

Special Initiative  
Report 4

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**Health Accounting:  
A Comparison of  
the System of  
National Accounts  
and National Health  
Accounts  
Approaches**

*December 1997*

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Partnerships  
for Health  
Reform

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# Abstract

The measurement and description of national health expenditures has become a major informational requirement of policy makers, reflecting intensifying expenditure constraints in developed economies, and increased interest in improving health sector management in all countries. The United Nations System of National Accounts (SNA) and National Health Accounts (NHA) approaches to health expenditure estimation share conceptual and methodological characteristics but they evolved separately and for different reasons. The SNA is a mature statistical system, with considerable international comparability and internal consistency. The NHA approach is not standardized, reflecting mainly national concerns. NHAs describe the flows of resources and expenditures within a health care system, rather than on links between the health sector and the macroeconomy. This emphasis on structuring data in a manner understandable and relevant to health sector managers results in policy-relevant organization and presentation of data.

At the institutional level, the policy use of NHAs is reflected in a different pattern of institutional responsibility and locus of control. The SNA and satellite accounts are the responsibility of a country's national income accounts office, while NHAs are the responsibility of other agencies, especially ministries of health. This institutional difference is critical. While adhering to the same principles of estimation as in the SNA, NHA work has greater flexibility in its use of data sources, and benefits from the institutional knowledge and comparative advantage in access to data of health agencies. This results in significant differences in actual results.

The weakness of NHA remains its lack of international comparability and of internal consistency. An ever-increasing number of countries are estimating NHA. There is growing interest in regional and international agencies. It is recommended that the time is now opportune for international collaboration and consensus-building to develop an internationally consistent and agreed framework for NHA.

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# Table of Contents

Acronyms .....	vii
Acknowledgments .....	ix
Executive Summary .....	xi
1. Approaches for Estimating Health Expenditures .....	1
1.1 A Conceptual Overview of NHA and SNA Approaches to Health Expenditures .....	2
2. The System of National Accounts and Satellite Accounting .....	3
2.1 The Development of the SNA .....	3
2.2 The Development of Satellite Accounts .....	4
2.3 The 1993 System of National Accounts .....	7
2.3.1 Defining Satellite Accounts .....	7
2.3.1.1 Production and Products .....	8
2.3.1.2 Income .....	9
2.3.1.3 Uses of Goods and Services .....	9
2.3.1.4 Assets and Liabilities .....	9
2.3.1.5 Purposes .....	9
2.3.1.6 Aggregates .....	10
2.3.1.7 Other Aspects .....	10
2.3.1.8 Two Types of Satellite Account .....	10
2.3.2 Framework for Functionally Oriented Satellite Accounts .....	11
2.3.2.1 Scope and Format .....	11
3. NHA Approaches: “The NHA Universe” .....	13
3.1 Nomenclature .....	13
3.2 Objectives .....	14
3.3 Scope and Conceptual Frameworks .....	14
3.4 Formats, Categories and Definitions .....	14
3.4.1 Definition of Health Expenditures .....	14
3.4.2 Categorization of Health System Entities .....	15
3.4.3 Treatment of Capital and Recurrent Expenditures .....	16
3.4.4 Valuation of Non-market and Market Output .....	16
3.4.5 Structuring and Presentation of Results .....	17
3.4.5.1 Matrix Formulation .....	18
3.5 Users, Uses and Current Status .....	18
3.5.1 Users and Authors .....	19
3.5.2 Current Status .....	20

4.	Conceptual and Definitional Relationships and Linkages between Approaches .....	23
4.1	Differences in Concepts between the SNA and Type A Satellite Accounts and NHA Systems .....	25
4.1.1	The Production Boundary .....	25
4.1.2	The Consumption Boundary .....	26
4.1.3	The Asset Boundary .....	26
4.1.4	The National Boundary .....	26
4.2	Differences in Classifications between the SNA and Type A Satellite Accounts .....	27
4.2.1	Classification of functions .....	27
4.2.2	Classification of Financing Units .....	28
4.2.3	Classification of Producers .....	28
4.3	Example of Differences between Systems .....	29
4.4	Practical Differences between the SNA, Satellite Accounts and NHAs .....	31
4.5	Data Sources and Estimation Methods .....	31
5.	Recommendations .....	33
	Annex A: Bibliography of General or Methodological SNA and NHA Materials .....	35
	Annex B: Country-specific NHA Materials .....	37
	Annex C: Glossary .....	39

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## List of Tables

Table 1: Organizational Responsibility for NHAs in Selected Countries .....	19
Table 2: Status of NHA Work .....	21
Table 3: Nomenclature of Financing Units .....	28

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## List of Figures

Figure 1A. Conceptual relationship between Type A and Type B satellite accounts and central framework of SNA .....	24
Figure 1B. Classificational and structural relationships between Type A and Type B satellite accounts and central framework of SNA .....	24
Figure 2. Mapping of SHA and NHA Tables .....	30

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# Acronyms

<b>ADB</b>	Asian Development Bank
<b>COICOP</b>	Classification of individual consumption by purpose
<b>COPP</b>	Classification of outlays of producers by purpose
<b>DOH</b>	Department of Health
<b>EPA</b>	Economic Planning Agency
<b>HCFA</b>	Health Care Financing Administration
<b>IADB</b>	Inter-American Development Bank
<b>INSEE</b>	Institute National de la Statistique et des Etudes Economique
<b>ISIC</b>	International Standard Classification of all Economic Activities
<b>MOH</b>	Ministry of Health
<b>MOHFW</b>	Ministry of Health and Family Welfare
<b>MOPH</b>	Ministry of Public Health
<b>NGO</b>	Non-governmental organization
<b>NHA</b>	National health accounts
<b>NHE</b>	National health expenditures
<b>NPISH</b>	Non-profit institution serving households
<b>OECD</b>	Organization for Economic Cooperation and Development
<b>PAHO</b>	Pan American Health Organization
<b>PHR</b>	Partnerships for Health Reform Project
<b>SNA</b>	System of National Accounts
<b>USAID</b>	United States Agency for International Development
<b>WHO</b>	World Health Organization





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# Executive Summary

The measurement and description of expenditures in the health sectors of countries has become a major informational requirement of policy makers in recent years, reflecting intensifying expenditure constraints in developed economies and increased interest in improving health sector management in all countries. The 1993 revision of the United Nations System of National Accounts (SNA 1993) has extended the boundaries of national income accounting to sectoral accounts and provided a possible basis for health sector accounts as a satellite system of the main income accounts. National Health Accounts (NHA) developed from efforts to develop internationally comparable estimates of national health expenditures in the 1960s, and the need in the United States to manage the introduction of large public financing programs such as Medicare and Medicaid at the same time. Further international development of NHA has been encouraged by interest at the Organization for Economic Cooperation and Development (OECD) in comparable health statistics for developed economies, at the World Bank in better health sector policy formulation, and in individual developing countries with complex health sector financing problems.

The NHA and SNA approaches to health expenditure estimation represent two separate, but parallel, approaches. They are separate because they evolved separately and for different reasons. The SNA is a mature statistical system, with considerable international comparability and internal consistency reflecting decades of international consensus building. The NHA approach is not standardized, reflecting mainly national concerns, except for efforts by the OECD.

SNA and NHAs share many conceptual and methodological characteristics, reflecting common objectives and a common heritage since the most influential NHA—that of the United States—was developed with input from U.S. national income accounts experts. Nonetheless, their key objectives differ. Whereas SNA shows links between, for instance, the health sector and the macroeconomy, as in the SNA satellite accounts, NHAs attempt to describe the flows of resources and expenditures between different institutional elements *within* a health care system, with emphasis on structuring the data in a manner most relevant to health sector managers' understanding of how their sector operates. NHAs differ in a number of other objectives, including a focus on expenditures instead of valuation of economic activities. Other differences in the treatment of data relate to the lack of clear distinction between capital and recurrent expenditures in most NHA work, and a mixing of the production and expenditure approaches to valuation.

The SNA's strengths are in its international cross-comparability, and its ease in enabling macroeconomic analysis. Satellite accounts are to provide additional sectoral flexibility, but the main type of satellite account proposed by SNA 1993 must remain closely tied to the central SNA framework in term of classifications, terminology and internal data structure; these requirements sometimes differ or even conflict with the objectives of most NHAs. This need for close linkage to the central framework limits the relevance of SNA-type satellite health accounts to the problems and concerns of health sector managers and thus has discouraged demand in the health sector and delayed development of satellite health accounts. Consequently only France and Brazil have estimated satellite health accounts, and France has the only regularly estimated series.

The emphasis in NHA on structuring data in a manner understandable and relevant to health sector managers results in a policy-relevant organization and presentation of data. The presentation of results is evolving, but emerging commonalities include showing distinctly the different flows between financing sources, financial intermediaries, and final providers of services.

At the institutional level, the policy use of NHAs is reflected in a different pattern of institutional responsibility and locus of control. The SNA and satellite accounts are the responsibility of a country's national income accounts office, while NHAs are observed to be the responsibility of other agencies. This institutional difference is critical. Where NHAs have been sustained, they are most likely to be closely linked to the health ministry. While adhering to the same principles of estimation as in the SNA, NHA work has greater flexibility in its use of data sources, and typically benefits from the institutional knowledge and comparative advantage in access to data of health agencies. This results in significant differences in actual results to a SNA type satellite account, even if conceptual differences are minimal.

The weakness of NHAs remain their lack of international comparability and of internal consistency. An ever-increasing number of countries are estimating NHAs, and there is growing interest in regional and international agencies. It is recommended that the time is now opportune for international collaboration and consensus-building to begin to develop an internationally consistent and agreed NHA framework.

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# 1. Approaches for Estimating Health Expenditures

The measurement and description of expenditures in the health sector of countries has become a major informational requirement of policy makers in recent years. This reflects intensifying health expenditure constraints in developed economies in the past two decades, as well as increasing concern for improving health sector management strategies in developing countries. Advances in national income accounting in the past decade have also extended the traditional boundaries of national income accounting to sectoral issues, and resulted in renewed interest in understanding the broader relationships between macroeconomic development and health sector activities.

These two trends have been associated with two separate efforts at improving health sector financial information. The first, which involves estimation of national health accounts (NHA) for countries, has evolved out of specific health sector needs, while the second has evolved out of recent technical developments in the System of National Accounts (SNA). Both trends have resulted in parallel efforts at making health expenditure estimates, and this has resulted in concerns in some quarters as to the differences, if any, in the two broad approaches, as well as the appropriateness of each under different circumstances.

National health accounting developed from efforts to estimate health expenditures for countries on an internationally comparable basis. Abel-Smith (1963, 1967), under the auspices of the World Health Organization (WHO), carried out the first major national comparative studies of health expenditures. His first study included Sri Lanka (then Ceylon) and Chile. The second study included 14 developing countries: five from the African Region, five from the Americas, two from the Eastern Mediterranean Region, and two from the Western Pacific Region. WHO and others encouraged further country specific work in the 1970s. Subsequent reports by WHO and the United States Agency for International Development (USAID) all proposed the use of standard methodologies in estimating national health expenditures, although this did not result in any significant cross-national efforts during the 1970s and 1980s. With growing international interest in economic issues in the health sector during the 1980s, researchers and governments began carrying out country assessments of health expenditures more frequently. The World Bank, WHO, and other aid organizations frequently commissioned consultants to estimate national health expenditure patterns as part of more general health sector assessments, precedent to the development of projects. In the late 1980s, the World Bank became more involved in the field, as its increasing interest in health sector reform encouraged it to require more systematic compilation of data on health financing systems within countries. This interest received a major boost with preparatory work for the *World Development Report 1993: Investing in Health*, which attempted to quantify for the first time national health expenditures for all countries and territories in the world (World Bank, 1993). This latter effort revealed the inadequacy and frequently the inaccuracies in available national data.

In the 1990s, these experiences of the international agencies plus the successful establishment of NHA capacity in several developing countries, has led to efforts to further develop national health accounting on a wider scale. There is renewed interest on the part of the World Bank, WHO, and USAID in supporting the comparative and internationally consistent collection of data on national health expenditures (McGreevey, 1997). These trends have coincided with the release of the second

major revision to the SNA in 1993, which allows for the creation of satellite accounts in specific sectors such as health. The emergence of these two alternative approaches to estimating national health expenditures has prompted this paper, and the technical and conceptual issues raised are the subject of this study.

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## 1.1 A Conceptual Overview of NHA and SNA Approaches to Health Expenditures

The NHA and SNA approaches to health expenditure estimation represent two separate, but parallel approaches to the topic. They are separate because they evolved independently and for different reasons. The SNA is a mature system of statistical analysis, which has acquired considerable international cross-comparability and internal consistency over several decades of international cooperation and discussions. The NHA approach at the present time is a much more recent development, which for the most part remains a nationally specific activity, with little international cooperation or attempts at standardization. It has typically developed *ab initio* within the health sector policy making communities of countries, constructed from scratch according to their perceived needs and technical perspectives. The SNA is formally the responsibility of the official national statistical agencies of each country and the United Nations. The NHA approach has not yet achieved that level of formality and standardization, and is the responsibility of often ad hoc individual research groups within health sectors of countries, sometimes linked to the health ministry, and on other occasions not officially supported. Nevertheless, NHA methodology has many characteristics similar to that of the SNA: Many national income accounting conventions have been copied, since the most influential NHA system—that maintained by the U.S. Health Care Financing Administration (HCFA)—was originally developed by experts from the U.S. national income accounting department.

In its most recent 1993 revision, the SNA explicitly allows for the creation of satellite accounts linked to the central framework. These satellite accounts have objectives similar to NHAs, in that they too are designed to support analysis of expenditures on a specific purpose. Within the possible permutations in design, structure, and procedures that are feasible for satellite accounts, the SNA identifies two distinct types of satellite account. The first type, known as *functionally oriented satellite accounts*, remains closely linked to the *central framework* of the SNA in its classifications, terminology, and internal data structure. This type of account estimated for the health sector remains similar in appearance to the SNA central accounts, and in most cases will not be particularly recognizable or useful to health sector managers. The second type of satellite account is much more conceptually open, and is regarded by the SNA as being experimental. This second type of account can substantially alter the classifications and structure of the central framework of the SNA. To this extent, this second type of account can produce a structure and classification identical to that used by a national health accountant for an NHA. However, while such an account may superficially resemble an NHA, the two are not conceptually identical. Regardless of the changes made to the central framework, this second type of satellite account must retain a clear and explicit linkage to the structures and quantities within the central framework. NHAs do not have such a requirement, and so their quantities may differ significantly from those in the central accounts. More importantly, they are not explicitly linkable to the central accounts, although such linkage may be feasible with some effort.

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## 2. The System of National Accounts and Satellite Accounting

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### 2.1 The Development of the SNA

The System of National Accounts is the international statistical standard for compiling national income accounts. Developed over a period of 50 years, it represents an internationally accepted conceptual framework for compiling comprehensive and internationally comparable and consistent macroeconomic accounts. First released in 1953 (United Nations, 1953), it underwent its third major and current revision in 1993 (United Nations, 1993).

National income accounting as an activity predates the SNA. The economic difficulties of the 1930s and concurrent developments in economic theory gave great impetus to work on national income. Several of the advanced economies had begun to compile national estimates during the 1920s and 1930s. Official interest in achieving comparability of these various national studies started as early as 1928, and the first international comparisons of national income were published in 1939 by the League of Nations in its annual *World Economic Survey*. Many of the 1939 estimates were compiled using different methods, and were not strictly comparable.

At the end of the Second World War, there was an immediate need for comparable measures of national income as a basis for apportioning the expenses of international organizations, and for the planning of post-war aid and economic reconstruction in Europe (United Nations, 1993). This led to concerted efforts to advance international comparability in national income statistics, and eventually to the formulation of the first international standard system for national accounts, released by the United Nations in 1953 (United Nations, 1953).

The SNA has undergone two subsequent revisions, in 1968 and in 1993. On each occasion the revisions served to further standardize variations in national practices that had arisen over time. They also extended and elaborated the SNA to incorporate developments that had occurred in national accounting, to support the need for greater disaggregation in economic statistics that resulted from the development of new methods of economic modeling and analysis. In general these natural developments have involved adding detail and disaggregation to the main accounts, extension of the structure of the main accounts to incorporate new identities, and additional extensions to support new trends in using disaggregated economic models for policy analysis.

The objectives of the SNA as it has developed, have been:

- ▲ to provide a cross-national and stable framework for the consistent compilation and structuring of macroeconomic data, and
- ▲ to support identified areas of economic analysis using macroeconomic data.

The need for a stable and consistent cross-national framework stems from desires on the part of data producers to be able to standardize their accounting methods on a long-term basis according to

pre-set concepts, and on the part of users to be able to base their economic analyses and model computations on time series of data from national accounts which remain unchanged over long time periods (Schafer and Stahmer, 1990). This need for stability has resulted in relatively infrequent changes in the SNA (in 1968 and 1993), each of which has been the end-result of an extensive process of international consultation, compromise, and consensus. In order to bring about greater international consistency, efforts have been made to standardize the conceptual and terminological components of the SNA, and to provide clear definitions and boundaries of each. This set of concepts, entities and boundaries, definitions, and methods comprise the central framework of the SNA.

In supporting economic analysis, the emphasis in the SNA is on ensuring a consistent treatment of economic activities across the whole economy. By providing a set of stable definitions for use in describing general economic activities, and by providing a set of interlocking accounts and tables, the SNA ensures that similar economic activities in different sectors of the economy are treated similarly with each other and with other different economic activities. However, since the emphasis is on providing economy-wide consistency, less emphasis is placed on defining or describing in great detail the specific activities that occur within each sector of the economy, such as transport, energy or health. The SNA's strengths therefore lie in permitting comparisons across the different sectors of the economy, but not necessarily in comparing or analyzing economic activities within each sector.

Much of the following paper discussing the SNA and satellite accounts will discuss the definition and application of the definitions, terms, and methods presented in the central framework of the SNA, and in places compare their usage to practice by national health accountants. Since the SNA, unlike the approaches used by national health accountants, is characterized by an emphasis on consistent definitions and terminology, the text will adhere wherever possible to the actual terms defined in the SNA. In places, it will use certain terms that are not necessarily defined within the SNA, but which are commonly used by national income accountants, and, whenever possible, the terms will be used in the manner they are used by national income accountants. However, it should be noted that many terms commonly used by national income accountants are not always defined in the SNA and are not necessarily used in a consistent manner by all. Such differences in language will be noted when appropriate, and if the text uses such terms differently to the manner in which they are customarily used by national income accountants, this will be stated.

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## 2.2 The Development of Satellite Accounts

While the 1968 SNA was able to foster the standardization of macroeconomic and national accounts data over several decades, it increasingly lacked the flexibility to deal with many of the research and analytical demands that were made by users from the 1970s onwards. In particular, there was increasing interest in understanding the economic impacts of development trends on individual fields of collective concern, such as health, education, research and development, the environment, etc., as well as understanding the results and beneficiaries of activities in these fields (Schafer and Stahmer, 1990).<sup>1</sup> These concerns emerged mainly from national economic development planners who were interested in more disaggregated analyses of specific sectors. This was certainly the case in the development of the first satellite accounts in France, where the initial impetus came from national economic planning agencies, who were interested in better understanding the contribution of different sectors to the national development process (Pommier, 1981).

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<sup>1</sup> The term "field" is not a technical term defined by the SNA. It is used by some authors to refer to the different areas of economic and social activity, such as health, education, or transport, and it is used in this sense in this discussion.



From the perspective of national economic planners, this need to understand the economic interactions between the macro economy as a whole and individual sectors required that the economic transactions concerning the relevant field be identified and recorded with direct reference to transactions recorded in the overall macroeconomic accounts. This “dialogue with the macro economy” (Teillet, 1988) was necessary when trends in the field concerned have impact on the macro economy (e.g., energy, transport and telecommunications), or when global economic trends force constraints in particular fields (e.g., health and education).

While in theory nothing prevented the conducting of complementary analyses in specific fields, national accountants faced several fundamental constraints in developing these field-specific complementary analyses within the 1968 SNA framework. These constraints stemmed largely from the rigidity of the framework, and led to the development of what were eventually termed *satellite accounts*: field specific analyses which were complementary and separate, but linked to the central framework.

In developing separate analyses of specific fields, national accountants wished (i) to expand the SNA to allow analysis of specific sectors, and (ii) to show the impact of sector-specific data on the overall macroeconomic accounts. Analyses of specific sectors such as housing, health, or education creates several analytical issues which are difficult to resolve within the central framework of the SNA.

- ▲ Sectoral analyses often deal with economic activities that are not traced in an exhaustive or explicit manner in the central framework (e.g., transport, tourism, agriculture, housing).
- ▲ Sectoral analyses may completely analyze economic or social functions,<sup>2</sup> which only partly appear in the central framework (e.g., research, social protection). Sectoral analysts may wish to define certain institutional entities, activities, assets, or production factors in a manner different to that prescribed by the central framework.
- ▲ Sectoral analysts may use a different terminology or nomenclature to that used in the central framework.
- ▲ Sector-specific analysis may structure the field concerned according to a logic different to that used in the central framework but more relevant to the sector and understandable by sectoral managers.
- ▲ The usual purpose in most sectoral analyses is to examine expenditures in a particular field, and not to measure production, which is the central concept in the central framework. Their concern is with the purpose of the activity and not the nature of the productive activity.

Most of the above caused difficulties with the central framework as they involve modification of the conceptual basis of the central framework, or use alternative concepts. Although complementary analyses of specific sectors was permitted under the central framework, these could not change the

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<sup>2</sup> Activities can be regarded as the processes carried out by institutional units, and they can be classified with reference to a number of different characteristics, including the type of goods or services output, the technique of production used, etc. The SNA itself classifies all institutional units using a standard classification, the International Standard Classification of all Economic Activities. This classifies all institutions according to the nature of the goods and services produced. This classification is comprehensive enough to cover all economic activities, but by linking institutional units to a single, mutually exclusive category of economic activity, it may not reflect all, possible purposes for which activities are carried out. Such purposes are referred to here as functions.

concepts and structures of the central framework. Satellite accounts were therefore proposed as a means of modifying or adding to the basic structures and concepts of the central framework for the purpose of specific sectoral analyses, without having to modify or alter the core system, or inflate it unnecessarily by adding classifications or differentiation which were only relevant to one field. Satellite accounts were expressly to be given freedoms that were not possible for complementary analyses (Teillet, 1988).

This approach was designed to increase flexibility of the SNA by expanding its use to specific sectoral analyses in a manner that retained the overall consistency and coherence of the system. Consistency and coherence were to be maintained, since all the data and structures in the satellite accounts were to be linked directly to the core system. If concepts, structures or nomenclatures were to be changed, then the resulting differences would be carefully noted and *computed junctions* provided. Computed junctions are tables or schedules that show how the quantities given for specific entries in one set of accounts quantitatively correspond with overlapping entries in another set of accounts. This linkage was important to ensure that the data in the satellite systems would remain consistent with the data in the core system of national accounts, and similarly consistent with data in other country's national accounts. It is important to note that while sector-specific analyses were permitted under the 1968 SNA, they could not involve changes in the concepts and structure of the national accounts framework. Satellite accounts were defined as dealing with economic activities that in the central framework are traced in a non-exhaustive or a non-explicit manner (agriculture, transport, tourism, commerce, health, etc.), or making a complete analysis of the economic and social functions that appear partly in the central framework (Teillet, 1988).

Much of the pioneering work on satellite accounts was done in Europe, particularly in France. French national accountants at the *Institute National de la Statistique et des Etudes Economiques* had watched the trends towards developing sector-specific analyses in the 1960s, and they had come under pressure from national planning agencies to develop information systems which were detailed enough to assist planning of the social sectors. They were convinced of two needs: (I) that autonomous sector-specific analyses were required, but that (ii) any sectoral analyses developed had to be fully linked to the national accounts system. This latter need was necessary primarily for macroeconomic policy reasons, namely the importance of being able to integrate broader macroeconomic data in to the analysis of these fields, as well as improve the coverage and evaluation of these fields within the central national accounts (Pommier, 1981). The first experiment with satellite accounts was with housing in 1968. Later satellite accounts were developed for health, research, tourism, and several other activities. The French experience is important in that it led to several proposals for modifications to the SNA (Teillet, 1988), which eventually to the formal extension of the SNA to incorporate the satellite accounts concept in its most recent revision of 1993.

The original French proposals (Teillet, 1988) suggested development of satellite accounts along a number of different approaches. Teillet distinguished three potential broad “families” of satellite systems, based on previous experiments in national accounting:

- ▲ Accounts focusing on economic activities (e.g., agriculture, trade).
- ▲ Generalized functional analyses (e.g., health, research).
- ▲ Other fields related to certain activities of public agencies or related to a different analytical philosophy to that of national accounts (e.g., cost-benefit analysis of alcoholism, public aid to the productive system).

While remaining linked to the central framework, Teillet proposed that satellite accounts would have the freedom to modify in an explicit manner: (I) the institutional classifications of the central framework, (ii) the classification of transactions, and (iii) the boundaries of a particular field.

Some commentators felt that the French proposals were too flexible and allowed too much conceptual vagueness (Schafer and Stahmer, 1990). This vagueness carried a risk that the resulting satellite accounts would not always meet the conceptual requirements of the national accounts or fit into their framework. This in turn would make international comparisons of data impossible, or make linkage of the satellite accounts to broader macroeconomic analyses difficult. They thus urged that the scope and limits of satellite accounts be carefully defined. In particular, they argued that for estimation of monetary data or values which also appear in the core system of national accounts, uniform concepts should be applied. This was necessary in order to ensure a direct relationship between the monetary aggregates or values in both systems. This uniformity of concepts related to the definitions of the transactions recorded, the statistical units applied, the classifications, and the valuation methods. At the same time they recognized the need for supplementary analyses using differing concepts, but emphasized that in these cases it would be advisable to show how the data in the supplementary analyses were derived from those in the national accounts. So while flexibility was to be permitted, it would have to be accompanied by careful documentation of how the monetary values were derived from the central accounts.

The international discussions about the use of satellite accounts resulted in the incorporation of satellite accounts as an option within the 1993 SNA framework. At this stage (late 1997), the framework for satellite accounts enunciated in the 1993 SNA remains largely theoretical and academic. The 1993 SNA sets out clearly how satellite accounts can be developed but notes that they remain largely experimental. Since the 1993 SNA was released, not all countries have converted the basis of their accounts to the new system, and only one (Brazil) has completed work on a satellite health account (Pan American Health Organization, 1995). The following section describes the approach to satellite accounts that is presented in the 1993 SNA manual (United Nations, 1993).

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## 2.3 The 1993 System of National Accounts

### 2.3.1 Defining Satellite Accounts

The manual explains that the System of National Accounts provides an integrated accounting structure that is both exhaustive and consistent. Each unit, transaction, product, and purpose is given a unique place in the classifications and accounts of the system. Nevertheless, it recognizes that its greatest limitation is “that [the central system] is not flexible enough to focus on specific aspects of economic life” (SNA 21.1).<sup>3</sup> It does not permit conflicting approaches to be used simultaneously (SNA 21.2). The SNA does not claim that its categories and concepts are in all cases the only right ones. Additional or different requirements necessitate the development of complementary or alternative categories or concepts (SNA 21.3). This leads to the need for satellite accounts, which allow the analytical capacity of national accounting to be extended, without overburdening or disrupting the central system.

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<sup>3</sup> In this section, references to specific paragraphs in United Nations (1993) are indicated in the form: SNA: 21.1.

Satellite accounts aim to expand the analytical capacity of national accounting for selected areas of social concern in a flexible manner. As stated in the SNA (SNA 21.4), they can allow for:

- ▲ The provision of additional information on particular social concerns of a functional and cross-sector nature;
- ▲ The use of complementary or alternative concepts, including the use of complementary and alternative classifications and accounting frameworks, when needed to introduce additional dimensions to the conceptual frameworks of national accounts;
- ▲ Extended coverage of costs and benefits of human activities;
- ▲ Further analysis of data by means of relevant indicators and aggregates;
- ▲ Linkage of physical data sources and analysis to the monetary accounting system.

On the one hand satellite accounts are linked with the central framework of national accounts and through them to the main body of integrated accounting statistics. On the other hand they are more specific to a given field or topic and to the information system specific to that field. The close links preserved with the central framework facilitate analysis of the specific fields in the context of macroeconomic accounts. Satellite accounts between various fields help to connect analyses between the fields. Thus they can act as tools for both analyses and statistical coordination (SNA 21.5).

SNA 1993 lists in an exhaustive manner the freedoms that can be allowed for in satellite analysis within the SNA approach. It is useful to list some of these by category in order to illustrate the broad freedoms expressly permitted.

### **2.3.1.1 Production and Products**

Production has a specific meaning in the SNA. It consists of economic activities that are carried out under the control and responsibility of an institutional unit and that use inputs of labor, capital, and goods and services to produce outputs of goods and services (SNA 6.15). Satellite accounts are permitted to vary both the classification of production as well as the boundary of productive activities:

- ▲ Within the limits defined by the central framework's production boundary, productive activities can be reclassified and rearranged. For example, on-site medical facilities provided by establishments to their employees are normally treated as ancillary activities, and thus typically as indirect costs in the production of whatever goods and services those establishments are principally producing. In a satellite account, these ancillary activities may be grouped according to their immediate purpose, e.g., health care, and their associated costs measured as direct costs incurred in providing health services (SNA 21.8-13).
- ▲ The boundary of production itself may be modified or changed (SNA 21.18). For example, unpaid services rendered by household members to one another or voluntary work are not measured in the central framework to the extent that they involve the time of individuals. In a satellite account, these can be measured as an expenditure or production, if desired.

### **2.3.1.2 Income**

- ▲ Where the production boundary is extended as in (a) or (b) above, the definition of income must also be altered in a comparable manner (SNA 21.19)
- ▲ Implicit transfers may be made explicit, for example, imputed tax benefits that units receive under certain circumstances.

### **2.3.1.3 Uses of Goods and Services**

- ▲ Changes in the production boundary may lead to changes in the coverage of uses. For example, if household production of services for own consumption are defined as production, then the same services must be consumed (SNA 21.29).
- ▲ The relationship between intermediate, final consumption and capital formation can be changed. For example, if human capital stock is regarded as an asset, then final consumption in health or education can be reclassified as fixed capital formation which results in creation of human capital assets (SNA 21.30).

### **2.3.1.4 Assets and Liabilities**

- ▲ The scope of assets can be modified as a consequence of extending the production boundary as described above.

### **2.3.1.5 Purposes**

- ▲ The functional classifications used in the central framework can be changed, either through rearrangement, through greater disaggregation or by changing the purposes covered by different functions. The latter possibility is allowed for as the classifications of purpose used in the central framework are mutually exclusive at any given level. Moreover, the classificational systems used in the SNA is recognized as not being sufficient to address the analysis of all activities especially those, which were never a priority.

### **2.3.1.6 Aggregates**

- ▲ The required aggregate being estimated for a sector does not have to be restricted to final consumption and capital formation. It can be modified or extended depending on the field of concern and the objectives in the analysis (SNA 21.42-43).

### **2.3.1.7 Other Aspects**

- ▲ SNA 1993 states that its listing of ways in which national accounts work can be extended to satellite analyses is not meant to be systematic or exhaustive, suggesting other variations can be developed within the overall areas in which freedoms exist for satellite accounts (SNA 21.44).

### **2.3.1.8 Two Types of Satellite Account**

Having illustrated the potential variations that can be attempted within satellite analyses, SNA 1993 identifies two broad types or families of satellite analyses:

- ▲ functionally oriented satellite accounts,
- ▲ experimental, conceptually open satellite accounts.

Functionally oriented satellite accounts involve some rearrangement of central classifications and the introduction of complementary elements that differ from the conceptual central framework without drastically diverging from the concepts upon which the central framework is built (SNA 21.45).

The second type of satellite accounts is based mainly on the use of concepts that are alternatives to the ones used in the central framework. Although alternative concepts can occur in functionally oriented satellite accounts, the difference lies in the fact that in the second type the main emphasis is on these alternative concepts. They can experiment with new concepts and methodologies with a much wider margin of freedom (SNA 21.46).

SNA 1993 recognizes the second type of satellite account as being more controversial than the first type, and it terms them experimental in nature. This second type clearly falls into the category of research, which SNA 1993 points out might lead to eventual changes in the central framework. In recognition of the potential for future input into the design of the central framework, the manual explicitly states that it will not make standardized recommendations for this type of account, which by definition must remain open (SNA 21.47). However, to illustrate the potential for such work, the manual does cover in depth one example of this type of experimental satellite analysis—environmental accounting.

## **2.3.2 Framework for Functionally Oriented Satellite Accounts**

While SNA 1993 refrains from providing guidelines for the experimental type of satellite analysis, it does provide an accounting framework for functionally oriented satellite accounts.

### **2.3.2.1 Scope and Format**

The account must define explicitly and clearly the following (SNA 21.53):

- ▲ The goods and services considered specific to the field, where national expenditure includes the uses (current or capital) of these products;

- ▲ The activities for which capital formation will be recorded;
- ▲ The transfers that are considered specific to the field, recognizing that they will be a separate component of national expenditures only to the extent that they are not already included in the value of the uses of the specific products.

Depending on the field, the account will emphasize (SNA 21.54):

- ▲ The detailed analysis of the production and uses of the specific goods and services;
- ▲ The detailed analysis of transfers;
- ▲ Both production/uses and transfers equally;
- ▲ Uses as such.

It is important to note the emphasis in these satellite accounts on uses (and by extension users). Even if the aggregate under study is called national expenditure, the users in this context are the units that actually acquire the goods or services (for actual final consumption, intermediate consumption, or capital formation) or receive transfers that are intended to finance the acquisition of these goods.

In most areas, functionally oriented accounts will not diverge from the overall structure of the central framework. With respect to uses of expenditures, this implies that in these accounts the components of uses/national expenditure will be disaggregated into and presented as (SNA 21.61-81):

- ▲ Consumption (divided into final and intermediate consumption);
- ▲ Capital formation (divided into capital formation in specific goods and services and non-specific products);
- ▲ Transfers (divided into current and capital);
- ▲ Current and capital uses of residents financed by the rest of the world.

Since the conceptual framework will not differ greatly from the central framework, uses or beneficiaries will be classified in the same manner as institutional sectors and types of producers in the central framework. At the most aggregated level, this will be as follows:

- ▲ Market producers;
- ▲ Non-market producers;
- ▲ Government;
- ▲ Households;
- ▲ Rest of the world.

Within each of these, further subcategories can be given or used, but these would explicitly show the detailed linkages with the central framework. The actual subcategories may differ from those used in the central framework. However, it will always be possible to rearrange one classification to obtain the other, since the differences will lie only in the nature of the aggregation of the smallest groups of units.

For financing, satellite accounts may describe the financing units, which are the units that ultimately bear the expenses. These units must in most cases be classified in accordance with the central framework classification of institutional sectors, which consists of:

- ▲ Market producers;
- ▲ Non-profit institutions serving households (NPISHs);
- ▲ Government;
- ▲ Households;
- ▲ Financial enterprises;
- ▲ Rest of the world.

In some instances, this classification may be modified substantially in the satellite account. But when this happens, the actual classification used must be designed in such a way that the links with the central framework remain visible (SNA 21.116). SNA 1993 recognizes that sectoral analyses will often require modification of the central framework approach when it comes to identifying the financing units. By convention, government is treated as an ultimate financing unit, not the units that pay taxes to it. However, in certain satellite analyses when specific taxes or fees are levied for specific concerns, it may be better for reasons of analysis to treat the units paying the taxes as the ultimate financing units.



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## 3. NHA Approaches: “The NHA Universe”

National health accounts have developed independently for the most part from the SNA and satellite accounts. In virtually all cases, they have been compiled in response to the needs of health sector managers, and by institutions or analysts connected directly to the health sector. In the most instances, national accountants have not been closely involved on an official basis, if at all. This difference in institutional origins is an important difference between NHA work and the work on satellite accounts as part of the SNA framework described above. National health accounting is also a relatively recent endeavor. The first set of NHA estimates was compiled in the United States only 35 years ago (Rice and Reed, 1964). Many countries today with NHA systems only started work on them in the past five years.

Unlike with satellite accounts, we cannot yet refer to a single definitive framework or approach for national health accounting. In many ways, the conceptual and practical development of NHA today represents the stage at which national income accounting was in the early 1930s. All countries undertaking national health accounts estimations currently follow their own approach, based on their own data needs and administrative feasibility. There is some attempt to share experiences across countries, but for the most part individual country studies are conducted in an idiosyncratic manner. Nevertheless, it is possible by examination of the different national efforts to identify some broad similarities that characterize the various national health accounts currently available. For the purpose of this paper, reference will be made mostly to those features found in the NHA of the United States, Egypt, Mexico, Colombia, and the Philippines.

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### 3.1 Nomenclature

NHA as a term was chosen by its users to convey that these accounts are to the health sector what the SNA is to the economy as a whole, and to imply an analogy between national health expenditure and gross domestic product (Waldo, 1996). It is a term currently used by most countries developing or maintaining such accounts, including the United States, Mexico, Colombia, Egypt, Thailand, Sri Lanka, Bangladesh, China, and the Philippines. As a term it might create confusion, because of the similarity of the term to National Accounts, which is used to refer to the SNA, and because one country (France) with a satellite health account uses the same phrase “*les comptes nationaux de la santé*” to describe its satellite account (*Economie et Santé*, 1972). However, the most prevalent and dominant usage of the term “national health accounts” is in reference to the type of health expenditures estimation described in this section. In deference to the fact that the countries using the term in this manner account for the bulk of global health expenditures and the majority of the world’s population, it will be used in this paper also.

At its most basic, NHA shows and links the sources and uses of health care expenditures. In a manner similar to the SNA tables, these are shown in a matrix format. This matrix format distinguishes NHA from previous national health expenditures studies and surveys, which have not attempted to reconcile information on sources of funds with that on uses of funds in a systematic manner (Rannan-Eliya and Berman, 1993).

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## 3.2 Objectives

In objective, NHAs differ from satellite accounts within the SNA framework. NHAs are designed to describe the flows of resources within a health care system in a given time period, with an emphasis on structuring the data in a manner most relevant to health sector managers' understanding of how their sector operates. The aim is to measure the total volume of financial expenditures, and structure the presentation of these expenditures in such a way that the flow of resources between different units in a health care system are immediately apparent to health sector managers. This differs from the objectives in most satellite accounts, where the emphasis is on structuring data in such a way as to show the links between the sector and the overall macro economy.

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## 3.3 Scope and Conceptual Frameworks

NHAs focus on *expenditures* on a specific purpose in a given year, unlike the SNA which focuses on the *valuation of economic activities*. They are also concerned more with the clearly defined sectoral purpose of an expenditure or an activity than the SNA, which distinguishes a primary or secondary purpose. All expenditures or activities that are associated with health purposes are counted in NHA regardless of their associated economic purpose. For example, expenditures by prison authorities to provide routine medical care for inmates are considered health expenditures in all NHAs, even though they are not considered health expenditures in the SNA. (In the SNA, these would be considered intermediate consumption for another purpose, for example, correction services). Thus, in scope, NHAs cover a broader range of activities than in the SNA.

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## 3.4 Formats, Categories and Definitions

The most apparent difference between NHAs and the SNA or satellite accounts lies in the organization of data and its presentation. In NHAs, the structuring of data has been determined by the users according to their own perceived needs. Although no agreed or internationally accepted approach is available, it is possible to describe several commonalities in the approaches used by different national studies.

### 3.4.1 Definition of Health Expenditures

There is some variation among countries in what is included in the definition of health expenditures. Nevertheless, most definitions tend to be variations on the following (Rannan-Eliya et al., 1997):

Health expenditures are defined as all expenditures or outlays for prevention, promotion, rehabilitation, and care; population activities; nutrition; and emergency programs for the specific objective of improving or maintaining health. Health includes both the health of individuals as well as of populations. Where there are activities which have multiple objectives, including those of

improving health, such as food subsidy programs, or water and sanitation projects, these are only included if the primary and main objective is the improvement of health itself.

### 3.4.2 Categorization of Health System Entities

The emphasis in national health accounting is to describe in an integrated way who pays, how much, and for what, separating the who from the what (Berman, 1997). This leads to an organization of entities, which is designed primarily to aid understanding of the funding channels in a health care system. This *institutional focus* stems ultimately from the policy focus of the NHA, since policy makers deal with institutional entities in designing, implementing, and evaluating policy change. While the SNA also emphasizes an institutional classification (see last list in section 2), the disaggregation of entities in NHAs is greater than which is found or is possible using the SNA classifications, and this amounts to a significant difference in the two approaches. There are three major groups or types of entities that are described in NHA:

- ▲ Entities which act as the ultimate sources of funds;
- ▲ Entities which transfer resources between the funding entities and the actual providers of services;
- ▲ Providers of services.

Funding sources are grouped into six major categories:

- ▲ Public sector – Government ministries and administrative departments
- ▲ Public sector – Other government agencies
- ▲ Private sector – Firms and enterprises
- ▲ Private sector – Non-governmental organizations (NGO)
- ▲ Households
- ▲ Foreign sector – Government and non-government sources

In NHAs, where financial intermediaries are not shown separately, insurers (public and private) appear as an additional category in the above classification. National health accountants have given the second group of entities various names, including “payers,” “funding sources,” “financing agents,” or “financing intermediaries.”

The need to distinguish a second group that transfers resources from one set of entities to another arises from the importance of third-party financing in most health care systems, and the health policy concerns that are related to third-party financing. This second group of financial agencies or intermediaries does not always appear separately in NHAs. In NHAs, where financial intermediaries are shown explicitly as a separate group of entities, the issue arises as to how to deal with funding flows, which do not pass through a specific financing intermediary, but pass directly from the funding sources to the providers, e.g., direct payments by households or firms. In most cases this has been dealt with by denoting the funding sources concerned as financing intermediaries

as well, and routing the flow of funds through them at both levels (see Berman, 1997, for clarification).

### **3.4.3 Treatment of Capital and Recurrent Expenditures**

There is an important economic distinction between capital and recurrent expenditures. Capital expenditures typically purchase inputs that contribute to production well beyond the period in which they are purchased. Recurrent expenditures purchase inputs for current production only, and so must “recur” in every period. National health accounts typically handle this distinction in a practical way, driven by both conceptual and data issues. Their approach differs significantly in concept from the SNAs, although in practice data limitations muddle these distinctions.

As noted above, SNAs measure the *value* of economic activities, whereas national health accounts measure the *volume of expenditure*. Measurement and allocation of capital is the principle difference between these two approaches. For *value* measurement, only capital consumed should be measured, and this consumption comes from both new and pre-existing capital stock. For volume of expenditure measurement, all current period capital expenditure is counted. Again, in practice neither approaches succeed in implementing this difference entirely. There is also a tendency from both sides to seek comparable treatment.

For example, most national health accountants attempt to separate capital and recurrent expenditures when compiling NHAs, but this is not always the case. In particular, difficulties in assessing capital expenditures by the private sector in many developing countries has precluded systematic valuation of capital expenditures separately from recurrent expenditures, and so many NHAs do not make such a distinction in their formal accounts; examples include Thailand, Egypt, Mexico, and Peru. Where such distinction is made, there is some variation in how capital expenditures are defined and measured. National health accountants may count as this year’s capital expenditures those direct investments made by private sector health care providers, as well as the amounts paid by consumers in prices, which incorporate an element of compensation for depreciation of existing capital stock. In the government sector, capital investments are typically valued at the cost of the actual expenditures incurred in a given year, and no NHAs attempt to amortize such investments over time.

Different institutional patterns in health care systems muddle these principles further. For example, in some countries capital investments are planned and approved centrally for governments and insurance services and so are more easily identified. In the United States, social insurance “Medicare” has allowed government hospitals to charge for capital depreciation, just private hospitals do, and this cannot be so easily identified. (Waldo, personal communication)

### **3.4.4 Valuation of Non-market and Market Output**

National health accountants follow the same general principles as in the SNA, with a few minor differences. Health care goods and services provided by government and non-governmental providers at no cost to the users, i.e., non-market output, are valued at the cost of production. Health care goods and services sold to consumers, i.e., market output, are valued on the basis of prices paid. National health accounts use a mix of both the production and expenditures approaches used in the SNA, e.g., Egypt (Rannan-Eliya et al, 1997) and the Philippines (Herrin et al., 1996).

In most health care systems, there is also a third intermediate category of health services, which consists of services and goods produced by government and non-government providers, which are sold to consumers at prices below the cost of production. The loss made on the sale of these goods and services is made up from sales of non-health care goods and services, donations, endowment income, and government subsidies. In the SNA, these services would be treated as market output and valued only at the price paid. In most national health accounts, this output is valued at the imputed cost of production. This can be estimated as being equivalent to total revenues received by the providers minus the cost of non-health care activities (and a prorated cost of administrative costs) and changes in endowment (Waldo, 1996).

### 3.4.5 Structuring and Presentation of Results

NHA are most distinctive in the method of structuring their results and data. To the casual user, this is what most distinguishes them from the SNA, and it reflects the differences in their underlying purposes.

The central framework of the SNA presents expenditure uses in the following broad categories:

- ▲ consumption
  - △ intermediate consumption
  - △ final consumption
- ▲ capital formation
  - △ gross fixed capital formation
  - △ consumption of fixed capital
- ▲ transfers
  - △ current transfers
  - △ other current transfers
  - △ capital transfers

Almost without exception, this breakdown is not required by, and probably in many instances not comprehensible to, national health policy makers, and it is not found in existing NHAs. Instead in NHAs, the emphasis is on describing the flow of resources in relation either to distinct entities within a health care system (e.g., providers), functions and types of services, or final beneficiaries. This is entirely in terms of final consumption. In general, the analytical concern to distinguish between intermediate and final consumption is not addressed in NHA work.

### 3.4.5.1 Matrix Formulation

NHAs structure and present the data in the form of matrices (Rannan-Eliya and Berman, 1993; Waldo, 1996; Berman, 1997). Matrices show in two-dimensional tables where funding comes from and where it goes. These matrices represent cross-sectional slices through a nation's health care system. The dimensions of the matrix can vary, but they typically relate to the dimensions of analysis that health sector policy makers generally use, such as:

- ▲ Financing sources
- ▲ Payers/financial intermediaries
- ▲ Providers
- ▲ Beneficiaries (socioeconomic groups, geographical regions, demographic groups)
- ▲ Factor inputs
- ▲ Patient/disease groups
- ▲ Types of services

The use of matrices in NHA does not serve only a organizational purpose. Matrices also play an important methodological role in that they require that the data be internally consistent so that they fit into two separate dimensions of the matrix, which acts to increase the reliability of the valuations and controls for both sampling and non-sampling errors.

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## 3.5 Users, Uses and Current Status

NHA are foremost a tool that has been developed by health sector policy makers for analysis of the health sector, and to support a better understanding of the dynamics and financing of national health care systems in order to better frame health sector policies. Although they have been used to answer the question, "what is the total volume of expenditure used to provide health care in a nation?" they have not been used to model the linkages between developments in the broader macro economy and the health system itself.

In the United States, where NHA are the responsibility of the Health Care Financing Administration, they have primarily been used to track and understand trends in the U.S. health care system, as well as to project health care expenditures into the future. Although such modeling of future health care expenditures does rely significantly on assumptions about macroeconomic and demographic variables, this type of modeling takes these variables as being exogenous and not directly under the influence of the health care system. In that sense, this type of modeling does not attempt to model the interactions between the macro economy and the health care systems in a recursive manner.

Since NHA remains a largely recent activity, attempts to use NHA as a basis for evaluating proposed public policies remains limited, although there is increased interest in this in recent years. In the Philippines, NHA simulation models have been used to evaluate the cost and financing

implications of changes in health insurance systems (Solon and Tan, 1996). The Australian Health Insurance Commission has sponsored development of a simple simulation model for use in country sectoral work based on the NHA framework (Australian Health Commission, 1997). All these simulations remain health sector-specific analyses.

### 3.5.1 Users and Authors

NHA are largely if not exclusively requested and used by health sector policy makers and researchers. There appears to be no example of their significant use by macroeconomic planners or sectoral managers or researchers in other sectors.

With respect to authorship and production, NHAs tend almost exclusively to be the responsibility of agencies other than the national income accounts department. In most cases where NHAs are being regularly estimated, the key government agency involved is the health ministry or one of its departments. Table 1 indicates the identity of the agencies involved in estimation of NHA in several countries.

<b>Country</b>	<b>Key agencies</b>	<b>Type of agency</b>	<b>National income accounts office involved?</b>
USA	HCFA	health ministry agency	No
Mexico	Funsalud	health sector NGO with links to health ministry	No
Colombia	Ministry of Public Health (MOPH) Health Superintendency Department of National Planning	health ministry regulatory body	No
Egypt	MOPH	health ministry	No
Thailand	MOPH Chulalongkorn University	health ministry, researchers	Yes
Philippines	University of Manila Department of Health	researchers, health ministry	No
China	Ministry of Health (MOH) university	health ministry, researchers	No
Bangladesh	Ministry of Health and Family Welfare	health ministry	Yes
Sri Lanka	MOH, IPS, Central Bank	health ministry, central bank, researchers	No

The countries in Table 1 are all countries where NHAs have been sustained over a number of years, or where it is expected to be the case. The ability of all these countries to sustain NHA work over several years has depended on their ability to create demand by health sector managers for such data. This has been possible largely because key health sector agencies have been involved from the beginning in designing and developing the NHA systems, and then in using the results. Thailand represents an interesting case as it is the only one in the list where the national income accounts department was involved at the beginning. However, this involvement was not sustained, as personnel changes and other pressures resulted in the Thai national accounts department losing interest in and ability to participate meaningfully in the process, and subsequently the health ministry has emerged as the sole government agency actively involved in the process.

### 3.5.2 Current Status

Before 1990, only one country, the United States, had developed a system of NHA. The 1990s have seen a significant increase in interest in NHA work by countries and by international agencies. Today, countries in all regions of the world are developing NHA, or establishing capacity to do so. Table 2 indicates the status of NHA activity in several countries in late 1997.

In addition to the NHA work done in individual countries, a significant effort to standardize health expenditure estimates across countries has been made by the Organization for Economic Cooperation and Development (OECD) in Paris. Since the 1980's this activity has involved national and statistical authorities in an extended process of discussion and review. It has focussed on developing common definitions of the uses of expenditure. Sources are typically reported in two large aggregate—public and private, with public including government and social insurance. The OECD request annual reports on health statistics from its members. These draw largely on national statistical sources, which in certain cases, such as the United States and Mexico, have been those countries' NHAs. However, this effort, while it has contributed much to the international standardization of classifications, definitions, and measurements of national health expenditures, is only a limited form of national health accounting, as discussed in this paper. Although NHA estimates are used from some countries, and although the U.S. NHA experience has been a key influence in the OECD work, most of the OECD country estimates do not involve the construction of disaggregated funding matrices, which as noted is a key defining characteristic of NHA work.



**Table 2: Status of NHA Work**

<b>Country</b>	<b>Current Status</b>	<b>Agencies Involved</b>
<b>OECD Member Countries</b>		
United States	Well-established, annually updated estimates	HCFA
Canada		
Mexico	Established and regularly updated accounts, but linkages to policy makers limited.	Funsalud (NGO)
<b>South America</b>		
Bolivia	Developing NHA as part of the Partnerships for Health Reform (PHR) regional effort	Health Reform Commission, USAID, Pan American Health Organization (PAHO)
Colombia	First NHAs compiled in 1996 as part of ongoing health sector reforms	Ministry of Health (MOH), Inter American Development Bank (IADB)
Ecuador	Developing NHA as part of PHR regional effort	CEPAR, Health Commission, MOH, Social Security Institute, USAID, PAHO
El Salvador	Developing NHA as part of PHR regional effort	MOH, Central Bank, USAID, PAHO
Guatemala	Developing NHA as part of PHR regional effort	Health Ministry, USAID, PAHO
Honduras	Developing NHA as part of PHR regional effort	USAID, PAHO
Peru	First NHA developed in 1996-97 as part of ongoing health sector reform. Also collaborating in PHR regional effort	MOH, Funsalud consultants, USAID
Dominican Republic	Developing NHA as part of PHR regional effort	Central Bank, USAID, PAHO, United Nations Development Programme (UNDP)
Nicaragua	Developing NHA as part of PHR regional effort	MOH, USAID, PAHO
<b>Europe</b>		
Russia		HCFA consultants
<b>Asia</b>		
China	Developing NHA at health ministry level.	MOH, World Bank
Bangladesh	Initiating development of official NHA system with ADB support	MOHFW, Planning Commission, Bangladesh Bureau of Statistics, Asian Development Bank (ADB)
Japan	Separate health accounts maintained by Economic Planning Agency (EPA) and MOH. Private estimations of national health expenditures (NHE) according to U.S. HCFA conventions also available.	MOH, EPA
Thailand	First set of NHAs developed, and regular reporting system being developed	MOH, Chulalongkorn University
Sri Lanka	NHAs under development in cooperation with Ministry of Finance (MOF) and Central Bank	IPS, MOH
Maldives		WHO? Chulalongkorn University
Lebanon	About to initiate development of local NHA capacity	WHO, Health Ministry
Philippines	Two rounds of NHA estimated, with some second level use of NHA data already taking place	DOH, University of Manila, USAID
Hong Kong SAR	NHA capacity established in 1997-98 with technical assistance from IPS, Sri Lanka.	Health and Welfare Branch
<b>Africa</b>		
Jordan	First NHA estimate prepared by World Bank consultant. Now developing local NHA system under PHR project.	MOH, USAID
Egypt	NHAs estimated in two rounds during 1990s. Currently working on developing locally sustainable NHA capacity	MOPH, Cairo University, USAID, Harvard
Zambia	One NHA estimate prepared for 1990 by USAID consultant. No ongoing efforts to establish permanent NHA capacity	USAID, Harvard

Nigeria

World Bank

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## 4. Conceptual and Definitional Relationships and Linkages between Approaches

The NHA approach has developed largely in parallel and separately to work on national income accounting. Although national health accountants carry over many of the basic concepts and practices of national income accounting to NHA work, there has been no attempt to formally link NHA work to SNA and satellite accounting in most countries. Despite this, there have been factors encouraging comparability of the two approaches. Many of the personnel involved in NHA work are former national income accountants or are economists with some professional exposure to the SNA and its conventions. Consequently many of the apparent differences in the two approaches are more imaginary than real. Some significant differences do remain although even these are often blurred by data limitations and other practical constraints.

In order to understand clearly the relationship of NHA to the SNA, it is first necessary to restate the relationship of satellite accounts to the central framework. The 1993 SNA formally introduces the concept of satellite accounts as an extension of the central framework. In doing so, it identifies two broad types or families of satellite analyses:

- ▲ functionally oriented satellite accounts;
- ▲ experimental, conceptually open satellite accounts.

For the sake of simplicity let us call the first family, Type A, and the second, Type B. Type A accounts are the least controversial; they may involve some rearrangement of the central classifications and some conceptual deviations, but they do not drastically diverge from the conceptual basis of the SNA's central framework. Type B satellite accounts use alternative concepts to those used in the central framework and for the moment, are regarded as being experimental.

In addition to conceptual differences, Type B satellite accounts may have significant differences in classification and nomenclature from the central framework. Type A accounts may show considerable differences in classification and nomenclatures also, but these differences will amount to ones of reorganization and rearrangement, and the exact links to the structure of the central framework will be explicit and direct, given their conceptual congruity to the central framework. Despite the differences to the central framework, both types of satellite account are elaborations and extensions from the central framework, and have linkages back to the central framework.

Figures 1A and 1B illustrate the relationships between the two types of satellite account recognized in the SNA and the central framework.

Figure 1A. Conceptual relationship between Type A and Type B satellite accounts and central framework of SNA

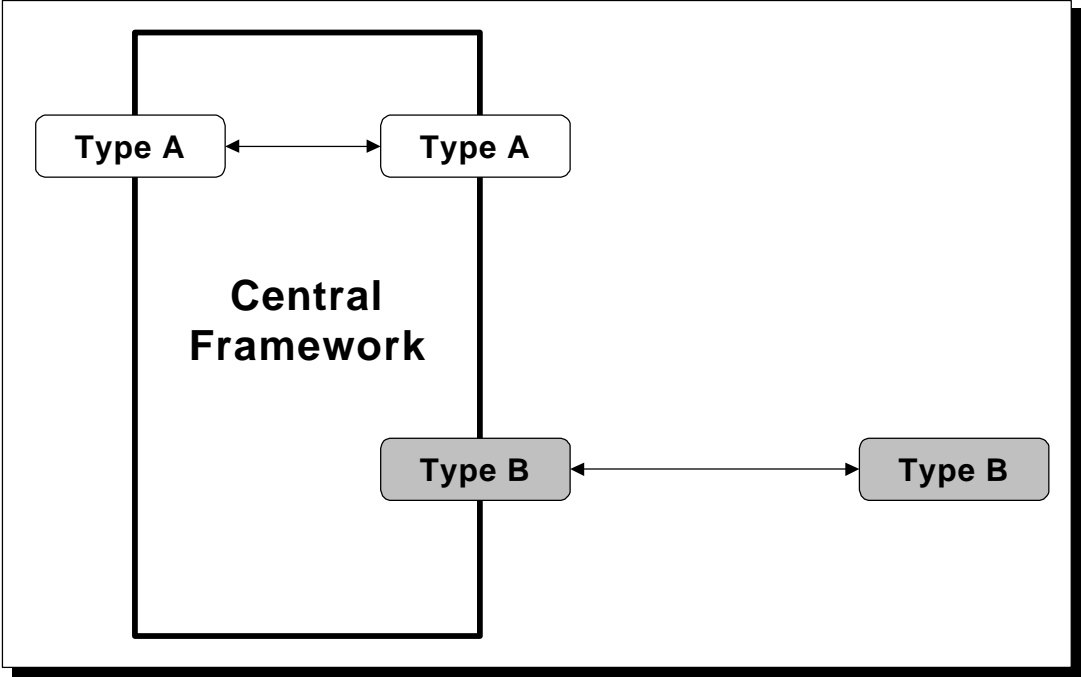
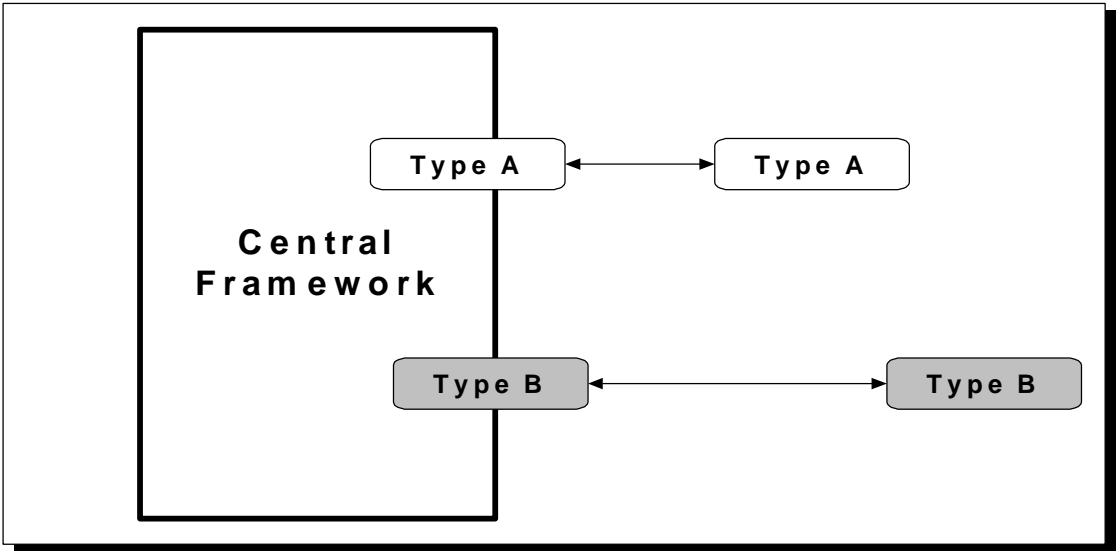


Figure 1B. Classificational and structural relationships between Type A and Type B satellite accounts and central framework of SNA



National health accounts are not derived from or elaborated from the central framework of the SNA. In general they have been developed *de novo* by national health accountants working outside the national accounts offices of countries. While they share some similar concepts and terminologies with the central framework. Since the emphasis in NHA is on structuring information in a manner that is most relevant to health sector policy makers, there is no requirement to remain consistent with the conceptual framework of the SNA. As a consequence, NHA are clearly not comparable to Type A satellite accounts within the SNA framework, since there is no emphasis on maintaining the conceptual basis of the central framework.

Nevertheless, extensive degrees of freedom are permitted within the SNA to Type B satellite accounts. Given that there are few limits to these freedoms described in the SNA, it is certainly conceivable that Type B satellite accounts can be compiled for health. The accounts would be identical in their conceptual basis and structure to most, if not all, NHA systems that have been developed. To this extent, it is meaningless to discuss what conceptual and structural differences exist between Type B satellite accounts and NHA systems. It also remains moot at present, since no Type B satellite accounts have been compiled by national income accountants to date in the health sector. However, Type A satellite accounts in the health sector have been developed (France, Brazil, Japan), and it is worthwhile to describe the conceptual the conceptual and structural differences between Type A satellite accounts and NHA systems.

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## **4.1 Differences in Concepts between the SNA and Type A Satellite Accounts and NHA Systems**

Type A satellite accounts must by definition remain largely consistent with the conceptual basis of the central framework of the SNA. Any conceptual differences with the central framework that NHA systems display are thus potential differences also with Type A satellite accounts. However, it should be noted that the SNA does permit some deviations by Type A satellite accounts from the central framework, as long as they are not substantial or the main emphasis of the satellite account. Review of available NHA systems reveals that the general practices followed by most national health accountants do not deviate from the conceptual framework of the SNA.

Since NHAs and the SNA generally share similar economic principles, they do not generally differ in what they regard as economic activities. Where differences do occur, they relate to the boundaries used in defining specific types of economic activity. The following section discusses these differences as they are observed in general NHA practice.

### **4.1.1 The Production Boundary**

The production boundary is treated in most NHA systems in the same manner as in the SNA. As in the SNA, production (which is equivalent to final expenditures) is regarded as including all production actually destined for the market as well as all goods and services provided free or collectively to the community by government and non-governmental units. There are some potential problems in defining production by producers of goods and services for their own use, which are recognized by the SNA (SNA 1.21). The compromise solution to defining the production boundary chosen by the SNA with respect to these activities (SNA 1.22) is followed by most, if not all, national health accountants. So in NHA work, health care provided by individuals to other

individuals within the same household (except for health care services provided by employing domestic staff) are explicitly or implicitly not included in the definition of health expenditures.

There is one major difference in the definition of the production boundary between the SNA's central framework and all NHAs. The SNA classifies production activities according to the *primary purpose of the responsible institutions*, where the primary purpose is defined on the basis of what constitutes 50 percent or more of the intended purpose of the institution's activities. NHAs measure as health expenditures all expenditures for which the primary purpose is health improvement, even if they are by producers whose principal activity is non-health related, e.g., health services provided to prisoners. However, this difference does not constitute a difference with the SNA satellite accounts approach itself, since the SNA explicitly allows functionally oriented satellite accounts to alter the production boundary in such a manner (SNA 21.12)

Total national health expenditures (NHE) as defined in most NHA systems is the direct equivalent of gross domestic product in the SNA. It remains a gross concept, as consumption of fixed capital is not typically measured or valued by national health accountants and is thus not added to gross national health expenditures. The reason that NHE in NHA systems is typically a gross concept is the same reason why gross domestic product is the preferred concept in the SNA, namely, difficulty in obtaining data on consumption of fixed capital.

#### **4.1.2 The Consumption Boundary**

The consumption boundary in SNA corresponds to the production boundary for reasons of internal consistency, except that expenditures on goods utilized for the production of goods and services for own consumption by households are also included (SNA 1.25). This does not differ from the approach used by national health accountants, where provision of health care to members of the same household are not included, but expenditures on medications and other medical goods for such household self-care are.

#### **4.1.3 The Asset Boundary**

The SNA includes balance sheets for recording the values of assets and liabilities of units or sectors (SNA 1.26). Presumably, all Type A satellite accounts must also provide such asset accounts, but to date no NHA system has attempted to construct or provide such balance sheets for the health sector. NHA has not, so far, analyzed the asset structure of the health care system.

#### **4.1.4 The National Boundary**

The SNA compiles accounts for resident units. Residency is defined according to the same concept used in the *Balance of Payments Manual* of the International Monetary Fund. Residency depends on maintaining a center of economic interest in the territory for a significant period of time, usually interpreted as one year (SNA 1.28).

Not all NHA systems provide clear rules as to how health care services produced by providers outside the territory for individuals resident within the territory, or health care services produced by resident providers to individuals or units located outside the territory are to be treated. However, common practice in NHA work appears to largely follow the SNA conventions.

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## 4.2 Differences in Classifications between the SNA and Type A Satellite Accounts

The classification system refers to the methods used to organize and structure the data. Classification differences do not necessarily imply differences in underlying concepts, as they can arise merely from a different approach to organizing and displaying the same data, or information on the same set of activities and transactions similarly defined.

There are major differences in approaches to classification between the SNA (and Type A satellite accounts) and all NHA systems. However, given that there are no major conceptual differences between NHA systems and the SNA, these classification differences are related to the way in which units, activities, purposes, and uses are organized and shown. The key differences observed in most NHA systems from the classification system provided by the SNA can be categorized as involving:

- ▲ Purposes/Functions
- ▲ Institutions
  - △ Financing units
  - △ Producers

### 4.2.1 Classification of functions

The SNA proposes functional classifications to classify transactions of producers and institutional sectors. These classifications refer to the purposes or objectives of the activities. Four classifications are provided in the 1993 SNA:

- ▲ Classification of individual consumption by purpose (COICOP). This is a provisional classification, which categorizes individual consumption into ten categories, including health (SNA Table 18.1) and numerous sub-categories.
- ▲ Classification of the functions of government. This uses the classification described in a publication of the United Nations Statistical Office (Series M, No. 70, New York 1980).
- ▲ Classification of the purposes of NPISHs.
- ▲ Classification of outlays of producers by purpose (COPP).

There appears to be no difference between the implicit definition of the health category in COICOP and its breakdown and that used by most national health accountants when referring to household expenditures on health. The classification of government functions is not as detailed as used in many NHA systems, with health being just one category. However, the 1993 SNA notes that the classification needs modifying both to identify more precisely social transfers in kind and other functions of increasing policy concern, such as preventive health care (SNA 18.8).

The classification used for NPISHs is similar to that for government, and it is based on the classification first given in 1968 SNA. It again is not detailed, but it does not differ from that used implicitly by national health accountants with reference to what is more often called NGOs in NHAs. The classifications for functions used in the SNA do not provide significant disaggregation within the health function. To that extent there is little opportunity for differences with NHAs, except to note that NHAs generally use more detailed classifications.

Where NHAs do differ substantially is in the *application* of the function’s classifications. NHAs generally define activities as being health related, regardless of the primary function of the producer. Unlike the SNA, NHAs do not classify activities according to the identity or purpose of the institutions involved. To that extent, NHAs apply the definition of functions in a broader manner than the SNA, but it should be noted that this does not represent a difference in approach to Type A satellite accounts, which are explicitly expected to do the same.

NHAs also differ in the extent and purpose of the disaggregation by function that is used. This is a direct result of the health policy purposes of NHA. For example, there is little interest among macro-economists in the share of household spending on health care going to delivery services. However, this is quite important to those planning the financing of obstetric care for a nation. NHA typically uses more detailed breakdowns, and may focus on where services are provided and what types of diseases and interventions are paid for.

#### 4.2.2 Classification of Financing Units

Financing units as defined in the SNA correspond to the funding sources or payers/financing intermediaries in NHA systems. The major difference is purely one of nomenclature, and most categories can be directly mapped from the SNA to NHAs (Table 3).

<b>SNA 1993</b>	<b>NHA Practice</b>
General government	Government, public sector
Market producers	Private sector providers, public enterprises and firms providing health care
NPISHs	NGOs
Rest of the world	Foreign donors, foreign NGOs, external assistance
Financial enterprise	Health insurers

#### 4.2.3 Classification of Producers

NHA practice generally refers to producers of health care services and goods as “providers,” but this is purely a difference in nomenclature, which corresponds to the term generally used in the health sector literature and discourse.

The SNA makes a distinction between non-market and market producers, and further classifies producers according to the International Standard Industrial Classification of all Economic Activities (ISIC), published by the United Nations. Again, unlike in NHA work, the emphasis in the SNA is on the purpose of the institutional entities involved. Most NHA systems do not categorize providers (producers) using the ISIC classification. Instead, a classification based on the policy relevance of the provider breakdown is generally used, with some adjustment for the practicalities of data collection. In practice, there is often some correspondence between individual sub-categories and those within



ISIC, but this is essentially coincidental. There is some diversity of provider classifications used in NHAs, so it is not possible to give one classification as being the convention, but a distinction between market and non-market providers is common to most.

Type A satellite accounts are permitted to reorganize their listing of producers according to policy relevance and needs. In this regard, such a satellite account may use a similar classification of producers to that used in NHAs. In practice, the provider classifications used by NHAs are more detailed than those used in satellite accounts, so that it would not be difficult to directly map them to the categories used in the SNA, especially given that the non-market/market distinction in SNA is also found in NHAs. The only difficulties that would arise would be with activities by institutions, whose primary activity is not regarded as being health according to the SNA approach. To this extent, most NHAs can be regarded as using a classification of providers which would also be permissible for use by a Type A satellite account.

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### 4.3 Example of Differences between Systems

As has been discussed, the differences in approach between NHAs and the central framework of the SNA are largely in the area of classifications. This difference in classifications results in a restructuring of the data. This restructuring is so extensive in NHAs that the linkages with the central framework are not readily apparent. Nevertheless, since the conceptual differences with SNA are minor, it should be possible in theory to directly map each cell in an NHA matrix to a corresponding entry or value in the SNA framework or in a Type A satellite account.

To illustrate this, Table 4 maps the relationships between the U.S. National Health Accounts and the cells in a prototype satellite account given as an example by the 1993 SNA. The satellite account format given as an example in the 1993 SNA is linked to the central framework, and the relative ease in mapping the U.S. NHA to the satellite account indicates that the major difference in structure between the approaches lies in the organization of entries and not in the conceptual basis. At a conceptual level, NHAs generally do not deviate from SNA conventions, although they do differ considerably in terms of the classification of data. These latter differences, although major, nevertheless are all expressly permitted for satellite accounts within the SNA framework.

Figure 2. Mapping of SHA and NHA Tables

Typical National Health Account

Components of uses / national expenditure	PRIVATE				GOVT.	
	Firms	Non-profit	Insurance co	Households	Social insur	Medical program
<b>1. Consumption of specific goods and services</b>						
Health services and supplies						
hospit	A1	B1	C1	D1	E1	F1
physic	A2	B2	C2	D2	E2	F2
dental	A3	B3	C3	D3	E3	F3
other	A4	B4	C4	D4	E4	F4
home	A5	B5	C5	D5	E5	F5
drugs	A6	B6	C6	D6	E6	F6
vision	A7	B7	C7	D7	E7	F7
nursin	A8	B8	C8	D8	E8	F8
other	A9	B9	C9	D9	E9	F9
progra	A10	B10	C10	D10	E10	F10
governt public		B11		D11		F11
Research and construction						
resear	A12	B12		D12		F12
constr	A13	B13		D13		F13
<b>2. Capital formation in specific goods and services</b>						
Health services and supplies						
hospit	A14	B14	C14	D14	E14	F14
physic	A15	B15	C15	D15	E15	F15
dental	A16	B16	C16	D16	E16	F16
other	A17	B17	C17	D17	E17	F17
home	A18	B18	C18	D18	E18	F18
drugs	A19	B19	C19	D19	E19	F19
vision	A20	B20	C20	D20	E20	F20
nursin	A21	B21	C21	D21	E21	F21
other	A22	B22	C22	D22	E22	F22
progra	A23	B23	C23	D23	E23	F23
gover	A24	B24	C24	D24	E24	F24
Research and construction						
resear	A25	B25		D25		F25
constr	A26	B26		D26		F26
<b>National expenditure</b>						

Typical Satellite Account for Health

Components of uses / national expenditure	Total Market producers	NPISH's	General Government	Households consumers	Financial Enterprises	Rest of the world
<b>1. Consumption of specific goods and services</b>						
1.1 Actual final consumption						
1.1.1 Market products	A1 - A10, A	B1 - B10, B	F1 - F10, F	A1-A10, D1 - C1 - C10		
1.1.2 Non-market products						
1.1.2.1 Individual		B11	F1 - F10	D11		
1.1.2.2 Collective	A12	B12 - B13	F11 - F13	D12		
1.2 Intermediate consumption						
1.2.1 Actual intermediate consumption						
1.2.2 Internal intermediate consumption						
<b>2. Capital formation in specific goods and services</b>	A14 - A26	B14 - B26	F14 - F26	D14 - D26		
<b>3. Fixed capital formation in characteristic activities in non-specific products</b>						
<b>4. Specific current transfers (not counterpart of item 1)</b>			F1 - F9			
<b>5. Specific capital transfers (not counterpart of items 2 or 3)</b>	A26	B26	F26			
<b>Total uses of resident units</b>						
<b>6. Current uses of resident units financed by rest of the world (less)</b>						
<b>7. Capital uses of resident units financed by the rest of the world (less)</b>						
<b>National Expenditure</b>						

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#### **4.4 Practical Differences between the SNA, Satellite Accounts and NHAs**

The previous two sections showed that the conceptual and structural differences between the SNA and NHAs are mostly ones of organization, and that the organizational differences are also permitted to Type A satellite accounts. However, this does not mean that the numbers or valuations of each cell in both sets of accounts would necessarily be equivalent to the corresponding cell in the other set of accounts. Although NHAs can be viewed as a reorganization of the same activities and transactions that occur in the SNA and a Type A satellite account, they are more than that. In practice, the actual numbers appearing in both types of account will differ because of the sources of data used and in the estimation methods.

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#### **4.5 Data Sources and Estimation Methods**

Although NHAs have developed largely independently of national income accounting, national health accountants use many of the same estimating procedures and data sources. The most important of these is the practice of duplicate measurement, where a particular amount is estimated from two perspectives. For example, health expenditures on market-provided health services can be estimated from the perspective of the providers of care, in which case revenues are estimated, or from the perspective of the households, in which case direct payments are measured. The two measurements are then reconciled, with an adjustment to take into account the relative reliability of the two data sources (Waldo, 1996).

In terms of data sources, national health accountants, like national income accountants, will use whatever data are available, and from whatever source taking into account the reliability of the source. For the measurement of many transactions or activities, the identical sources of data will be used in each case. For example, in estimating out-of-pocket household spending at hospitals, both national income accountants and national health accountants might use data from a national household consumption survey together with revenue information reported by hospitals to the tax authorities. In this situation, the valuation of such spending or production would be the same in both cases. Despite this, there are two broad sets of reasons why one would also expect that national health accountants will produce different estimates of the same quantities to those produced by national income accountants.

The first relates to the positional advantages that national health accountants have with respect to the health sector. National health accountants have one advantage over national income accountants in respect to their ability to access and evaluate data sources: Since most national health accountants have prior health sector expertise and familiarity with available health sector data sources, they will tend to use a far greater number and diversity of sources in estimating many types of expenditures than would a national income accountant. This is not an inevitable difference, but in practice national health accountants have greater incentives and ability to trace additional sources of data which pertain mostly to the health sector than do national income accountants. In addition, because of their health sector-specific expertise, actual linkages to health sector managers and the greater time and resources available for the specific task of estimating health expenditures, national health accountants will often be in a better position to evaluate the credibility and reliability of available data sources.

A reflection of the different levels of resources that are available in practice to the different sets of accounting is the fact that, with the exception of France, no national income accounts office has been able to provide the resources to estimate a satellite health account on a regular basis for more than one year. This difference in resources is critical as it directly affects the final valuations through the number of data sources that can be examined, and the effect of repeated health accounts estimations on the ability of health accountants to evaluate health expenditures data.

The second set of reasons is that national health accountants face different estimating constraints when adjusting their estimates than do national income accountants. The major estimating procedure used by both groups is to examine information on any set of expenditures from multiple sources and then adjust the estimates in order to achieve internal consistency. In doing so, national income accountants will necessarily face a different set of consistency constraints. In estimating health expenditures, national income accountants must ensure that their results remain consistent with estimates of expenditures in other sectors. Satellite accountants face even more rigid constraints in that they are not at liberty to modify directly the overall aggregates estimated in the central accounts, although they may do so indirectly by stimulating subsequent adjustments through their results.

For example, household spending on health services might be estimated from the share of such expenditures reported in the national household consumption survey, which is itself used by a simple scalar adjustment to provide data on the breakdown of overall household consumption in the central accounts. On the other hand, a national health accountant might have access to other data from health care providers that suggest that this estimate of health spending is significantly wrong, because of biased responses by households, other non-sampling errors, and insufficiently detailed survey instruments, etc. The national health accountant has the freedom to adjust the NHA estimate of household health spending accordingly. The national income accountant does not, since adjustment of the figures reported in the central accounts will require corresponding adjustment of all other household expenditures to compensate and retain internal consistency.

This is not an infrequent problem, particularly in developing countries where household spending comprises a greater proportion of national health expenditures than in advanced economies, and where data on provider revenues are scarce. In the Egypt NHAs, household spending on drugs is estimated at a different share of overall household health spending than is reported in the household survey used in construction of the official national income accounts (Rannan-Eliya et al., 1997). In an estimate of Zambia's NHA, the analysts declined to use the official national income accounts which were known to significantly underestimate household consumption and production, and instead used some private estimates of national production and income which were regarded as more credible (Berman et al., 1995). In this latter case, the resulting estimates of health expenditures were not comparable to valuations in the official national income accounts, but were considered more accurate and representative of reality.

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## 5. Recommendations

The SNA is designed to measure and describe production in a manner, consistent and comparable over time and countries, and to aid macroeconomic analysis. This requires rigidity in its conceptual framework and classifications, which in turn makes it too inflexible a system for measuring and describing health expenditures of an economy in a manner that is most useful to health sector managers.

The 1993 SNA recognized the constraints of the central framework and proposed an extension of the SNA-termed satellite accounting. Satellite accounts are an elaboration or extension of the central framework of the SNA, which enable variation or modification of the basic conceptual framework and structures of the central system for the purpose of the analysis of single sectors of most concern to sectoral managers. Modification of the conceptual basis of the SNA is permitted in satellite accounts in order to bring flexibility to the SNA, without unduly burdening it with additional classifications or having to relax its desirable rigidity. The 1993 SNA recognizes two distinct types of satellite accounts: Type A or functionally oriented satellite accounts, and Type B or experimental satellite accounts. In the second type of account, the SNA permits almost unrestricted variation in the basic conceptual bases and classifications and structure. However, in Type A accounts, although variations in concepts and classifications are permitted, the emphasis is not meant to be on the variations themselves.

To date, exploitation of both types of satellite accounting with respect to the health sector remain extremely limited. There are only two examples of satellite health accounts estimated in accordance with the SNA framework. One is in France, where much of the pioneering work on satellite accounting was done, and the second in Brazil. In neither case has the satellite health accounts been used extensively by health sector managers, and in the second case its immediate policy relevance is uncertain given that the base year of the estimated accounts was taken to be more than 14 years previous to the date of release.

National health accounts represent an independent approach to estimating health expenditures in a manner that is most relevant to health sector managers. National health accounting is relatively recent in its development and therefore lacks the international comparability of the SNA. NHAs tend to be estimated in an idiosyncratic manner by each country. It is difficult to refer to one single NHA approach, although one can identify significant commonalities in the various national approaches to national health accounting.

The most important difference between NHAs and SNA-based approaches is that NHAs are the responsibility of health sector managers and researchers. This is reflected in their choice of structure and nomenclatures, which are what are most relevant to those wanting to understand the dynamics of the health sector alone. Nevertheless, there are important similarities between NHAs and the SNA. NHAs largely adhere to the same conceptual framework as given in the SNA, except that they emphasize expenditures instead of valuing activities. Some differences do exist, but they are minor, and both systems use similar concepts of production and consumption. Where NHAs do differ significantly is in the structuring of data. The classification systems used by NHAs are not the ones prescribed by the SNA. However, it is important to note that virtually all of the variations used by NHA are expressly permitted in the SNA framework for functionally oriented satellite accounts.

However, NHAs cannot be regarded as being equivalent to Type A satellite accounts, as the main emphasis in NHAs is on the use of different classifications.

Since there is little difference at the conceptual level between NHAs and the SNA, it would not be impossible to map most of the cells in an NHA matrix to corresponding entries in a Type A satellite account. Although mapping is largely possible, exact equivalence in the valuations of identical sets of transactions is not likely. NHAs in practice will contain different valuations to that estimated in a satellite account. This variation reflects primarily the different estimating constraints that national health accountants face (they do not need to achieve full internal consistency with the central system of data), as well as the comparative advantage they gain from being closely linked institutionally to health sector managers. National health accountants benefit from having greater expertise and familiarity with health sector data, their advantages in accessing health sector information, and their ability to gain more experience through repeated estimations of a NHA. Satellite accountants are unlikely to be able to gain such experience, since few if any national accounts departments have such interests or unlimited resources, which would enable them to regularly estimate satellite health accounts, unlike the case with health sector agencies.

NHAs are clearly a valid method of estimating health expenditures, and the one that will be most useful to health sector managers and most likely to be sustained. Nevertheless, they suffer from the lack of consistency and comparability that is the hallmark of the SNA.

Given that there are now a large number of countries involved in NHA work and that several international agencies are encouraging NHA activities, the time may have come to seek greater international comparability and consistency among NHAs. If national health accountants were to follow the experience of the SNA, this is best done through a process of repeated international consultation and consensus-building exercises designed to build on what has been achieved and is currently being done by countries. If through this process, a consensus-based, internationally consistent framework can be achieved for NHA work, this would substantially increase NHA use as a tool for international comparison as well as reduce their major analytic weakness with respect to the SNA approach.

This paper has hypothesized, based on the few national health accounts systems with which the authors are familiar, that the major and critical difference between a satellite accounting approach and NHAs is in the institutional responsibility for estimating the accounts. This difference is critical, as it directly affects the methods chosen to structure, collect, and estimate the data, as well as the likelihood of use of NHA by policy makers. NHAs are consequently more likely to be used in the health sector, and are also more likely to be sustained. Since satellite accounts are traditionally the responsibility of national income accounts departments, this has major implications for the siting of NHA work. If such institutional differences are important, then it might be recommended that NHA work be seen as the responsibility of health sector managers and agencies, and not of the national income accounts departments.

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# Annex C: Glossary

## SNA terms

**Beneficiaries:** Those who use goods and services or benefits from the transfers involved (same as “users”).

**Concepts:** Definitions of the basic items appearing in the accounts, consisting of transactions and activities (SNA 1.19-27).

**Consumption:** Consumption has two components: *intermediate consumption* consists of inputs into the production process that are used up within the accounting period; *final consumption* consists of goods and services used by individual households to satisfy their individual or collective wants.

**Central framework:** This refers to the set of conceptual definitions, classifications of units, uses and purposes, and valuation conventions defined in the SNA for use in national income accounts.

**Financial intermediaries:** Entities that collect funds from lenders and then channel them to borrowers by intermediating between them. This generally involves incurring liabilities on their own account on financial markets when borrowing funds (SNA 6.120).

**Financing units:** The units that ultimately bear the expenses. Classified at an aggregate level into market producers, NPISHs, government, households, financial enterprises and the rest of the world.

**Functions:** Functions refer to the type of transaction. Functions are the “purposes” or “objectives” for which transactors engage in certain transactions (SNA 18.1).

**Functionally oriented satellite account:** A satellite account constructed in accordance with SNA conventions, in which the major emphasis is not on the use of concepts different to those found in the central framework.

**Institutions:** Economic entities that are capable in their own right of owning assets, incurring liabilities, and engaging in economic activities and in transactions with other entities (SNA 4.2).

**Non-profit institutions serving households (NPISHs):** All resident non-profit institutions, except those controlled and mainly financed by government, that provide non-market goods or services to households (SNA 4.10).

**Production:** An activity carried out under the control and responsibility of an institutional unit that uses inputs of labor, capital, and goods and services to produce outputs of goods and services (SNA 6.15).

**Production boundary:** Not all production activities are considered or measured in the SNA. The production boundary is an arbitrary distinction that separates those activities which are considered in the SNA from those which are not considered. As defined in the SNA, production does not include the own-account production of domestic and personal services by members of the household for their own final consumption (SNA 6.17-20).

**Satellite account:** A system of data linked to the central framework of the SNA but showing the expenditures for a specific purpose or in a specific field, structured either similarly or differently to the data in central accounts.

**Transaction:** An economic flow that is an interaction between institutional units by mutual agreement or an action within an institutional unit that it is analytically useful to treat like a transaction.

**Transfers:** Transactions in which one institutional unit provides a good, service, or asset to another unit without receiving from the latter any good, service, or asset in return as counterpart (SNA 8.27).

**Users:** Those who use goods and services or benefits from the transfers involved (same as “beneficiaries”).

## **NHA terms**

**Consumption:** The use of goods and services by or for specific persons.

**Financing sources:** Entities which act as ultimate sources of the resources used to fund the provision of health care services in a health system. By convention classified into government, households, NGOs, and firms.

**Financing intermediaries:** Entities that collect funds from financing sources in order to pay for the provision of health services by other health care providers.

**Providers:** Institutional entities who produce and provide health care services that benefit individuals or the population groups.