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NATIONAL ACCOUNTS AND BALANCES: LINKS BETWEEN THE
SYSTEM OF NATIONAL ACCOUNTS (SNA) AND THE SYSTEM
OF BALANCES OF THE NATIONAL ECONOMY (MPS)

Elaboration of the conceptual framework for the System
of National Accounts (SNA) and the System of Balances
of the National Economy (MPS) comparisons and related
experimental calculations

Report of the Secretary-General

SUMMARY

The present document contains a general description of the work on SNA/MPS links carried out since the twenty-third session of the Statistical Commission (paras. 1-7). Section I of the report is devoted to the preparation of a revision of the publication entitled Comparisons of the System of National Accounts and the System of Balances of the National Economies, part one: Conceptual Relationships. Special attention is given to a discussion of certain conceptual issues of intersystem comparisons to which the Statistical Commission paid relatively less attention at its preceding sessions (paras. 13-30). Section II describes the current work on illustrative calculations of SNA/MPS aggregates that were carried out both by the Statistical Office of the United Nations Secretariat and by countries on a bilateral basis (paras. 31-38). Sections III and IV include some proposals for future work (paras. 39-45) and points for discussion.

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INTRODUCTION

1. At its twenty-third session in 1985 the Statistical Commission discussed the report of the Secretary-General on progress on links between SNA and MPS during the two preceding years (E/CN.3/1985/6). Having approved the several results of the work in this area, the Commission recommended that the study should be continued 1/ and emphasized, in particular, that priority should be given to the revision of the conceptual framework for comparisons between the System of National Accounts (SNA) and the System of Balances of the National Economy (MPS), the principles of which are described in Comparisons of the System of National Accounts and the System of Balances of the National Economy, part one: Conceptual Relationships. 2/ (This document will be referred to below as Comparisons ... Part One). The Commission also urged continuation of the work on experimental illustrative calculations of the gross domestic product (GDP) of the selected countries with centrally planned economies and the net material product (NMP) of the selected countries with market economies.
2. Among other directions of work on this subject, the Commission singled out revision of the glossary of SNA/MPS terminology, which was prepared in the late 1960s within the framework of the Conference of European Statisticians, and continuation of the work on methodology of computing the total consumption of population.
3. The present report will review the major results of work done in this area since the twenty-third session of the Statistical Commission and discuss some substantive issues related to the subject and above all, to the efforts made by the Statistical Office of the United Nations Secretariat to improve and elaborate the conceptual framework for SNA/MPS comparisons. It will give a detailed account of the preparatory work towards the forthcoming revision of the document Comparisons ... Part One. The paper will introduce some updated information on the experimental illustrative calculations of GDP and NMP carried out by the Statistical Office in conducting the study of intersystem links. Finally, the paper will put forward some proposals for future work in this area.
4. As was mentioned above, the major effort in the study of SNA/MPS links was focused on the preparation of certain materials for the revision of Comparisons ... Part One. In close co-operation with the secretariat of the Economic Commission for Europe (ECE), the Statistical Office worked out a tentative outline for revision which envisaged significant expansion of the conceptual framework and inclusion of certain new aspects - for example, analysis of the impact of peculiarities in the institutional set-up on the international comparability of national income data, and a methodology for computing total consumption of the population. A great deal of attention was paid to improving schemes for standard conversion tables designed to derive the GDP of countries using MPS, and the NMP of countries using SNA. The Statistical Office made some effort to revise the tentative schemes for conversion tables discussed at the twenty-first and twenty-second sessions of the Statistical Commission. The purpose of the revision was to take into account specific comments made on this topic by the Commission, as well as the discussion of conceptual issues of the intersystem comparisons held during the past several years in various forums. This and related topics will be discussed in greater detail in section I of the present report.

5. The other aspects of work on this subject to which the Statistical Office has paid considerable attention during the past two years may be described as the search for and attempt to identify those areas in both SNA and MPS, where differences in the content and classifications of the corresponding aggregates of the systems could be reduced or even eliminated in the course of present and future work of revision. In this connection, major attention was given to a comparative analysis of the definitions, concepts and classifications employed in the production, consumption and capital formation accounts and balances, because the aggregates of these sections of SNA and MPS are more suitable for international comparisons. The practical results of that type of analysis will be introduced in the appropriate sections of the SNA and MPS as clarifications. For example, subdividing units engaged in the provision of services into state-financed and self-financing ones, or classifying the transactors used in balance of production as primary distribution, redistribution and final disposition of the national income (NMP) could be extremely useful for bridging SNA and MPS. This topic is discussed in a more detailed form in section I of the present report.

6. The Statistical Office also continued the study of selected conceptual issues of intersystem comparisons, e.g. treatment of subsidies in the context of intersystem comparisons, treatment of differences in the scope and valuation of the consumption of fixed assets, treatment of value added tax and so forth. The results of the work in this area will be used for the preparation of the revised document Comparisons ... Part One.

7. The Statistical Office continued to study the possibilities of introducing some versions of the conversion tables in the SNA and MPS questionnaires currently in use. The objective of the work is to start collecting on an annual basis data on GDP from centrally planned economies and NMP from market economies. It is hoped that the work will be useful also in the context of efforts to classify conceptual issues and problems of data collecting.

8. As was mentioned above, the Statistical Office continued its efforts to expand experimental illustrative calculations of GDP and NMP. Important objectives are to cover a number of new countries, both developed and developing, and to update estimates of GDP and NMP obtained for some countries earlier. Another objective of the work is to study sources of data needed for intersystem comparisons and methods of their processing. Experimental calculations can also be useful for testing the standard conversion tables and ensuring input for further conceptual work.

9. Work in this area was carried out by the Statistical Office, as a rule, in close co-operation with the statistical offices of countries for which the estimates of NMP and GDP were made. Especially useful was co-operation with Statistics Canada. Thanks to this, it has been possible to refine estimates of the NMP of Canada for 1976, which had been referred to the twenty-third session of the Statistical Commission.

10. Work on experimental calculations of GDP and NMP continued also on a bilateral basis. Thus, the statistical offices of France and Hungary continued their bilateral efforts in this area. Statistical offices of Bulgaria and Finland completed comparisons of GDP and NMP for 1982.

11. It should be remembered that in the past the Statistical Commission emphasized the advantages of bilateral comparisons, whereby it is possible to take into account more detailed information and peculiarities in the institutional set-up. Results of the work on experimental calculations of GDP and NMP are presented in a more elaborate form in section II of the present report.

12. Finally, the report formulates proposals for future work on this subject. It envisages, among other things, speeding up the revision of Comparisons ... Part One, commencing revision of the glossary of SNA/MPS terminology and certain other work. These proposals are discussed in section III.

I. PREPARATIONS FOR THE REVISION OF COMPARISONS OF THE SYSTEM OF NATIONAL ACCOUNTS AND THE SYSTEM OF BALANCES OF THE NATIONAL ECONOMY, PART ONE: CONCEPTUAL RELATIONSHIPS

13. The major objective of the revision of Comparisons ... Part One is to improve and elaborate the conceptual framework for comparisons. During the twenty-first, twenty-second and twenty-third sessions of the Commission much attention was paid to certain conceptual issues of SNA/MPS comparisons, e.g. introduction of an improved version of the modified matrices and the conversion tables; treatment of social and cultural services to employees; treatment of the output of financial institutions; treatment of capital losses of stocks; treatment of external trade flows; and treatment of capital formation flows. These efforts may be considered as preparatory work on the revision of the document Comparisons ... Part One. The Commission at its twenty-third session emphasized that priority should be given to revision of that document. The major approach to the revision and description of principal parts of the document are given below.

14. The improvement and elaboration of the framework of the comparison between SNA and MPS should be based on the United Nations System of National Accounts and the System of Balances of the National Economy of the Council for Mutual Economic Assistance (CMEA). A clear identification of the main aggregates of both systems and their components could be useful for improving international comparability of data. The work of the Statistical Division of CMEA in this field has resulted in improving the conventional balances of MPS and in introducing in MPS some additional balances dealing with comparatively new aspects of macro-economic analysis. The improved version of MPS, which is presented for the consideration of the Statistical Commission at its present session, provides a better methodological basis for improving the international comparability of NMP data in countries with centrally planned economies.

15. One of the most important aspects of the revision of Comparisons ... Part One is to identify in both systems of national accounting those areas where differences could be reduced or even eliminated. Further extension and improvement of comparisons between the concepts and definitions of each system seem to be essential for several interrelated objectives. First, a review of intersystem conceptual differences could contribute to a better understanding of different ways of looking at the economic process and be useful for evaluating SNA and MPS data series in a cross-country type of analysis. Secondly, a comparative analysis of

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the concepts and definitions could help to build up the "common aggregates", such as total consumption of the population and capital formation, which are an important part of international statistics. In developing common concepts it might be useful to neutralize some of the institutional differences between countries in the same manner as is done in SNA in order to make comparable the national accounting data of countries using that system, where considerable institutional differences might prevail. For example, the SNA has created the concept of quasi-corporation, in order to define an economically more useful coverage of the enterprise sector for those countries that have large enterprise units behaving in a similar manner to corporations although legally they do not have corporate status. Similarly, imputation for non-market subsistence activities has been recommended to eliminate differences between countries that have a well-developed market system and countries with an important barter economy.

16. The differences between SNA and MPS are numerous. They relate to fundamental concepts and definitions, to the manner in which an economy is subdivided into major sectors, to the general structure of accounts and balances and to the terminology, as well as to the mode of presentation of data. The differences may be classified into the following three groups:

(a) Differences in fundamental concepts and definitions;

(b) Differences caused by peculiarities in an institutional set-up;

(c) So-called "incidental differences" which reflect national practice and traditions as well as the differences in the sources of data used and in application of data.

17. Each group requires special treatment. Thus, while it would be unrealistic to expect that differences in fundamental concepts could be reduced or diminished in the foreseeable future, there are always possibilities to introduce in both systems some modifications which could facilitate international comparisons. On the other hand, it is clear that the possibilities for reducing differences are much more promising in the case of the third group.

18. Broadly speaking, there is a remarkable similarity between SNA and MPS with regard to the general structure of accounts and balances. This is true, first of all, in the sense that the bulk of major aggregates distinguished in one system has its clear counterparts in the other system. Thus, both systems have separate sections dealing with production and disposition of goods (and services), with incomes and outlays, with accumulation of reproducible tangible assets, with stocks of wealth. Both systems pay considerable attention to analysis of inter-industry relationships and have special arrangements for such analysis. There are, of course, some important differences. One of them relates to treatment of capital finance flows. Contrary to SNA, MPS does not show explicitly the sources of finance of capital outlays. This is true both at the level of the economy as a whole and at the level of the individual sector of the economy. It does not mean, however, that the MPS entirely excludes from its balances the transactions with financial assets and liabilities. In fact, these transactions are regarded in the MPS as redistributive ones, and they are shown in the balance on production,

distribution, redistribution and final disposition of global product and national income (financial balance), which is, to a considerable extent, a counterpart of the income and outlay account of SNA.

19. It appears that the above treatment of financial flows in the MPS reflects, to some extent, peculiarities in the institutional set-up in countries using MPS and, in particular, the fact that the role of financial flows has been noticeably lower in countries with centrally planned economies as compared with market economies. As mentioned above, there are some similarities between SNA income and outlay accounts and the MPS financial balance. Broadly speaking, they both contain data on formation of incomes of the various sectors of the economy and their disposition for various purposes. However, there are some significant dissimilarities. Thus, in the financial balance, a distinction is not made in the explicit manner characteristic of SNA between current and capital flows, and in particular, between current and capital redistributive payments and receipts. As a result, there is no category of saving in the SNA sense (which is defined as an excess of disposable income over consumption) in the financial balance. The second important distinction refers to the treatment of financial flows, which was already discussed. In the financial balance they are treated as a special kind of redistributive flows of a temporary nature. There are also some differences in the content of the major categories of distribution, redistribution and final use of income. Some of them stem from differences in the definition of economic production which are yet to be discussed and others have already been mentioned, e.g. composition of the redistributive flows. Thus, the primary income of the population which is a counterpart of SNA compensation of employees, excludes wages and salaries paid in the non-material sphere. This, of course, reflects the fact that in the MPS the non-material sphere lies outside the boundaries of the production of national income. Redistributive flows in the MPS are defined to include (in addition to such conventional items as taxes, dues and allowances) incomes originating in the non-material sphere, as well as financial flows (loans), credits, deposits, withdrawals of deposits, allocations from the State budget and so forth.

20. There are noticeable differences in the sectoral classifications used in SNA and MPS on the one hand for production, consumption and capital formation accounts and balances, and on the other hand, for income and outlays and capital finance accounts and balances. These differences reflect both fundamental distinctions in underlying concepts and peculiarities in the institutional set-up. To some extent, however, they also reflect differences in the system of statistical information which provides data needed for the compilation of accounts and balances.

21. Thus, while a distinction is made in SNA production, consumption and capital formation accounts between industries, producers of government services, private services and households, in the MPS material balance, the following sectors are distinguished:

(a) Branches of material sphere;

(b) Branches of non-material sphere serving individuals;

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(c) Branches of non-material sphere serving society as a whole;

(d) Households.

22. It should be noted that in both SNA and MPS, economic activities are classified by industry. The differences between ISIC and similar CMEA classifications are well known, and there is no need to discuss them here. However, it is essential to point out some peculiarities with regard to the classification unit. While in SNA, an establishment is used as a classification unit, in the MPS the unit of industrial classification is not infrequently referred to as an enterprise. Two important points should not be overlooked. First, in countries using MPS the term "enterprise" normally refers to a factory, plant, farm etc.; these units are much more homogeneous than enterprises (firms and companies) in countries using SNA. Secondly, factories and plants in countries with centrally-planned economies normally have some subsidiary units engaged in rendering certain non-material services, e.g. housing, sport and cultural facilities etc.; these units, together with construction on own account, are treated as separate establishments. So this means that there is a strong similarity between SNA and MPS with respect to industrial classification units. But there are also some distinctions. For example, in the material balance of the MPS where the most aggregated level of classification is employed, the categories of industrial classification are expressed in terms of major commodity groups such as industry, agriculture, construction and so forth, rather than in terms of establishments.

23. There is no such similarity among classification units employed in income and outlays and capital finance accounts and balances of SNA and MPS. Thus, SNA recommends that an enterprise-type unit of classification be used in the institutional sector classification. In the MPS, sectoral classification used in the financial balance is very similar to that employed in the material balance, i.e., again a plant and factory, excluding establishments engaged in provision of the non-material services and construction on own account. So much for the differences and similarities in the general structure of SNA and MPS; we can now pass to a discussion of the differences in the fundamental concepts and definitions.

24. These differences need not be described in detail, since they are well-known and are fully described in a number of sources, including United Nations documents. It is essential to discuss them only in order to attempt to identify those areas in both SNA and MPS where certain modifications could be introduced to facilitate the linkage of the relevant categories.

25. The most important difference between the underlying concepts and definitions of SNA and MPS refers to the definition of economic production. In SNA, practically all activities pertaining to the production of goods and services are embraced by the concept of economic production; exceptions are well-known and there is no need to refer to them in the context of this paper. In MPS, economic production (where national income originates) is restricted to industries producing material goods and material services such as transportation, communication and trades. On the other hand, non-material services (general government services, finance, scientific and research services, housing, medical and educational services) lie outside the production sphere and are regarded as branches of the economy where only redistribution and final consumption takes place.

26. The difference in definition of economic production has, of course, a substantial impact on the comparability not only of production aggregates of SNA and MPS, but also of categories of consumption (both intermediate and final), distribution and redistribution of income. The categories pertaining to analysis of industrial origin of national production are also, of course, affected.

27. It should be noted that the fact that economic production in MPS is restricted to production of goods and material services is often misinterpreted. A wrong conclusion is often made that the MPS does not include at all the data pertaining to non-material activities. However, the fact that non-material services are not included in economic production does not mean that the flows of non-material services are entirely excluded from the MPS structure. Thus, data on sales and purchases of non-material services can be easily found in the appropriate sections of the financial balance. There are also some data available on the components of the cost structure of non-material services which can be employed for computation of value of services free of charge to individuals or to a society as a whole. In addition to this, the material balance of the MPS provides information on the material input, including depreciation of fixed assets in the non-material sphere, which can be used to obtain estimates of domestic (material) product in the SNA sense. This objective can be facilitated if certain modifications are introduced into the structure of the MPS, in particular into the structure of the financial balance. These modifications may consist in sectoral classification of the financial balance and subdivision of the non-material sphere into: (a) state-financed units; (b) self-financing units; and (c) financial institutions. This subdivision will make it possible to estimate the value of non-marketed non-material services provided to individuals (medical and educational services) free of charge and to society as a whole (administrative services, scientific services and so forth). It will also make it possible to estimate the output of financial institutions and to allocate it to the relevant category of disposition of product. There could be further modification for improving the comparability of SNA and MPS, but they do not refer to the fundamental differences between these systems of national accounting and will not be discussed here. The advantage of introducing into the MPS financial balance the above-mentioned subdivision of the units of the non-material sphere can be demonstrated with the help of the modified matrix of the MPS, shown below.

28. The net material product (N) can be derived from the matrix as follows:

$$(a) \quad N = S_{3,2} + S_{4,2} + S_{5,2} \quad (1)$$

i.e., as a sum of components of value added or

$$(b) \quad N = S_{1,15} + S_{1,16} + (S_{1,17} - S_{21,17}) + S_{1,18} + S_{1,19} + S_{1,20} + S_{1,22} - S_{22,1} \quad (2)$$

i.e., a sum of components of final disposition of material goods.

Now it can be shown how subdividing the non-material sphere into the three above-mentioned categories can facilitate derivation of gross domestic product (G).

$$\text{Thus } G = N - S_{4,2} + S_{7,12} + S_{7,13} + S_{7,14} + \quad (3)$$

$$(S_{13,8} - S_{7,13} - S_{8,13} - S_{9,13} - S_{16,13} - S_{21,13}) + S_{21,16} + S_{21,17}$$

$$G = N - S_{1,16} + S_{8,10} + \quad (4)$$

$$(S_{7,12} + S_{8,12} + S_{9,12} + S_{16,12} + S_{21,12}) + (S_{21,16} + S_{21,17}) + (S_{22,8} - S_{8,22})$$

It should be noted that the expressions

$$(S_{13,8} - S_{7,13} - S_{8,13} - S_{9,13} - S_{16,13} - S_{21,13})$$

in equation (3) refer to operating surplus in self-financing units of the non-material spheres, whereas expressions

$$(S_{7,12} + S_{8,12} + S_{9,12} + S_{16,12} + S_{21,12} + S_{20,12})$$

in equation (4) refer to the value of non-marketed output of State-financed units of non-material sphere used for final consumption.

29. It should be noted that owing to the fact that the MPS matrix has been presented in a rather simplified manner, a number of adjustments needed to derive GDP have been disregarded in equations (3) and (4). This relates, for example, to the adjustments dealing with expenditures of enterprises on social and cultural services to employees and to expenditure of employees on official missions etc. On top of it, some adjustments have not been introduced owing to lack of clarity on conceptual issues of intersystem comparisons. For example, no adjustment was

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introduced with regard to capital losses of stock (it is still not clear whether such an adjustment is in fact needed). A rather simplified approach was adopted with regard to treatment of financial institutions. Thus, in equation (3) no adjustment is shown concerning non-marketed output of financial institutions, whereas in equation (4) it is assumed that all non-marketed output of financial institutions should be allocated to intermediate consumption. However, all these and other simplifications are not important in the context of this exercise, the purpose of which is to demonstrate that the subdivision of the non-material sphere units, as shown in MPS financial balance, into three of the above-mentioned categories is essential for bridging the SNA and the MPS in the situation where the non-material services are in principle excluded from the concept of economic production. We believe that the introduction of this subdivision can be useful not only in the context of intersystem comparisons but also for improving analytical capacities of certain MPS balances.

30. Let us now turn to the SNA to see which modifications may be needed to facilitate linkage with the MPS. It should be recalled in this connection that in the course of work on the revision of the present SNA during the 1960s, efforts were undertaken to introduce, as a matter of principle, into the industrial classification of the system, a distinction between material goods and services and non-material services. This distinction is, of course, essential for derivation from the SNA components of the concept of the net material product, and the refinement of this distinction deserves attention in future work on the revision of the SNA. Particular note should be taken of the changes introduced in the latest CMEA industrial classification, as well as of the conversion key between the two industrial classifications worked out by joint efforts of the CMEA and ECE secretariats. Mention should also be made of the other major conceptual differences between the SNA and the MPS. This refers to definition of the factors of production and, above all, to the role they play in the process of creation of value. Thus, according to the SNA underlying theory, labour, land and capital equally participate in origination of value. The MPS, on the contrary, regards labour as the only source of value. This distinction does not seem to have a serious impact on the comparability of the relevant aggregates of the SNA and MPS in terms of their contents in particular, but it does have an impact on interpretation of economic process, and on the interpretation of distribution and redistribution of income, as well as on the interpretation of the factors responsible for the production growth.

II. RESULTS OF EXPERIMENTAL CALCULATIONS OF SNA/MPS AGGREGATES

31. Elaboration and improvements of the methodology of intersystem comparisons is essential not only for promoting a comparative analysis of the economies of the countries belonging to different socio-economic groupings but also for handling a number of practical tasks confronting the United Nations, such as determining the contributions of the countries to the United Nations budget, or allocating funds for industrial assistance purposes to various countries. In this sense, results of the experimental calculations carried out by the Statistical Office of the United Nations and also on the bilateral basis between members of countries seem to have practical importance. As an example of such calculations we can present recent results of comparisons for Canada, Hungary-France and Bulgaria-Finland.

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32. Two separate stages were employed for derivation of the NMP of Canada. In the first stage, the conversion of SNA categories into their MPS counterparts was carried out strictly within the framework of the conversion tables, and the condensed input-output table was used as the only source of primary data. In the second stage, estimates of NMP derived in the conversion tables were adjusted by additional data supplied from other sources. This ensures consistency in the interrelated adjustments in the conversion tables as well as identical estimates of NMP obtained in different conversion tables. In addition this approach makes it possible to demonstrate the links between the condensed input-output table and conversion tables.

33. In the original input-output table of Canada indirect taxes (less subsidies) are allocated among sectors of both intermediate and final users. Thus, a part of net indirect taxes referring to intermediate goods is shown in the III quadrant of the table, while the other part referring to final products is shown in the IV quadrant. This means that value-added data recorded in the input-output table do not include net indirect taxes levied on final products. Thus, the indirect taxes shown in the published final demand table have been reallocated to the respective industries of origin in the intermediate sector. The data of condensed inter-industry tables were processed by the Input-Output Division of Statistics Canada. This made identification of the elements for derivation of net material product easier.

34. According to MPS methodology, the material part of business travel expenditures and the material part of expenditures on cultural and social services provided by enterprises to their employees in both spheres of economy are included in final rather than intermediate consumption, and consequently, in the NMP. If, however, the NMP is obtained by summing up value-added originating in material industries, then the full amount of business travel expenditure and expenditures on cultural and social services to employees in the material sphere should be added to the NMP. The estimates of business travel expenditures were provided by Statistics Canada separately for material and non-material activities and this has been taken into account in the calculation of NMP. Data on cultural and social services to employees were not available and no attempt has been made to estimate their value. It is believed however that leaving out this item does not significantly affect the reliability of NMP estimates. A modified input-output table and derivation of NMP for Canada for 1976, are given in tables 2-5 below.

35. The final estimates of NMP for Canada for 1976 (in billions of Canadian dollars), obtained on the two-stage procedure described above, can be presented as follows:

$$\text{NMP} = 127,5 + 2,9 = 130,4$$

where 127,5 is the net material product obtained from the conversion tables,
2,9 is the estimated sum of business travel expenditures.

36. The work on a bilateral basis by countries was continued. Bulgaria and Finland have completed bilateral comparison of GDP and NMP for 1982. These two countries published a joint document in November 1985, "Comparison of the balance

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sheets and the national accounts of the PR Bulgaria and the Republic of Finland", where conversion procedures and main results were described. The exercise provided valuable experience in bridging SNA and MPS aggregates in theoretical and quantitative forms. The joint experimentation of SNA and MPS between two countries indicated that the basic methodological differences between two national accounting systems have been reflected in Comparisons ... (Part One) which can be used in principal but may be improved by acquired practical and theoretical experience.

37. The joint work by Hungary and France in the field of SNA/MPS comparisons was also continued. Countries are planning to begin the next stage of comparisons, introducing new features. They intend to include in comparison work: (a) total consumption of the population; (b) a breakdown of GDP/NMP by activities; (c) presentation of the source-and-use table of income of the population; and (d) a methodological paper based on their experiences. Efforts will also be made to introduce the comparisons by simplified methods in order to facilitate the work in this field. Simplified methods seem especially important in the light of the intention of the Statistical Office to gather GNP/MPS data on a regular basis.

38. The recent results available in the Statistical Office on SNA/MPS comparison (on multilateral and bilateral bases) show remarkable similarities among different countries. The main results of the comparisons are shown in table 6.

Table 2. Input-output: Canada, 1976

(Millions of Canadian dollars)

	Agriculture, fish and forestry 1	Mining and quarrying 2	Manufacturing 3	Construction 4	Transport and communication 5	Electricity and gas 6	Trade 7	Motion picture production 8
1. Agriculture, fish and forestry	860.6	0.6	8 170.7	29.8	8.0	0.0	368.2	0.0
2. Mining and quarrying	135.8	558.5	10 057.4	753.5	112.3	398.2	68.7	0.1
3. Manufacturing	2 376.0	704.8	36 598.7	11 074.4	1 736.8	152.4	1 108.9	17.6
4. Construction	265.6	374.5	487.7	44.5	616.6	204.2	172.6	0.8
5. Transport and communication	363.0	151.6	1 182.6	361.0	1 991.6	62.2	1 036.9	1.5
6. Electricity, gas	132.2	224.3	1 057.1	30.0	114.2	28.4	412.9	0.8
7. Trade	359.2	127.5	2 313.1	1 499.3	324.9	12.3	306.6	3.1
8. Motion picture production	0.0	0.0	0.0	0.0	12.9	0.0	0.0	0.2
9. Business services	36.3	164.4	597.1	592.3	169.0	20.3	266.6	0.4
10. Food services	4.7	2.5	9.0	6.3	66.7	0.2	14.2	0.0
11. Other services	0.6	0.4	4.1	0.4	5.1	0.0	0.7	0.0
12. Operating, office and lab supplies	768.0	1 017.4	4 997.1	970.1	694.0	64.9	652.3	5.9
13. Material sphere total	5 302.0	3 326.5	65 474.6	15 361.6	5 852.1	943.1	4 408.6	30.4
14. Owner occupied dwellings	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15. Other finance	497.2	2 667.7	1 375.2	542.6	542.2	115.8	1 684.0	4.6
16. Education and health services	0.3	0.0	0.5	0.1	0.3	0.0	1.4	0.0
17. Amusement and recreation services	0.8	0.5	3.9	1.0	89.3	0.0	7.4	1.3
18. Other business services	30.2	189.1	792.3	786.9	138.9	11.7	286.9	1.1
19. Personal and misc. services	26.8	7.0	72.8	121.6	83.6	8.1	31.1	0.6
20. Accommodation services	0.0	0.0	0.0	0.0	5.5	0.0	0.0	0.0
21. Travel and advertising	6.6	76.8	2 088.1	149.2	272.5	21.1	1 233.2	6.0
22. Non-material sphere total	561.9	2 941.1	4 332.8	1 601.4	1 132.3	156.7	3 244.0	13.6
23. Non-competing imports	0.0	0.0	606.0	0.0	0.0	0.0	19.2	0.0
24. Unallocated imports and exports	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25. Net indirect taxes	71.8	1 221.9	8 952.5	1 742.8	421.4	220.1	1 589.0	7.3
26. Labour income	1 878.2	2 392.5	25 113.3	10 782.1	8 703.2	1 199.8	14 492.0	37.0
27. Net income unicorp. business	3 321.0	19.6	124.0	1 221.2	325.1	2.4	1 699.4	1.5
28. Other operating surplus	2 411.5	5 429.1	10 181.2	3 243.0	3 585.4	2 543.6	4 216.8	16.3
29. TOTAL	13 546.4	15 330.7	114 784.4	33 952.1	20 019.5	5 065.7	29 669.0	106.1

Table 2 (continued)

	Business services 9	Food services 10	Other services 11	Operating office and lab. supplies 12	Total material sphere 13	Owner-occu- pied dwelling 14	Other finance 15	Education and health serv. 16
1. Agriculture, fish and forestry	0.4	156.4	1.1	80.2	9 676.0	0.0	1.5	0.4
2. Mining and quarrying	1.8	10.5	0.1	21.4	12 118.3	0.0	44.6	5.2
3. Manufacturing	21.5	1 676.6	15.9	6 187.5	61 671.1	0.9	140.8	159.1
4. Construction	7.2	22.7	0.3	0.0	2 196.7	1 709.1	848.3	12.2
5. Transport and communication	75.2	72.7	6.0	6 003.6	11 307.9	0.2	492.2	120.2
6. Electricity, gas	7.8	58.2	2.0	3.1	2 071.0	0.0	168.7	12.5
7. Trade	13.1	181.9	3.0	3 018.0	8 162.0	0.0	45.8	45.4
8. Motion picture production	0.6	0.0	0.0	0.0	13.7	0.0	0.0	0.1
9. Business services	91.6	23.6	0.6	39.9	2 002.1	27.4	274.5	41.1
10. Food services	1.2	9.2	0.1	0.9	115.0	0.0	7.0	1.4
11. Other services	0.1	0.3	0.0	164.3	176.0	0.0	0.8	0.1
12. Operating, office and lab supplies	180.4	161.3	78.7	228.0	9 818.1	0.4	727.7	155.2
13. Material sphere total	400.9	2 373.4	107.8	15 746.9	119 327.9	1 738.0	2 751.9	552.9
14. Owner occupied dwellings	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15. Other finance	170.7	219.8	9.4	0.0	7 829.2	160.5	2 245.6	132.2
16. Education and health services	0.1	0.2	0.0	0.0	2.9	0.0	13.7	0.8
17. Amusement and recreation services	2.3	37.8	0.0	12.2	156.5	0.0	1.7	0.8
18. Other business services	129.5	48.2	1.2	0.2	2 416.2	55.1	418.7	48.7
19. Personal and misc. services	12.0	27.1	0.1	0.2	391.0	0.0	42.8	17.8
20. Accommodation services	0.0	0.0	0.0	0.0	5.5	0.0	0.0	0.0
21. Travel and advertising	115.6	100.0	3.5	0.0	4 072.6	0.0	572.0	48.3
22. Non-material sphere total	430.2	433.1	14.2	12.6	14 873.9	215.6	3 294.5	248.6
23. Non-competing imports	0.0	12.0	0.0	5.0	642.2	0.0	0.0	0.0
24. Unallocated imports and exports	0.0	0.0	0.0	82.2	82.2	0.0	0.0	0.0
25. Net indirect taxes	47.0	178.5	14.8	950.6	15 417.7	2 820.8	2 226.4	85.4
26. Labour income	1 334.4	2 590.2	301.3	0.0	68 824.0	0.0	6 690.1	1 232.8
27. Net income unicorp. business	108.7	697.7	151.8	0.0	7 672.4	10.4	96.3	1 872.9
28. Other operating surplus	889.7	726.0	55.1	0.0	33 297.7	6 145.9	8 240.8	130.8
29. TOTAL	3 210.9	7 010.9	645.0	16 797.3	260 138.0	10 930.7	23 300.0	4 123.4

Table 2 (continued)

	Amusement and rec. serv. 17	Other busi- ness serv. 18	Personal and misc. serv. 19	Accommodation serv. 20	Travel and advertising 21	Total non- mater. sphere 22	Total inter- mediate a	Consumer goods b
1. Agriculture, fish and forestry	1.6	0.6	2.0	0.3	8.1	14.5	9 690.5	1 650.0
2. Mining and quarrying	3.0	1.1	2.8	3.5	2.8	63.0	12 181.3	326.8
3. Manufacturing	78.4	33.5	248.2	105.1	1 562.2	2 328.2	63 999.3	40 943.3
4. Construction	14.6	12.4	10.3	12.0	5.1	2 624.0	4 820.7	0.0
5. Transport and communication	25.5	81.3	36.6	29.0	1 659.6	2 444.6	13 752.5	159.4
6. Electricity, gas	22.5	9.8	25.7	28.7	1.3	269.2	2 340.2	2 029.9
7. Trade	116.5	19.1	47.5	21.1	245.9	541.3	8 703.3	17 475.5
8. Motion picture production	22.9	0.9	0.0	0.0	12.1	36.0	49.7	1.0
9. Business services	14.0	54.7	24.6	10.5	16.3	463.1	2 465.2	82.9
10. Food services	1.6	2.0	1.2	1.0	743.6	757.8	872.8	35.2
11. Other services	0.1	0.1	0.1	0.1	5.8	7.1	183.1	115.6
12. Operating, office and lab supplies	149.7	136.3	131.0	64.2	21.9	1 386.4	11 204.5	1 056.5
13. Material sphere total	450.4	351.8	530.0	275.5	4 284.7	10 935.2	130 263.1	63 876.1
14. Owner occupied dwellings	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15. Other finance	160.4	229.6	109.1	101.7	5.4	3 144.5	10 973.7	8.7
16. Education and health services	0.1	0.2	0.1	0.1	0.0	15.0	17.9	0.0
17. Amusement and recreation services	123.3	3.7	0.7	19.7	63.2	213.1	369.6	175.4
18. Other business services	28.6	74.6	28.4	9.4	38.6	702.1	3 118.3	3.5
19. Personal and misc. services	9.4	19.3	22.5	14.2	472.1	598.1	989.1	67.3
20. Accommodation services	0.0	0.0	0.0	0.0	423.3	423.3	428.8	0.0
21. Travel and advertising	130.0	130.5	64.6	50.7	0.0	996.1	5 068.7	0.0
22. Non-material sphere total	451.8	457.9	225.4	195.8	1 002.6	6 092.2	20 966.1	254.9
23. Non-competing imports	0.0	0.0	0.0	0.0	0.0	0.0	642.2	166.4
24. Unallocated imports and exports	0.0	0.0	0.0	0.0	312.1	312.1	394.3	0.0
25. Net indirect taxes	139.6	91.1	166.8	69.8	431.9	6 031.8	21 449.5	0.0
26. Labour income	427.7	1 790.3	887.3	448.3	0.0	11 476.5	80 300.5	0.0
27. Net income unicorp. business	102.7	876.4	280.3	43.8	0.0	3 282.8	10 955.2	0.0
28. Other operating surplus	553.4	293.0	245.1	146.5	0.0	15 755.5	49 053.2	0.0
29. TOTAL	2 125.6	3 860.5	2 334.9	1 179.7	6 031.3	53 886.1	314 024.1	64 297.4

Table 2 (continued)

	Consumer services c	Fixed capital formation a	Inventories e	Government expenditure f	Exports g	Imports h	Government revenue i	Total final demand j
1. Agriculture, fish and forestry	71.9	1.2	477.2	42.4	2 671.0	-1 040.8	-17.0	3 855.9
2. Mining and quarrying	87.2	74.7	85.4	122.0	6 988.5	-4 468.2	-67.0	3 149.4
3. Manufacturing	244.8	12 572.6	736.4	1 564.4	26 698.7	-31 814.0	-161.1	50 785.1
4. Construction	100.1	28 017.4	0.0	1 025.8	0.2	-0.1	-12.0	29 131.4
5. Transport and communication	4 271.6	257.9	-6.7	1 002.3	1 230.2	-490.2	-157.5	6 267.0
6. Electricity, gas	201.4	1.4	-0.3	448.4	175.6	-20.4	-110.5	2 725.5
7. Trade	438.7	2 026.6	5.1	291.4	1 163.3	-421.1	-13.8	20 965.7
8. Motion picture production	53.7	0.0	0.0	4.2	0.0	0.0	-2.5	56.4
9. Business services	296.4	19.7	0.0	506.3	117.4	-238.5	-38.5	745.7
10. Food services	6 138.6	5.6	0.0	28.5	1.5	-3.4	-67.9	6 138.1
11. Other services	258.4	0.1	0.1	116.5	0.1	-0.2	-28.6	461.9
12. Operating, office and lab supplies	326.7	284.1	0.0	2 282.4	1 643.1	0.0	0.0	5 592.8
13. Material sphere total	12 489.5	43 261.3	1 297.1	7 434.6	40 689.6	-38 496.9	-676.4	129 874.9
14. Owner occupied dwellings	10 930.7	0.0	0.0	0.0	0.0	0.0	0.0	10 930.7
15. Other finance	10 892.3	1 662.7	0.0	707.7	204.5	-744.6	-405.0	12 326.3
16. Education and health services	2 552.5	0.0	0.0	2 731.7	0.5	-0.7	-1 178.5	4 105.5
17. Amusement and recreation services	1 821.7	1.7	9.7	37.1	92.5	-75.6	-306.5	1 756.0
18. Other business services	397.9	0.8	0.0	851.8	376.3	-837.0	-51.1	742.2
19. Personal and misc. services	1 841.2	0.2	0.0	457.7	29.7	-57.0	-993.3	1 345.8
20. Accommodation services	761.5	0.0	0.0	0.0	0.0	0.0	-10.6	750.9
21. Travel and advertising	192.9	0.0	0.0	769.7	0.0	0.0	0.0	962.6
22. Non-material sphere total	29 390.7	1 665.4	9.7	5 555.7	703.5	-1 714.9	-2 945.0	32 920.0
23. Non-competing imports	0.0	0.0	-4.5	0.0	0.3	-804.4	0.0	-642.2
24. Unallocated imports and exports	940.0	0.0	0.0	0.0	2 777.7	-4 112.1	0.0	-394.3
25. Net indirect taxes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26. Labour income	3 963.0	0.0	0.0	26 243.0	0.0	0.0	0.0	30 206.0
27. Net income unicorp. business	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28. Other operating surplus	263.9	0.0	0.0	2 813.3	0.0	0.0	0.0	3 077.2
29. TOTAL	47 047.1	44 926.7	1 302.3	42 046.6	44 171.1	-45 128.2	-3 621.4	195 041.6

Table 2 (concluded)

	Total output a + j
1. Agriculture, fish and forestry	13 546.4
2. Mining and quarrying	15 330.7
3. Manufacturing	114 784.4
4. Construction	33 952.1
5. Transport and communication	20 019.5
6. Electricity, gas	5 065.7
7. Trade	29 669.0
8. Motion picture production	106.1
9. Business services	3 210.9
10. Food services	7 010.9
11. Other services	645.0
12. Operating, office and lab supplies	16 797.3
13. Material sphere total	260 138.0
14. Owner occupied dwellings	10 930.7
15. Other finance	23 300.0
16. Education and health services	4 123.4
17. Amusement and recreation services	2 125.6
18. Other business services	3 860.5
19. Personal and misc. services	2 334.9
20. Accommodation services	1 179.7
21. Travel and advertising	6 031.3
22. Non-material sphere total	53 886.1
23. Non-competing imports	0.0
24. Unallocated imports and exports	0.0
25. Net indirect taxes	21 449.5
26. Labour income	110 506.5
27. Net income unicorp. business	10 955.2
28. Other operating surplus	52 130.4
29. TOTAL	509 065.7

Source: Statistics Canada.

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Table 3. Derivation of net material product from data on value-added: Canada, 1976

(Billions of Canadian dollars)

	Gross domestic product 1	Consumption of fixed assets 2	Net domestic product 3	Value-added in non- material sphere 4	Value of non-material serv. consumed in material sphere 5	Net material demand 6
1. Agriculture, fish and forestry	7.7	1.9	5.8		0.6	6.4
2. Mining and quarrying	9.0	1.6	7.4		2.9	10.3
3. Manufacturing	44.4	3.6	40.8		4.3	45.1
4. Construction	17.0	0.5	16.51		1.6	18.1
5. Transport and communication	13.0	2.3	10.7		1.1	11.8
6. Electricity, gas	4.0	1.4	2.6		0.2	2.8
7. Trade	22.0	0.7	21.3		3.3	24.6
8. Motion picture production	0.1	0.0	0.1		0.0	0.1
9. Business services	2.4	0.3	2.1		0.4	2.5
10. Food services	4.2	0.2	4.0		0.4	4.4
11. Other services	0.5	0.0	0.5		0.0	0.5
12. Operating, office and lab supplies	0.9	0.0	0.9		0.0	0.9
13. Material sphere total	125.2	12.5	112.7		14.8	127.5
14. Owner occupied dwellings	9.0	1.9	7.1	7.1		
15. Other finance	17.3	1.4	15.9	15.9		
16. Education and health services	3.3	0.0	3.3	3.3		
17. Amusement and recreation services	1.2	0.2	1.0	1.0		
18. Other business services	3.0	0.1	2.9	2.9		
19. Personal and misc. services	1.6	0.1	1.5	1.5		
20. Accommodation services	0.7	0.1	0.6	0.6		
21. Travel and advertising	0.4	0.0	0.4	0.4		
22. Misc. services in final demand	4.2	0.3	3.9	3.9		
23. General government services	29.1	2.8	26.3	26.3		
24. Non-material sphere	69.8	6.9	62.9	62.9		
25. Total 13 + 24	195.0	19.4	175.6	62.9	14.8	127.5

Source: Statistics Canada.

Table 4. Derivation of net material product from data on final demand: Canada, 1976

(Billions of Canadian dollars)

	1	Final expenditure on non-material services 2	Consumption of fixed assets 3	Material inputs in non-material sphere 4	Consumption of fixed assets in non-material sphere 5	6	
1. Final consumption expenditures of consumers	111.4	33.9				77.5	1. Personal consumption (1-2)
2. Other final consumption	38.4	31.7		11.3	6.9	24.9	2. Other final consumption (1-2+4+5)
3. Gross fixed capital formation	44.9	1.7	19.4			23.8	3. Net fixed capital formation (1-2-3)
4. Capital formation in stocks	1.3					1.3	4. Capital formation in stocks
5. Net exports	-1.0	-1.0			0.0		5. Net exports (1-2)
6. Gross domestic product	195.0	66.3	19.4	11.3	6.9	127.5	6. Net material product (1-2-3+4+5)

Source: Statistics Canada.

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Table 5. Derivation of net material product from data on gross output and intermediate consumption: Canada, 1976

(Billions of Canadian dollars)

	1	Gross output of non-material sphere 2	Intermediate consumption in non-material sphere 3	Consumption of non-material services in material sphere 4	Consumption of fixed assets in material sphere 5	6	
1. Gross output	346.2	86.8				259.4	1. Global product (1-2)
2. Intermediate consumption	151.2		17.0	14.8	12.5	131.9	2. Intermediate consumption including depreciation (1-3-4+5)
3. Gross domestic product	195.0	86.8	17.0	14.8	12.5	127.5	3. Net material product (1-2+3+4-5)

Source: Statistics Canada.

Table 6. Relationship between relevant aggregates of SNA and MPS for selected countries

Aggregates	Relationship between the aggregates		
	GDP and NMP (1)	Final consumption expenditures (2)	Gross capital (SNA) and net capital formation (MPS) (3)
I. SNA aggregates = 100.0			
Canada (1976)	66.9	68.4	53.0
France (1976)	68.6	75.6	46.1
Finland (1982)	67.1	80.8	39.1
II. MPS aggregates = 100.0			
Bulgaria (1982)	128.5	102.8	214.2
Hungary (1976)	124.9	112.7	197.5

III. PROPOSALS FOR FUTURE WORK

39. Future work on SNA and MPS comparisons should be continued. The major thrust should be the preparation of the revised version of Comparisons ... Part One. A draft of the entire document should be completed by the Statistical Office of the United Nations Secretariat in close co-operation with the Statistical Division of ECE. The document should be revised in the light of the Commission's recommendations on that topic which were embodied at its twenty-first, twenty-second and twenty-third sessions. A detailed inventory of differences between the corresponding categories of the two accounting systems which are suitable for international comparisons is essential for improving the procedures designed for derivation of GDP for the countries using MPS and derivation of NMP for the countries using SNA. In particular, a theoretical approach should be introduced to determine "common aggregates", such as total consumption of the population and capital formation. Such issues as introduction of improved version of modified conversion tables; treatment of the output of financial institutions; treatment of capital losses of stocks; treatment of external trade flows, which have already been discussed during preceding sessions of the Commission, should be improved and elaborated. The existing framework of intersystem comparisons needs to be elaborated in several directions: clarifications of basic approach; improvement and clarification of the conversion table; detailed description of the treatment of selected flows. During the next two years, the drafts of the revised document should be prepared for discussion at the meeting of experts on national accounts and balances which will be held in November 1988.

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40. The work on illustrative calculation should be continued by the Statistical Office of the United Nations in close co-operation with national statistical offices in order to test and clarify the methodology of intersystem comparisons and also to accumulate the experience in collecting and processing primary data. Efforts should also be made to design a simplified method of intersystem calculations which can facilitate gathering SNA and MPS data for practical use by the Statistical Office. Efforts to encourage bilateral intersystem comparisons should be continued. The results of bilateral comparisons carried out by Hungary-France and Bulgaria-Finland have shown the usefulness of such an exercise in a theoretical and practical sense. It is hoped that these positive results will encourage other countries to start joint comparisons.

41. The Statistical Office should study the possibilities of collecting a country's own estimates of GDP/NMP with the help of special tables introduced in questionnaires on national accounts and balances. In this context, introduction of the simplified methods of calculation of SNA/MPS aggregates seems to be especially important.

42. The work on review of the national practices in the compilation of the material balances and national accounts should be carried out by the Statistical Office of the United Nations in order to clarify the peculiarities in treatment in input-output tables of import duties, secondary outputs, indirect taxes and some other items.

43. The work on adaptation of the System of Indicators of Non-Material Services for intersystem comparisons should be resumed. Owing to the presentation of the detailed classification worked out by the CMEA secretariat, which will be discussed at the present session of the Commission, common principals of the aggregation of industries for international comparisons have to be carried out in very detailed form. The work should be executed by the Statistical Office of the United Nations in close co-operation with the Statistical Division of the CMEA secretariat.

44. Preparatory work on the revision of the glossary of SNA/MPS terminology should be started in order to improve and elaborate the document carried out under the auspices of the Conference of European Statisticians in the light of the experience gained during past years.

IV. POINTS FOR DISCUSSION

45. The Commission may wish to discuss the general status of work on intersystem comparisons with regard to improvements of conceptual framework and practical experimental illustrative calculations. The Commission may also wish to pay attention to certain conceptual issues of SNA/MPS comparison presented in the present report, as well as to the contents of the revised document Comparisons ... Part One. The Commission may wish to comment on the proposals with regard to the future work in field of intersystem comparisons.

Notes

1/ Official Records of the Economic and Social Council, 1985, Supplement
No. 6 (E/1985/26), para. 43.

2/ United Nations publication, Sales No. E.77.XVII.6.
