

International Standards for Compilation of Statistics: The Gap between Standards Adoption and Standards Implementation

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Abstract

The United Nations Statistical Commission and the United Nations Statistics Division have for decades played a signal role in developing and adopting frameworks and classifications intended to promote the comparability of national statistics. This paper looks briefly at the development of international statistical frameworks and classifications and identifies impediments countries face in implementing three of them -- the System of National Accounts, the International Standard Industrial Classification, and the Principles and Recommendations for a Vital Statistics System. (Information on the difficulties that countries face is taken primarily from documents prepared for meetings of the United Nations Statistical Commission.) The paper considers the implications of countries' failing to adopt international frameworks and classifications, and concludes by posing some questions about how to improve international implementation of frameworks and classifications as data are increasingly used to measure progress of countries.

Standards development – International and National Interests

Almost two decades prior to the establishment of the United Nations, the development of statistical frameworks and classifications was receiving attention. The League of Nations convened a Statistical Conference of Governments in 1928 that produced the "International Convention relating to economic statistics." The Convention specified in detail data and tables that the countries agreed to publish, comprising external trade, occupation, agriculture, livestock, forestry and fisheries, mining and metallurgy, industry, and index numbers of prices. The League of Nations Committee of Statistical Experts took up methodological issues in implementing this agreement in eight meetings held from 1931 to 1939.

When the nuclear or organizational session of the United Nations Statistical Commission met in 1946, it prepared terms of reference for the new Statistical Commission and the Statistical Office of the United Nations Secretariat, which included assuming the statistical work of the League of Nations. The terms of reference included promoting the development of national statistics and the improvement of their comparability, and promoting the improvement of statistics and statistical methods generally. Thus, from its very beginning, the United Nations has had a fundamental role in the development of common frameworks and classifications and the standardization of definitions, concepts, statistical methods, and procedures used to compile national data. Currently, the Expert Group on International Economic and Social Classifications, with the United Nations Statistics Division functioning as secretariat, provides global leadership in this area of statistics.

Over the past 60 years, the availability of international statistical standards has increased. These standards serve to facilitate more reliable comparisons of national statistics and the development of what we have come to know as “international statistics.” Various factors motivate countries to adopt international statistical standards. For example,

- Countries may find it more efficient to use existing international standards than to develop their own national standards for official statistics.
- In some countries, implementation of internationally accepted statistical standards may be an instrument to shield statistical activities from political interference, and thus to maintain the integrity and strengthen the credibility of the statistical process.
- Member countries of some international organizations, such as the International Monetary Fund, are required to report a range of data, and are encouraged to comply with international frameworks and classifications.
- International standards provide a framework for comparing and assessing a country’s situation vis a vis other countries. The international standards have fostered such inter-country comparisons by facilitating the organization of international data bases.

Globalization, along with an increased interest in internationally comparable data about its effects, has further intensified countries’ interest in implementing international statistical standards. Countries are becoming more interdependent economically and financially. This phenomenon places increased emphasis not only on the need for international statistical standards but also on the importance of their consistent implementation to foster valid international comparisons.

While some would argue that none of the international standards is perfect – and most would agree that their implementation certainly is not complete -- it is useful to consider the consequences of “a world without international statistical standards” to govern how we classify data over a variety of subject matter areas. For example,

- Without international statistical standards, there would be no internationally agreed framework – or common language – for use in making inter-country comparisons. Without this framework, international statistics as we have come to know them over the last 60 years would certainly be far less comparable.
- Absent the existence of the standards and classifications, some countries would be less likely to produce data at all, and others might well produce data of lower quality. For some countries, the international standards are the very basis for development of their national statistical systems.
- In the absence of international standards, the creation of various international data bases of country data would have been more difficult – if indeed even possible. These databases in turn have revealed shortcomings in the quality and availability of data from many countries – data weaknesses and gaps that might otherwise have not been so readily identified.

- Without agreed frameworks for classifying data, dissemination of internationally comparable data about countries would not be possible.

Yet despite the long history of attention to standards development, and motivations for their continuing revision and use, there remains a substantial gap between standards adoption and standards implementation. This paper examines three international statistical standards as “case studies” to explore in particular some seeming impediments to their implementation; it concludes by posing some questions that may need to be addressed in considering future work on international statistical standards.

1993 System of National Accounts

The System of National Accounts (SNA) is probably the best known of the internationally agreed statistical standards. It comprises integrated concepts, classifications, definitions, and tabulations relating to national income, production, and consumption, including, for example, gross and net national income and production. The SNA had its origins in the theoretical and analytical work of the British economist J. M. Keynes during the depression following World War I and the practical work of managing the British economy during World War II. By the end of the war, Richard Stone, a student of Keynes, in cooperation with the United Nations, was drafting the outline of a system of accounts that was then published in 1947.

The fourth revision of the SNA was approved by the United Nations Statistical Commission in 1993. It was developed by the Intersecretariat Working Group on National Accounts comprised of representatives of the European Commission, the Organization for Economic Cooperation and Development, the International Monetary Fund, the World Bank, and the United Nations. While its implementation, like that of other international standards, is essentially the responsibility of individual countries, the United Nations Statistical Commission has continued over the years to monitor its implementation. The Commission has been concerned with the elaboration of criteria for measuring progress on the SNA’s implementation, such as the use of the milestone assessment created (in 1997) as an instrument to detect progress and/or to identify difficulties encountered by countries or groups of countries in their implementation efforts, as well as to focus technical cooperation activities.

While the milestone approach provided some useful information, the Intersecretariat Working Group on National Accounts developed a new approach (in 2001) to assess the extent of implementation of the 1993 SNA that consisted of three dimensions: (1) scope of the accounts, (2) conceptual compliance, and (3) quality issues. The previous milestones corresponded only to the “scope” dimension of the new approach. The new “scope of the accounts” consisted of three data sets (minimum, recommended, other) for assessing the broad coverage of national accounts in various regions. While the Commission did not decide whether the three data sets should be considered as a replacement for, or a supplement to, the six milestones being used, it recognized that both methods provided sufficient information to identify countries and regions in need of technical assistance in implementing the 1993 SNA.

- To assess the conceptual compliance dimension (mentioned above), a set of questions was devised to assess the extent of compliance with major 1993 SNA concepts. The United Nations Statistics Division, in cooperation with the UN Economic Commission for Europe, sent conceptual questionnaires in September 2000, 2001, and 2002 to all developed, developing, and transition countries. The results indicated that a total of 84 out of 207 countries and territories had implemented the 1993 SNA. They accounted for 41 percent of

the total number of countries and territories, 56 percent of world population, and 92 percent of world GDP. Only 26 percent of the developing countries that are UN Member States have implemented the 1993 SNA.¹

- For the scope of implementation assessment, a defined benchmark called the minimum requirement data set (MRDS) was used; a *recommended* and a *desirable* data set were used to facilitate assessments beyond the threshold of the benchmark. The United Nations national accounts database, which consists of data officially submitted by countries on the new United Nations National Accounts Questionnaire (NAQ), was used for the MRDS assessment. The MRDS consists of seven tables of the new NAQ. The analysis for the period 1996-2001 produced the following results for 191 UN Member States: compared with the assessment done in 2001, data availability had improved. Now 47 countries (25 percent) had fulfilled the MRDS benchmark, and 78 (41 percent) had compiled six or more tables of the defined data set. In the 2001 assessment, these values had been 24 (13 percent) and 44 (23 percent), respectively.²
- With respect to quality issues, the Intersecretariat Working Group on National Accounts adopted the IMF Data Quality Assessment Framework (DQAF) on national accounts as an instrument to assess countries' statistical practices. As of 2007, the IMF has been disseminating the DQAF-based reports of 72 countries as data modules of the Reports on Observance of Standards and Codes (ROSCs), which are available at <http://dsbb.imf.org/Applications/web/dqrs/dqrsroses/>. Given that the 1993 SNA is the imbedded standard of the national accounts, the national accounts data ROSC measures the quality dimension of the 1993 SNA implementation.

Factors impeding SNA implementation

In 2004, the United Nations Statistical Commission noted the progress of the scope of implementation of the 1993 SNA and the increase in the number of countries that conceptually complied with its recommendations. The Commission suggested further research into the underlying factors that impeded implementation of the 1993 SNA more than 10 years after its introduction. In view of this concern, the United Nations Statistics Division carried out a survey of all Member States and territories to investigate the underlying factors that impede its implementation.

The survey indicated that the nature of the national accounts compiling agency – whether it was the national statistics office, central bank, or ministry of economic affairs or finance – was not a factor to distinguish between countries that conceptually implement the 1993 SNA and those that do not. Also, in the majority of regions, the national accounts staff members are adequately equipped with personal computers, so this factor does not discriminate. According to the survey, factors that could impede implementation are:³

¹ United Nations. Statistical Commission. 35th Session. 2004. *Report of the Intersecretariat Working Group on National Accounts*. Document E/CN.3/2004/10, pp 13-14.

² *Ibid.*, pp. 15-19.

³ United Nations. Statistical Commission. 36th Session. 2005. *Report of the Intersecretariat Working Group on National Accounts*. Document E/CN.3/2005/4, pp 11-18.

- **Staff resources.** Because national accounts is a complex subject matter requiring years of experience and training, the number of staff and their level of professional education, turnover, and recruitment should be considered as potential factors that could impede implementation. Developing countries tend to have fewer staff than developed countries, which means they are less likely to have staff available to introduce new concepts, expand data series, or revise historical data series. Staff turnover, when combined with a small number of staff and a lack of training, seems to be an important impediment.
- **Training.** National accounts training is an indispensable requirement to ensure continuity in and creation of the knowledge capability of the national accounts staff for implementing the 1993 SNA, especially when there is a high rate of staff turnover and new recruitment.
- **Data resources.** Data availability of reasonable accuracy, both in scope and frequency, is the most important impediment to implementation of the 1993 SNA in developing countries and in particular in Africa. The results of the IMF's national accounts assessments show that the practices in many of the assessed countries were not in full observance of best practices, notably with respect to inadequate source data and statistical techniques as well as with respect to inadequate resources to support national accounts work. Strong government support for the business community's compliance with statistical data collections and promotion of the value of macroeconomic statistics is important for improving core source data.

At its meeting in 2005, the United Nations Statistical Commission reviewed the results of the survey and endorsed its recommendations – namely, that developing countries consider increasing the number of national accounts staff to implement the 1993 SNA and expand the scope (number of accounts) of implementation, and that the Statistical Commission initiate studies to share experience in human resource management, to determine best practices in operating a domestic training program in statistics (particularly in national accounts), and to identify best practices and strategies to collect basic statistics for structural and more frequent business statistics that feed into the compilation of national accounts.

Since the completion of this study and the endorsement of its recommendations, the Statistical Commission and the Statistics Division have tried to respond to country requests for assistance in capacity building (i.e., improving infrastructure for basic data collection) for SNA implementation. Moreover, the United Nations regional commissions, the IMF, the World Bank, the OECD, Eurostat, and bilateral donors have also supported a variety of training courses, workshops offerings, and technical assistance in national accounts since the issuance of the 1993 SNA. The Statistical Commission at its 2007 meeting requested the Intersecretariat Working Group on National Accounts to continue to report on implementation progress, focusing on scope, coverage, and quality. When the draft *1993 SNA, Rev. 1* is proposed to the Statistical Commission for adoption in 2008, the Intersecretariat Working Group intends to submit a strategy for its implementation that reflects user perspectives and takes into account the different levels of implementation across countries.

International Standard Industrial Classification

The International Standard Industrial Classification (ISIC), originally adopted in 1948, is designed to be a standard classification of productive economic activities. It is intended to meet the need for classifying data according to internationally comparable categories of specific kinds of activity. It is designed to provide an up-to-date framework for the international comparison of

national statistics but not to supersede national classifications. Rather, it forms a basis upon which national classifications can build.

In developing ISIC, the United Nations attempted to achieve three objectives: (1) to move into a position where coordination of statistics published by international agencies could be better achieved; (2) to ensure that member countries had a means to achieve intercountry comparability of information; and (3) to bring to the attention of national statistical offices the latest thinking on how to organize and display economic statistics. The United Nations expected member countries either to display their data in terms of ISIC or to be able to inform the international community in terms of ISIC after suitably converting data classified to national standards. These still remain the goals of the international statistical system, led by the United Nations Statistical Commission.

Barriers to implementation of ISIC

At its meeting in 1999, the United Nations Statistical Commission considered a report⁴ that evaluated the progress being made in implementing ISIC, Rev. 3 that had been adopted in 1989. At that time, more than half of the UN member countries had not yet adopted the new standards; 82 countries were using national classification based on or derived from ISIC, Rev. 2; and 50 countries were using national classifications based on or derived from ISIC, Rev. 3. Of the 50 countries using ISIC, Rev. 3 as a basis for their national classification, 32 had implemented NACE, Rev. 1 (the General Industrial Classification of Economic Activities of the European Communities), which is fully derived from ISIC, Rev. 3. In addition, five other countries were using multinational classifications related to ISIC, that is, classifications for which sufficiently detailed correspondence tables to ISIC, Rev. 3 exist (United States, Canada, and Mexico -- North American Industry Classification System; Australia and New Zealand Standard Industrial Classification).

What have been the barriers to implementation? The report grouped the many reasons--which continue to be valid today--why countries had not yet implemented ISIC, Rev. 3 into the following categories:

- **Insufficient relevance.** Some developing countries expressed concern, for example, that they had not been involved in the development of the standard and thus felt less national commitment to implement it. Sometimes, the relevance of the classification to domestic development goals also drives the decision about whether to implement or not.
- **Lack of adequate financial and staff resources.** Some countries expressed a lack of national resources as well as international financial support, as well as a need for technical advisors and training programs for implementation work.
- **Insufficient technical capabilities.** The availability of guidelines for implementation, alphabetical indexes, and other materials to facilitate implementation was considered to be limited. More technical support in the form of training programs for implementing ISIC, Rev. 3 was considered necessary.

⁴ United Nations. Statistical Commission. 30th Session. 1999. *Evaluation of progress in the implementation of International Standard Industrial Classification of All Economic Activities, Revision 3 and the Central Product Classification, Version 1.0*. Document E/CN.3/1999/16.

- **Lack of legal requirements.** The United Nations cannot enforce implementation, but has to rely on the commitment of national statistical agencies for implementation.

With the fourth and most recent revision of ISIC approved by the United Nations Statistical Commission at its meeting in 2006, the focus of the work will be on an implementation program consisting of (1) publication of manuals, handbooks and other classifications tools; (2) organization of meetings, training seminars and workshops on classifications; and (3) technical cooperation in individual countries.

Vital statistics systems

The United Nations Statistics Division is responsible for overall substantive coordination of the International Programme for Accelerating the Improvement of Vital Statistics and Civil Registration Systems. A major goal of the vital statistics program is to assist countries in developing capacities to operate and maintain the fundamental systems of civil registration and vital statistics in a coordinated manner. The United Nations Statistics Division defines civil registration as “the continuous, permanent, compulsory and universal recording of the occurrence and characteristics of vital events (live births, deaths, fetal deaths, marriages and divorces) and other civil status events pertaining to the population as provided by decree, law or regulation, in accordance with the legal requirements in each country.”⁵ The term, “vital statistics,” refers to the statistical information that can be extracted from the civil registration system, such as the numbers and rates of births and deaths, causes of death, and other measures. Taken together, these systems are known as civil registration and vital statistics systems.

Principles and Recommendations for a Vital Statistics System, Revision 2 was adopted by the United Nations Statistical Commission in 1999. (This publication updates and supersedes the *Principles and Recommendations for a Vital Statistics System, Revision 1* published in 1973. The original principles and recommendations for a vital statistics system were adopted by the Statistical Commission in 1953.) It provides technical guidance on standards, concepts, definitions, and classifications for civil registration and vital statistics to further increase international comparability of data. *Principles and Recommendations for a Vital Statistics System, Revision 2* provides guidance on improving civil registration; enhancing coordination and communication between the authorities responsible for civil registration and vital statistics; using census-and survey-based information on fertility and mortality; and responding more effectively to new and emerging user requirements.

*Reasons for lack of progress on Vital Registration systems in developing countries*⁶

Developed countries have systems in place to register vital events (civil registration systems) that can be used to measure the number of births and deaths, with varying degrees of accuracy depending on the level of maintenance of the registers. Fifty years after the United Nations first issued *Principles for a Vital Statistics System: Recommendations for the Improvement and Standardization of Vital Statistics*, developing countries still do not have complete and reliable

⁵ United Nations. *Principles and Recommendations for a Vital Statistics System, Revision 2*. Series M, No. 19. New York, New York. 2001, p. 167.

⁶ Notzon, Sam and Francesca Coullare, “Strengthening Civil Registration and Vital Statistics for Good Governance and Evidence Based Policies,” prepared for a Health Metrics Network workshop, March 26, 2007.

registration systems of births and deaths. Moreover, it appears that over time statisticians have decreased their use of civil registration systems as the source of vital statistics and have instead used censuses and sample surveys (with sometimes very large confidence intervals) as the data source for the vital statistics reported to the United Nations Statistics Division.

It is estimated that the coverage of vital events in the world has not progressed too far from the 50 percent level of the 1960s. According to information on coverage of birth and death registration systems provided by countries to the United Nations Statistics Division for the *Demographic Yearbook*, only 54 percent of countries reported complete coverage for births and 52 percent for deaths for the period 1995 – 2004. Disparities among regions exist; for example, in Africa the percentage is much lower with only 16 percent and 9 percent of countries reporting complete coverage for births and deaths, respectively. In some countries, such as in the eastern part of the Economic Commission for Europe region, the registration systems have actually deteriorated during the last 20 years or so.

The reasons for lack of progress vary. The following problems have been identified as affecting the availability and quality of vital statistics in many countries:

- **Under-enumeration of vital events**, for example, omission of registration of births when the newborn dies a few days after birth;
- **Misreporting of information**, such as the misreporting of age at death or the cause of death;
- **Changes in the legal/administrative framework**, for example, changes in registration procedures or problems with deficiencies in the registration law such as failure to make registration compulsory;
- **Problems associated with the organization of the civil registration systems**, for example, problems in the exchange of information with hospitals, ministries of health and statistics, or other administrations, and the failure to coordinate their roles (Moreover, statisticians rarely have full control of civil registration systems.);
- **General lack of awareness of the need to register, or lack of incentives to register.** (The costs to individuals for making an effort to register an event may outweigh the perceived benefits of registration); and
- **Lack of political support at the highest levels of government** for civil registration improvement projects and lack of long-term budgetary funding.

Given the competition for budgetary resources, producing and maintaining national registration systems for statistical purposes is not an appealing argument, particularly in less developed countries, since the system may not be considered cost effective if used only for statistics. Other forces in society will likely need to advocate for these systems. For example, civil registration systems provide the legal/reliable documentation on the identity of individuals. The improvement of existing registration systems is an area where statisticians do not have full control, given their role as data users rather than data producers. Training programs and public education may be the best means of improving civil registration and vital statistics systems.

What can the United Nations do to encourage implementation of international statistical standards?

Based on this brief look at three international classifications, a number of impediments to implementation have been identified. These include:

- insufficient relevance of the classification to national development goals;
- lack of authority to require implementation;
- lack of, or deficiencies in, legal frameworks or administrative data systems;
- lack of available source data;
- insufficient budgetary and staff resources, including insufficient international financial support for technical assistance and capacity building;
- lack of trained staff;
- insufficient guides and manuals to facilitate implementation; and
- insufficient workshops and training programs for implementation.

In view of the challenges that countries face in implementing international statistical standards, perhaps we should consider what the future role of the United Nations Statistical Commission should be in their development. Fashioning international statistical methodologies and standards that are suitable for both developed and developing countries is a complicated process. To be relevant the standards must measure the complex reality of today's global economy and society, while at the same time allowing international comparison among countries at various stages of development.

International technical cooperation activities have been an important tool not only for providing information to countries about statistical methods, definitions, and classifications developed under the auspices of the United Nations Statistical Commission but also for encouraging their implementation. These transfer-of-knowledge activities are an integral part of the United Nations Statistics Division's program to improve the statistical capacity of national statistical offices in developing countries. Work on international standard setting is intertwined with work on strengthening statistical capacity and developing coherent and integrated statistical programs. While implementation of frameworks and classifications is an integral part of the overall development process, it is specialized enough to warrant separate training programs for those who develop and use the classifications. Training workshops are an important tool to a more uniform implementation of standards because users can interpret manuals and handbooks differently.

Where do we go from here? Some questions that might be worth addressing as we consider future work on international statistical standards include:

- Why are some international statistical standards adopted by most or almost all countries (or at least by most developed countries), while others are not? Is it because not all standards are of equal importance to countries? If all standards are not equally important, then perhaps each international statistical standard does not need to be so detailed in its structure as to limit its widespread adoption by countries at various stages of development.
- Can -- and should -- the United Nations Statistical Commission do a better job in deciding prior to the development of a standard what the purpose of the proposed standard will be and the level of detail at which the data need to be classified? Are the "expert groups" being given too much authority to develop the details of international statistical classifications?

- How can the United Nations Statistical Commission continue to update the frameworks and classifications to capture the complexities of developed economies and societies when less complex and economically less sophisticated Member States see little reason to spend their scarce resources to implement the detailed classifications?
- How can the United Nations Statistical Commission meet the challenge of developing and maintaining international standards that are useful for policy analysis at the global level if countries find the frameworks and classifications irrelevant for their national situations and do not provide data to the United Nations according to them?
- What is the proper level of detail in guidance on implementation of standards, given that countries may interpret manuals differently and the fact that these resulting differences may affect the international comparability of key aggregates? In other words, how can consistent implementation be ensured?
- Should the United Nations Statistical Commission and the United Nations Statistics Division improve their efforts to help countries better understand the changes introduced with a new framework or classification so as to help them better manage the effects of the classification on their national data and the data they provide to the United Nations?
- Do both the United Nations Statistical Commission and the United Nations Statistics Division have the necessary coordination mechanisms for implementing, maintaining, and updating frameworks and classifications?
- Does the United Nations Statistics Division have the staff and resources to assist with strategies and problems of implementing international standards once they have been adopted by the United Nations Statistical Commission?
- While we depend on countries to implement international statistical standards, should the United Nations Economic and Social Council be able to require Member States to meet a minimum level of implementation and to provide a set of basic economic, social, and demographic data as a way to ensure the availability of comparable data for measuring progress on global issues?

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