INTERNATIONAL MONETARY FUND

Quarterly Government Finance Statistics

Guide for Compilers and Users

Quarterly Government Finance Statistics: Guide for Compilers and Users

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ACRONYMS

2008 SNA	*The System of National Accounts 2008*
BOP/IIP	Balance of payments/International investment position
BPM6	*Balance of Payments and International Investment Position Manual, Sixth edition*
COA	Chart of Accounts
DQAF	Data Quality Assessment Framework
EDS	External debt statistics
ESA95	*European System of Accounts 1995*
EU	European Union
GDP	Gross Domestic Product
GFS	Government Finance Statistics
GFSAC	Government Finance Statistics Advisory Committee
GFSM 2001	*Government Finance Statistics Manual, 2001*
GFSY	*Government Finance Statistics Yearbook*
IFRS	International Financial Reporting Standards
IFS	*International Financial Statistics*
IPSAS	International Public Sector Accounting Standards
IPSASB	International Public Sector Accounting Standards Board
MFS	Monetary and financial statistics
SBS	Security-by-security data collection systems
SDDS	Special Data Dissemination Standard

Foreword

This volume, *Quarterly Government Finance Statistics: Guide for Compilers and Users*, is the first global guide on quarterly compilation of government finance statistics. The preparation of this *Guide* was based on the broad range of experience of the International Monetary Fund and benefitted from consultation with national compilers of government finance and public sector debt statistics, and other international institutions.

The international financial crisis in recent years, and the associated large fiscal deficits and debt levels in many countries, underscored the importance of comprehensive, reliable, and timely statistics on general government finance as a critical element in countries' fiscal and external sustainability. Against this background, the focus of this *Guide* is on improving the quality and timeliness of government finance operations and debt statistics and promoting a convergence of recording practices. This *Guide* is a useful source of reference for national compilers and users, and we recommend its adoption by countries when compiling and disseminating these data.

The concepts used in this *Guide* are harmonized with those of the *System of National Accounts 2008* (*2008 SNA*), the *Balance of Payments and International Investment Position Manual, Sixth Edition* (*BPM6*), the *Public Sector Debt Statistics: Guide for Compilers and Users*, and the *Government Finance Statistics Manual*, *2001* (*GFSM 2001*) and its forthcoming update.

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Preface

In February 2011, the Government Finance Statistics Advisory Committee (GFSAC) noted that "quarterly general government data are the core of fiscal analysis. The Committee suggested that guidance for countries to develop quarterly government finance statistics (GFS) should be developed." In May 2012, the GFSAC discussed a draft of the *Quarterly Government Finance Statistics: Guide for Compilers and Users* and all comments from GFSAC members were subsequently included.

The need for timely, comprehensive, internationally comparable, and reliable information on the finances of the general government to inform policymakers, financial markets, and other users of statistics has long been recognized. The need to improve the availability and international comparability of general government and public sector finance statistics was once again reinforced by the international financial crisis that started in 2007. Because the government is often the main player in a country's economy, its financial situation has the potential to create circumstances that render not only the government, but also the entire economy, vulnerable to solvency and liquidity problems. Moreover, as experience has shown, these vulnerabilities can have widespread economic costs, and not just for the initially affected economy. To this end, this *Guide* provides guidance on (1) the development of a proper strategy for compiling quarterly GFS, highlighting the institutional framework aspects of such strategy, (2) the sources and techniques for compiling those data, and (3) some analytical tools that may be used to enhance the quality and better disseminate the high frequency datasets to the public.

This *Guide* is primarily intended to serve as a reference for compilers and users of GFS. We hope that it will contribute to more timely, accurate and more internationally comparable GFS and an improved understanding of the complex issues involved.

Acknowledgements

At the request of the GFSAC, the production of this *Guide* has been undertaken by the Government Finance Division of the IMF's Statistics Department, in consultation with national compilers of GFS and other international organizations.

The GFSAC is a group of internationally recognized experts that advises the IMF on GFS-related matters. It was established in 2010 and includes compilers and users of GFS, and representatives of relevant international organizations. The members of the GFSAC who reviewed an earlier draft are listed below:

Mr. Michael Davies, (Australian Bureau of Statistics), Mr. Felipe Palmeira Bardella, (Ministry of Finance, Brazil), Mr. Héctor Hernández, (Ministry of Finance, Chile), Mr. Nicolas Kacou, (Directorate of Economic Analysis and Forecasting, Cote D'Ivoire), Mr. Søren Brodersen, (Statistics Denmark), Mr. Pridon Aslanikashvili, (Ministry of Finance, Georgia), Mr. Kosuke Suzuki, (Economic and Social Research Institute, Japan), Mr. Mohamed Lemine Dhehby, (Treasury and Public Accounting, Mauritania), Ms. Teresa Habitan, (Department of Finance, Philippines), Mr. Michael Adams, (South African Reserve Bank), Mr. Andre Schwaller, (Swiss Federal Finance Administration),

Mr. Philip Stokoe, (Office for National Statistics, United Kingdom), Ms. Pamela Kelly, (Bureau of Economic Analysis, United States), Mr. Arindam Roy, (Commonwealth Secretariat), Mr. Gabriel Quiros, (ECB), Mr. Hans Olsson, (ECB), Mr. Denis Besnard, (EUROSTAT), Ms. Adrienne Cheasty, (IMF), Prof. Andreas Bergmann, (IPSASB), Mr. Ian Carruthers, (IPSASB (alternate)), Mr. Nadim Ahmad, (OECD), Mr. Maurice Nettley, (OECD), Mr. Benson Sim, (UNSD), Mr. Ibrahim Levent, (World Bank), Ms. Evis Rucaj, (World Bank).

The preparation of this *Guide* was directed by Claudia Dziobek, Chief of the Government Finance Division, and overseen by Robert Heath, Deputy Director, Statistics Department. The main drafter was Michael Smedes, Australian Bureau of Statistics. The draft has benefited from input provided by Miguel Alves, Rifaat Basanti, Robert Dippelsman, Ann McPhail, Jisung Moon, Kara Rideout, Murto Wickens, and from comments by Tim Irwin, Kris Kauffmann, and Chita Marzan.

The IMF acknowledges, with gratitude, the contributions of many compilers and users of quarterly GFS in member countries. The experiences in selected countries (Appendix II) were drafted in consultation with: Pridon Aslanikashvili (Ministry of Finance of Georgia), David Bailey (National Statistics Office, United Kingdom), Thomas Dufour (Statistics Canada), Ciaran Judge (Central Statistics Office Ireland), and Fabiana Rodopoulos (National Treasury, Ministry of Finance of Brazil).

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I. INTRODUCTION

1. For fiscal policy formulation and analysis, the importance of quarterly government finance statistics (GFS) in line with the international standard has long been recognized. The relevant standard is the *Government Finance Statistics Manual, 2001 (GFSM 2001)* and its forthcoming update, which is due to be published in 2013. Accordingly, statistical standards have called for disseminating quarterly GFS. The Special Data Dissemination Standard (SDDS), which was developed in the 1990s, encourages subscribers to disseminate quarterly general government data.[1]

2. Most countries publish comprehensive data on general government activities only annually, and often with a delay of several months. But increasingly, this is seen as inadequate for fiscal analysis and policy making. More timely in-depth information on the finances of the government (often the main player in a country's economy) helps policymakers, and the general public, better understand fiscal developments and patterns. It also enables policy makers to make policy adjustments faster in response to emerging developments. For example, under the *European System of Accounts 1995* (*ESA95*) Transmission Program, European Union (EU) countries are required to disseminate quarterly fiscal data covering the general government since 2002.[2] More recently, the Council of the European Union has issued a directive under which EU Member States must ensure timely and regular public availability of accounting data for all subsectors of general government (on a monthly basis for central and state governments, on a quarterly basis for local governments).

3. High frequency fiscal data—monthly or quarterly—in line with international standards also enhance cross-country comparability of annual GFS data. For example, different fiscal year cycles require adjustments to match annual data on a calendar basis. Annual data on a calendar year basis can be calculated with the sum of the quarterly GFS data for the four quarters of the relevant calendar year. Quarterly data may have preliminary status, while the final data are audited. The final data should be used for the annual presentation when these are available. The sum of the quarters can be used as an interim result (see also Section VII FAQ #4).

4. In 2009, the finance ministers and central bank governors of the G-20 called on the Fund to "…promote timely and cross-country standardized and comparable [quarterly] government finance data based on the accepted international standard, the *GFSM 2001,*" in order to close data gaps and improve the comparability of GFS.[3]

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[1] Available at http://dsbb.imf.org/Pages/SDDS/StatMethod.aspx. The recently established SDDS Plus requires quarterly data.

[2] Regulation (EC) No 1221/2002 of the European Parliament and of the Council.

[3] See *Financial Crisis and Information Gaps* available at http://www.imf.org/external/np/g20/pdf/102909.pdf. Progress reports were published in May 2010 (http://www.imf.org/external/np/g20/pdf/053110.pdf) , June 2011 (http://www.imf.org/external/np/g20/pdf/063011.pdf) and September 2012 http://www.imf.org/external/np/G20/pdf/093012.pdf.

5. In February 2011, the Government Finance Statistics Advisory Committee (GFSAC) noted that "quarterly general government data are the core of fiscal analysis....The Committee suggested that guidance for countries to develop quarterly GFS reporting should be developed."[4] In 2012, the Fund established the SDDS Plus, a higher tier of Fund's Data Standards Initiatives, which proposes for adhering countries to disseminate fiscal data (statement of operations and gross debt) for general government, on a quarterly basis.

6. Notwithstanding this, currently only about 40 countries are disseminating quarterly fiscal data on the *general government* within a period of about three months or less. Quarterly or monthly data for a subset of the government sector, such as *central government* or, even more commonly, only the *budgetary central government*, are published by many governments. However, data with such a restricted coverage may provide only a partial view of a government's fiscal operations and position.

7. There are a number of factors behind the reluctance of countries to publish quarterly GFS on a more timely basis. In comparison to annual GFS data, the compilation of quarterly GFS data presents a number of challenges. They are likely to be provisional, more aggregated, and based on estimates in cases where data are available only annually. These factors mean that compilation of quarterly data may require techniques that differ from those applied for the compilation of annual data. They also mean that revisions to quarterly data are expected to be generally more frequent and larger than those for annual data.

8. This *Guide* is intended to offer a practical roadmap to help countries—regardless of their starting point—reach the goal of compiling a full set of quarterly GFS data for general government with a reasonable timeliness of about three months. It draws on country experiences from Australia, Brazil, Canada, Georgia, Ireland, and the United Kingdom. It is particularly relevant to countries with decentralized governments, where the assembly of source data for state, local governments, and extrabudgetary funds (all referred to as "government units" or "units") poses difficulties.

A. Who is this *Guide* for?

9. This *Guide* provides guidance to national data compilers on how to prepare and publish comprehensive and timely (quarterly) fiscal data for the general government. It should also help economists and other data users better understand the techniques and data sources required to produce quarterly fiscal statistics. This *Guide* should also be useful for coordinators of the SDDS, the SDDS Plus, General Data Dissemination System (GDDS), and for statisticians who are engaged with accounting standard boards or councils, given the link between accounting data and the compilation of fiscal statistics.

[4] The GFSAC is a group of internationally recognized experts that advises the IMF on GFS-related matters. It was established in 2010 and includes compilers and users of GFS, and representatives of relevant international organizations.

10. This *Guide* addresses specific challenges of compiling quarterly GFS data in a *GFSM 2001*-compatible format, as outlined below. It is assumed that users of this *Guide* are already somewhat familiar with the general principles of the *GFSM 2001*, and have some practical experience compiling GFS data—whether annual, quarterly, or monthly—for some level of government. For general guidance on developing a GFS compilation system, a useful reference is the IMF's *GFSM 2001* and the *Government Finance Statistics: Compilation Guide for Developing Countries (2011)*.[5] This *Guide* is intended for use by those countries not yet producing quarterly GFS data, and by countries which already produce these data in some form, and wish to improve the coverage, quality, or timeliness.

B. How is this *Guide* Organized?

11. This *Guide* is organized into six main sections. This introduction is followed by Section II, which discusses issues related to developing a proper strategy for compiling quarterly GFS. The importance of appropriate institutional framework for compiling quarterly GFS is discussed in Section III. One of the challenges in compiling quarterly GFS is acquiring appropriate source data. These issues are the subject of discussion in Section IV. Data quality issues are discussed in Section V, and communications strategy and revision policy in Section VI.

12. The main sections are followed by a "frequently asked questions" section. This *Guide* also contains two appendices that may be useful to country compilers: a simple guide to sample surveys and a description of the experience of several countries in the compilation of quarterly fiscal statistics.

II. Developing a Strategy for Quarterly GFS Compilation

13. From a managerial point of view, a quarterly GFS compilation system draws on a variety of resources: staff, methodologies, other agencies that produce data, computer systems used for processing the data, and communication with users. Taking stock of these resources is a good starting point to develop a strategy for data compilation.

A. Basic Data Template of Quarterly GFS

14. Data for general government (see Figure 1) provide an internationally comparable picture of the full range of government activities, cover the level of government required for the calculation of Gross Domestic Product (GDP), and are a prerequisite for compiling quarterly data for the wider public sector. In addition to general government, GFS data by subsector of government are also relevant for fiscal analysis. In other words, data should be disseminated for general government, as well as for its subsectors. For example, an analysis of fiscal performance will generally consider activities of each subsector, as well as the consolidated data where intrasectoral flows and stocks are netted out.

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[5] http://www.imf.org/external/pubs/ft/gfs/manual/compil.pdf

Coverage of Flows and Stock Positions

15. The goal for covering flows and stocks on a quarterly frequency is to compile data for all variables included in the *GFSM 2001* classifications.[6] This is an ambitious goal as few countries can provide this level of coverage, even for annual data. Priority areas for coverage need to be identified. Table 1 presents a summary of the quarterly questionnaire used for reporting data published in the IMF's *International Financial Statistics* (*IFS*) and in the World Bank/IMF public sector debt statistics database.

16. The variables included in Table 1 are of particular analytical usefulness, and are a natural starting point when developing a quarterly GFS system. A step-by-step approach may be needed for gradual improvements. A first step is the compilation of all components of revenue and expenditure and, subsequently, the expansion of the core financial balance sheet data to cover both assets and liabilities by instrument. This will bring coverage up to the level recommended for IMF Staff Reports. As data on debt stock positions are often obtained from different sources than those for debt transactions, it is recommended that stock and transactions data be reconciled. Balance sheet data can be further expanded with a short/long-term maturity (original and remaining) broken down by financial instruments, with a domestic/foreign split in terms of residence and in terms of currency of denomination, and with the provision of nominal, as well as market, value data. Finally, data series on other economic flows can be developed, together with a full balance sheet including nonfinancial assets.

[6] On an annual basis IMF and Eurostat publications also present the data by function of government according to the Classification of the Functions of Government (COFOG).

Table 1. Priority Variables for Quarterly Finance Statistics of the General Government* and the Associated IMF Codes

Key indicators on government transactions
(to be recorded preferably on an accrual basis)

IMF Code **	Description
1	**REVENUE**
11	Taxes
111	Taxes on income, profits, and capital gains
112	Taxes on payroll and workforce
113	Taxes on property
114	Taxes on goods and services
115	Taxes on international trade and transactions
116	Other taxes
	Memorandum items (and IMF Codes)
	*Direct taxes (111+1131+1132+1136)***
	*Indirect taxes (112+1134+114+115+116)***
	*Capital taxes (1133+1135)***
12	Social contributions
13	Grants
14	Other revenue
141	Property Income
	EXPENDITURE (2+31)
2	EXPENSE
21	Compensation of employees
22	Use of goods and services
23	Consumption of fixed capital (if available)
24	Interest
25	Subsidies
26	Grants
27	Social benefits
28	Other expense
31	NET ACQUISITION OF NONFINANCIAL ASSETS
311	Fixed assets
GOB	Gross operating balance (1-2+23) **
NOB	Net operating balance (1-2, optional)
NLB	Net lending (+)/net borrowing (-)(1-2-31) **"Deficit"** **

Key indicators on government debt and other balance sheet aggregates

IMF Code **	Description
61	Nonfinancial assets (if available)
62	Financial assets***
63	Liabilities***
	Total by Instrument
6301	SDRs
6302	Currency and deposits
6303	Debt securities
6304	Loans
6305	Equity and investment fund shares
6306	Insurance, pension, and standardized guarantee schemes
6307	Financial derivatives and employee stock options
6308	Other accounts payable
6M2	Net financial worth (62-63, if available) **
	Debt
6M3	Gross debt (6301+6302+6303+6304+6306+6308) **
	Net Debt (Gross debt – Financial assets corresponding to Debt Instruments)
	Other regional/national debt concepts, e.g. WAEMU, Maastricht debt (aka EDP Debt, equivalent to 6302+ 6303+6304 at face value) **
	Additional variables for WB/IMF Public Sector Debt Database**
	By original maturity
	Short term
	Long term
	With payment due in one year or less
	With payment due in more than one year
	By currency of denomination
	Domestic
	Foreign
	By residence of creditor
	Domestic
	Foreign

*/ This presentation builds on the template published by the Inter-Agency Group on Economic and Financial Statistics.[7]
**/The full description of the IMF codes can be found in the *Government Finance Statistics Manual 2001*.
***/Debt instruments should be valued on the reference date at nominal value, and for traded debt securities at market value as well. Substitution of face value for nominal value is acceptable but should be specified.
****/ See **http://www.worldbank.org/qpsd**.

[7] The Inter-Agency Group on Economic and Financial Statistics (IAG), comprises the Bank for International Settlements (BIS), the European Central Bank (ECB), Eurostat, the International Monetary Fund (IMF, Chair), the Organisation for Economic Co-operation and Development (OECD), the United Nations (UN), and the World Bank (WB). It was established in 2008 to coordinate statistical issues and data gaps highlighted by the global crisis and to strengthen data collection. See http://www.principalglobalindicators.org/default.aspx. The IAG adopted a generic template that recommends quarterly data but also spells out "second best" options such as annual data or data for the central government.

Relationship to Annual Data

17. Annual and quarterly data are typically produced by the same unit, and managers will have to consider priorities. Annual data will be more detailed and more complete, but less timely. Quarterly data must be timely, but will be less detailed. Some analysis of the relative size of the various subsectors is useful to put the data collection exercise into perspective, and to help focus the overall strategy. For example, if social security funds are significantly more relevant than local governments, in terms of revenue and expenditure, then extending the coverage of quarterly reporting from budgetary central government to consolidated central government should have a higher priority than expanding the (institutional) coverage of annual GFS beyond the consolidated central government.

18. When expanding the coverage of annual GFS, it may make sense to develop new quarterly and annual data series at the same time—for example, when developing time adjustment procedures for taxes[8] or a new administrative data collection—to reduce the reporting burden on data compilers and to streamline source database structures.

19. In some countries, experience has shown that adjustments to the data made for the annual accounts are assigned to the last quarter, because the government accountants are focused on getting the annual data right. However, they do not properly reflect events in the quarter in which they occurred, and so could distort quarterly trends and introduce inconsistency with counterpart reporting, such as financing. These adjustments may be for items missed or reported incorrectly through the year or reflect various techniques to account for items such as vacation provisions for government employees. In such cases, investigations should be made to allow any significant values to be reported in the quarter(s) in which the events took place.

Timeliness

20. Consistent with the SDDS recommendation, the goal is to disseminate quarterly fiscal data with no more than a one-quarter lag (e.g., the first quarter data should be available on or before June 30). SDDS Plus requires that adhering countries disseminate quarterly GFS, including a statement of operations and gross debt, covering the general government within 12 and 4 months respectively, after the end of the reference period. A pilot exercise with historical data can help move towards this goal as it will highlight any source data gaps and problematic data compilation procedures. Another important step would be the development of a data collection schedule, consistent with the intention of publishing data, within one quarter after the end of the reference quarter.

B. Taking Stock of Available Data and Developing a Strategy

21. In most countries, the general government is composed of subsectors, as shown schematically in Figure 1. For each subsector of government, a detailed list of government entities must be drawn up. This list should already exist for annual GFS compilation and for

[8] Even though some time adjustments are only relevant for subannual data.

other macroeconomic statistics, such as GDP, but there may be quarterly GFS-specific issues that must be addressed in the new list (e.g., the availability of quarterly administrative data, and the status of available data).

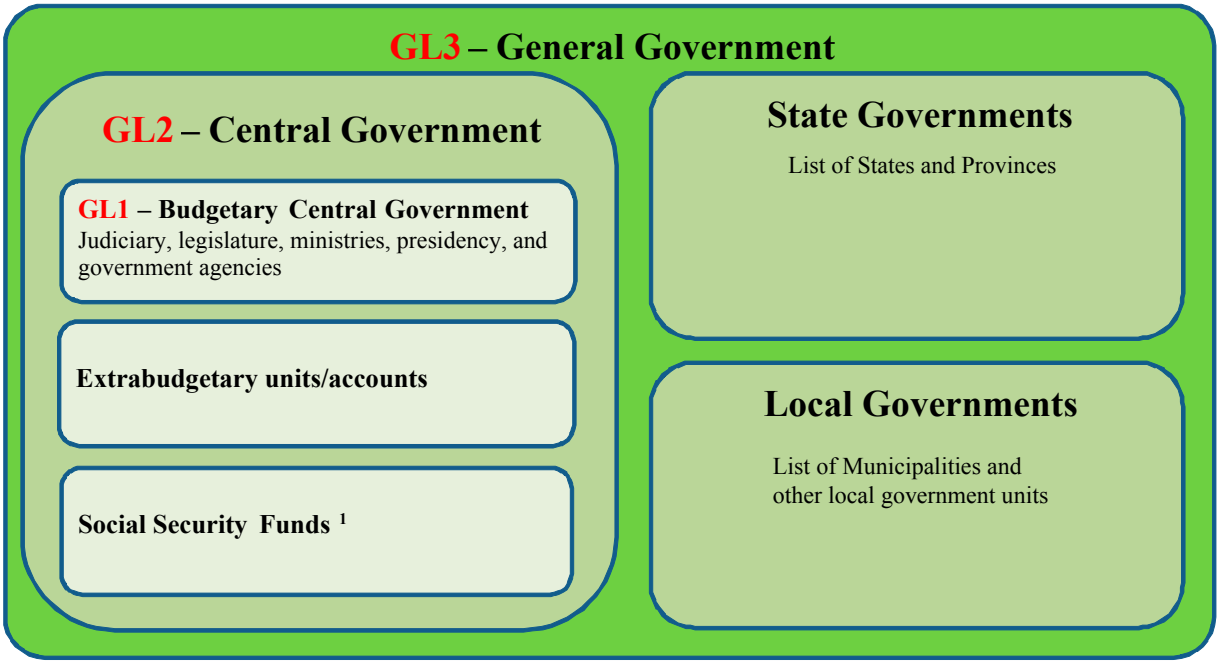
22. For each level and unit, the list must specify a number of details as follows:

- Are quarterly accounting data available?

    a. When do the data become available?
    b. By which accounting standard are the data compiled?
    c. Are the data on a cash or accrual basis?
    d. Is the level of detail needed (e.g., by type of transaction, by institutional unit, etc.) available?
    e. How can these data be accessed (electronically)?
    f. Are the data subject to revision?

- Are national accounts aggregates, such as consumption of fixed capital, available? Are they calculated for the same institutional coverage? Appropriate use of such data can be an efficient use of resources, while enhancing consistency between GFS and the national accounts (see IV.B).

Figure 1. Institutional Levels of General Government (GL3)



[1/]In some countries, social security funds are classified according to the level of government that organizes and manages them, and combined with the other government units of that level. To facilitate analysis of social security funds as a whole, separate statistics for them may be provided within the statistics of each level of government. Alternatively, they can be combined into a single separate subsector.

Source: IMF *GFSM 2001*

- Are government aggregates available in other official datasets? In many cases, flow and stock data of government units or subsectors are available to the compiler from published quarterly data on other macroeconomic statistics (e.g., Monetary and financial statistics (MFS), balance of payments/international investment position (BOP/IIP), and external debt statistics (EDS)) or on other administrative datasets, such as registers of external loans or security-by-security data collection systems (SBS) (see IV.C).

- Are other administrative data available? Other units, pursuing purposes other than accounting, may gather information that has a close relation to GFS aggregates. Whenever this information is available on a quarterly basis, it could provide an additional source of information or validation for quarterly GFS compilers. Examples of these data are: salary reports collected by the social security institution from all employers; monitoring systems of official development assistance of the cooperation and development agencies; tax management databases of the tax collection agency; and interest received by financial institutions. Grants payable information may be obtained from the same units as those providing data on grants receivable from another level of government.

23. In addition, as shown in Table 2, a number of issues that are relevant for particular subsectors should be investigated. Table 3 provides a broad overview.

Table 2. Source Data Challenges for Various Subsectors of General Government

Subsector	Particular Issue or Recommendation
Budgetary central government (GL1)	Analyze if published budget execution reports allow the compilation of all main aggregates; if that is not the case obtain unpublished data with appropriate level of detail (see Table 3). Make accrual adjustments for important items.
Extrabudgetary central government	In many countries, a few units account for most of this subsector. If this is the case, a special data collection for the largest units is likely to be the best option, with imputation for other units.
Social security funds	Determine whether this subsector is organized as a small number of large funds, a large number of small funds, or a mix. If data are not available, obtain data from the largest units, and/or conduct a survey on the remaining funds.
State and local governments	If possible, work with state and local governments to develop a standardized reporting system for this subsector. If a standardized accounting system for state and local authorities does not exist, consider working with a few larger authorities and/or the controlling central government department to develop such a system. In most cases, conducting a sample survey may be more practical than collecting the accounts from all government units. This is particularly true where there are a large number of smaller units engaged in similar activities.

Table 3. Requirements and Key Issues to Consider for Quarterly GFS

Requirements	Questions to Consider
Institutional framework	
The responsibility for compiling GFS is clearly assigned.	Which institutions are responsible? Should a dedicated interagency working group be established, with a formal service-level agreement assigning responsibilities? If so, would this require legislative/administrative changes?
Statutory powers to secure access to data are in place.	Is the central compiling agency authorized to access nonpublished or pre-publication data? Is there access and authorization to obtain data for extrabudgetary authorities and state and local governments? If these powers do not exist, is legislative change needed or feasible?
Human resources	
Sufficient staff and funds are available.	What progress can be achieved with currently available staff and budget? If staff and funds are insufficient, can resources be diverted from other areas?
GFS expertise in developing systems for compilation of statistics is available.	Can training or outside consultants be used? Is expertise available in other institutions (such as from national accounts statisticians or government accountants)? Can skills on additional techniques (sampling, estimation, surveys) be obtained from the national statistical office or universities? Is liaison with other countries or international organizations possible?
Compilation systems	
Existing GFS compilation system covering central or budgetary government.	Can the current system be readily expanded to include data for other subsectors? Which data and what details are already available? Are they timely enough? Which are the gaps?
Annual GFS compilation system.	Which data are used in producing quarterly general government components? Can existing annual GFS systems be adapted to produce quarterly data? Would significant changes to the annual system be needed to accommodate this? If the annual system is not compatible with quarterly GFS compilation, can cross-checks be developed to facilitate benchmarking of quarterly to annual data?
Computer systems are adequate.	Can existing computer systems be adapted for quarterly GFS? If not, can a system be obtained from partner countries or newly developed?
Other resources including data outputs	
Standardization of administrative accounts.	Are administrative accounts already in a standardized cash-based format? Are accrual-based data available? If not, is the quarterly GFS system being developed part of a wider project to switch to full accrual accounting for statistical and administrative purposes?
Relationships with potential data providers and users.	Is there an established dialogue to explain benefits of quarterly GFS to providers and users? If not, what is involved in establishing such dialogue? Is political backing for the quarterly GFS project feasible?

24. Table 3 provides an overview of the relevant requirements and issues to consider when deciding on a strategy to establish quarterly general government data compilation. This is not an exhaustive list of issues, but it will provide statisticians and managers embarking upon such a project with guidance on how to develop a transition strategy and a checklist of tasks that are required to be undertaken. The exercise should take account of existing annual GFS processes and monthly or quarterly data for the budgetary central government.

III. INSTITUTIONAL FRAMEWORK—GFS UNIT

25. A robust institutional framework is important for producing trusted, high quality, official statistics. Ideally, a single institution should be given full responsibility for compiling and disseminating (quarterly and annual) GFS data covering the general government sector. Its resources need to be commensurate with the statistical program requirements, and a legal mandate needs to be in place, ensuring a high quality of outputs and both the ability to collect data and statistical independence. The IMF's Data Quality Assessment Framework (DQAF) for the GFS provides references in this regard.[9]

26. A multi-agency working group is recommended if it is decided that responsibility should involve more than one agency. Even when the responsibility for compiling GFS is assigned to a specific agency, the responsible agency should coordinate and cooperate with other agencies to ensure data consistency in statistics. Agencies should agree on using internationally accepted concepts, definitions, valuation rules, and other methodological practices, to eliminate the need for *ad hoc* adjustments to data. National authorities generally make specific arrangements about data sharing—this coordination is often attained through standing working groups or committees. Reconciliation of data produced by various agencies informs the program of improvements required in data compilation.

27. A single accounting system with a standardized chart of accounts (COA) implemented across all levels of government would greatly facilitate GFS compilation; in its absence, surveys may be used to capture data for state and local governments, or to bridge available nonstandardized data into a harmonized classification. Data provision agreements should be set up with the various levels of government. As models for such agreements, Memoranda of Understanding (MOUs), used for the provision of data for national accounts, could be referred to. An advantage of such MOUs is that they raise awareness among public sector accountants of the needs and specific requirements of macroeconomic statisticians, as key data users with specific requirements can usually be accommodated.

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[9] Data Quality Assessment Framework (DQAF) is available at: http://www.imf.org/external/np/sta/dsbb/2003/eng/dqaf.htm. See also Reports on the Observance of Standards and Codes (ROSCs) for over 100 countries based on the DQAF framework: http://www.imf.org/external/NP/rosc/rosc.aspx

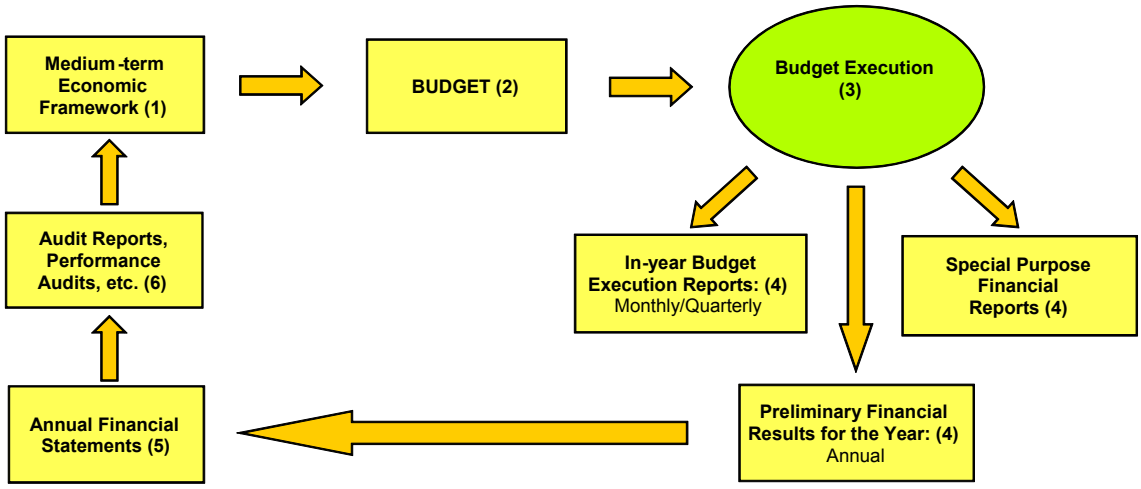
IV. SOURCE DATA

A. Data from Administrative Accounts

28. Typically, the most readily available form of source data for GFS compilation will be an accounting data source; that is, the documentation supporting each stage of the fiscal cycle.

29. As illustrated in Figure 2 below, a fiscal cycle typically begins with a medium-term economic framework (element 1) that sets the premises on which a government unit's budget (element 2) is prepared. As the budget is executed (element 3), transactions are recorded in a financial accounting system which generates reports (element 4), such as subannual budget execution reports, special purpose financial reports (e.g., project reports, performance reports, and management information), as well as the preliminary financial annual results. Following the end of the fiscal year, the final annual financial statements (element 5) are compiled and presented in an audited format (element 6) to the legislature and other oversight bodies. These results inform decisions of the next cycle (element 1) and take the form of budget execution reports.

Figure 2. Elements of a Typical Fiscal Cycle



30. Before using available accounting data, GFS compilers need to understand the properties of the datasets to assess its quality: For what purpose were the data originally collected, and how does this affect its applicability for GFS? How often are the data collected? When do the data become available? How were the data collected and have they been adjusted? Are there any known issues with insufficient coverage? How consistent are the data over time? Are there any restrictions on the use of the data, including confidentiality? Are the data in a data warehouse that can be accessed?

31. The development and management of the GFS compilers' relationships with the accounting unit is critical to producing quality statistics from accounting sources. The development of a strong relationship should foster the flow of information and conversation between the two units. For example, it will be beneficial if accountants inform the compilers of

any potential data issues when delivering each data set. Also, the compilers should be able to raise queries with the accountants, arising out of the data assurance process, and should expect a response to the query in a timely manner. The ability of the compiling unit to enforce data reporting requirements agreed to with the accounting unit is a very important element in any agreement.

Difference between GFS and Audited Administrative Accounts

32. GFS are designed to provide statistical data for macroeconomic analysis. Even though the principal source of the statistical data is administrative accounts, GFS are not designed to provide a set of financial statements for auditing purposes. There is considerable consistency between accounting and statistical standards for the public sector, but there are differences that should be reconciled and explained to users along with the dissemination of GFS.[10]

33. The administrative and accounting records, as well as reports that are produced during the course of the fiscal cycle, are the main inputs to compile GFS. For instance, budget data (element 2) provide input for preliminary annual estimates of a given level of government. Monthly and quarterly reports provide inputs for subannual GFS, whereas the preliminary financial results can be used to revise preliminary annual GFS results for the year (element 4). The audit reports (element 6) generally provide the most reliable and final source for GFS data, but are available with some delay.

34. Statistical techniques such as sampling and estimation may be used by GFS compilers, even though such techniques would not be used in producing a set of administrative accounts for audit. Similarly, quarterly GFS are generally subject to several cycles of revision, while administrative accounts are typically finalized once the audit process is complete. Staff may require the development of new skills in understanding and applying statistical methodologies for GFS.

Importance of Classification

35. To produce timely quarterly GFS, data based on accounting classifications must be transformed into the GFS classifications. There are two broad approaches to achieve this. The first is to build the classification required to compile GFS into the accounting codes used by all government units. This approach is preferred, as the adoption of a single, common classification will greatly simplify the compilation task and facilitate the production of timely statistics. Having a common classification of transactions, for example, will enable the compilers to use data from a variety of data sources, and to analyze these data in a timely manner. The second approach is to produce a correspondence (or "bridge table") that maps the various accounting codes used by units across the government sector to the classification used in GFS compilation.

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[10] For a more thorough explanation of the relationships between accounting standards and GFS, see IPSASB Consultation Paper "IPSASs and Government Finance Statistics Reporting Guidelines." Available via the Internet: http://www.ifac.org/PublicSector.

To the extent that the COA has codes that cover two or more GFS items, this will be less accurate than the first approach.

B. Data from Other Macroeconomic Statistics

36. Macroeconomic statistics are aimed at one broad purpose—to serve decision makers—and this purpose can best be accomplished if the statistics are, as far as practicable, mutually consistent. With the publication of the *System of National Accounts 1993 (1993 SNA)*, most recently updated by the *System of National Accounts 2008 (2008 SNA)*, the national accounts became the overarching conceptual framework for all macroeconomic statistics. Although the specific needs of the specialized systems precluded full integration across systems, linkages between GFS and the other systems (explained below) reflect the many common features, promoting understanding and facilitating reconciliation to a large extent. GFS compilers and those of other macroeconomic statistics should cooperate actively to ensure that the main aspects of the systems (concepts, institutional coverage, time of recording, valuation, and accounting rules) are dealt with in a consistent manner.

National Accounts

37. GFS are a key input into the national accounts, and the *GFSM* is closely aligned with the *2008 SNA*. Many countries produce quarterly national accounts (which incorporate limited quarterly data on the general government), but do not produce quarterly general government statistics. In the process of setting up a quarterly GFS system, it would be beneficial for compilers of the two statistical outputs to work together, sharing information, and aiming to present a coherent picture of the economy. With minor exceptions,[11] the stocks and flows of the GFS system are defined and valued in the same way, and are recorded with the same timing (as long as accrual accounting is a basis for GFS) as they are in the national accounts system. Furthermore, the classifications used in both systems are, to a large extent, bridgeable. This *Guide* should, in turn, be used to guide and improve the quarterly national accounts.

Monetary and Financial Statistics (MFS)

38. Linkages between GFS and MFS originate from the fact that governments have substantial transactions through and holdings in accounts held at financial corporations, particularly central banks and other deposit-taking financial corporations. In addition, these financial corporations often invest their surplus resources in debt instruments issued by governments, such as debt securities, or governments borrow from the financial sectors to fund their net borrowing requirements. These relations will result in either a net claim of government on the financial corporations, or a net claim of these corporations on government. The net asset/liability position between the general/central government sector and the financial corporations sector should be consistent, or reconcilable.

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[11] Outlined in Appendix 3 of the *GFSM 2001.*

39. In countries where governments fund their operations mainly through resident depository corporations,[12] quarterly data from MFS would provide a good source for GFS data on financial assets and liabilities. In such countries, GFS data are comparable with the "Claims on central government" and "Liabilities to central government" lines of the Central Bank Survey and the Other Depository Corporations Survey. This approach would not work if the government finances itself substantially through residents other than depository corporations or nonresidents.

Balance of Payments/International Investment Position (BOP/IIP)

40. The relationships between nonresidents and general government units included in external sector statistics represent the impact of government operations on the external position of the economy. The structure of the external sector statistical framework is similar to the structure used in the GFS framework, and comprises (i) the IIP, which shows the value of the financial asset and liability stock positions between the residents of an economy and nonresidents at a reporting date; (ii) the balance of payments, which summarizes economic transactions between residents and nonresidents during a specific time period; and (iii) the other changes in financial assets and liabilities, which shows flows due to economic events other than transactions between residents and nonresidents, and include valuation changes. The change in stock positions of the IIP is explained by the sum of transactions and other changes in financial assets and liabilities.

41. Balance of payments/International investment position (BOP/IIP) statistics explicitly identify general government in "current transfers," "capital transfers," and flows and stocks in financial assets and liabilities. To the extent that quarterly BOP/IIP data are compiled using sources other than the government, this information can be used as an input to the quarterly GFS compilation system. Given the high degree of consistency between the instrument classification of the BOP/IIP and GFS classification of financial flows and stocks, the GFS compilation system can appropriate this information almost directly.[13] The use of information on current and capital transfers will depend on the level of detail in the BOP categories. In the *Balance of Payments and International Investment Position Manual, Sixth Edition* (*BPM6*), the supplementary items include taxes, social contributions, social benefits, current international transfers, miscellaneous current transfers, debt forgiveness, and other capital transfers, which are defined consistently with the *GFSM 2001*. GFS compilers should liaise with BOP/IIP compilers to check that data are consistent.

[12] Depository corporations include deposit-takers and other financial institutions, such as money market funds, that issue liabilities included in broad money.

[13] However, it is important to be aware that the balance of payments clusters financial instruments into functional categories, including direct and portfolio investment.

External Debt Statistics (EDS)

42. In most countries, estimates of the stock of external debt are compiled on a quarterly basis. These data could also be used as a source for compilation of quarterly general government liabilities to nonresidents. The definitions and criteria used for time of recording, the concept of residence, and exchange rate conversion, along with classification by institutional sectors and financial instruments, conform to the principles set out in the *GFSM 2001*. Accordingly, EDS should be consistent with foreign liabilities in GFS, but compilers should note that equity and investment fund shares, and financial derivatives and employee stock options are excluded from external debt. While many government debt statisticians claim not to have resident/nonresident splits, external debt compilers need to make such estimates, so they may do so using other sources such as models or surveys of dealers.

43. The World Bank/IMF Quarterly External Debt Statistics database provides detailed external debt data published by countries that subscribe to the IMF's SDDS, and similar data for GDDS countries that are in a position to produce the external debt data prescribed by the SDDS. This database is updated in the middle, and at the end, of the fourth month after the end of the reference quarter, and so countries should reference the original data source to fulfill quarterly GFS timeliness requirements.

C. Data from Other Administrative Datasets

Registers of External Loans

44. Some compilers use registers of external loans to obtain data on loans received or extended by the government sector. These data, often collected for exchange control purposes, allow monitoring of both loans to/from nonresidents and, in some cases, nonmarketable securities issued to nonresidents. If the exchange controls are abolished, the administrative documents and arrangements created for that purpose might be adaptable for statistical purposes.

Security-by-Security Data Collection Systems (SBS)

45. Security-by-security data collection systems (SBS) typically collect detailed information on individual securities (often identified by the International Securities Identification Number – ISIN code) relevant for the statistical purposes of the country, including securities issued by resident units; securities likely to be held and transacted in by residents; and securities denominated in domestic currency, whoever the issuer is and wherever they are held.[14]

[14] In Europe the centralised securities database (CSDB) developed at the European Central Bank is used for this purpose (see www.ecb.int/pub/pdf/other/centralisedsecuritiesdatabase201002en.pdf). The CSDB is a security-by-security database that maintains information on the attributes of each security and uses the ISIN code to identify each security. This database allows the compiler to classify the securities reported on an individual basis with the ISIN code by residency of the issuer, institutional sector of the issuer, instrument, and other attributes.

46. To the extent that such systems collect and disseminate quarterly data, and include the sector classification of the issuer/holder as an attribute of the securities, this information can be used directly for the quarterly GFS flows and stocks on the instrument "Debt Securities,"[15] often the main financing instrument of governments. The BIS, ECB, and IMF *Handbook on Securities Statistics*[16] includes standard presentations of securities data that identify general government. Therefore, compilers of GFS are encouraged to liaise with those compilers responsible for compiling securities data to understand what data on general government may be available from this source.

D. Data from Surveys[17]

47. Compilers of annual GFS in most countries work exclusively with administrative data, and are not familiar with statistical techniques such as sampling and estimation, which may be needed to compile quarterly GFS covering the general government sector. An adequate legal and institutional environment is critical to obtaining adequate response rates and, therefore, a successful survey outcome. This environment should grant the GFS compiling agency the necessary authority to conduct the survey. There are four main steps involved in running a survey as shown in Figure 3: establish a population frame; determine the sample size and allocation; establish procedures and conduct the survey; and review the sample periodically and rotate units selected in the sample. Appendix 1 presents an introductory guide to sample surveys.

48. Step 1 – Establishing the population frame: To conduct a sample survey, a frame population is required from which to derive the sample and provide the weighting structure. The frame population is the set of units from which the sample is taken. The metadata on institutional coverage of the annual GFS dataset[18] should be utilized to provide the frame population.

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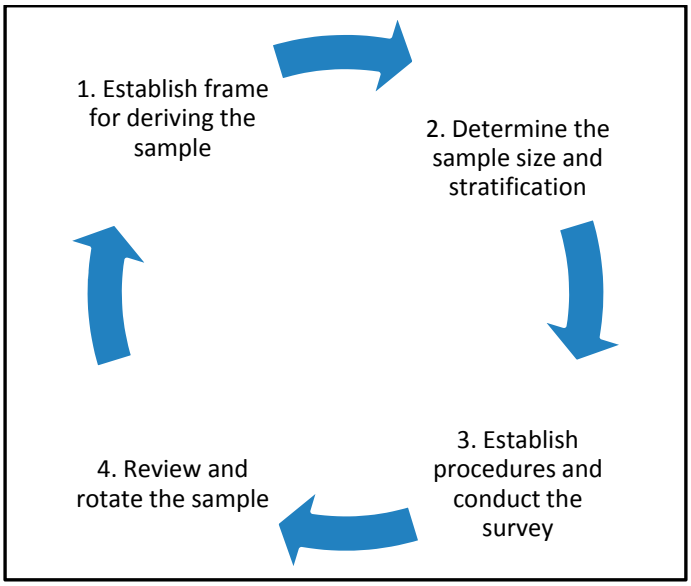
[15] "Securities other than shares" in *GFSM 2001*.

[16] See http://www.imf.org/external/np/sta/wgsd/hbook.htm

[17] Some references on sampling methodologies are William Cochran *Sampling Techniques* by (Wiley) a classic on sampling theory. Eurostat *Handbook on Design and Implementation of Business Surveys* (1997 edition) for practical survey guidance, and Australian Bureau of Statistics *An Introduction to Sample Surveys: A User's Guide, 1999* (Australian Bureau of Statistics Catalogue No.1299.0) for an overview of the survey process. If GFS compilers are not experienced at running surveys, they may find it useful to engage with the National Statistical Office, or universities and research agencies, where such experience can usually be found.

[18] See Dziobek et al. *The IMF's Government Finance Statistics Yearbook – Maps of Government for 74 Countries* IMF Working Paper 11/127. (http://www.imf.org/external/pubs/ft/wp/2011/wp11127.pdf).

Figure 3. Four Steps to Conduct a Survey



49. Step 2 – Determine sample size and stratification: The sample size will be determined by the combination of accuracy factors (e.g., the desired precision, the confidence level, and the degree of variability of the population) and resources to undertake the survey. The sample should be stratified to ensure representativeness of the population. Depending on national factors, it may be stratified by region, size, economic development or other criteria. Each unit selected in the sample will be given a weight dependent on the degree to which the sampled unit represents others in the population.[19]

50. Step 3 – Establish procedures and conduct the survey: A survey form designed to capture the necessary data must be developed, and this form may be collected on paper or, preferably, electronically. The forms need to be dispatched to sample units with a requirement to complete and return them within a prescribed period. Follow-up activities will be needed to ensure the targeted response rate is achieved.

- In the initial stages, compilers should provide assistance to the data reporters to complete forms through workshops, visits, phone calls, or explanatory notes as possible options.

[19] To satisfy the data requirements for quarterly GFS in Australia, the Australian Bureau of Statistics conducts a quarterly survey of about 80 local government units out of a population of 556 units. In Brazil, where the large municipalities are obliged to report more frequently than smaller municipalities, the Brazilian Treasury is collaborating with a local university to develop models for estimating missing local government data, using a number of parameters including population, geographic location and socio-economic characteristics. In Portugal, a survey of about 700 smaller local government units, from a population of 4260, is conducted by the National Institute of Statistics.

- A form should be designed after consultation with some data providers about what is feasible, and at least one pilot test by stratum should be conducted.

51. Step 4 – Review population and rotate the sample: The population must be reviewed and a new sample selected on a regular basis. This is to both ensure that the selected sample is contemporary, and that the respondent burden is spread among the units in the population.

E. Imputing Missing Data[20]

52. With the compilation of any quarterly statistics, there will be cases where data for a unit, or set of units, are missing for a particular quarter. It may be the case that data for only one or two months in the quarter are available for a particular unit. In these situations, the missing data will have to be imputed by the GFS compilers. Imputation involves the substitution of a missing data point for a value. This section discusses some of the imputation methods which may be employed. Imputation methods rely on the assumption that the unknown part can be derived from a known part of an indicator. This assumption will not hold when there are significant shocks to the economy, such as crises or natural disasters. The compiler should choose which of the following four alternatives gives the most realistic measure, as relevant. Generally, the missing items should be a small and less volatile proportion of the total; if not, additional data collection would be justified to fill the gap(s).

Different Period, Same Unit

53. One of the most common imputation methods is to derive the missing unit from data reported by that unit in a previous period. Given the typical seasonal patterns to economic behavior, the most common period to use is the corresponding period of the previous year. However, quarterly data will have to be collected for several years before seasonal patterns become apparent in the data.

Same Period, Different Unit

54. Another common method is to use the movement of stocks and flows of a similar unit in the same period to impute data for the missing unit. The 'donor' unit must be representative of the missing unit. Generally, in choosing the donor unit, the compiler will look for similar attributes, such as a unit from the same geographic or socio-economic region, of a similar size, and engaged in similar activities.

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[20] For an overview of imputation methods, see Denk, Michaela and Weber, Michael *Avoid Filling Swiss Cheese with Whipped Cream: Imputation Techniques and Evaluation Procedures for Cross-Country Time Series* IMF Working Paper 11/151. (http://www.imf.org/external/pubs/ft/wp/2011/wp11151.pdf).

Use of Proxy Measures

55. In some cases, a related indicator may be used to impute a missing observation. For example (see Figure 4), if the change in wages and salaries expense is unknown but the number of employees is available, the change in the number of employees may be used to impute the wage and salaries expenses, combined with a measure of wage rates. Alternatively, if local government units relied overwhelmingly on the central government for their funding, data on grants paid by central government to these units could be used to impute local government revenues. If available, budget documents can also be used to obtain primary source data, or as a cross-check that the imputed data are plausible.

Figure 4. Example of Estimating a Missing Observation

	Period 1	Period 2
Wage and salary expense	$2,500,000	Missing Observation
Number of wage and salaries earners	1000	1020
Wage Index	100	101

With only data on the number of wage and salary earners: Missing observation in Period 2 = $2,500,000 x (1020/1000) = $2,550,000

With data on both the number of earners and on wage prices: Missing observation in Period 2 = $2,500,000 x (1020/1000) x (101/100) = $2,575,500

Trending Forward (Extrapolation)

56. There may be cases where data for a particular unit, or set of units, are not available on a quarterly basis. In these cases, it will be necessary to develop an extrapolation methodology to automatically move the data forward from the most recent annual data. The most basic extrapolation is simply to use historical annual changes. For example, if the average annual change for a particular data item was +10 percent, then the extrapolation methodology would call for a 2.4 percent increase to be applied each quarter, that is, $(1.10)^{0.25} = 1.024$.

V. ASSURING DATA QUALITY

57. Once the data have been received and brought into the compilation system, they must be subject to quality testing. Quality assurance verifies whether data are fit for their intended purpose in analysis and decision making, and whether they correctly reflect reality. This is undertaken through the data editing process (also called "data validation"). The quality assurance procedures should take account of the needs of timeliness for quarterly statistics. Some of the quality assurance procedures are similar to those followed for annual data: the above-the-line (i.e., revenue and expenditure) statistics should be consistent with below-the-line (financing of deficits or investment of surpluses) statistics; there should be no apparent breaks in the series; and the scale of the ratios (e.g., revenue to GDP, expense to GDP) should make analytical sense. Annual statistics can also be used as benchmarks, but due care should be taken of seasonality.

58. After the quality assurance procedures have been completed, and consistent with the publication schedule, the statistics are released publicly, such as on the agency website or in a statistical bulletin, and reported to international statistical agencies. The statistical bulletin should provide guidance to the users by identifying the differences with the annual release on data coverage and institutional coverage, as well as exploring the effect of seasonality on the data, and the relation to the annual benchmarks.

59. The quarterly statistics should be revised as new quarterly and annual data become available. Every year, quarterly statistics should be revised to incorporate annual benchmark data and to avoid breaks in the series. The United Nations Economic Commission for Europe (UNECE) website lists references on statistical data assurance techniques, which may provide a useful resource for compilers of quarterly GFS.[21]

60. The quality can be assured by three main procedures: editing (that can be broken into input and output editing); consolidation; and an analysis of key fiscal variables and the internal consistency of the GFS system.

A. Input Editing

61. Input edits are generally checks of the integrity and comprehensiveness on the source data. These checks typically can be automated. Examples of input edits are:

- Minimum level of coding— a basic edit to ensure that the data upload to the GFS compilation system is complete and meets the level of classification required to compile the full dissemination template. The aim of this edit is to ensure the completeness of the source data set received.

- Integrity of coding— checks for improper classifications and signage, which can then be corrected. For example, an aggregate, such as revenue, should not have a negative sign.

B. Output Editing

62. Output edits verify the compiled GFS data before publication. While automation of these checks is possible, they primarily require analysis and judgment by the compilers. Examples of output edits are:

- A "basic output edit" should be conducted before further analysis takes place, to ensure the aggregated data meet the minimum level of output requirements, such as the data set is complete following compilation.

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[21] UNECE's statistics page contains a wealth of references, see, for example, training materials on http://www.unece.org/stats/stats_h.html; see also a useful page on Statistics Canada's webpage on this subject: http://statcan.gc.ca/edu/power-pouvoir/ch3/editing-edition/5214781-eng.htm.

- A "flow edit" checks that transactions are reported consistently by the payer and recipient. This is essential to the GFS principle of horizontal double-entry bookkeeping, which ensures the consistency of recording for each transaction category by counterparties and, as a result, an increased consistency between macroeconomic datasets. It is also critical to the consolidation of GFS data, as prescribed in the *GFSM 2001* (see section C below). The correction of recording inconsistencies between counterparties is a resource and time consuming process in annual accounts so, to ensure timely dissemination, the correction of those inconsistencies in quarterly data may be automated based on assumptions about the quality of the different data sources.[22]

- A "stock flow consistency edit" assesses the degree to which changes between two consecutive balance sheets are explained by the identified transactions and other economic flows (holding gains and losses and other changes in the volume of assets and liabilities). On a quarterly basis, inconsistencies between stocks and flows should only be investigated if they are materially significant; if those inconsistencies are small, no additional investigation is needed (the stock flow inconsistency is considered a statistical discrepancy).

- A "time series edit" examines all time series aggregates for previous periods, and requires checking of, and explanations for, revisions. These revisions should be documented. This edit is designed to ensure that revisions are examined, verified, and explainable to users in a systematic manner.

- A "significance edit" analyzes the reasons for significant changes in the main GFS aggregates from one period to the other, and identifies the government units that contribute the most to those aggregates. Generally, a threshold for a significance edit will be set, both in terms of percentage change and absolute changes (e.g., +/- 5 percent and +/- $500m), with analysts required to check data changes that fall outside these thresholds.

- A "consistency edit" analyzes the GFS data for consistency with other data sources. For example, the GFS data can be checked against budget execution data, media articles, or trends in government operations, labor market data, etc. Consistency edits should also cover the correspondence between variables of different macroeconomic datasets (section IV.B discusses linkages between macroeconomic statistics). Consistency between the major GFS transactions and balances, and their financing, should also be verified.

[22] For example: budgetary central government data are normally more reliable than those of other government subsectors; data from donor governments on transfers in kind is generally more reliable than those of recipient governments; government sector interactions with the household sector often use government accounting data as a benchmark, because these tend to be more exhaustive than household surveys.

63. As the compilation of quarterly statistics necessarily constrains the time available for the quality assurance of data, compilers need to be pragmatic and targeted in their editing practices. The automation of edits and the use of significance edits will help compilers focus on what is critical, and assist in producing quarterly data on a timely schedule.

C. Consolidation

64. Consolidation is the process of presenting data for a set of units, or entities, as if they constitute a single unit. It involves eliminating transactions and reciprocal stock positions among units to be consolidated to avoid double counting.

65. To appropriately undertake the process of consolidation, it is necessary that the units whose transactions and positions are being consolidated are classified in the same way, with the same amounts and time of recording. The flow edits, described above as part of the editing process, should ensure that this is the case. Since consolidation is a symmetrical process— both parties eliminate the same reciprocal transactions and stock positions in their accounts— balancing items (gross/net operating balance, net lending/borrowing, net worth, or net financial worth) are not affected. A useful verification of the consolidation process is that balancing items remain unchanged, that is, the sum of the balancing items of individual subsectors of general government is equal to the balancing item of the consolidated general government.

66. Employing a set of rules of thumb, to be followed if there are discrepancies in data reported for the same transactions or stocks, will also assist in producing timely data. For example, reported transfers paid from central government to state government may not be equal to the reported transfers received by state governments from central government. In this scenario, a rule of thumb should force the transfers on both sides to be equal to the amount reported by the payer of the transfer. If such discrepancies are large or remain consistently biased, further investigation outside the editing process should be pursued, and metadata should be made available to users informing them of this practice.

67. Typically, these types of rules would ensure symmetry by giving precedence to the data reported by either the payer/creditor, or by a ‘top-down’ approach (i.e., forcing the data to conform to the information reported by the higher level jurisdiction). The rules are based on assumptions, or knowledge, as to which units have more precise recording of transactions, or more capacity to do so.

68. While complete consolidation is recommended, compilers should take a pragmatic approach to consolidation in the quarterly GFS. The focus should be on transactions and stock positions that have a significant effect on the final aggregates. In most cases, priority should be given to ensuring symmetry of reporting in three types of transactions among government units: transfers, transactions in financial assets and liabilities, and interest income and expense. Similarly, there are two priority areas for stock positions among government units: loans and debt securities.

D. Key Fiscal Balances

69. GFS provide for the measurement of both flows and stock positions in the general government sector. While much attention falls on the transactions measures as presented by the operation statement (given the implications for the level of government activity in the economy), measures of stocks are vital for the analysis of economic stress and sustainability in the government sector. The methodology for compiling the core fiscal balances, and other analytical fiscal measures, are provided in the *GFSM 2001* and its forthcoming update.

70. GFS are an integrated set of accounts, with a clear relationship between the stock and flow accounts, which must be maintained if the data set is to be consistent and accurate. An important analytical check of GFS is the alignment between the reported stock positions and flows (i.e., opening balance + transactions + other economic flows = closing balance).

71. The verification of net lending (+)/net borrowing (-) can be performed by assessing the consistency between the results of different approaches to calculate that indicator. It can be derived in three ways (see example in Table 4 below): from the nonfinancial accounts, financial accounts, and through a derivation process, i.e., as a series of adjustments applied to the definition of fiscal balance most commonly used in the country, normally corresponding to the traditional budget deficit or a public accounting balance.[23]

[23] Fiscal balances used in countries' policy discussions may often be incomplete because they exclude off-budget operations. They also need to be corrected for operations that impact them, but are considered as financial transactions in GFS, without impact on net lending (+)/net borrowing (-) (e.g., loans granted by government), or alternatively the reverse: for operations that did not impact the working balances but are considered as expenditure in GFS with impact on the net lending (+)/net borrowing (-) (e.g., many cases of capital injections).

Table 4. Three Ways to Derive the Net Lending (+)/Net Borrowing (-)

From the nonfinancial accounts		From the financial accounts	
1. Revenue	90,307	32. Net acquisition of financial assets	-6,993
2M. Expenditure	118,403	33. Net incurrence of liabilities	20,985
2. Expense	118,812	**NLB(2). Net Lending (+)/Net Borrowing (-) [32-33]**	**-27,978**
31. Net acquisition of nonfinancial assets	-409		
NLB (1). Net Lending (+)/Net Borrowing (-) [1-2M]	**-28,096**	**Statistical discrepancy #1 [NLB(1)-NLB(2)]**	**-118**

From a reconciliation with the national definition of fiscal balance

A. National fiscal balance	-37,197
B. Adjustments to the national fiscal balance to ensure compliance with GFSM	9,423
B.1 Adjustments to transactional coverage	7,121
B.1.a Financial transactions included in the national fiscal balance, to be excluded	6,915
B.1.b Nonfinancial transactions not included in the national fiscal balance, to be included	206
B.2 Adjustments to time recording	-75
B.2.a Other accounts receivable	-313
B.2.b Other accounts payable	238
B.3 Adjustments to institutional coverage	2,284
B.3.a Public corporations that should be reclassified in general government	2,284
B.4 Other adjustments	93
NLB(3). Net Lending (+)/Net Borrowing (-) [A+B]	**-27,774**
Statistical discrepancy #2 [NLB (1)-NLB (3)]	**-322**

VI. Communication with the Public and Revisions Policy

72. As with all official statistics, effective communication with users of the data, especially with professionals from within government, academe, and the press, will be key to ensure that the statistics are being used. In this regard, the SDDS provides guidelines on good practices for the appropriate dissemination of statistics. The main aim should be to disseminate comprehensive, timely, and reliable information on key economic sectors with a view to promoting transparency and openness around the compilation and dissemination of data.

73. Key elements are the provision of an Advance Release Calendar, advising the dates of data release well in advance, and providing equal access for all data users upon release.[24] Regular contact with data users, for example, with policy analysts in the ministry of finance or with IMF economists using these data in their annual Article IV consultation missions is also a good practice.

[24] See http://dsbb.imf.org.

A. Revisions Policy

74. Quarterly statistics are, by nature, subject to a tradeoff between accuracy and timeliness: this tension will inevitably lead to revisions in published series. As with all macroeconomic statistics, revisions cannot be avoided, but should be studied and explained to users. Revisions should follow a regular and transparent schedule, and users should be informed in advance of this practice. The revision cycle should be predetermined and reasonably stable from year to year. The reasons underlying the revision cycle (e.g., the availability of source data, the timing of revisions with related data sets) should be explained, and compilers need to inform the public when the revisions are outside the regular cycle (e.g., by the availability of new source data or correction of errors).

75. The revisions should be measured, assessed, and explained in the GFS publication and in the database accessible by users. The analysis of differences between the revised and preliminary data should be published for major aggregates to allow an assessment of the reliability of the preliminary data. Regular revisions studies should be conducted. These can be a powerful tool in analyzing the quality of data, in particular, when used to verify that there is no bias in the error, that is, that revisions are random in nature. If revisions are consistent in direction, the methodology should be reviewed to eliminate the bias.

76. Data revision is a continuous process. Although practices may differ across countries, in many cases these data are revised when data for the following quarter become available—for example quarter 1 (Q1) data are revised when Q2 data are released. When annual results are available, data for all quarters in the year (and perhaps for one or more earlier years) are subsequently revised. Historical revisions to prior years are encouraged when substantial revisions to coverage and/or methodology take place. Quarterly data are typically subject to greater revisions than annual data, which calls for special efforts to educate users about the nature of revisions.[25]

Benchmarking to Annual Data

77. Benchmarking is a method in which higher frequency data (e.g., quarterly data) for a certain variable— typically compiled from preliminary source data and/or estimation techniques— are adjusted to match the less frequent, but more accurate, data (e.g., annual data) of the same variable. In other words, the preliminary quarterly data are brought in line with the subsequent, more accurate annual data. When the quarterly and annual data have different sources, or apply different methods, benchmarking is necessary to resolve the data inconsistencies. This allows quarterly data series for a particular year to be reconciled with the annual data when they become available, so that over time, quarterly data series are consistent with the annual audited government accounts. Revisions to the quarterly series will be a natural

[25] See Carson et al. Revisions Policy of Official Statistics: A Matter of Governance. IMF Working Paper 04/87. (http://www.imf.org/external/pubs/cat/longres.aspx?sk=17379.0).

and expected outcome of the benchmarking process. The *Quarterly National Accounts Manual*[26] contains an extensive discussion on appropriate benchmarking methodologies.

VII. FREQUENTLY ASKED QUESTIONS (FAQS)

FAQ # 1: What is the main benefit of compiling quarterly GFS?

The main benefit of compiling quarterly GFS is to provide more timely information for surveillance, and analysis of the financial operations, financial positions, and liquidity situation of the general government sector. The lack of timely information hinders the ability of policy-makers and market participants to develop effective responses. The recent financial crisis highlighted major data gaps with respect to the availability and timeliness of comprehensive quarterly fiscal data. To the extent that data on stock positions are available, the compilation of quarterly GFS also allows for a better monitoring of government debt, a policy concern that has gained prominence recently.

FAQ # 2: We are going to launch an annual survey to collect GFS data. Could we also ask for quarterly data in our annual survey to be used for the compilation of the quarterly GFS?

We encourage the implementation of quarterly surveys (rather than the collection of data for all units, as is normal on an annual compilation) to ensure the availability of timely quarterly data covering the general government. To minimize reporting burden and overall cost, a quarterly survey could be directed to a smaller number of units in the state and local government subsectors, and could use a questionnaire with less detail than an annual survey. Extrapolation ("grossing up") techniques, or models based on the available reported data, could be used to estimate data for the units not reporting in a quarterly survey.

FAQ # 3: We have quarterly GFS data but with less detail than the minimum amount of requested information. Should we start reporting partial quarterly GFS or should we wait until we achieve the minimum amount of requested detail?

As a first step, GFS compilers should disseminate whatever data are available. If these do not cover the priority variables of quarterly GFS (see Table 1), we encourage estimating the missing components so as to obtain the minimum amount of detail requested for the IMF publications. To achieve this, various approaches could be considered, such as developing quarterly surveys, or deriving quarterly data using available indicators of variability of government operations. Quarterly GFS stock positions can be derived from the last available positions and subsequent quarterly transactions (based on actual data or estimates), and taking into account other changes in volume and any revaluations.

[26] See http://www.imf.org/external/pubs/ft/qna/2000/textbook/.

FAQ # 4: One of the strengths of our GFS compilation system is that it is based only on audited data. How can we move to a quarterly compilation system if the audits to government accounts are only done on an annual basis?

There is a trade-off between accuracy and analytical usefulness of GFS data: audited sources of information allow the compilation of accurate GFS, but these become available with a significant time lag, thereby limiting their use by policymakers and other users. International experience shows that differences between audited and unaudited data are becoming smaller over time and, therefore, the latter would be sufficiently accurate for quarterly GFS compilation. We encourage GFS compilers to engage in open communication with users of data. Regarding the dissemination of quarterly GFS, this normally entails labeling data as "preliminary," and establishing and publishing a revisions policy.

FAQ # 5: If source data are available only on a semi-annual basis, how should an estimate be derived for the quarter for which the data are not available?

The GFS data for the quarter for which data are not available can be derived based on alternative data sources (data from other macroeconomic datasets, or other administrative data), and/or through the use of the statistical techniques presented in this *Guide*. Ideally, derived estimates will be revised when new semi-annual data are available.

FAQ # 6: Are the revision policies of annual and quarterly data interrelated?

The objective of the revision policies is to disseminate data of better quality, on a standard, clear schedule. Quarterly data can be revised due to the increase in the number of reporting entities, or as a result of quality checks performed after the data have been disseminated. A typical example of the latter is the benchmarking of quarterly data to annual data as they become available. We encourage compilers to develop integrated revision policies that explain clearly how more frequent data can be revised as a result of publication of lower frequency data.

FAQ # 7: We already publish quarterly data for the central government. Why should we expand the coverage to general government?

For macroeconomic analysis, the coverage of government should be comprehensive in order to capture the impact of the government on the economy. The general government's responsibilities, or activities, can be executed by the budgetary central government, state governments, and local governments, including any social security and extrabudgetary units related to any level of government. Some government responsibilities are concentrated at the budgetary central government, and other responsibilities are devolved or decentralized to lower level governments (state or local).

For example, a government may decentralize to local governments the execution of expenditures (this often occurs through transfers of resources for the local governments to spend in their activities), while maintaining a centralized execution of tax policy or incurrence of liabilities. In such cases, data for the central government would provide the correct information for analyzing tax revenue, or flows and stocks in government debt, but it would provide incomplete or

misleading information on the composition of expenditure: transfers/grants would predominate instead of the economic categories where government resources were actually spent (compensation of employees, use of goods and services, social benefits, etc.).

FAQ # 8: Our local government subsector is composed by more than 10,000 units. How can we compile quarterly general government data if we do not have the resources to collect or handle information of so many units on a quarterly basis?

We encourage the use of surveys and statistical techniques (see section IV.D and Appendix I) to compile quarterly data for state and local governments where these subsectors are composed by a significant number of small units. Those surveys should be addressed to a sample, to the extent possible, stratified using an indicator—for example, population, central government transfers—of the relative importance of those units in the subsector. The use of the output editing techniques described in section V should ensure that data are fit for their intended purpose in analysis and decision making, and correctly reflect the real world.

FAQ # 9: There is no legal framework for the transmission of quarterly data by local government units to the GFS compilation unit. How can we overcome this difficulty?

Best practices in public financial management include the establishment of frequent and timely reporting of fiscal data for every unit that uses public resources, on a mandatory basis. Such frameworks normally include a credible set of sanctions for nonreporting units, including the power to withhold budgetary transfers or funding to units that fail to report in time. Statistical offices almost always have legislation to allow data collection from legal entities, often including provisions regarding statistical confidentiality. GFS compilation units in other agencies, such as the ministry of finance, should always seek the approval of similar legal requirements. In its absence, political buy-in from senior officials in the ministry of finance should be secured to undertake an active dialogue with, and collect quarterly data from, the most relevant units in the local government subsector. To ensure a complete view of the subsector, those data can be complemented with other administrative data, or macroeconomic statistics, that are available on a quarterly basis. For example, data from other depository corporations on their lending to local authorities, and also with estimations using the techniques presented in this *Guide*.

Appendix I. A Simple Guide to Sample Surveys

Government Finance Statistics (GFS) are typically based on comprehensive accounting data. However, for timely quarterly data, especially for local governments, the statistical techniques used in data collection for the private sector may need to be adopted because adequate data are not available on a timely basis. Improved accounting systems should produce the required data but this may take time and, in the meantime, use of statistical techniques can be an effective short-term solution. Some of these techniques include questionnaire design, dispatch, monitoring systems, and liaison skills (e.g., contacting respondents, motivating them, assisting them to complete forms, following up on nonresponse, determination of adequate response rates). It may also be necessary to use estimation techniques.

Generally, sampling estimation techniques are less common for annual data or for central government, but may be needed for quarterly data where large numbers of entities are involved, most typically local governments. Sampling techniques illustrate a difference between an accounting perspective (where tracing all values is important) and macroeconomic statistics (where some flexibility in sources and methods is allowed in order to provide a timely and meaningful indicator). Even within economic statistics, while annual data are used for detailed structural relationships, quarterly data are oriented to time series and currentness. While sampling results in some imprecision, this can be quantified within ranges and monitored over time to identify bias. Sampling techniques are well-known, and accepted, in statistics to deal with populations with large numbers of units and limited time or resources to collect data.

There are two types of sampling: threshold and stratified. These are discussed below:

Threshold Sampling

With a threshold sampling technique, limited resources are applied to collect data only from the largest entities (e.g., the largest 50 local government authorities by revenue, based on historical annual data). The results can be extrapolated (grossed-up) to an estimate of the full population. The "gross-up factor" (ratio of total to the selected entities in the historical annual data) is used to multiply the results for the sampled entities to produce an estimate of the target population.

Stratified Sampling

It may be that threshold sampling is considered as not being representative. For example, if the large units cover just large cities, and large cities are growing at a different rate than small cities or rural areas, threshold sampling could produce biased results. In this case, a stratified sample may be considered. For example (see Figure 5), if we know from historical annual data that there are 1,760 local governments, but we only have resources to survey 80 of them; the population can be divided into strata, with a sample used to represent each stratum.

As in threshold sampling, "gross-up factors" are used to multiply the results for the sampled entities to produce an estimate of the target population. In this case, they are calculated as the ratio of the population of the stratum to number sampled (in alternative, the historical annual ratios can be used).

Figure 5. Example of Stratification

	Revenue	Population	Sample size	Gross-up factor
Stratum 1	>100 m	10	10	1
Stratum 2	50-100m	50	10	5
Stratum 3	10-50m	200	20	10
Stratum 4	1-10m	500	20	25
Stratum 5	< 1m	1000	20	50
Total		1760	80	

The following additional issues should be considered when designing a stratified sampling:

- Estimates would be improved by larger samples (e.g., a sample of 80 out of 1760 would give poor results if the entities were heterogeneous).

- Estimates would be improved by more detailed stratification (e.g., a geographical dimension could be added to the size dimension).

- Another improvement would be calculation of standard errors of the samples, that is, the amount of variability in the sample mean; this will indicate how closely the population mean is likely to be estimated by the sample mean.

- More sophisticated sampling techniques are available from statistical specialists and software packages. A sophisticated sample design would look at alternative stratifications to identify the sample that would give the lowest standard errors.

- The same "gross-up factors" technique can be used to account for nonresponse (or late response) by calculating the "gross-up factors" based on the ratio of the population of the stratum to the number of reporting entities in that stratum (rather than the number of sampled entities).

- In some countries, the smallest entities do not have sufficiently sophisticated systems to report quarterly data quickly in any case, so the sample may need to omit them and estimate them from the remainder that do report.

Appendix II. Experience in Selected Countries

Australia

GFS are produced by the Australian Bureau of Statistics on a quarterly basis and released within three months after the end of the reference period. The timing is at least partly determined by national accounts' requirements, as the GFS is a significant data input and a high level of coherence between GFS and national accounts datasets is sought.

The GFS are on an accrual accounting basis and are compiled based on the *GFSM 2001* standards. In scope, GFS cover the general government and public nonfinancial corporations sectors. Quarterly data are published for the Statement of Government Operations.

Data sources are as follows:

- Central government— Data for the central government are provided by the Australian Department of Finance and Deregulation, which compiles and analyses the data from all central government agencies before providing them to the Australian Bureau of Statistics.

- State governments— Data for state governments are provided by the relevant finance/treasury department in each state and territory.

- Local governments— Data for local governments are collected via a quarterly sample survey of about 15 percent of the 556 local government units.

- Public nonfinancial corporations— Around half of the state treasuries include data for public nonfinancial corporations in the quarterly datasets they provide to the Australian Bureau of Statistics. For the remaining states and the central government, the Bureau of Statistics directly surveys public nonfinancial corporations on a quarterly basis.

In all cases where data are collected via survey, the survey frame and weights are derived from the annual dataset which is a complete enumeration of the population. The Australian Bureau of Statistics maintained classification of transactions, which concords with *GFSM 2001* codes, has been adopted for use across the public sector in Australia. All data reported to the Bureau are based upon this classification, or are concorded to this classification by the Bureau.

A series of edit checks are performed on the data. These range from basic input edits to ensuring the quality of the input data through to significance edits of main movers. Queries are generally resolved through contact with the data providers. Prior to publication, each quarter a clearance meeting is held with national accounts staff. This meeting serves as a final quality check and discusses data issues, main (significant) movers, and revisions.

Quarterly data for the financial year are benchmarked to the annual national accounts data when they become available. Revisions due to the receipt of new or corrected data in previous financial years are generally not made from one quarter to another, but are rather introduced with the annual financial year release for national accounts purposes. The annual GFS are published around nine months after the end of the reference period.

Brazil

Background and Legal Framework

Brazil is a federal republic composed of a central government, 26 states, one federal district, and 5,564 local governments (municipalities). The states and municipalities are autonomous in terms of public administration and finance; each state has its own Constitution and each municipality has its own Organic Law.

The rules and procedures regarding fiscal data dissemination for the three levels of government were established by a Supplementary Law entitled "Fiscal Responsibility Law," enacted in the year 2000. The Fiscal Responsibility Law defined mechanisms for the public sector to release fiscal data in different periodicities: semi-annually, every four months, and on a bimonthly basis. The two most relevant reports are:

- Summary Budget Execution Report: released on a bimonthly basis by all the states, municipalities, and the central government;
- Budget Execution of States and Municipalities: released annually by all the states, municipalities, and the central government.

Compilation System as of April 2012

GFS revenue and expenditure ("above-the-line") data for central government are compiled by the Brazilian National Treasury on a monthly basis and released within one month of the reference period. Financing transactions ("below-the-line") data for central government are compiled by the Central Bank of Brazil based on information collected from the financial system. These data are compiled on cash accounting, based on the *GFSM 1986* standard, but they are subsequently converted into the *GFSM 2001* classifications.

General government below-the-line GFS data are also compiled by the Central Bank of Brazil on a monthly basis. Annual GFS for general government are compiled by the Brazilian National Treasury and the Central Bank of Brazil within one year of the reference period. The Treasury makes commitment-to-cash adjustments on the subnational data, which are originally collected on a commitment basis, in order to ensure consistency between above and below-the-line statistics. The first submission of general government data for the *GFS Yearbook* occurred in 2011, with series covering the period 2006-2010.

Quarterly Data Compilation

The compilation of quarterly above-the-line data for general government brought some challenges in terms of availability of data from states and municipalities. These relate to:

- Periodicity: data are not published on a quarterly basis; only semi-annually, every four months, and on a bimonthly basis;
- Coverage: There are missing units, especially among municipalities.

The Brazilian National Treasury started a project in collaboration with Fundação Getúlio Vargas (a private University) to develop statistical methods to address these issues. The methodology developed is based on extrapolation (estimation of missing units) and interpolation models.

The interpolation model to adjust the periodicity of subannual data uses reference indicators (and their respective seasonality), such as: national and regional economic activity, labor market data, tax incidence, etc. The technique is also used to perform extrapolation (estimation of missing units) using parameters such as: population, local GDP (or a proxy), geographic location, and available data for units with similar socio-economic characteristics.

In 2011, the Brazilian National Treasury and the Central Bank of Brazil conducted various seminars with technical staff of state and local governments, as well as staff from Courts of Accounts, in order to, among other things, present and discuss the developed methodology to disseminate GFS quarterly data. The comments received on the seminars are being evaluated and tested by the Treasury.

Another issue that needs to be addressed is the consistency between above- and below-the-line data. Since the below-the-line quarterly data are compiled by the Central Bank of Brazil, based on data collected from the financial system, the compiled above-the-line quarterly statistics should be released on a cash basis to ensure consistency. However, the subannual data used in the statistical model is collected on a commitment basis. The Brazilian National Treasury is studying the best way to make the necessary commitment-to-cash adjustment.

One alternative, in the short term, is to include additional information on commitment-to-cash treatments in the Summary Budget Execution Report. The Brazilian National Treasury is discussing, with staff from states and municipalities, how to address this issue. For the long term, the Treasury is working on a migration plan to the *GFSM 2001,* including new technological facilities described below.

Migration Plan to GFSM 2001

The Brazilian National Treasury initiated a project to improve the quality of GFS data by adopting the *GSFM 2001* standard, and introducing accrual, as well as cash, based accounting. The strategic plan also includes the enhancement of the source data, mainly through a broad-based public sector accounting reform based on the International Public Sector Accounting Standards (IPSAS). A multi-year strategy is being led by the Treasury with support from the IMF. The accounting reform in the public sector is ongoing, both at the federal and sub-national levels. The efforts are closely linked with the plans to strengthen macroeconomic fiscal data. The strategy, which is on track, is scheduled for completion by 2014 with major milestones expected each year.

As for the public sector accounting reform, in 2011, the translations of the IPSASs into Portuguese were submitted for public comments, and the new standard Chart of Accounts (COA) was harmonized up to its fifth level for public sector consolidation purposes. In 2012, the new COA applies to all general government units (central government, states, and municipalities) on an optional basis in 2012 and mandatory starting in 2013. In 2012, there will also be a

dissemination of the first 10 translated IPSASs. The collection of harmonized data from 2013 onward will have a positive impact on the improvement of GFS dissemination.

Finally, the Brazilian National Treasury is developing a new technological system to collect and process accounting data from states and municipalities, on a monthly basis. The system is based, among others, on Australian experience, and applies the new standard COA for the database architecture. The system is scheduled to become operational in 2014.

Canada

GFS are produced by Statistics Canada on a quarterly basis, and released approximately 90 days after the end of the reference period. Currently, Statistics Canada releases quarterly GFS data using Canadian System of National Accounts government sector data and a bridging model that maps these data to the GFS framework.

In scope, the GFS cover all general government (federal, provincial, territorial, and local), and the Canada pension plan and Quebec pension plans. These data are used as the benchmark for the quarterly estimates of the government sector in the Canadian System of National Accounts.

Data are obtained from a census of institutional units for all government levels in Canada and responding to this survey is mandatory. Data for the federal government (*GFSM 2001* central government), provincial and territorial (*GFSM 2001* state government), as well as for the Canada and the Quebec pension plans, are obtained entirely from administrative data sources for the benchmark years (public accounts). Supplementary information is used from surveys conducted by the Canadian Institute for Health Information, and by Statistics Canada's surveys of residential care facilities, school boards, colleges, and universities. For the non-benchmark years, the main sources of data for the federal, provincial, and territorial governments, and the Canada and Quebec Pension Plans are the budgets/estimates, and quarterly administrative files. For some provincial and territorial governments, quarterly administrative files are not available and estimates are made.

For local governments, the most recent data are obtained through a questionnaire as budget estimates and financial statements (obtained through the provincial/territorial departments of municipal affairs) are not available until two to three years after the reference year. Questionnaire content and wording are reviewed annually to reflect changes in the availability of information, and to incorporate additional dimensions to fulfill Statistics Canada needs.

Most of the data come from audited financial statements of governments; therefore, minimal error detection procedures are required. For survey data, which represent roughly one percent of the total value, several automated checks are performed on the data to verify internal consistency and identify extreme values. For nonresponse units, imputation is performed using historical information where historical information is available; otherwise, donor imputation is used. The donor imputation procedure involves using available auxiliary information to substitute the data from an entity with similar characteristics.

The coverage of the general government population is virtually complete. Imputation for nonresponse varies by public sector subcomponent, but for all components, the imputation rate is

less than two percent. Similarly, the overall impact of imputation on major financial variables is also less than two percent.

Estimates are derived from the compilation of data obtained from the data sources for each institutional unit in the population of interest. The practice is to first obtain the published financial information, and then to approach individual governments and solicit the additional detail required to accurately apply the classification.

Once published, financial information is obtained and combined with supplementary information. There are many transactions required to transform these raw data into CSNA and GFS estimates. Strict quality control is maintained on all of these transactions, such as historical continuity, data validation, and data confrontation.

Compilation System Improvements

Statistics Canada is in the process of changing its GFS compilation practices to enable derivation of detailed GFS-based statistics directly from government financial information. In May 2014, Statistics Canada will begin publishing public sector statistics based on the *GFSM 2001*, replacing the current process of mapping Canadian System of National Accounts data, as described above. Government data contained in the Canadian System of National Accounts will then be consistent with GFS concepts.

Georgia

Georgia decided to perform a GFS reform within the framework of the Public Expenditure Management reform. The main objectives of the GFS reform were: simplification of the GFS compilation process; improvement of data quality; increase of data frequency; alignment with international standards; and the reduction of time and material resources for the compilation of statistics.

One of the main aspects of the GFS reform was the revision of the national budget classifications, based on the *GFSM 2001* classifications. The higher levels of the classification concord fully with the *GFSM 2001* codes, but additional levels were introduced for country specific needs and additional data breakdown. The classification was approved by the Minister of Finance and its use is mandatory for all levels of government.

The migration to the new classification was successfully implemented: the central government adopted the new classification in 2008 and the local governments in 2009, after special training sessions provided by the Ministry of Finance.

The central and local governments use the *GFSM 2001* classifications for the projection, execution, and reporting of their budgets. Furthermore, all levels of government use the *GFSM 2001* methodology for the recording and accounting of all transactions on a cash basis. The task of the GFS compilers is therefore limited to the consolidation of intergovernmental grants and other payments, which reduced considerably the time and resources used in the compilation of statistics.

Another aspect of the GFS reform was the increased frequency in the compilation of general government data. According to the Georgian budgetary procedures, which are legally binding, all government units of central and local levels should produce and send to the parliament: (i) quarterly ("intermediate") budget execution reports, within one month after the end of the quarter; and (ii) an annual report, within three months after the end of the accounting period. These publicly available reports constitute the source data for quarterly and annual GFS data covering the general government. Georgia publishes the quarterly GFS data for the general government within SDDS framework following the advance release calendar.

For the effective management of public spending, government units prepare also monthly budget execution reports on a cash basis. The Ministry of Finance uses these reports for the compilation of a statement of sources and uses of cash for the general government, on a monthly basis. These data are reported to the IMF's Statistics Department for publication in the *International Finance Statistics*. Since monthly reporting by government units is not mandatory, the quality of monthly GFS is not as high as the quarterly and annual data. As a result, Georgia opted to not disseminate monthly GFS in the SDDS framework, but to make it accessible to all interested users.

Ireland

Quarterly and annual GFS for general government are produced by the Central Statistics Office of Ireland, in an *ESA95* presentation. Under European Union regulations, quarterly GFS data in a prescribed format must be transmitted to Eurostat, every quarter, with the data provided three months after the end of the reference period. As with many countries in the European Union, Eurostat then reformats these data into the IMF *GFSM 2001* format, and transmits the results to the IMF for publication in the *Government Finance Statistics Yearbook (GFSY)*. Data on other economic flows are not compiled, and nor is the nonfinancial component of the balance sheet.

GFS in Ireland are produced by a team within the national accounts division of the Central Statistics Office; the same team also produces the government-related inputs to the compilation of the national accounts (government consumption, wages and salaries, consumption of fixed capital, national and European Union taxes, and subsidies on products/production and imports).

Prior to the introduction of the Eurostat reporting requirements for quarterly GFS, these national accounts aggregates were the only quarterly outputs of the Government Accounts team within national accounts. The Eurostat *ESA95* reporting requirements developed over time—initially, only a few nonfinancial aggregates (taxes, social contributions, social benefits) were required, compared with the full data series of nonfinancial transactions, financial transactions, and stocks that must be transmitted now along with a data series on Maastricht debt. These outputs are verified by Eurostat for internal consistency, and for consistency with other key data on the operations of government, particularly the twice–yearly reporting on Maastricht deficit and debt.[27]

[27] As defined under EU Council regulation 3605/93 (as amended), these are the key government aggregates that must be monitored under the terms of the Excessive Deficit Procedure.

Compilation System as of April 2012

As reporting requirements for quarterly GFS in Ireland evolved over time, the compilation system became increasingly complex. Data sources and methodology currently employed are shown below. Although these are broken down by level of government, ultimately only data for general government as a whole are compiled and released. In addition to the routine methodology outlined here, adjustments for known large items are made whenever necessary.

Budgetary Central Government

Detailed monthly administrative data are available for the transactions of the Exchequer, the only unit in this subsector, compiled by the Department of Finance. Further details are provided by the National Treasury Management Agency for national debt-related transactions. These data include information on government operations and its financing, and the stock of debt, and are on a cash basis, with the exception of national debt interest data, which are compiled on a full accrual basis.

Detailed quarterly balance sheet data are provided by National Treasury Management Agency and the Department of Finance. In compiling the quarterly nonfinancial accounts[28] for general government, aggregated data are used to derive trend indicators, which are applied to historical data. Accrual adjustments are made where information is available; in particular, a time-adjustment based on due for payment dates is made to some of the larger tax heads (value added tax, excises, and pay-as-you-earn income tax). In compiling the financial accounts, all information available is used.

Extrabudgetary Central Government

Financial and nonfinancial data on the operations of the largest extrabudgetary funds (National Pensions Reserve Fund and National Training Fund) are collected from the relevant bodies. For all other extrabudgetary funds and for the nonmarket public corporations, that is, those included in the general government, no subannual data are collected.

In the quarterly nonfinancial accounts, annual data for the missing units are trended forward by applying grossing adjustments to available aggregates for budgetary central government. In the financial quarterly accounts, an assumption is made of no change to the balance sheet of missing units, where no specific indications are available to the contrary.

Social Security Funds

The only social security fund in Ireland is the Social Insurance Fund. Detailed data for this unit are available monthly (nonfinancial transactions) and quarterly (balance sheet). Data for the

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[28] The description of the Ireland compilation practices follows the terminology used in the European context. Nonfinancial accounts correspond to the current and capital accounts of the national accounts framework, that is, the main components of revenue and expenditure. Financial accounts correspond to the financing transactions, that is, net acquisition of financial assets and net incurrence of liabilities, classified by financial instrument.

Social Insurance Fund are on a cash basis, but a time adjustment is made to employer and employee social insurance receipts, based on due for payment dates.

State Government and Local Government

While the category of "state government" does not apply for Ireland, there is a local government subsector in Ireland. It is relatively small, and depends on central government grants for much of its revenue. Highly aggregated data on debt liabilities are provided on a quarterly basis by the controlling Exchequer department (Department of Environment, Heritage and local government). These are used in conjunction with information on grants from the central government to compile the quarterly GFS for this subsector.

Challenges of Current System

Because the nonfinancial and financial accounts were developed separately, and because the nonfinancial accounts include high levels of grossing adjustments and imputation, no detailed balancing of net lending/net borrowing by unit is possible. This means that, while annual nonfinancial and financial GFS data are well-balanced, significant imbalances may exist for any particular quarter between the nonfinancial and financial accounts.

Meanwhile, some of the detailed information available for Exchequer transactions is not used, and quarterly information on the transactions of all local government units, and most extrabudgetary central government units, is lacking.

Methodological Changes 2011/2012

The quarterly GFS compilation system was redesigned to allow full use of available data, and to ensure that net lending/net borrowing can be balanced by subsector (and ultimately by unit), from the current and capital accounts, from the financial account and from a "top-down" derivation of net lending/net borrowing by a series of adjustments from the budgetary Exchequer balance. Quarterly reporting for local government units commenced in 2011, with some of its results incorporated in quarterly GFS data in end-2011. A survey of other extrabudgetary units was introduced in 2012. With these quality improvements, GFS data covering the general government (transactions and stocks) are published.

United Kingdom

The national statistics institute in the UK, the Office for National Statistics, is responsible for the compilation and publication of quarterly and annual National Accounts and quarterly and annual GFS. The Office for National Statistics is legally bound to follow the *European System of Accounts* (*ESA95)* to produce the UK National Accounts and the GFS. These statistical accounts are required to be reported to the European statistical agency, Eurostat, every quarter, with the data provided three months after the end of the reference period. These data are subsequently converted to the *GFSM 2001* classifications and reported to the IMF's Statistics Department for publication in the *International Finance Statistics*.

The UK goes beyond the European requirements and publishes monthly GFS data 15 working days (or 16 working days if the 15th day falls on a Monday) after the end of the reference period

to which it relates. The monthly data not only cover the general government sector, as required by Eurostat, but the entire UK public sector. Although, the quarterly returns to Eurostat are the sole responsibility of the Office for National Statistics, the monthly publications are produced jointly by the Office for National Statistics and the UK Treasury.

The origins of the monthly UK public sector finances publication go back to 1997/98 when the UK Government chose to base its fiscal policy on *ESA95,* and at the same time adopted Resource Accounting and Budgeting, which aimed to align accounts and budgets more closely with government policy priorities. Government departments began the move to accruals accounting in 1997/98 with full implementation of accruals completed in 1999/2000. Departmental resource accounts after this shift were based initially on UK Generally Accepted Accounting Practice (UK GAAP), as modified for the public sector, before moving to an International Financial Reporting Standards (IFRS) basis in 2009/10.

In the UK, the public sector consists of three subsectors: central government, local government, and public corporations. Data sources, availability, and timeliness differ between the subsectors.

The Central Government Sector

The central government sector includes all administrative departments of the state and other central agencies whose competence extends over the whole country. This sector includes, amongst others, those public sector entities dealing with taxation, defense, health, etc. Regional Health Authorities and National Health Service Trusts are considered to be central government.

Expenditure data for central government are mainly sourced from the UK Treasury's public spending database, into which government departments record monthly their spending, so as to allow this to be monitored against their budget. Examples of expenditure sourced from other sources, are debt interest payments, whose accrued values are calculated from cash data, and depreciation on capital assets, which is estimated using an Office for National Statistics model. Receipts data for central government are mostly provided by Her Majesty's Revenue & Customs, the body responsible for collecting most UK taxes and duties.

The Local Government Sector

The local government sector includes those types of public administration whose competence extends to only the local part of the economic territory, apart from local agencies of central government such as the National Health Service Trusts. Included are nonprofit institutions which are controlled by a local government body and whose competence is restricted to the economic territories of local government.

Most local government data sources are not monthly, and so local government data begin as estimates from reported budgets and plans. These estimates are replaced by outturn data, as they become available. Much of the expenditure and receipts data required by GFS are reported quarterly by local authorities to the responsible central government body.

The Public Corporations Sector

Public corporations are publicly-controlled companies. They include both nonfinancial and financial corporations. Following the financial sector interventions of 2007/08 onwards, the UK government controls financial corporations, such as the Lloyds Banking Group and the Royal Bank of Scotland. The Bank of England is also classified to the public corporations sector.

The larger public corporations provide quarterly financial data to Office for National Statistics, but for the smaller public corporations, Office for National Statistics use their annual reports and include estimates prior to the annual reports becoming available.

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