

POSSIBILITIES AND PROBLEMS OF RECONCILIATION OF THE SNA AND THE MPS

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This paper reviews the underlying concepts and definitions of SNA and MPS in order to identify those areas where the differences in the content or classifications of the corresponding aggregates of these systems of national accounting can be eliminated or reduced in the course of the present or the future work on the revision of both SNA and MPS. This will bring the systems nearer to each other and improve international comparability of national income data. In cases where such a reconciliation is not feasible, the introduction of certain modifications or clarifications in the selected sections of SNA and/or MPS will be a useful step.

Pursuing this objective, the paper introduces the following classification of the intersystem differences:

- differences in the fundamental concepts and definitions;
- differences caused by the peculiarities in the institutional set up;
- so called “incidental” differences.

On examining the above classification the paper comes to the conclusion that each group requires its own approach. The second conclusion is that possibilities for reducing intersystem differences are more promising in the case of the third group.

The paper uses the simplified MPS matrix in order to demonstrate the usefulness of certain modifications in the MPS classifications. These modifications do not imply any deviations from the fundamental concepts and yet they could facilitate international comparability.

The paper also discusses certain modifications (or clarifications) concerning some aggregates which could be useful in the context of international comparisons.

I. INTRODUCTION

The study of SNA/MPS links, which has been on the agenda of the United Nations Statistical Commission since the 1960s and which has recently attracted attention of some other international organizations (CMEA, World Bank), has pursued several interrelated objectives. The major objective was, of course, to set up and then to elaborate a conceptual framework for SNA/MPS comparisons. During the 1980s, the work in this area focused on improving standard conversion tables designed for derivation of gross domestic product (GDP) for centrally planned economies and net material product (NMP) for market economies. A great deal of attention was also paid to clarifying certain conceptual issues of intersystem comparisons, e.g. treatment of activities of financial intermediaries, treatment of external trade flows and so forth. The matters relating to this aspect of work are fully discussed in the papers on this topic presented for consideration at the 21st, 22nd and 23rd sessions of the Commission and need not be repeated here. Instead, this paper deals with some other related objectives and aspects of the study to which the Statistical Commission paid relatively less attention. One of these aspects can be referred to as identification in both SNA and MPS of those areas where differences between these systems of national accounting could

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be reduced or even be eliminated in the course of the present and future work on the revision of SNA and MPS. In cases where this is not believed to be feasible for one reason or another, a clear identification in the classifications of both systems of the components which are treated differently could be useful for improving international comparability of data. The review of the intersystem differences could also lead to the introduction in both SNA and MPS of some clarifications with regard to the treatment of certain items or their components.

A comparative analysis of the concepts and definitions could also be useful for building up so called "common aggregates" such as total consumption of the population which play an important role in international statistics. Finally, a review of intersystem conceptual differences could contribute to a better understanding of both systems and of different ways of looking at the economic process.

Richard Stone noted some time ago that the importance of studying SNA/MPS links lies not only in the opportunities it gives for comparison but also in the possibilities it provides for understanding different views of economic and social processes saying that, "Any significant difference of view provides food for thought and may lead, in the end, to a more unified conceptualization of this process."²

It is from this angle that this paper reviews and discusses intersystem conceptual differences. A major focus is on the analysis of production, consumption and capital formation accounts and balances since the aggregates of these accounts and balances to a lesser extent reflect peculiarities in the institutional set up and therefore are more suitable for international comparisons.

As is shown below, the differences between SNA and MPS are numerous and diverse. One should not, however, overlook many common features of the two systems which make possible their reconciliation and the linkage of their corresponding categories. To begin with, SNA and MPS belong to the same family of systems of macro economic aggregates designed to ensure a coherent description of the economic process, of the interrelationships among various economic magnitudes. Though the fundamental concepts and definitions underlying SNA and MPS are indeed dramatically different, there are many common premises. The most important among them are listed below. In both systems a clear distinction is made between:

- (i) the concept of flow and the concept of stock;
- (ii) the concept of real flow and the concept of money flow;
- (iii) the concepts of intermediate and final product, the concepts of intermediate and final consumption;
- (iv) the concepts of current and capital flow, and current and capital outlays;
- (v) the concepts of distribution and redistribution of income; and
- (vi) the concept of transactor and transaction.

These concepts are often defined differently in the two systems. For example, as is shown below the MPS concept of distribution differs noticeably from its SNA counterpart and so forth. However, in both systems a clear distinction is made between the above mentioned flows and stocks as a matter of principle.

²Stone, R., A comparison of the SNA and the MPS. Cambridge, 1967. Paper prepared for the symposium on National Accounts and Balances in Poland, 1968.

There are some other similarities and common features. For example, in both systems major aggregates are valued at market current and constant prices; in both systems capital formation is measured on both a gross and a net basis, i.e. before and after deduction of consumption of fixed assets; and there are some similarities in accounting procedures adopted to value non-marketed output. These and other common features seem to imply that attempts to reconcile the differences between SNA and MPS can be a meaningful and useful undertaking.

As was mentioned above, the differences between SNA and MPS are numerous. They relate to the fundamental concepts and definitions, to the manner in which economy is subdivided into major sectors, to the general structure of accounts and balances, to the terminology, as well as to the mode of presentation of data. It is perhaps useful to classify all these differences into the following three groups:

- differences in fundamental concepts and definitions;
- differences caused by peculiarities in institutional set up;
- so called “incidental differences” which reflect national practices and traditions as well as the differences in the sources of data used and in application of data.

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 of introducing some modifications in both systems which would 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.

Bearing in mind the above, we can begin our review. We intend to discuss the following topics:

- (i) differences in the general structure of SNA and MPS;
- (ii) differences in fundamental concepts and definitions;
- (iii) differences in concepts, definitions and classifications employed in production, consumption and capital formation accounts and balances.

II. A REVIEW OF THE MAJOR DIFFERENCES BETWEEN SNA AND MPS

(a) *Differences in General Structure of SNA and MPS*

Broadly speaking, there is a remarkable similarity between SNA and MPS concerning the general structure of accounts and balances. This is true, first of all, in the sense that most major aggregates distinguished in one system have their 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 an analysis. But there are, of course, some important differences.

One difference 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

sectors of the economy. This does not mean, however, that the MPS entirely excludes from its balances the transactions in financial assets and liabilities. In fact, these transactions are regarded in the MPS as redistributive ones and they are shown in the balance of 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. (The differences between the MPS financial balance and SNA income and outlay accounts will be discussed at some length below.) It appears that this 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 smaller in countries with centrally planned economies as compared with market economies.

As mentioned above, there are some similarities between the SNA income and outlay accounts and the MPS financial balance. Broadly speaking, they both contain data on the formation of the incomes of the various sectors of the economy and their disposition for various purposes. But there are some significant differences. Thus, in the MPS 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 current incomes over current outlays) in the financial balance. The second important distinction refers to the treatment of financial flows, which has already been discussed. In the financial balance they are treated as special kinds 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 the differences in the definition of economic production which are yet to be discussed and others have been already mentioned, e.g. the 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. The simplified scheme of the financial balance of the households is shown opposite in order to demonstrate these points more clearly.

There are noticeable differences in the sectoral classifications used in SNA and MPS both in the production, consumption and capital formation accounts and balances, on the one hand, and in the income and outlay and capital finance accounts and balances, on the other hand. 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 the data needed for the compilation of accounts and balances.

Thus, while a distinction is made in SNA production, consumption and capital formation accounts between industries, producers of general government

SIMPLIFIED SCHEME OF THE FINANCIAL BALANCE OF HOUSEHOLDS

<ol style="list-style-type: none"> 1. <i>Primary income of population</i> <ol style="list-style-type: none"> (a) Wages and salaries in the material sphere (b) Labour income paid out by collective farms and similar co-operatives (c) Value added (net) originating in personal plots (d) Income akin to wages in the material sphere (selected bonuses, compensation for business travel expenses and so forth) 2. <i>Redistributive receipts</i> <ol style="list-style-type: none"> (a) Pensions, allowances and stipends (b) Wages and salaries in the non-material sphere (c) Receipts from the financial system (loans, credits, insurance claims, etc.) (d) Withdrawals of deposits (e) Decrease in cash held 	<ol style="list-style-type: none"> 1. <i>Redistributive payments</i> <ol style="list-style-type: none"> (a) Taxes, dues, fines and similar compulsory payments (b) Payments in financial systems (repayment of loans, credits, insurance premiums, purchases of lottery tickets and state bonds, etc.) (c) Purchases of non-material services (d) Deposits in savings banks (e) Increase in cash held 2. <i>Final consumption expenditure (purchases of material goods and material services)</i> 3. <i>Capital formation expenditure (purchases of houses, construction of houses on own account, etc.)</i>
Total income	Total outlays

services, producers of private non-profit services, and households, in the MPS material balance, the following sectors are distinguished:

- branches of the material sphere
- branches of the non-material sphere serving individuals
- branches of the non-material sphere serving society as a whole
- households

It should be noted that in both SNA and MPS economic activities are classified by industry. The differences between ISIC and the similar CMEA classification are well-known and there is no need to discuss them here. We would like, however, to point out some peculiarities with regard to the classification units. While in SNA the establishment is used as the classification unit, in the MPS the unit of industrial classification is not infrequently referred to as an enterprise. One should not, however, overlook two important points. Firstly, in countries using MPS the term enterprise normally refers to a factory, plant, farm, etc. These are units which 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. 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 the industrial classification are expressed in terms of major commodity groups such as industry, agriculture, construction and so forth, rather than in terms of establishments.

There is no such similarity with regard to classification units employed in the income and outlay 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. On the other hand, in the MPS, the sectoral classification which is used in the financial balance is very similar to that employed in the material balance, i.e. again a plant and a factory with the exclusion of the establishments engaged in provision of the non-material services and construction on own account. So much for the differences and similarities with regard to the general structures of SNA and MPS and we can now pass to a discussion of the differences in the fundamental concepts and definitions.

(b) *Differences in Fundamental Concepts and Definitions*

There is no need for a detailed description of these differences since they are well-known and fully described in a number of sources, including UN official documents and papers. Therefore, we would like to discuss this issue 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.*

The most important difference between SNA and MPS underlying concepts and definitions 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), whereas in MPS, economic production (where national income originates) is restricted to industries producing material goods and material services such as transportation, communication and trade. 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 the process of redistribution and final consumption occurs.

The difference in the definition of economic production has, of course, a dramatic impact on the comparability not only of the production aggregates of SNA and MPS but also of the 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.

It should be noted that the fact that economic production in MPS is restricted to production of material goods and material services is often misinterpreted. A wrong conclusion is often made that the MPS does not include the data pertaining to non-material activities at all. One should bear in mind that 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 the value of services provided free of charge to individuals or to the 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 in the structure of the

MPS, in particular in the structure of the financial balance. These modifications may consist in introducing in the sectoral classification of the financial balance a subdivision of the non-material sphere into (i) budgetary units, (ii) non-budgetary units and (iii) financial institutions. This subdivision would 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 would also make it possible to estimate the output of financial institutions and to allocate it to the relevant category of disposition of product. Some additional modifications would improve comparability of SNA and MPS, but they do not refer to the fundamental differences between these systems of national accounting and should not be discussed here. The advantage of introducing in 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 on p. 8.

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

$$(a) \quad N = S_{32} + S_{42} + S_{52}, \quad (1)$$

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

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

i.e. the sum of components of final disposition of material goods.

Now we can show how subdivision of the non-material sphere into the three above mentioned categories can facilitate the derivation of gross domestic product (G).

Thus,

$$G = N - S_{42} + S_{7,12} + S_{7,13} + S_{7,14} + (S_{13,8} - S_{7,13} - S_{8,13} - S_{9,13} - S_{16,13} - S_{21,13}) + S_{21,17} \quad (3)$$

or

$$G = N - S_{1,16} + S_{8,10} + (S_{7,12} + S_{8,12} + S_{9,12} + S_{16,12} + S_{21,12} + S_{21,17} + (S_{22,8} - S_{8,22})). \quad (4)$$

Please note that the expression $(S_{13,8} - S_{7,13} - S_{8,13} - S_{9,13} - S_{16,13} - S_{21,13})$ in equation (3) refers to operating surplus in non-budgetary units of the non-material sphere, whereas the expression $(S_{7,12} + S_{8,12} + S_{9,12} + S_{16,12} + S_{21,12})$ in equation (4) refers to the value of the non-marketed output of budgetary units of the non-material sphere used for final consumption.

It should be noted that, due 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, to expenditure of employees on official missions, etc. Also, some adjustments have not been introduced due to lack of

clarity on conceptual issues of intersystem comparisons. For example, no adjustment was 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 for 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. We believe, however, that all these and other simplifications are not important in the context of our exercise, the purpose of which is to demonstrate that the subdivision of the non-material sphere units, as shown in the MPS financial balance, into the three above mentioned categories is essential for bridging the SNA and the MPS in the situation where non-material services are excluded from the concept of economic production in principle. 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.

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 the work on the revision of the present SNA during the 1960s, efforts were undertaken to introduce as a matter of principle in the industrial classification of the system a distinction between material goods and non-material services. This distinction is, of course, essential for the derivation from the SNA components of the concept of 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. These relate to the 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's underlying theory, labour, land and capital equally participate in the origination of value. On the contrary, the MPS regards labour as the only source of value. This difference 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 the interpretation of the economic process, on the interpretation of distribution and redistribution of income, and on the interpretation of the factors responsible for production growth. So much for the fundamental conceptual differences between the SNA and MPS. Now we can turn to discussion of more specific differences between the SNA and the MPS categories of production, consumption and capital formation.

(c) Differences in Concepts and Definitions Used in Production, Consumption and Capital Formation Accounts and Balances

These differences are numerous and to list them all would take considerable space. Therefore we intend to discuss only the most important among them.

Special attention is paid to those areas where reconciliation of the systems appears to be promising.

(d) *Production*

i. Gross Output

Although the general principles of computation of gross output on the whole appear to be remarkably similar in the two systems, there are some differences relating to individual branches of the economy. For example, gross output of agriculture in the MPS is defined to include, among other things, the value of seeds and forage used in the production process whereas in the SNA these items are excluded. Contrary to the SNA, the MPS recommends the inclusion of the value of machinery and equipment which require installation in the gross output of construction. There are some differences in the computation of gross output of catering. According to the MPS, this includes the value of meals served at restaurants, etc. In the SNA, the gross output of catering includes only trade mark-ups. There are some peculiarities adopted in both systems for computation of gross output relating to collection of waste and scrap. Thus, in SNA the sales of scrap and wastes obtained as by-products of the manufacturing process are included in gross output whereas in MPS a somewhat different procedure is used. The value of such by-products is not included in gross output, but intermediate input of manufacturing is reduced by the amount of money received from the sales of scrap and waste. The difference in treatment of this item is unlikely to have a noticeable impact on comparability of national income data but the issue could be of some interest in the context of construction of input-output tables. These differences in the methods of computation of gross output are, as a rule, cancelled out by the respective differences in the computation of intermediate input and do not have a serious impact on the comparability of GDP/NMP. Yet an attempt to analyze and reconcile these differences in the course of future work on the revision of both SNA and MPS may prove to be a useful and successful exercise for the simple reason that fundamental concepts are not involved here.

A more serious analysis may be needed in the case of intersystem differences relating to computation of the gross output of external trade. The differences between the SNA and the MPS in treatment of external trade flows are discussed at some length in the report on the study of SNA/MPS links presented for the 23rd session of the UN Statistical Commission. We therefore reproduce here only the most important conclusions of the analysis of this issue. They are as follows:

- There are some differences between the SNA and the MPS with regard to the methods of calculation of gross output of external trade, which to a considerable extent reflect the differences in the institutional set-up, particularly the system of prices, exchange rates, etc. From a purely technical point of view they can be presented in the following manner. In the case of MPS, gross output of external trade is computed with the help of the following formula:

$$K = Bt'L - Bt \quad (1)$$

where K = gross output of external trade; $Bt'L = (Eb - Ib)L$, where Ib and Eb are imports and exports converted into domestic currency using exchange rates and L = a special coefficient which is sometimes called the "internal exchange rate", computed as follows:

$$L = \frac{Ia}{Ib} \quad \text{if } Bt' < 0 \quad \text{and} \quad L = \frac{Ea}{Eb} \quad \text{if } Bt > 0,$$

and finally, $Bt = (Eb - Ia)$. In the case of SNA, gross output of external trade (K_1) is taken to equal the expression

$$K_1 = Bt' - Bt. \quad (2)$$

In other words, from a merely numerical point of view the difference between the two methods of computation can be denoted as follows:

$$K - K_1 = Bt'(1 - L) \quad (3)$$

—The expression $Bt'(1 - L)$ can be taken as a measure of incomparability only if we take into account intersystem differences in accounting procedures and disregard important peculiarities in price systems and in exchange rates. These peculiarities in the organization of the economy should not be overlooked. In fact, formula (1) was introduced in the MPS in order to attempt to take into account the existing price system and exchange rates in measuring the output of external trade. Therefore, it is questionable whether any specific adjustments are needed in this case in order to achieve international comparability of data.

—Another argument which is sometimes used against introducing any of the adjustments in question refers to import duties. The countries with centrally planned economies which use the above mentioned method of computation of gross output either do not have import duties or they are negligible. Therefore it can be argued, as some experts do, that expression (3) could be considered as the MPS counterpart of import duties or as a component which cancels out the import duties.

So much for this issue, and we can now turn to the problems which arise in connexion with the treatment of financial activities and residential services (housing). These activities are, of course, classified in the MPS as non-material services. These and other related matters have already been discussed in general, together with the problems arising in connection with differences in the concept of economic production in the two systems. But activities of financial institutions and residential services require, in our view, special comments.

First of all, it should be noted, that both the special character of financial activities and the peculiar accounting procedures adopted in the SNA for treatment of financial institutions call for the isolation in the MPS of all flows relating to financial intermediaries. In the MPS matrix shown above, efforts were made to isolate financial institutions as a separate sector of the economy in the MPS financial balance. This arrangement would make it possible to analyse data on incomes and outlays of banks and similar institutions and to compute their gross output. Strictly speaking, to compute the latter in accordance with the SNA

recommendations, some additional modifications in the MPS matrix would have to be introduced. Thus, interest on loans and credits paid and received ought to be shown explicitly as a separate category of “payments to the budget and financial system”. It should be noted that these modifications in the MPS structure can be integrated without serious problems: practically all data are available for actual introduction of the sector of financial institutions in the structure of the balance of production, distribution, redistribution and final disposition of national income. We are not discussing here the question of allocation of gross output to intermediate or final consumption. This issue was considered at some length in the paper on the study of SNA/MPS presented for the 22nd session of the UN Statistical Commission.

Finally, some remarks on residential services are needed. This issue has two aspects. The first one is more general and it refers to the different treatment of this activity in both systems in principle. We will not discuss it here because it is just another example of the problems arising out of the intersystem differences in the definition of economic production. The second aspect refers to the imputed services of owner-occupied dwellings. In the MPS, there is no counterpart to the imputation recommended in SNA. Therefore modifications in the MPS classification of non-material services suggested above cannot take care of this problem. We would like to remind the reader that while net material product does not include any figures on output of residential services, it is recommended that data on depreciation of dwellings, including owner-occupied dwellings, be included in final consumption. In our view, these figures could be used as a starting point for the estimates of the services of owner-occupied buildings. We believe that the imputation of such services would not present an insurmountable problem for countries using MPS.

(ii) Intermediate Consumption

Again, we will not dwell upon the major difference between SNA and MPS concepts of intermediate consumption which stems from the peculiarities in the definition of economic production. We would like to note, however, in this connection that this difference accounts for a substantial part of the gap between net domestic product and net material product. Therefore the task of bridging SNA and MPS requires special attention to this item. In the MPS matrix shown above, we indicated that it is essential for the purpose of bridging the two systems to isolate purchases of non-material services from the primary incomes of the enterprises. This modification in the MPS classification of the components of value added can be introduced without serious problems. On the one hand, this modification does not imply any deviation from fundamental concepts, and on the other hand, the information for such an item is readily available.

Among the other items of intermediate input which are treated differently in the two systems of national accounting, mention should be made of (i) expenditures of enterprises on official missions made by their employees, (ii) expenditures of enterprises on social and cultural services to their employees, and (iii) expenditures of enterprises, the purpose of which is to improve their public image (e.g. expenses on entertainment of guests, restaurants, etc). These items are treated as intermediate input in the SNA, but are included in various

categories of value added in the MPS. In fact, the first item is allocated to primary incomes of the population, whereas the latter two items are considered to be part of primary incomes of the enterprises. In our view, since these differences are not associated with fundamental concepts and definitions they could be reduced or even eliminated in the course of the future work on the revision of the SNA and MPS. In any event, it would seem to be desirable to isolate these flows in the relevant classification of both SNA and MPS. This would promote international comparisons and would be useful for analytical purposes.

For example, data on social and cultural services to employees (sports facilities, holiday resorts, nurseries, etc.) could be used for compilation of total consumption of the population (TCP). In countries with centrally planned economies these services are often provided by the separate establishments of industrial and agricultural enterprises with regard to which data on incomes and outlays are normally available. Therefore, it would seem to be advantageous to isolate these establishments from the other units of the non-material sphere. In the matrix presented above, this isolation has not been shown for the sake of simplification.

It should be noted that the MPS concept of intermediate material input includes, among other things, consumption of fixed assets employed in the material sphere. There are some intersystem differences in the scope and valuation of the consumption of fixed assets, but we believe that it would be more appropriate to discuss this matter later, in the context of discussion of the issues relating to capital flows.

(e) *Final Consumption Expenditure*

(i) Consumption of Households

The most important intersystem difference between the contents of this category is that in the case of the MPS this concept is restricted to outlays on material goods. The other differences are less quantitatively important and have already been mentioned above. For example, in the MPS, personal consumption includes purchases of material goods financed from allowances on official missions of employees (in both spheres of the economy, of course).

(ii) Other Categories of Final Consumption

In the case of SNA, this category refers to final consumption of general government and of private non-profit institutions serving households. In the case of the MPS it includes material input of the units of the non-material sphere serving (a) society as a whole and (b) individuals. In the MPS matrix shown above, the units of the non-material sphere are subdivided into budgetary and non-budgetary, but the division into the units serving society as a whole and those serving individuals is omitted for the sake of simplification of the matrix. However, the combination of these two classifications would be useful.

It should be emphasized, however, that an application of the SNA categories of final consumption for analysis of the centrally planned economies can hardly yield meaningful results because of institutional differences. For example, a distinction between general government consumption and consumption of private

non-profit institutions serving households does not seem to be particularly useful for the analysis of economies in countries using the MPS. On the other hand, introduction into the MPS of the SNA classification of general government expenditure by purpose could be a useful step for bridging the systems.

(f) *Capital Formation*

The differences in the concepts of capital formation flows employed in SNA and MPS appear to be of a lesser magnitude than those in the concepts of production and consumption. In both systems, the concept of capital formation is limited to the outlays on reproducible tangible assets and excludes outlays on intangible and financial assets and non-reproducible tangible assets. The differences between SNA and MPS relate to (a) the treatment of capital losses, (b) the classification of outlays on partially completed construction, (c) the treatment of transfer costs in connection with the sales of land and other non-reproducible assets and sales of second-hand capital goods, and (d) the increase in stocks of monetary gold. On the practical level, there could also be some differences with regard to the classification of repairs into capital and current which might affect the content of capital formation flows. In the MPS, the principal category of capital formation is computed on a net basis, whereas in the SNA the opposite seems to be true. At the same time both systems provide the information needed for the computation of capital formation on both a gross and a net basis. It should be noted, however, that there are some differences in the coverage of fixed asset consumption and in the valuation of that flow. The paragraphs below are intended to present more detailed comments on the differences between the concepts of capital formation in the two systems, the significance of these differences, and the impact they have on the task of bridging the two systems.

(g) *Capital Losses*

In the MPS, capital losses of fixed assets are defined to include the written-off value of buildings, machinery and similar items which have been destroyed because of floods, fires and similar calamities and are shown in the material balance as a negative item in capital formation; at the same time they are shown as a separate category of the final disposition of national income called "losses". Thus, those entries relating to the losses of fixed assets cancel each other out and do not affect the total of the net material product. In the SNA, similar capital losses are not shown explicitly on the production, consumption and capital formation account, but they are shown explicitly in the reconciliation account. In SNA, fixed capital formation is shown gross, not only of consumption of fixed assets, but also of capital losses. A less clear situation exists regarding the treatment of capital losses of stocks. In MPS, they include losses of materials and supplies owing to major calamities and to abandoned construction. In SNA, references to the treatment of losses of stocks are not detailed enough. One may assume that they can be allocated either to intermediate consumption (if the increase in stocks is defined as a difference between stocks at the beginning and the end of the period and multiplied by the average market price) or allocated to capital formation in stocks. National practices of countries using SNA differ in this area.

In our view, the issue of handling capital losses is very important and should be taken up in the course of future work on the revision of SNA. This issue does not affect fundamental concepts and definitions and this is the area where intersystem differences can be mitigated. In any case, clarification of the procedures used in the SNA for treatment of capital losses does seem to be worthwhile.

The intersystem difference in allocating outlays on partially completed construction has been discussed a number of times and no detailed discussion of this item is needed here. We wish to add, however, that again this is an area where the systems can be brought closer to each other. This objective could be achieved by (i) allocating the outlays in question to increase in stocks in SNA, (ii) showing this item as a sub-component of gross fixed capital formation in SNA, (iii) showing this item as a sub-component of increase in stocks in MPS or (iv) showing this item as a separate category of capital formation both in SNA and MPS.

The differences in treatment of transfer costs and stocks of monetary gold have only a marginal impact on comparability of major aggregates. They are discussed briefly in the report on study of SNA/MPS links for the 23rd session of the UN Statistical Commission and there is no need to return to them here.

(h) *Consumption of Fixed Assets*

In SNA, this flow measures the value of reproducible fixed assets used up during a period of accounting as a result of normal wear and tear, foreseen obsolescence and the normal rate of accidental damage. The flow is valued at replacement cost. In the MPS, the concept of consumption of fixed assets is, in principle, similar to that employed in SNA, although there are some peculiarities. Thus, in addition to depreciation allowances, this flow includes undepreciated value of scrapped fixed assets. This component is sometimes regarded as a measure of unforeseen obsolescence. The original purchase value of fixed assets is used as a basis of the valuation but the revaluation of stocks of fixed assets is carried out regularly every 8-10 years by many countries using MPS.

The implications of the above intersystem differences in the scope of consumption of fixed assets and above all, regarding undepreciated value of scrapped fixed assets for the comparability of the major aggregates are not immediately clear. Thus, since in SNA fixed capital formation is defined to exclude the value of scrapped goods, it appears that no special adjustment is needed if comparison is made at the level of GDP/NMP. Still, review of the intersystem differences with regard to treatment of consumption of fixed assets in the course of the work on the revision of SNA and MPS would be useful.

(i) *Exports and Imports*

The intersystem differences relating to this topic have to some extent been discussed above. We should add to this discussion that, in addition to peculiarities in the general approach used in the two systems for the conversion of net exports into domestic currency, there are some other differences. One of them refers to treatment of net exports of non-material services and is the result of differences

in the concept of economic production. The other noticeable difference refers to the treatment of so called direct imports and exports. In our view, the latter difference can be eliminated in the course of future work on the revision of the MPS. There is also a difference relating to the treatment of monetary gold. This has been discussed a number of times in various papers on the subject and there is no need to return to this topic again.

(g) *Value Added and its Components*

In the MPS matrix shown above we tried to demonstrate that some modifications in the MPS structure can be useful for bridging the two systems, for linking their aggregates of value added. Thus, in the matrix one can easily identify wages and salaries paid out in the sectors of the non-material sphere or can easily derive operating surplus in the industries of the non-material sphere. On the other hand, one can easily find the entries relating to consumption of non-material services by both the material and the non-material spheres. These flows account for a substantial difference between the concepts of value added in SNA and MPS. There are, however, some other less important differences. Some of them are the consequence of the intersystem differences in the coverage of intermediate input and have already been discussed above, e.g. expenditure of enterprises on cultural and social services to employees, on official missions of employees, etc.

There are some other differences relating to treatment of certain items. Thus, in SNA tips are included in compensation of employees. There are no explicit references to this flow in the MPS but one can assume that at least some tips, which are not shown on the customers' bills, are treated as redistributive payments. Another example of these differences refers to sick leave payments that are part of compensation of employees in SNA, whereas in the MPS they are treated as transfers.

And finally, certain flows, although included in value added in both SNA and MPS, are allocated to different components of it. Thus in the MPS, net income originating in personal plots is shown among the components of primary incomes of the population, whereas in SNA, similar income is included in operating surplus. Or, while SNA allocates contributions to social insurance to compensation of employees, MPS recommends including this item in the concept of primary incomes of enterprises. It follows that at least clear identification of these flows in both systems could be useful for their bridging. A more ambitious objective would be to eliminate these differences in the course of future work on the revision of SNA and MPS.

(h) *National and Domestic Basis of Registration of Flows*

While in the SNA a clear distinction is made between the national and domestic basis of registration of various aggregates, in the MPS all transactions are recorded only on a territorial basis. The latter is very close to a domestic basis. The only exception is that a territorial basis covers transactions of foreign embassies and of similar units and excludes transactions of the embassies of the given country abroad.

In our view, this difference between the systems does not affect fundamental concepts and definitions and can be eliminated in the course of the future work on the revision of MPS. In fact, the increasing role of the external links of the countries using MPS calls for the introduction of a distinction between the national and domestic basis into the structure of the MPS. For example, some CMEA countries have joint enterprises. Some countries borrow capital and have to pay back interest. In some cases, they have to pay back in kind with goods produced and so forth.

III. CONCLUDING REMARKS

The review of the intersystem differences relating to production, consumption and capital formation accounts and balances allows us to make the following conclusions which may be of some interest for the future work on the revision of SNA and MPS.

- Although intersystem differences in underlying concepts, definitions and classifications cannot be eliminated, some modifications can be introduced into both systems in order to bring them closer to each other and to improve the international comparability of national income data. One example of such a modification is the introduction into the MPS classification of the subdivision of the non-material sphere into budgetary and non-budgetary units.
- There are many intersystem differences which do not affect fundamental concepts and definitions and they can be, if not eliminated completely, at least reduced and mitigated in the course of future work on the revision of SNA and MPS.
- In cases where elimination of the intersystem differences does not seem to be a realistic objective, it would be desirable to isolate in the relevant SNA and MPS classifications the components which are treated differently in the opposite system.
- in some cases, clarification of the treatment of the individual items could be undertaken in the context of future work on the revision of SNA and MPS. For example, clarification of the treatment of capital losses of stocks seems to be useful in the case of SNA.
- The UN Statistical Office is planning to undertake in the immediate future work on the revision of the methodology of SNA/MPS comparisons. A detailed inventory of the differences between the corresponding categories of the two 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 countries using SNA.
- Analysis of intersystem differences in the treatment of various flows can be used not only for improving international comparability of the national income data but also for a better understanding of the systems themselves, as well as for better understanding of the different ways of looking at the economic process.

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