

**Sixteenth Meeting of the
IMF Committee on Balance of Payments Statistics
Washington DC, December 1-5, 2003**

**Application of the Data Quality Assessment Framework to
Balance of Payments Statistics of Hong Kong, China**

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The Data Quality Assessment Framework (DQAF) was introduced by the IMF in July 2001 for assessing the quality of data used for macro-economic analysis. Specific framework on Balance of Payments (BoP) statistics and other major areas of statistics were developed under the DQAF.

2. In the past two years, the Census and Statistics Department (C&SD) of Hong Kong has applied the DQAF to assess the data quality of the compilation system of BoP statistics and to plan for future quality improvement of the system. Apart from introducing the DQAF to BoP statistics, efforts are also being made to apply the framework to assess the data quality of the other statistical systems. Such assessment is being planned for implementation in various phases in future.

3. This paper briefly describes the experience of Hong Kong in applying the DQAF in assessing the data quality of BoP statistics. A summary of the application of the DQAF to the BoP statistics of Hong Kong is given at Annex 1.

IMF's DQAF on BoP Statistics

4. The DQAF covers five dimensions of quality and a set of prerequisites for the assessment of data quality. These dimensions include integrity, methodological soundness, accuracy and reliability, serviceability, and accessibility.

Prerequisites

Quality Awareness

5. The DQAF stipulates that there should be recognition throughout the organization of the BoP compiler that quality builds trust and thus is a cornerstone of statistical work.

6. The recognition of the importance of quality in C&SD is well reflected in the Vision, mission and values (VMV) statement of the Department (Annex 2). The vision of C&SD is to provide high-quality statistical services, thus contributing to the social and economic development of Hong Kong. The VMV statement is a set of basic principles and guidelines on the statistical work of C&SD and which is well understood by all statistical staff in the Department and is well publicized among data users and the general public.

7. To co-ordinate work relating to assessing and enhancing data quality of various statistical systems, a designated team was set up in 2002 within C&SD. The team provides independent assessments on the data quality of various statistical systems and draws up plans to establish an internal central information database on data quality management practices.

8. In general, a high sense of quality awareness is maintained in C&SD as evidenced by the VMV statement of the Department and the setting up of a designated team for quality assurance.

Legal and Institutional Environment

9. The DQAF stipulates that the primary responsibility for collecting, processing, and disseminating BoP statistics should be clearly established, at best, with a relevant law. Statistical reporting is ensured through legal mandate and/or measures to encourage response.

10. In Hong Kong, although there is no statistical law or other statutory provision that assigns primary responsibility for the compilation of the BoP statistics to a single agency, there are clear government instructions in the form of Executive Council decisions that the Commissioner for Census and Statistics is empowered to make necessary and effective arrangements for data collection and compilation for a wide range of statistics, including BoP statistics. This general provision is also explicitly stipulated in the Census and Statistics Ordinance. The Ordinance also stipulates that data collected under the Ordinance must be kept confidential and used for statistical purposes only.

11. Efforts are made by C&SD to enhance co-operation with survey respondents through establishing better relationship with the senior management level of selected prominent companies. The importance and use of BoP statistics are highlighted to the management through a series of ad hoc consultation visits. Efforts are also made to streamline reporting procedures and address concerns over reporting burden expressed by respondents. Professional officers from C&SD and senior officers from relevant authorities of the Government (including the Hong Kong Monetary Authority and the policy bureau) participate in joint visits to selected companies from time to time. This has helped to improve communication and relationship with survey respondents over time.

Resources

12. The DQAF stipulates that resources should commensurate with the needs of statistical programs.

13. When the compilation system of BoP statistics was established, C&SD devoted adequate human and other resources to ensure smooth implementation of data collection and compilation of statistics. Scientific survey design has been adopted to ensure a representative sample of companies is selected to provide the relevant BoP data. In addition, a significant amount of fieldwork resource has been deployed to explain and clarify the concepts, terms and definitions of the survey to all respondents. This ensures a proper understanding of the survey requirements amongst the respondents and that good standards and practices in data reporting are maintained.

14. After running the compilation system for a few years, more complete information on the distribution of BoP transactions among target respondents has been acquired. The sample design of the BoP survey can hence be improved on the basis of such additional information. The sample size of the BoP survey is strategically reduced without affecting precision of survey results. In addition, respondents are generally more familiar with BoP concepts after going through several rounds of the survey and some savings in fieldwork resources can be achieved. At present, review of the adequacy and efficiency of resource deployment for the compilation of BoP statistics is undertaken annually. Resources saved are deployed effectively in other statistical development programmes within the Department.

Integrity

Professionalism, Transparency and Ethical Standards

15. The DQAF stipulates that professionalism should be actively promoted and supported within the data-producing agency. The statistical agency should actively provide comments on any erroneous interpretation and misuse of statistics. In addition, the terms and conditions under which statistics are collected, processed, and disseminated should be made available to the public.

16. In C&SD, professionalism is reflected in its input, output and outcome.

17. On the input dimension, various principles and guidelines have been established to ensure that the statistical work is conducted professionally. The VMV statement clearly stipulates that it is the Department's mission to ensure that the compilation and dissemination of statistics are undertaken in accordance with scientific principles, professional ethics and international standards. Professionalism is one of the values of C&SD. There are comprehensive departmental guidelines on specific operational areas, such as procedures to avoid any possible conflict of interest, security procedures in handling classified information and steps to enhance office and IT security, etc.

18. On the output dimension, management audit of data collection fieldwork activities are regularly performed in C&SD to ensure that a high quality fieldwork output is maintained. With the setting up of a designated data quality assessment team responsible for independent assessments of various statistical systems, improvement in the existing standard of statistical system and output can be pursued effectively in the long term.

19. On the outcome dimension, C&SD puts a lot of emphasis to ensure correct application and interpretation of statistics on the part of data users. Throughout the years, the Department has established a professional image that is highly regarded by data users. Generally, responses to the press are often made to clarify any misinterpretation, misconception or misuse of official statistics.

20. Meetings, seminars and consultation visits to major users of statistics, including academics, analysts and journalists are conducted from time to time to enhance the knowledge of data users and to solicit views and advice in regard to developments of statistics. This two-way communication between data users and compiler is found to be very effective, particularly on such occasion when major development in statistics takes place.

21. Transparency of statistical policies and practices is a vital feature of the statistical system. Relevant data sources and methodology for the compilation of BoP statistics have been documented and published in BoP and related publications and the website of C&SD.

Methodological Soundness

Concepts, Definitions, Data Scope, Classification and Sectorization Systems

22. The DQAF stipulates that the concepts, definitions, scope, classification and sectorization used for compiling BoP statistics should be broadly consistent with guidelines outlined in the BoP Manual (*BPM5*). Also, deviations should be kept under review.

23. C&SD has all along puts a high priority to ensure that statistics compiled are fully consistent with international standards. The VMV statement of the Department clearly stipulates that the compilation and dissemination of statistics must be in accordance with scientific principles, professional ethics and international standards.

24. In particular, the compilation of BoP statistics has all along closely followed the recommendation of the *BPM5*. Since the *BPM5* had been well in place when Hong Kong started to develop the BoP compilation system, most guidelines in the Manual have been fully incorporated into the system. Over the years, professional staff of the Department has participated in various BoP training courses organized by the IMF. This ensures that concepts and recommendations of the *BPM5* can be fully and correctly understood and implemented in the compilation framework of BoP statistics.

25. It may be useful to give a more detailed account of the development of the BoP compilation system. In setting up the BoP statistical system of Hong Kong several years ago, C&SD adopted a cost-effective data feeding approach whereby the data required for compiling BoP account were employed from existing sources as far as possible. Such data, mainly including statistics on goods and services, had been produced for a long time to meet primarily the statistical needs other than BoP account compilation (e.g. analysis of external trade performance, compilation of GDP).

26. To ensure the data quality on statistics of goods and services, a special task force was set up within the Department to conduct a comprehensive study of such statistics, covering assessment areas in regard to data sources, concepts and definitions, methodology as well as compilation and dissemination practices. In addition to the IMF's DQAF and *BPM5*, the study also made reference to the results of the UNSD's

Survey on International Merchandise Trade Statistics: National Compilation and Reporting Practices which Hong Kong had participated. The study concluded that the data sources, concepts, definitions and methodology adopted for compiling goods and services statistics are in line with international recommendations and practices.

27. Since some data in their original format are not totally in conformity with the concepts and definitions recommended in the *BPM5*, appropriate adjustments to the data have been made. For instance, imports figures valued on c.i.f. basis under the Trade Statistics System are converted to f.o.b. basis for BoP account compilation based on results of a tailor-made survey. Moreover, when the original classification and breakdowns of data are not totally consistent with those recommended in the *BPM5*, special effort has been made to ensure that the requirements of the *BPM5* can be met. For instance, since the classification and breakdowns of data on major service groups compiled and disseminated under the Trade in Services Statistics System are less detailed than those recommended in the *BPM5*, a special exercise has been conducted annually to compile statistics for the eleven major service groups as recommended in the *BPM5*.

28. There are also suitable adaptations of international statistical standards in the light of the local situation. For example, a distinct feature of Hong Kong's outward direct investment is that about half of the outflow is actually directed to offshore financial centres, which are not the final destination of the investment funds. C&SD has published a supplementary set of direct investment statistics which are useful for strengthening the analysis of the outward direct investment situation of Hong Kong. The supplementary statistics exclude all round-tripping direct investment outflow (i.e. direct investment outflow to offshore financial centres that will flow back to Hong Kong). The supplementary set of statistics serves to support a wider analytical purpose on top of the main set of data. It also addresses partially the additional data requirements of the more sophisticated data users.

29. In order to keep pace with the ever changing environment and the development of relevant international statistical standards, an overall review of the BoP compilation system is regularly conducted. For example, shortly after the release of international guidelines on the treatment of financial derivatives, the BoP compilation system of Hong Kong was updated and modified accordingly.

30. In summary, compilation of BoP statistics in Hong Kong is in line with the concepts and definitions stipulated in the *BPM5*.

Basis for Recording

31. The DQAF stipulates that market prices should be used to value flows and stocks. In addition, recording should be done on an accrual basis.

32. For compiling BoP statistics of Hong Kong, market prices have been used as the basis of valuation as far as possible. In cases where market prices are not available, book values will be collected from data suppliers instead and the corresponding market prices will then be derived by using statistical models together with other relevant information.

33. Transactions are recorded on an accrual basis in general. Since accrued interest income from some zero coupon or deep-discounted bonds may not be available from respondents, they are derived by using accounting and statistical models.

Accuracy and Reliability

Comprehensiveness of Data Sources

34. The DQAF stipulates that the data collection programs employed to compile the BoP statistics should be adequate. The data sources should be reviewed continuously to ensure that the data collection program remains comprehensive.

35. In Hong Kong, extensive consultations with other major BoP compilers and academics have been conducted in the process of setting up the BoP statistics compilation system so as to ensure that comprehensive data sources are used. Efforts are made continuously to enhance the quality of source data as far as possible.

36. New developments in the economy are regularly monitored to ensure that the data collection program always remains comprehensive. For example, in the light of the increasing popularity of the Internet, research studies on issues relating to e-transactions of securities have been undertaken. The results indicate that any potentially unrecorded e-transactions under the existing statistical system should be relatively small since investors are still required to maintain cash up-front accounts with agents before they can make any e-transactions in securities.

Consistency Checking and Revision Study

37. The DQAF stipulates that statistical outputs should be regularly assessed and validated. Revisions, as a gauge of reliability, should be tracked for the information they may provide.

38. For compiling BoP statistics of Hong Kong, comprehensive consistency checking and revision study are performed before the data are published. All survey data are carefully edited, and the statistics must be gone through a comprehensive checking and validation mechanism. Any dubiously reported data will be carefully verified with respondents.

39. As a significant proportion of survey data are collected through fieldwork, a designated team was set up in 2002 within C&SD to perform a management audit exercise on fieldwork control procedures. The focus of the management audit is to ascertain whether reported control procedures have been effectively implemented in the survey systems.

40. Another important step of consistency checking is to cross-check the BoP statistics with news and other information available at the public domain. For example, international banking statistics released by the Bank for International Settlements, and local banking statistics published by the Hong Kong Monetary Authority are regularly used for validation of BoP statistics at aggregate level. The underlying reasons accounting for any major changes in trends and movements will be analyzed and documented.

41. Revisions to the BoP statistics are regularly assessed and the magnitudes of such revisions for individual BoP components are closely monitored. The additional information leading to each revision will be examined and documented as source of reference.

Statistical Techniques

42. The DQAF stipulates that statistical techniques employed should conform to sound statistical procedures.

43. Sound statistical models are employed to ensure that the BoP statistics of Hong Kong are comprehensive when direct data collection for some BoP components via survey is not feasible or not cost effective. For example, data models are used for estimating current and capital transfers. As the economic and social situation affecting transfers have been changing rapidly in recent years, the models are reviewed annually to ensure soundness in input data and methods.

Serviceability

Relevance

44. The DQAF stipulates that the relevance and practical utility of existing statistics in meeting users' needs should be monitored.

45. In Hong Kong, as BoP statistics are mostly used for macro-economic analysis, statisticians in C&SD are also involved professionally in supporting economic analysis so as to better meet the needs of data users. Various channels have been established for regularly reviewing the statistical needs of major data users so as to enhance the relevance of BoP statistics.

46. One of the major users of BoP statistics in Hong Kong is the Government and the Hong Kong Monetary Authority. A Committee on National Income and BoP statistics has been set up for co-ordinating statistical needs of data users on major developments of national income and BoP statistics. Regular meetings of the Committee are held to review and discuss major issues.

47. C&SD is also responsive to newly emerging statistical needs of the Government as well as the private sector. For example, given the increasingly strong economic relationship between Hong Kong and the Pearl River Delta region of China, the framework of statistics on direct investment is enhanced so that additional information will be made available for policy formulation and other analytical purposes.

48. The other major users of BoP statistics in Hong Kong include financial analysts, journalists and academics. For better understanding of the data requirements, consultative visits to selected financial companies, the media and academic institutions are undertaken as necessary. In the case of portfolio investment statistics, since Hong Kong is an international financial centre, data users are of the view that more frequent portfolio investment statistics (i.e. monthly data) should be made available for better and more useful financial analysis and surveillance. Towards this end, C&SD has compiled an internal data series of monthly portfolio investment statistics since January 2002 based on enhanced data collected from the BoP survey.

Statistical Consistency

49. The DQAF stipulates that statistics should be consistent within a dataset, over time, and with other major datasets.

50. In Hong Kong, detailed compilation manuals are put in place to spell out the operational procedures for compiling each and every components of the BoP account. These manuals are useful in maintaining consistent compilation and editing procedures over time. With the application of benchmarking procedures which employ relevant indicators and common reference points against which the statistics are measured, any discrepancy between annual and quarterly statistics is removed and the consistency of BoP statistics over time is ensured.

51. In order to maintain consistency among statistical systems overtime in face of new developments and changing environment, quality assessment activities based on the DQAF framework are performed. In addition, the principles of Knowledge Management have also been applied. Parties responsible for maintaining and developing different statistical systems within C&SD will actively communicate with each other and share their professional knowledge. An information database of up-to-date information briefs and references relating to different professional areas has been established. The system is designed for easy access and retrieval by professional officers. In addition, working groups and task forces on specific subject areas have been set up within C&SD for allowing more effective communications among relevant parties.

Timeliness, Periodicity, Revision Policy and Practice

52. The DQAF stipulates that data revisions should follow a regular and publicized procedure. Also, timeliness and periodicity should follow dissemination standards.

53. In Hong Kong, statistics published are preliminary estimates when released for the first time. The preliminary estimates are subsequently revised when more complete data become available. The practice of data revision is elaborated in the statistical publications and data users are aware of the timing of revision in advance. Detailed explanations on the revised statistics are also published together with the revised data in relevant publications as appropriate.

54. As a subscriber to the IMF's SDDS, the relevant dissemination standards and best practices are strictly followed by C&SD. The integrated design of the annual and sub-annual surveys for collecting BoP data facilitates the meeting of the timeliness requirement.

Accessibility

Data Accessibility, Metadata Availability and Assistance to Users

55. The DQAF stipulates that statistics should be presented in a clear and understandable manner, forms of dissemination should be adequate, and statistics should be made available on an impartial basis. Up-to-date and pertinent metadata should be made available. Prompt and knowledgeable support service should be available.

56. In Hong Kong, press releases are the most commonly used channel for disseminating official statistics. Up-to-date BoP statistics are released to the public regularly through the press release which is also available from the C&SD's website. The schedule of the press release is pre-announced to the general public. Detailed data breakdowns are published in the quarterly publications. BoP statistics of Hong Kong are also published regularly in the publications of various international organizations (e.g. IMF, United Nations and Asian Development Bank).

57. Along with regular quality assessment activities of the DQAF, the data dissemination practice is also reviewed periodically. Because of the wider use of Internet in recent years, there has been an increase in demand for web-based data dissemination in Hong Kong. In response to the demand, C&SD is planning to develop an Interactive Data Dissemination System, through which users can dynamically generate customized statistical tables from statistical databases over the Internet.

58. Proper understanding of the concepts and definitions of statistics is imperative for their correct interpretation and application. The relevant metadata are regularly updated and available at various publications, dedicated reports and the C&SD's website. As a general practice, more detailed analysis of the BoP situation of Hong Kong will also be provided in feature articles published in the monthly statistical digests.

59. Besides providing statistical figures and metadata to the general public, C&SD is also committed to provide appropriate advice on the correct interpretation and application of statistics. This is an important way to maximize the utility of statistics to data users. Designated contact points for enquiries on BoP statistics (with mailing address, telephone and facsimile no., and e-mail address) are widely made available via press releases, publications, pamphlets and relevant websites. Opportunities are also frequently taken to educate users on the correct uses of macro-economic statistics, including BoP statistics, via various seminars and other publicity activities. Explanatory materials are also made available to data users in the form of pamphlets.

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Summary of Application of DQAF to BoP Statistics of Hong Kong

0. PREREQUISITES OF QUALITY

0.1 Legal and institutional environment

Legal environment is supportive for the compilation of BoP statistics. Also, additional effort has been made to encourage co-operation from data suppliers.

0.2 Resources

Sufficient resources have been deployed for compilation of BoP statistics. Measures are also put in place to ensure the efficient use of resources.

0.3 Quality awareness

A high sense of quality awareness is maintained as evidenced by the VMV statement of the C&SD and the setting up of a designated team for quality assurance within the Department.

1. INTEGRITY

1.1 Professionalism

A high degree of professionalism is maintained in the provision of statistics. Also, misuse and misunderstanding of BoP statistics are monitored and responses are made where appropriate.

1.2 Transparency

Statistical policies and practices are transparent and the relevant information is easily accessible by the general public.

1.3 Ethical standards

Policies and practices are guided by ethical standard.

2. METHODOLOGICAL SOUNDNESS

2.1 Concepts and definitions

The BoP statistics are compiled in broad conformity with the guidelines of the *BPM5*.

2.2 Scope

The BoP statistics are compiled in broad conformity with the guidelines of the *BPM5*.

2.3 Classification / Sectorization

The BoP statistics are compiled in broad conformity with the guidelines of the *BPM5*.

2.4 Basis for recording

Market prices are used as the basis of valuation and transactions are in general recorded on an accrual basis.

3. ACCURACY AND RELIABILITY

3.1 Source data

Source data are adequate for BoP compilation and measures are put in place to monitor the situation regularly.

3.2 Statistical techniques

Sound statistical techniques are employed to impute relevant estimates when data are not available from surveys. Data models are reviewed and updated regularly.

3.3 Assessment and validation of source data

Extensive field checking is regularly performed to ensure consistency of source data. In addition, management audit is conducted regularly to maintain a good control of fieldwork.

3.4 Assessment and validation of intermediate data and statistical outputs

Extensive checking with media news and other information available at the public domain is regularly performed to ensure consistency of BoP data with the economic and social situation of Hong Kong.

3.5 Revision studies

Revision study is regularly performed.

4. SERVICEABILITY

4.1 Relevance

Emphasis has been put on meeting the statistical needs of both local and international data users and appropriate mechanism is put in place to monitor the statistical needs continuously.

4.2 Timeliness and periodicity

Requirements of SDDS are strictly followed.

4.3 Consistency

Knowledge Management tools are used to achieve and maintain consistency among different statistical databases.

4.4 Revision policy and practice

Data revisions follow publicized procedures.

5. ACCESSIBILITY

5.1 Data accessibility

BoP statistics of Hong Kong are disseminated in a timely manner, both on paper and online.

5.2 Metadata availability

Up-to-date metadata are easily available.

5.3 Assistance to users

Comprehensive assistances, including contact points for making enquiries, are made available to users to meet their needs in the most convenient way.

Vision, Mission and Values of the Census and Statistics Department

Vision

To provide high-quality statistical services, contributing to the social and economic developments of Hong Kong.

Mission

1. To provide adequate, relevant, reliable and timely statistics to facilitate research, discussion, planning and decision making within the government and in the community.
2. To ensure that the compilation and dissemination of statistics are in accordance with scientific principles, professional ethics and international standards.
3. To promote a user-based culture, ensuring that users can obtain effective and convenient services.

Values

1. Professionalism
2. Objectivity and neutrality
3. Cost-effectiveness
4. Respect for privacy
5. Progressing with the times
6. Commitment to excellence