In addition to providing alternative ownership and geographic concepts for production, income, trade and finance, satellite accounts can provide an extended set of international accounts (SEIGA) where issues from the UNECE guidelines research agenda might best worked out, including the treatment of factory-less goods producers, governance, and international orientation.

Because such satellite accounts would be an extension of the existing system of national accounts and balance of payments, they can provide an integrated, consistent, and comprehensive accounting framework that ties new globalization measures, such as trade in value-added and pulls them together with new globalization research and links them to the existing core accounts (SNA/BPM).

This consistency and drill-down capacity from the core accounts to the extended international and global accounts will significantly improve the relevance of economic statistics. Policymakers, business, researchers, and investors can draw on the large toolkit of analytic tools developed for use with the national accounts and balance of payments.

Specifically, these extended, or satellite accounts will provide:

- An integrated presentation of the SEIGA, SNA, and Balance of Payments that supply an integrated international and global framework for decomposition and linkages of production, income, expenditures, assets, liabilities, and environmental-economic transactions across regions, countries, and industries.
- Additional breakdowns of existing international entries in the core accounts, such as breakdowns of exports and imports by the characteristics of exporters.
- Global linkages, with alternate scope and concepts to the core accounts, such as global supply and use tables that link to expanded country tables and can provide a decomposition of trade and bilateral balances on a value-added basis.

Comprehensive Integrated Accounts in A Resource Constrained Environment

Some may have concerns about addressing the Commission's charge to develop an overarching system of extended international and global accounts in a period where scarce resources may be best

devoted to improving the core national and international accounts. While the need to somehow to update national and international accounts to reflect the impact of globalization and keep them relevant to public and private decision-makers is clear, the need to do so in a comprehensive and integrated manner may not.

However, a comprehensive approach that consistently pulls together the various strands of globalization measurement underway and integrates them with the existing national and international accounts within an extended set of accounts, may be the most effective means of both improving the core accounts and developing extended accounts that improve the relevance of the accounts.

Indeed, one of the most important implications of such an integrated system will be significant improvements in the relevance and accuracy of the economic-financial statistics used by public and private decision-makers. It will also improve the accuracy, efficiency and international comparability of the existing system of economic statistics through the reconciliation of such data as bilateral and global trade balances, export and import prices, assets and liabilities, as well as through data exchanges, use of administrative and other “big data,” and common business registers, data collection instruments, classification systems, and accounting systems. See UN Guidelines on Integrated Economic Statistics (2013). The use of integrated SEIGA also is consistent and can be incorporated into the United Nations Operational Guide to the Implementation of Integrated Economic and Environmental Statistics that is being used in SNA and SEEA implementation work.

In order to be cost-effective a new extended system of international accounts would build on ongoing work to up-to-date and fully harmonize existing accounts with the System of National Accounts and the Balance of Payments and International Investment manuals. These core accounts would include a complete set of accounts including balance sheets and supply and use tables. These accounts would then be integrated and made internally and externally consistent, especially with the accounts of major trade and investment partners, through bilateral reconciliation and other methods outlined in the UN Guidelines for Integrated Economic Statistics, the IMF Balance of Payments Manual, and other international guidelines and manuals. Relying mainly on indirect estimation techniques and firm micro-data, these core accounts would be used to develop integrated global supply and use tables and integrated real and financial accounts. These accounts in turn would be used to develop official Global Supply and Use Tables and related trade in value added, income and employment statistics and Integrated International Real and Financial Accounts that employ ultimate beneficial owner (creditor/debtor) estimates.

Initially, such a set of extended international accounts should probably be developed using methodologies that improve the accuracy and consistency of the core data and indirect estimation techniques to develop the extended flow and balance sheet. Such an approach would have the benefit of improving the core data while minimizing the incremental cost -- in terms of respondent burden and statistical agency budgets-- while conceptual and collaborative work can proceed. In the interim, statistical agencies, business respondents, and data users can work to develop a long-term

data collection system to collect the source data needed for extended supply chain and financial accounts.

It should also be noted that the implementation of a comprehensive integrated system of extended accounts can be done in a flexible and modular manner, developing an overarching framework and implementing the components in order of national priority.

Focus on the scope, concepts, architecture, or on methods and data development?

Although the guidelines will address both sets of issues, the main focus should probably be on the broader issues of scope, concepts, and architecture rather than more technical issues like methods and data development. Somewhat like the System of Environmental Economic Accounts (SEEA), the System of Extended International and Global Accounts should probably not attempt to settle the many outstanding methodological and data collection issues -- most of which require further research and development -- but should provide an overarching, flexible, and modular framework to guide data development and implementation. (Table 1 includes a summary of major issues on the globalization research agenda)

There are at least four reasons for this approach. First, as shown by recent research, there is much that can be, and should be, done now to improve the relevance of economic statistics in today's global environment. Waiting for all methodological and source data issues to be resolved may be best described as letting the "perfect be the enemy of the good," a problem that plagues many statistical agencies.

Second, if the SEIGA is to be a satellite system, it is -- as described above -- the perfect environment for experimenting with additional detail and alternative definitions, methods, and source data, while linking back to the concepts and architecture of the core accounts. Use of such satellite can provide complimentary data that can be used with the core accounts without overburdening the core accounts.

Third, setting standards that prematurely settle methodological and source data issues can close off essential further research and development. A set of satellite accounts that allow for the development of methods and source data will facilitate important research without overburdening the core accounts.

Fourth, the guidelines should be designed to build on, and provide a unifying framework for, ongoing work on globalization. There should be a minimum of duplication of the methods and source data contained in existing groups' work on globalization. The guidelines will integrate the various strands of work on globalization, such as trade in value-added accounts and extended financial and enterprise accounts, into a comprehensive set of satellite accounts linked to the core

SNA and BOP account. Only broad overviews of methods and source data will be provided, along with links to relevant methodologies, source data, and research on globalization by the OECD, UNECE, UNSD, and other organizations, as well as relevant work by academic and country researchers. However, the handbook may include one or two chapters on data sharing and data development within context of an integrated set of accounts.

Table 1 Globalization factors and the most affected main national accounts items

Global phenomenon	National accounts items most affected
Arrangements within MNEs, including transfer pricing	Allocation of Gross value added (GVA)/GDP across countries; international trade in goods and services; investment income and financial flows
FDI relationships	Investment income and financial flows; i.i.p.
Special purpose entities (SPEs)	GDP in relation to GNI, International trade in services; investment income and financial flows; i.i.p.
Goods sent abroad for processing	GVA/GDP; international trade in goods and services
Merchanting	International trade in goods (and possibly services)
IPPs	GVA/GDP; capital formation; international trade in assets and related services
Quasi-transit trade	GVA/GDP; international trade in goods
International labour movement and remittances	GDP; GNI; gross national disposable income; international transfers
Ownership of property abroad	International trade in services; investment income and financial flows; i.i.p.
Internet trading	International trade in goods and services; household consumption
Limitations of national data collections	Imports, import prices, GDP/GVA, and Productivity

Source: UNECE, Eurostat, and OECD, The Implications of Globalization on National Accounts, United Nations, 2011

Within Sections That Do Deal with Methods, Should the Focus be on Indirect or Direct methods?

The focus of this manual is to encourage the development of extended international and global accounts. Given resource constraints and the interest in such data for addressing economic policy questions, the guidelines should probably focus on methodologies that improve the accuracy and consistency of the core data and the use of indirect estimation techniques. Such an approach would have the benefit of improving the core data while minimizing the incremental cost -- in terms of respondent burden and statistical agency budgets-- while conceptual and collaborative work can proceed. In the interim, statistical agencies, business respondents, and data users can work to develop a long-term data collection system to collect the source data needed for extended supply chain and financial accounts.

Indirect estimates that provide order of magnitude results are probably sufficient for most policy and business questions. Also, in the short-run, periodic benchmark estimates are sufficient because they provide information relevant to longer-run business and political decisions and economic policies.

Scope of the Extended Satellite Accounts

In their charge to the FOC group, the UNSC recommended that the Guidelines, and the FOC program of work, that the schematic included in Annex Table 1 could help guide development of the further work of the FOC and the handbook. The schematic lays out the following issues that will be useful in determining the scope of the handbook:

- Extensions of existing core statistics to address recommendations of international manuals, such as the recommendations included in the UNECE guidelines on the *Guide to Measuring Global Production* and in the G-20 report on *The Financial Crisis and Information Gaps*. Many of these extensions such as the measurement of “factoryless” goods production, will require new microdata on domestic and cross-border flows and stocks.
 - In addition to these extensions dealing with globalization, an essential prerequisite for many countries will be extending their accounts to the full set of accounts recommended by the SNA and BPM. These extensions include an up-to-date set of supply and use (and input-output) tables; integrated balance sheets with tangible and financial assets and liabilities.
- Enhancements to core statistics, mainly additional detail, including selected enhancements recommended by international reports, such as new details on modes of supply for trade in services, additional details in supply and use tables for trade in services, and extended information on trade and direct investment. Other detailed information that would be helpful to answering the policy and research questions discussed in Section I include data on the characteristics of firms, such as exporters, importers, and non-traders by their:
 - Sales

- Employment (including wages and occupational groupings of employees)
 - Industry (ISIC/NAICS)
 - Investment (especially by type; e.g. high-tech)
 - R&D and royalty and license fees
 - Breakout of services trade and purchased inputs by geography and industry
 - Prices (transfer pricing)
 - Other important enhancements include overall improvements to the accuracy, timeliness, and relevance of the core accounts that the SEIGA will be built upon.
- International extensions, including country measures of trade in value-added; inward foreign affiliates statistics, including employment, sales, trade and foreign ownership and control statistics; outward foreign affiliate statistics, including employment, sales, trade and foreign ownership and control statistics; and expanded statistics on the activities of multinational enterprises.
 - Such extensions need to be based on a consistent set of core accounts, so essential work will be needed to improve the accuracy, efficiency and international comparability of the existing system of economic statistics through the reconciliation of such data as bilateral and global trade balances, export and import prices, assets and liabilities, as well as through data exchanges, use of administrative and other “big data,” and common business registers, data collection instruments, classification systems, and accounting systems.
 - Global extensions such as global supply and use tables; trade in value-added estimates; expanded balance sheets of cross-border financial linkages; and ownership-based accounts. much of this work should be based on the ongoing work of the OECD, the IMF, the UN and others. However, some countries may want to put together their own global supply and use, trade-in-value-added tables that allow them to utilize confidential firm level data that cannot be disclosed to non-resident, non-statistical units.
 - Work best left to others. There are some globalization extensions that are best left to researchers rather than statistical units. Statistical units should be supplying researchers with the toolkit of data they need, rather than conducting the analysis. Such a division of responsibilities helps maintain the objectivity required of statistical agencies and works to the comparative advantage of the two communities.

In deciding on the scope of such extensions, the value of these extensions need to be balanced against the costs, including the statistical agency and respondent burden costs of collecting, compiling, and estimating such data. Although data matching and indirect costs can lower such costs relative to new data collections – especially respondent burden – they still entail the use of scarce statistical agency resources. Further, matching of firm-level micro data will require changes in laws, regulations, and rules regarding confidentiality in at least some key countries.

Priorities to Types of Satellite Accounts within a Broader Framework

One of the strengths of satellite accounts is that they can be implemented in a flexible modular fashion within the broader satellite account framework. Therefore, it will be probably be useful to determine the extent of coverage to the major types of extensions contained in the satellite account. All of the following components should probably be covered in the Handbook, but some notion about the amount of attention devoted to each of these areas (as well as others suggested by the FOC) would be helpful:

- Trade in value-added accounts
- Extended financial accounts
- Extended global production accounts
- Extended global income accounts
- Extended global final sales accounts
- Ownership-based accounts

Ultimate Replacement of SEIGA with Revised SNA/BPM

Some have suggested that after the major research issues regarding globalization are resolved, that the results should be incorporated into a future revision of the SNA. While this may make sense for some issues, the most important aspects of a System of Extended International and Global Accounts can probably continue to be best dealt within a system of satellite accounts.

As noted in the SNA (2008) there are two types of satellite accounts. The first "involves some rearrangement of central classifications and the possible introduction of complementary elements." Such satellite accounts are consistent with the core SNA accounts and "do not change the underlying concepts of the SNA in a fundamental way." They are mainly extensions of the existing accounts that provide additional detail for specific sectors. Examples include satellite accounts for transportation, tourism, and education. In the case of the SEIGA this additional detail includes information on international ownership, affiliated party trade, characteristics of importers and exporters, and extended supply and use tables.

The second type of satellite account is "mainly based on concepts that are alternatives to those of the SNA. The emphasis is on "complementary aggregates," and when combined with the first type of satellite accounts, additional detail, "that supplement the central system." The SEIGA uses alternative concepts of geography, ownership, production, income, trade, and finance flows and balances. This can all be linked to the core accounts, but their value is as alternative aggregates (and supporting details) that complement the core accounts.

Need for Outreach Program

Reaching out to explaining the value of the SEIGA data may be important, not only to justify the incremental resources needed to collect and process such data, but to convince respondents of the value of reporting such data and to convince skeptics in trade-sensitive sectors of the value of such data. U.S. statistical agency work on collecting supply chain information for factory-less goods producers (FGPs) illustrate the respondent and public-concern problems in collecting such data. The scheduled switch to the use of FGP classification in 2017 was postponed due to difficulty in collecting supply chain data from firms in test questions on existing surveys and due to strong concerns from trade-sensitive sectors. These sectors were concerned that such estimates would through "statistical sleight of hand" reduce the trade deficit with key "competitors" like China and reduce recorded exports and imports, thereby reducing public concern over lost jobs and trade in their industries.

In addition to concerns related to changing bilateral balances and reducing overall exports and imports, there may be concerns over the "winners and losers" in the recording of value-added. In particular, labor unions may be concerned because trade in value-added estimates, correctly record the value-added gains by designers, engineers, managers, financiers, advertisers, and shareholders that offset the value-added losses of manufacturing workers.

An expanded outreach program may be required to address these concerns from trade-sensitive sectors about the impact of such accounting on trade and investment policy. Among the points that might be made are the following: 1) the existing trade and investment measures are not being replaced and will remain the primary measures of trade on a monthly, quarterly and annual basis; 2) indeed, work to develop these new accounts will improve the accuracy of the bilateral balances by capturing addressing asymmetries and missing transactions; 3) the new trade in value-added and financial accounts will take years to develop and are likely to be annual-only supplementary accounts that drill down accounts that provide additional information on the secondary distribution of income from bilateral trade; and 4) such new information can actually better target trade complaints, such as those relating to dumping, intellectual property, health, and the environment.

An expanded outreach program may therefore be needed to provide separate targeted messages for economic policy makers in executive and legislative branches, central banks, international organizations; decision-makers and analysts in the business community; and affected labor and industry representatives.

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Annex Table 1

Schematic classification for measuring international activities, internationalization and globalization, with select examples

<i>Scope</i>	<i>Statistical dimension</i>	<i>Existing and new aggregate statistics</i>	<i>Existing and new microdata-based statistics and analysis (record linkages); confidentiality at national statistical offices</i>
Existing core statistics and developments	Domestic and cross-border (under national statistical systems)	Core national and international accounts, merchandise trade and related business statistics, including development, interpretation and implementation of core recommendations of international manuals, such as measurement of global production, including “factoryless” goods production	Microdata-based estimates of domestic and cross-border processing in manufacturing
Enhancements to core statistics	Domestic and cross-border (under national statistical systems)	Enhanced country bilateral data confrontation; implementation of selected recommended items, such as modes of supply for trade in services; additional details in supply and use tables, trade and foreign direct investment	Microdata-based estimates, including of value added, trade and investment, and assets
Internationalization extensions	Domestic and cross-border (under national statistical systems)	Country measures of trade in value added; inward foreign affiliates statistics, including employment, sales, trade and foreign ownership and control statistics; outward foreign affiliates statistics, including employment, sales, trade and control; statistics on activities of multinational enterprises	Inward/outward foreign affiliates statistics and statistics on activities of multinational enterprises, including firm heterogeneity (export intensities, firm size, productivity); international trade-investment-business statistics; insourcing and outsourcing of business functions

<i>Scope</i>	<i>Statistical dimension</i>	<i>Existing and new aggregate statistics</i>	<i>Existing and new microdata-based statistics and analysis (record linkages); confidentiality at national statistical offices</i>
Globalization extensions — summation of country activities	Beyond cross-border (typically not under national statistical systems)	Global supply and use tables; Organization for Economic Cooperation and Development-World Trade Organization trade in added value; International Monetary Fund coordinated direct investment surveys and coordinated portfolio investment surveys; aggregate tables built from country microdata studies; globally consolidated multinational enterprises, including activities, financial statements and risk	
Globalization extensions	Beyond cross-border (typically not under national statistical systems)	Analysis by researchers of global value chains	Analysis by researchers of microdata-based global value chains