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EXPERIENCES AND PROBLEMS OF THE CIS COUNTRIES IN TRANSITION FROM THE MPS TO THE SNA

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This paper reviews the transition of national accounts in the Commonwealth of Independent States (CIS) countries from the Material Product System (MPS) to the United Nations System of National Accounts (SNA) and discusses the major problems that still need to be solved in order to improve the quality of their national accounts. It argues that the MPS practice tended to exaggerate growth not because of different concepts, but because of methodological problems such as inadequate deflation due to poor price data and incomplete coverage of the non-observed economy as well as overpricing of new or modified products and institutional flaws that motivated data fabrication by enterprises. However, the heritages of the problems under the MPS, together with the emerging new types of institutional units, new sources of income and market-driven new services, have made the transition difficult.

Introduction

The purpose of this paper is to discuss the main problems that the Commonwealth of Independent States (CIS) countries encountered in their transition from the Material Product System (MPS) to the United Nations System of National Accounts (SNA) during the period 1992–2007.

With help provided by international organizations, tremendous progress in the construction of national accounts following the principles of the 1993 SNA has been made in CIS countries since 1992 when the transition began. Most of the important accounts of the 1993 SNA have been introduced into the regular statistical practice of these countries and most of the important aggregates have now computed and disseminated regularly (see CISSTAT, 2008).

However, the transition has not been completed. The influential legacies of the MPS and the newly emerged problems due to the rapid marketization have made the transition challengeable and difficult. It should be emphasized from the outset that the transition from the MPS to the SNA required more than simple changes to concepts and definitions. It was also necessary to take into account drastic changes in the organization of the economy; for example, the dramatic increase in the importance of market mechanisms in managing the economy, the privatization of state property, the emergence of new types of institutional unit, the introduction of new methods of financing investments, and new mechanisms of price formation. All these changes had to be accommodated within both the methodological provisions that were designed for the construction of the major accounts and the methods of collecting primary data. This adaptation of SNA

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provisions to the transitional nature of the economy was a serious challenge to the national accountants of the CIS countries.

Special attention is paid in the paper to the problems of measuring economic growth that existed in the context of compiling the MPS and still exist in the context of compiling the SNA. The problems of computing measures of economic growth are believed to be somewhat similar to those of calculating volume indexes of GDP in international comparisons. The paper reviews briefly some experience of the CIS countries drawn from their participation in the global round of the International Comparison Program (ICP) for 2005 (International Bank for Reconstruction and Development and World Bank, 2008). Sources of possible errors and biases due to different factors are discussed.

The remainder of the paper is organized as follows. Section 1 describes the experiences of the CIS countries under central planning. Section 2 presents the problems that were encountered by the CIS countries in the course of transition from the MPS to the SNA and the attempts that were made to solve them. Section 3 discusses the problems encountered at the present time by the CIS countries with respect to measuring economic growth. Section 4 discusses the problems of implementing the updated 1993 SNA, i.e. the 2008 SNA, in the CIS countries. The final section concludes by briefly reviewing the pressing problems that face the CIS countries in further developing their national accounts.

1. National Accounting in the Former Centrally Planned Economies (CPEs)

Before the 1990s, the MPS as a set of "material balances" compiled by the former USSR and its republics (now CIS countries) was recognized by the UN as the *de facto* alternative to the SNA (United Nations, 1981). Despite significant differences in the concept of production and other underlying concepts and definitions, the two systems have many features in common (see Ivanov, 1987). Therefore, experiences in the construction of the MPS national accounts helped statisticians of the CIS countries to master principles of the SNA and to implement them in practice within a relatively short period of time.

Broadly speaking, the practice of the CIS countries and other CPEs that used the MPS principles for measuring national output and growth rate was rather similar to that of the market economies, except that non-material services were excluded from both the measuring output and intermediate consumption in industries that produce material goods. Three important shortcomings regarding the implementation of the MPS in the former USSR and its republics should be noted. The first is that enterprises artificially inflated their figures in the reports in order to obtain some bonuses. The second is that, in some cases, current prices were used as constant prices (this happened in the case of new products or considerably modified products that were not produced in the base period). The third is that the consumer price indices (CPIs) that were used as deflators of households' final consumption expenditure were not consistent with international standards. These shortcomings resulted in some upward biases. The growth rate of net material product (NMP) was calculated on the basis of data that was originally valued in

current prices and then converted in constant prices with the help of a system of deflators.

The most important factors that must be considered when analyzing the reliability and comparability of the official figures on the economic growth of the CIS countries using the MPS principles are as follows:

(1) the narrow definition of economic production in the MPS, which excluded the so-called non-material services (education, healthcare, art and culture, housing, general administration and defense, financial activities, and so forth);
(2) peculiarities in the accounting prices that were used by countries that used the MPS, which influenced the relative weights of individual products and industries and may have influenced the measurement of economic growth;
(3) peculiarities in the price statistics (and in deflators that were used to compute figures in constant prices) that were not consistent with international standards;
(4) lack of similarity in the organization of statistics in general (as compared with market economies), especially in the collection of primary data on various aspects of economic activity and in the allocation process;
(5) differences in the institutional set up;
(6) direct government control over activities of the statistical agencies and dissemination of data.

In the opinion of many experts in the West, the rates of economic growth that were computed by the former USSR were distorted upwards. However, it may be argued that this distortion, the degree of which is difficult to measure, was not caused by using the concepts of the MPS. Rather, it should be attributed more to factors that are generally characteristic of national accounting, such as the application of inadequate deflators, incomplete coverage of the non-observed economy, and flaws and gaps in the primary data.

In his analysis of the Soviet Union national income statistics, the distinguished American scholar A. Bergson (Bergson, 1991) discusses the sources of differences between the average annual growth in the Soviet Union calculated by the U.S. Central Intelligence Agency (CIA) on the basis of GDP and by the USSR official statistics. These data are presented in Table 1.

It follows from the data presented in this table that, for example, for the period from 1971 to 1980, the excess of official figures based on NMP and the CIA

TABLE 1

Sources of Discrepancies in Growth Rates of Soviet Real National Income: Soviet Official and CIA Estimates

Period	Soviet Official Excess Over CIA Estimates	Amount of Excess Due to Difference in			Residual Excess
		Concepts	Base Year	Valuation Standard	
1961–70	2.2	0.2	0.3	0.2	1.5
1971–80	2.4	0.1	0.3	0.3	1.7
1981–85	1.4	–0.1	0.3	–0.1	1.3

Source: U.S. Bureau of Labor Statistics (1991).

estimates based on the SNA approach amounts to 2.4 percentage points. However, only 0.1 percentage points can be attributed to the differences in concepts of economic production that are used in the two systems of national accounting, while other factors explain the remaining difference (2.3 percentage points). In Bergson's opinion, the bulk of the remaining difference is due to the distorting impact of the price systems (of the so-called established prices, which were used in the MPS, versus market prices, which are used in the SNA). In his analysis, he used imputed "adjusted factor costs" in order to eliminate the distorting impact of the price system; he obtained these imputed prices by distributing the profits and turnover tax more evenly between various industries.

This approach was criticized by another American scholar, Steven Rosefielde, who argued that adjusted factor costs were a very subjective instrument and had little to do with economic reality; thus, it was not better than prices established by the government (Rosefielde, 1991).

The concept of economic production in the MPS did not contain specific provisions with regard to underground and illegal activities, although these were a well-known widespread phenomenon. In practice, statistical offices never attempted to introduce any adjustments to account for the output of these sectors. On the other hand, as was noted above, the reports that were submitted by enterprises to statistical offices often contained artificially inflated figures and it is difficult to say what the balance was between omissions and upward distortions (*pripiski*). At the same time, the production of goods in the informal economy was well captured. The system of supply and use tables of agricultural products was compiled in terms of both physical units and values in current prices (about 100 groupings of products); this made it possible to estimate the output of agricultural production in the informal sector from personal plots of households.

The price statistics that were compiled in the former CPEs were not consistent with international standards. In CPEs, the prices of major commodities were under strict government control; given these circumstances, it was a natural solution to use official price lists as a source of data for compiling the CPIs. There were systematic collections of prices at the informal farmer markets and these data were used for the deflation of relevant items of consumption in the MPS. On the other hand, it is clear that the CPIs that were used as deflators often did not take into account the changes in the quality of goods and deterioration in some product characteristics was not treated as a decrease in volume. As a result, it is possible that the growth rates of output and NMP were distorted.

In the former USSR, the computation of the output of industry in constant prices relied on data that were submitted by enterprises to statistical offices and, in many cases, the current prices of new modifications of products that were used by enterprises when compiling their reports reflected both improvements in quality and inflation. One serious problem with the computation of volume index of NMP was the lack of reliable deflators for intermediate consumption. Data on the commodity structure of input flows were not often available, and when they were provided, for example, when detailed input–output tables were compiled, there was no consistency between the commodity groupings and specific price indices.

I would like to conclude this section by emphasizing: (1) the compilation of the MPS in the CIS countries helped these countries to make the transition from

the MPS to the SNA within a relatively short period of time; and (2) the official rates of economic growth of the CIS countries were distorted, largely due to the low quality of deflators, which was caused by incomplete coverage of the underground economy and by flaws in the reports that were submitted by the enterprises to statistical authorities. It is difficult, if not impossible, to measure retrospectively the degree of distortion that is due to the above factors.

2. National Accounting in the CIS Countries

2.1. *Institutional Problems Encountered in the Transition to the SNA*

The SNA was introduced into the standard statistical practices of the CIS countries as an important element of the transformation of the CPEs into market-orientated economies. The decision to introduce the SNA in the CIS countries was made in special government programs that were set up to bring the socioeconomic statistics into conformance with international standards (Supreme Council of the Russian Federation, 1992). This transformation has been in progress for more than 15 years and is not yet complete. Although considerable progress has been made, there remain a number of areas in which further effort is required.

National accountants had to deal with the new organization of the economy, as a result of which there came into being different new types of institutional unit, operated in a new environment, entirely new mechanisms of price formation, and new methods of financing capital investment. In addition, new, independent, financial institutions came into being and these were required to use unfamiliar financial instruments. Also in the context of the reorganization of the economy, it should be mentioned that the government acquired a new role in that it had to apply new methods for regulating and managing the economy. The transformation of the CPEs into market-orientated economies also meant that these countries were integrated into the world economy. This had important implications for the statistical authorities of these countries because they had to properly record their transactions with the rest of the world in terms of not only goods and services but also income and capital, which were insignificant in the past.

The new types of institutional unit, which emerged as a result of economic reforms, were private corporations, quasi-corporations owned by the government, and NPIs. The formal identification of these units and their allocation to the relevant institutional sectors presented a formidable problem. The most pressing issue that required attention in this context, which arose in the earlier years of the transition period, was the need to draw a distinction between market and non-market producers, i.e. between the general government, which largely produced non-market output, on the one hand, and corporations and quasi corporations, which produced market output, on the other. Part of the problem was constituted by the difficulty of deciding whether the units that were granted considerable subsidies to certain economic activities should be regarded as market or non-market producers. The way in which this issue was resolved would influence not only the allocation of an institutional unit to the appropriate institutional sector,

but also the way in which value added was calculated for each industry or sector, and hence the national GDP.

This problem was particularly acute with respect to housing, which was highly subsidized in all former USSR republics. The decision as to who the institutional sector housing should be allocated to was somewhat arbitrary and required the adoption of certain conventions. The treatment of subsidies was complicated because the definition of subsidies that was used in the government accounts compiled by the Ministry of Finance (which constituted the prime source of data) differed from the definition that was adopted in the national accounts.

During this earlier transition period, some institutional units were multifunctional and it was not easy to decide to which sector they should be allocated and how their output should be computed and valued. The most vivid example is the central banks, which in the CIS countries formed an integral part of the government. After the economic reforms, these institutions gradually assumed a degree of independence and their functions changed. This process took a number of years. As a result of these changes in function, the national accountants of the transition economies faced the problem of allocating central banks to the appropriate sector of the economy and calculating their output in a meaningful way. At one point, the output of central banks was arbitrarily valued at cost and allocated to the intermediate consumption of commercial banks.

During the transition period, there were noticeable changes in the structure of industries in these countries that changed industrial weights in their national economies. Such changes were characteristic for many of the CIS countries. In particular, service industries enjoyed relatively high rates of growth. Measuring the output of services (especially financial services) presented a problem for national accountants, because they had not needed to address this issue in the past and long term series were missing.

A variety of instruments were used for the privatization of state-owned property, such as vouchers, auctions, direct sales both at full market price and at reduced price, transfers in kind, and transfers in quasi-barter arrangements. All these transactions and instruments had to be identified and appropriate entries recorded in the relevant accounts. However, there was lack of information on these transactions, which made the recording difficult.

A special challenge for compiling the national accounts of the CIS countries concerns the measuring and monitoring of the non-observed economy. Although such activities were performed in the former USSR and other CPEs, the official MPS methodology did not require any explicit estimates to cover this area. With the transition to a market economy, both underground and illegal activities expanded and the new requirement to produce exhaustive estimates of the GDP forced statisticians to look for the best methods of capturing the contribution that these activities made to the economy.

During the transition period, new types of income began to appear in the economy of the CIS countries (for example, reinvested income from direct foreign investment, dividends, withdrawal of income by the owners of quasi-corporations belonging to households and government, and income from the investment of reserves of insurance companies). The identification of these types of income also required special efforts of statistical agencies.

2.2. *Price, Coverage and Classification Problems in the Transition to the SNA*

The transition to a market economy and to the SNA required the solution of a number of problems that were associated with obtaining the basic primary data needed for compiling the national accounts. During the period in which the CIS countries were republics of the former USSR, there existed a comprehensive system of records, which were submitted by all entities to statistical agencies and which contained the bulk of information needed for compiling the MPS. As the transition took place, only medium-sized and large enterprises provided their records to statistical agencies, while information on all other units had to be collected from other sources, such as sample surveys of employment and enterprises, economic and agricultural censuses, household income and expenditure surveys, as well as various administrative authorities. One of the major problems in this area was that business accounts, which were the primary source of data on market activities, were not harmonized with national accounts.

The computation of the CPI on the basis of international standards (which is necessary because this index is important in the deflation of the GDP) was a key element of the reform of statistics in the CIS region. It took some years to organize price statistics on a new basis, and even at the time of writing, some of the recommendations made in the latest international manual on the CPI (released in 2004) have not been implemented fully in many CIS countries.

Unprecedented challenges were posed by the need to secure the consistency and comparability of the SNA aggregates for the period of time covering the evolution of the CIS economies, during which basic changes in the institutional set-up and structure of industry were occurring continually and various sectors and industries were falling subject to different rates of inflation. In order to solve these problems, it was necessary to improve methodology, change of industrial classifications, and adjust the base year. For example, many CIS countries introduced chained volume indices, in which the base year was changed annually, in order to respond to the fast changes in the structure of the economy. The same method was introduced for the calculation of the monthly CPI. Some CIS countries introduced the classification of individual consumption by purpose (COICOP) in their national accounts in order to improve the analysis of economic policy and the accuracy of the calculation of households' final consumption expenditure in real terms, that is, in constant prices.

Problems were also encountered in introducing the International Standard Industrial Classification (ISIC) or the General Industrial Classification of Economic Activities (NACE). The structure and content of the forms for reports that were to be submitted by enterprises to statistical agencies had to be modified in order to obtain data that was relevant for the national accounts.

2.3. *Unfinished Transition: Remaining Problems and Omissions*

As a result of the work carried out during the years 1992 to 2007 in a close cooperation with leading international organizations, the statistical offices of the CIS countries succeeded in introducing regular statistical practices including the underlying concepts, definitions, and classifications of the 1993 SNA. This provides a conceptual basis for the systematic compilation of the major accounts of

the system for industries, institutional sectors, and the economy as a whole. The system includes current accounts of the system, plus the capital account and goods and services account, which makes it possible to calculate the GDP in current market prices, using three methods: the production method, the distribution of income method, and the final use method. The GDP, including its major components, is compiled in constant prices with the help of a system of deflators recommended in the 1993 SNA. These data are then used to calculate a system of volume indices of the GDP and its components. The GDP is compiled both quarterly and annually. Russia and some other CIS countries calculate the GDP for individual regions. When compiling the final consumption of households, a distinction is made between final consumption expenditure and actual final consumption; the latter category constitutes an element of the adjusted disposable income of households, which is important for the analysis of welfare.

The GDP data include estimates of the output of underground activities and of the informal sector. An adjustment is made to holding gains/losses to obtain the GDP and all related categories of income in accordance with Hick's definition of income (see Hicks, 1939), which is adopted in the 1993 SNA. The information contained in the current and capital accounts provides a basis for analyzing the structure of the economy with respect to industry and institutions, the structure of final use of the GDP, and the distribution and redistribution of income.

There are some relatively small deviations from the principles of the 1993 SNA for most of the CIS countries, as follows: some countries do not include the net acquisition of valuables in capital formation; practically all countries use a simplified method to calculate the consumption of fixed capital; practically no countries measure illegal activities in their GDP estimates (however, this should not be seen as a deficiency, because only a few countries worldwide do so); and all countries value services that are provided by homeowners for their own consumption at cost, rather than at the market rent equivalent. Nevertheless, it would be fair to say that the GDP data for the CIS countries are comparable internationally, both within the CIS and in a broader international context. This was recognized by the World Bank in the context of participation of the CIS countries in the global international comparison of the GDP of 146 countries for 2005 (World Bank, 2008).

At the same time, there are still some omissions and problems that need to be addressed in the near future, in order to expand economic analysis and increase the reliability of data. They may be summarized as follows.

(1) A number of important accounts of the System are not compiled including financial account, changes in assets account, the balance sheet, and satellite accounts.
(2) Methods of measuring underground and informal activities continue to be rather crude.
(3) Illegal activities are not included in the GDP.
(4) The methods of estimating holding gain continue to be rather crude.
(5) Some countries do not use the *International Standard Industrial Classification of All Kinds of Economic Activities* (ISIC) or the *Statistical*

Classification of Kinds of Economic Activities of the European Communities (NACE), which results in non-comparability of the GDP data by industry.

(6) Difficulties are encountered in compiling regional accounts. There is a substantial difference between the overall GDP of the country and the sum of gross regional product. It is due to both a lack of appropriate data and a lack of clarity on some conceptual issues, especially the identification and treatment of cross-regional flows of goods and services, and the output of enterprises located in different territories.

(7) The treatment of the Financial Intermediation Services Indirectly Measured (FISIM) is simplified. The FISIM as an aggregate is allocated to the intermediate consumption of the notional industry, the output of which is taken to be zero by convention. This practice results in the GDP being underestimated because the whole FISIM is allocated to intermediate consumption while at least a part of it should be allocated to final consumption.

(8) The method of calculating the consumption of fixed capital is simplified. Most of the CIS countries had no past experience of using a perpetual inventory model (PIM) and the data on stocks of fixed assets that are submitted by the enterprises to statistical offices are often valued at historical costs rather than in replacement prices (current market prices), which results in distorted estimates of the consumption of fixed capital.

(9) One fundamental problem common to the majority of the countries in transition is the lack of harmonization between the national accounts and related systems of macroeconomic indicators, in particular, between national accounts and government finance statistics. The majority of countries in this group have not implemented the major provision of the latest IMF *Manual on Government Finance Statistics* (IMF, 2001). This makes the estimates of government final consumption expenditure inconsistent with the principle of the SNA. Information extracted from the reports of ministries of finance on the execution of the state budget does not meet international standards and fails to make a clear distinction between the different types of transaction. The use of a cash, rather than accrual, basis for registering transactions is still common in the CIS countries while the *IMF Manual on Government Finance Statistics* recommends using accrual basis for compilation of the "Statement of Government Operations."

(10) Only simplified indicators of labor productivity are compiled, which do not take into account changes in the structure of the labor force; no attempts have been made so far to measure the productivity of capital in addition to multifactor productivity.

(11) There are some estimates of stocks of assets, but their coverage is limited to fixed assets and inventories. Stocks of financial assets and other non-produced assets (both tangible and intangible) are not covered and the method of valuing these assets is often inconsistent with the SNA requirements.

3. Problems of Measuring the Rates of Economic Growth

All the countries of this group compile the GDP and its major components in constant prices in order to calculate rates of economic growth. Broadly speaking, the methodology of the SNA 93 is followed with respect to the index formulae, choice of base year and the desirable frequency of changing it, and the use of chained indices. However, in some cases, recommendations of the SNA 93 are not followed, while in others their implementation is not complete. The treatment of quality differences in the price indices that are used to deflate some components of the GDP is inadequate. For example, in the CPI of many CIS countries, changes in the structure and types of outlets are not taken into account and, as a result, there is so-called outlet type bias. In many cases, the CIS countries treat this effect as a price change while, in reality, differences in the quality of goods and services should be treated as volume changes. For example, in many CIS countries, households tend to purchase goods at the informal markets at relatively low prices. If the share of these purchases increases over the accounting period, it affects the CPI, rather than, as it should do, the volume index.

It also seems that the appearance of new modifications to goods is not reflected properly in price indices. Hedonic methods that attempt to reflect such characteristics are not used in the CIS countries. The methodology of price statistics is specified in rather general terms and many important aspects are omitted. For example, it is not clear whether new products such as cell phones are properly covered and, if so, what approach is employed to reflect the extra functions with the fast changes of these products. It appears that some more subtle aspects of quality change, such as a difference in conditions of payment, the size of packaging (one of the parameters which has to be taken into account for compilation of consumer price index as recommended in the *International Consumer Price Index Manual*), and servicing arrangements are disregarded. It is not clear whether countries make a distinction between differences in prices that reflect differences in the quality of goods and actual so-called price discrimination, which should be reflected in the price index. The methods that are used to reflect the differing aspects of regional price differentials are not specified; in other words, it is not clear whether differences between regional prices should affect the overall consumer price index for the country as a whole. Differences in regional prices in Russia that are often quite significant are treated as real price differences, rather than as differences in volume as is recommended in the international standards on price statistics (ILO *et al.*, 2004).

In some CIS countries, the population figures are used for the aggregation of price indices, rather than the relevant figures being applied to sales of goods and services. This approach is acceptable only when the distribution of the population between regions is more or less proportional to the distribution of sales. This would be rare and, at least in the CIS countries, is not the case. For example, the population of Moscow accounts for 8 percent of the total population of the country, but the sales of goods and services in Moscow accounts for about 30 percent of the total. As a rule countries use Laspeyres CPIs as deflators, while the 1993 SNA recommends the use of a Paasche price index. The Fisher formula is not used for computing price indices in these countries.

Non-market services output in constant prices is estimated largely by deflating the components of costs or by extrapolating values in the base year using indicators in physical units. No adjustments for changes in productivity over time are made, although such adjustments have been attempted. The validity of such adjustments has been seriously questioned by some experts.

The methodology for computing the CPIs that are used for deflating the final consumption expenditure of households is not entirely consistent with the provisions of the handbook on the calculation of the CPI released by the ILO in 2004, particularly with respect to the choice of formulae that are intended to be used in constructing elementary indices (at the level of elementary aggregates). Between the CIS countries, there are noticeable differences in the choice of formula used for this purpose; while some countries use the Jevons formula, others employ the Carli and Dutot formula (see ILO, 2004, chapter 20, par.20.39–20.41 for a more extensive discussion of this issue). Neither formula meets some important tests defined by the axiomatic theory of index numbers. In most CIS countries, the collection of prices for the CPI is limited to urban areas. This may result in a serious bias in the macro-deflator.

The CPI is calculated to measure price changes with respect to the regular patterns of expenditure of households (both residents and non-residents) in the territory of a given country, while for deflation of the national accounts, deflators should refer to the expenditure of all residents of the country, including those who spent money abroad. The analysis of the way in which the CPI is compiled in the CIS countries makes it possible to conclude that there are several types of measurement bias that are characteristic for them. The most important sources of bias that are characteristic for the CIS countries are a lack of adjustment for quality change, outlet substitution, and elementary index procedures formulae for calculating indices that are not recommended in the international manual on the calculation of the CPI.

In addition to the conceptual problems just noted, there are some practical problems. For example, in the CIS countries, the price index that is used to deflate current exports and imports of goods reflects not only changes in prices, but also changes in the composition of the commodity group. Deflators for the export and import of services do not exist at all and some crude conventions are used to derive proxy measures. In many CIS countries, deflators for intermediate consumption are not available and the same deflator for output is used for this purpose. This fails to account for changes in technology and productivity and results in very simplified estimates of value added in constant prices. Table 2 contains official data on GDP volume measures of the CIS countries that were reported to the CIS Statistical Committee.

The problems of calculating volume indices of the GDP to measure economic growth are somewhat similar to the problems of calculating volume indexes of the GDP in the International Comparison Program (ICP). In both cases these problems are associated with obtaining accurate deflators. These deflators refer to: (a) price indices, which measure changes in prices over period of time and are used for compilation of traditional GDP volume index; and (b) purchasing power parities, which measure differences in prices between countries and make it possible to obtain GDP volume index in the context of ICP. Most of the CIS countries

TABLE 2

VOLUME INDICES OF THE GDP OF THE CIS COUNTRIES, 2001–07
(CONSTANT PRICES; AS PERCENTAGES OF THE FIGURES FOR 2000)

	2001	2002	2003	2004	2005	2006	2007
Azerbaijan	109.9	121.5	135.2	148.9	188.3	253.2	316.5
Armenia	109.6	124.1	141.4	156.3	178.0	201.5	229.3
Belarus	104.7	109.9	117.6	131.0	143.4	157.7	170.6
Georgia	104.8	110.6	122.8	130.1	142.6	156.0	175.3
Kazakhstan	113.5	124.6	136.2	149.3	163.8	181.3	197.4
Kyrgyzstan	105.3	105.3	112.7	120.6	120.3	124.0	134.2
Moldova	106.1	114.4	121.9	130.9	140.8	147.5	152.0
Russia	105.1	110.0	118.1	126.6	134.7	144.6	156.4
Tajikistan	109.6	121.4	134.8	148.7	158.6	169.7	183.0
Turkmenistan	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Uzbekistan	104.2	108.4	113.1	121.5	130.0	139.5	152.8
Ukraine	109.2	114.9	125.9	141.1	145.0	155.5	167.4
CIS average	106.2	111.8	120.5	130.2	138.9	150.2	162.9

Source: CISSTAT (2008).

TABLE 3

RESULTS OF THE COMPARISON OF THE GDP OF THE CIS COUNTRIES FOR 2005

	GDP at National Prices, Bln. National Currencies	PPP, National Currencies Per 1 Russian Rouble	GDP Calculated in PPP, Bln. Roubles	Share of GDP (in %; CIS10 = 100)	Volume Indices of GDP Per Capita (in %; CIS10 = 100)
Azerbaijan	62,725.5	128.10	489.6	1.7	50.5
Armenia	2,242.9	14.02	160.0	0.6	42.4
Belarus	65,067.1	61.19	1,063.4	3.7	92.8
Georgia	11.3	0.058	194.7	0.7	38.1
Kazakhstan	7,590.6	4.523	1,678.2	5.8	94.5
Kyrgyzstan	100.9	0.8911	113.2	0.4	18.8
Moldova	37.7	0.3481	108.2	0.4	25.7
Russia	21,620.1	1.000	21,620.1	74.8	128.9
Tajikistan	7.2	0.0584	123.3	0.4	15.4
Ukraine	441.5	0.1318	3,349.7	11.6	60.7
Total CIS – 10			28,900.3	100.0	100.0

Source: World Bank (2008), CISSTAT (2008), Federal Service of State Statistics of the Russian Federation (2008).

participate in the ICP and took part in the last round of global international comparison for 2005 that was organized by the World Bank. The results of the comparison of the GDP of the CIS countries for 2005 (obtained in the framework initially of regional, rather than full global, comparison) are shown in Table 3.

The results presented in this table were then integrated into the global results, expressed in international U.S. dollars. The analysis and interpretation of these results require that attention be paid to: (1) the reliability and comparability of the GDP and its structure by analytical groupings and basic headings[1] (this problem is

[1]Basic heading—the lowest level of aggregation of items in the GDP breakdown for which parities are calculated in the context of ICP (World Bank, 2008).

complicated when the CIS figures are placed in a global context); (2) the quality of data on prices collected for representative items across regions; and (3) the integrity of the general methodology and its possible biases.

As was noted above, data on the GDP of the CIS countries and major analytical sub-aggregates are, for the most part, comparable internationally. However, given that the uncertainty of coverage of the underground and informal economy is a possible source of error, the evidence of significant differences in the relative ratio of the estimated non-observed economy to the GDP of selected CIS countries is somewhat worrisome. Another possible source of error and incomparability is the crude estimates of holding gains, especially given that rates of inflation continue to be high in this region. The derivation of a reliable breakdown of GDP by basic headings is rendered problematic by the lack of detailed comprehensive sources of data on consumption outlays and capital formation and the compelling need to resort to certain assumptions and conventions that can only generate crude estimates.

Data on average national prices of the representative items are obtained using standard procedures recommended by the World Bank. These data are checked with the help of Qaranta Tables (World Bank, 2008, pp. 151–2). However, some questions remain with regard to coverage of all parts of the territories (rural, urban) and all types of shops. The issue remains as to whether the prices of representative items correspond to prices that are used for valuation of goods and services in the national accounts.

The methodology recommended by the World Bank for the ICP may result in some biases. First, the principle "a potato is a potato" continues to be used and, as a result, the relative figures of the GDP of transition economies are likely to be somewhat overestimated compared with the GDP of developed economies. For example, in the comparison of prices of representative items, a distinction is not made between organic and bio-modified products; this may be a source of bias. (A distinction between these two types of product is made in the UN system for calculating post-adjustments.) The lack of progress in developing a methodology for comparing non-market services may again result in a bias in favor of countries in transition, where productivity in non-market services is likely to be less than in developed economies.[2] Finally, the use of current official exchange rates for the conversion of net exports into the common currency for comparison is another obvious source of possible bias. In the CIS countries, the share of net exports in the GDP often differs noticeably from one year to another; this shift influences the results of comparisons for consecutive years. Mention should also be made of the treatment of prices used in national accounts for valuing consumption from a country's own production. In the CIS countries, this item accounts for a considerable portion of the final consumption of households of some important commodities. Such prices should be taken into account in order to arrive at the appropriate average national prices of those commodities. However, it appears that these prices are not taken into account in many countries, due to a lack of

[2]As described by Blades (2007). Adjustments for labor productivity were introduced for the output of government services in 10 participating Asian countries. The adjustment procedure is rather simple and it was acknowledged that the methodology needs to be improved further.

clear recommendations in the World Bank methodology; this may result in some errors in estimating the purchasing power parities (PPPs) for some basic headings in these countries (see Ivanov, 2008).

4. Problems of Implementing the Updated 1993 SNA in the CIS Countries

It is believed that most of the 44 proposals for updating the 1993 SNA (which have already been incorporated into the text of the 2008 SNA are, in theory, applicable to the CIS countries. However, a number of practical problems, which are largely associated with the collection of primary data, need to be solved before specific improvements in the methodology can be introduced into the regular statistical practice of the CIS countries.

The provisions of the 2008 SNA differ from those of the 1993 SNA in terms of the possible burdens they will impose on statistical offices and the amount of resources that will be needed for their implementation. Some proposals imply the existence of certain institutional arrangements in the CIS countries and a relatively advanced stage of the development of national accounts and statistics in general. The statistical offices of the CIS countries, which are still in transition to a market economy, will have to establish priorities for the implementation of provisions of the 2008 SNA and devise programs that envisage the participation of other agencies in the countries and international organizations.

At the meeting of national accountants from the CIS countries that was held in Moscow on December 3–5, 2008 at the initiative of the CIS Statistical Committee, problems pertaining to the implementation of the 2008 SNA and priorities in this area were discussed. There was a general understanding among the experts that the priorities in this work should, for the foreseeable future, focus on those provisions of the updated SNA, the implementation of which will affect the measures of GDP and its structures (industrial structure, income distribution, and the structure of final use), and the calculation of the GDP growth rates. More specifically, the issues are as follows.

(1) Treatment of the expenditures on research and development as capital outlays, which results in the creation of new types of assets to be recorded in the balance sheet. In the SNA 93, these expenditures by commercial enterprises were treated as intermediate consumption.
(2) Treatment of military expenditure on durables as capital formation, which results in the creation of new types of asset in the balance sheet.
(3) New methods of measuring the output of central banks.
(4) The allocation of FISIM to the appropriate category of the GDP.
(5) Improving the measurement of the non-observed economy.
(6) Updating the classifications of assets (both non-financial and financial).

At the same time, the participants in the meeting recognized the practical problems with the implementation of the above mentioned issues.

For example, the implementation of the proposal to reallocate expenditure on research and development from intermediate consumption to capital formation would require solving practical problems with the estimation of (a) the stock of capitalized expenditure in the balance sheet, and (b) the consumption of capital with respect to these assets. It was also emphasized that the distinction

between the expenditure on research and development that is to be allocated to capital formation and that which is still to be treated as intermediate consumption needs to be made clearer. The implementation of the new treatment of military durables will require the introduction of data on these expenditures in the government finance classifications that are compiled by the ministries of finance. The problems that pertain to the capitalization of these expenditures in the balance sheet are similar to those mentioned above with regard to expenditure on research and development.

One of the provisions of the 2008 SNA deals with a new approach for calculating the output of central banks and its allocation to the categories of disposition. It is suggested that a distinction be made between the market and non-market components of the output of the central banks and that the non-market part be allocated to the final consumption expenditure of the government. The implementation of this proposal would affect the size and rates of growth of the GDP. This distinction is not easy to make in practice. In fact, the central banks of the CIS countries have informed the national accountants about practical problems with the implementation of this approach, which requires (a) drawing a distinction in practice between market and non-market departments of central banks, and (b) making available the data on costs for each department.

The general understanding that was arrived at during the meeting was that it would take a long time to implement the major provisions of the SNA 2008 and it was emphasized that the coordination of work in this area by the CIS Statistical Committee would be a necessary condition of achieving progress.

There are some provisions in the 2008 SNA that relate to the improvement of the sector classification. These provisions can be implemented in the CIS countries relatively quickly.

The work on implementing the specific provisions of the 2008 SNA should be carried out in parallel with implementing those accounts and tables of the 1993 SNA which have not yet been constructed in the CIS region but that are retained in the updated system. For example, the *Manual on the Government Finance Statistics* (GFS) (IMF, 2001) and the 2008 SNA need to be reconciled. The IMF Manual on GFS released in 2001 was harmonized with the 1993 SNA; as the 2008 SNA includes some provisions which are likely to affect measuring government transactions, the revision of the GFS Manual would be needed for reconciliation of these two standards. It remains a central issue to harmonize the definitions and structures in the GFS and the SNA that pertain to output and consumption, in the respect that these apply in the CIS countries. In practice, harmonization requires (a) the adoption of a similar, if not identical, treatment of transactions, and (b) using the same classifications, in the national accounts and in the GFS. It also requires the introduction into the national GFS and, consequently, in the national accounts, of a balance sheet for the general government sector. There is considerable room for such harmonization at the time of writing. It would also be useful for the CIS countries to compile major accounts for the public sector, which is defined in both the GFS and the 2008 SNA as including, in addition to the general government sector, public corporations and quasi-corporations that are controlled by the government.

The quality of price deflators that are used to obtain the GDP in constant prices also needs to be improved. This would require improvement in the way in which the CPI is compiled, using as a basis the provisions of the international manual published by the ILO in 2004. Special effort needs to be made to develop price deflators for exports and imports, which are either not adequate (for goods) or do not exist at all (for services). The work on improving deflators for non-market services is an important element in increasing the accuracy of the constant price calculations of the GDP and its components.

It should be noted that the above considerations regarding the implementation of the 2008 SNA in the CIS region are, on the whole, consistent with the program of work in this area that was developed recently by the United Nations Economic Commission for Europe (UNECE) and set out in the document entitled "Implementation of the 2008 SNA in the UNECE Countries that are Not Members of the European Union and OECD" (UNECE, 2008). It is noted in this document that the UNECE Secretariat will cooperate in this area with the CIS Statistical Committee and Eurostat.

Conclusions

With the approval of the 2008 SNA by the UN Statistical Commission, a new stage in the development of national accounts in the CIS countries has begun. This was recognized recently at the December 2008 meeting in Moscow that was convened by the CIS Statistical Committee. It appears that this stage may take as long as 15–20 years. During this period, the CIS countries will pursue two major interconnected objectives: (1) the introduction into standard statistical practice of a number of accounts that are recommended in the 1993 SNA and integrated in the structure of the 2008 SNA that are not yet compiled in the CIS countries, such as the financial account, the other changes in assets account, and the balance sheet; and (2) the implementation of selected new provisions of the SNA 2008 that affect the GDP and its structure, as well as the volume indexes of GDP and its major components. Achieving these objectives will require the solution of a number of complex problems.

The most pressing problem is the improvement of sources of primary data that are needed for the compilation of various accounts of the SNA, as follows: business registers, economic censuses, sample surveys that are used to obtain data on the activities of small enterprises and unincorporated enterprises (especially in agriculture), the system of reports that are submitted by large and medium-sized enterprises to statistical offices, administrative sources such as the reports by the ministries of finance on the execution of the state budget, reports by custom committees of the countries, and the system of reports by financial institutions.

The harmonization of business accounts and national accounts is an important element of work in this area. The improvement of these sources should take into account, more fully than is the case at present, the requirements of national accounts, consistency with international standards with regard to the coverage and valuation of transactions and assets (for example, while in the SNA flows have to be valued on accrual basis in business account this principle is not consistently

used; the same refers to the SNA requirement to use replacement value for the valuation of stocks of assets while in business accounts historical cost is used). Particular problems exist regarding the valuation of land and other non-produced assets.

Another area in which there are some common problems in the CIS countries is the harmonization of the national accounts and other types of macroeconomic statistics, such as the GFS and balance of payments, the compilation of which is carried out by other government economic agencies. As noted above, the international recommendations on the GFS have not been implemented in the CIS countries and this complicates the compilation of general government accounts in the SNA. In some of the CIS countries, there is inconsistency between selected flows that recorded in the SNA and in the balance of payments. It may be a result of deviation of national classifications of external transactions used by some countries in the balance of payments from international standards. The new manual on the compilation of the balance of payments and the international investment position (IMF, 2008), contains a number of new provisions that reflect the process of globalization and that affect the measurement of some important items of external transactions. These provisions need to be taken into account in the compilation of both national balances of payments and relevant items of national accounts. This requires that the interaction between statistical offices and other economic government agencies be improved.

Within statistical offices, the work on the harmonization of national accounts and so-called branch statistics, which provide some input for the compilation of national accounts, should continue.

In all CIS countries, the method of calculating the CPI (which is an important deflator of the GDP) that is used by them is not entirely consistent with the latest international manual on this topic (ILO *et al.*, 2004). The CIS Statistical Committee is planning to convene, in 2009, a seminar to discuss this topic and possible approaches for improving the reliability of this index.

Another common problem is that only a fraction of all the available national accounts data is used by the government agencies of the CIS countries that are responsible for formulating economic policy. Thus, for example, data on saving and net lending/net borrowing that are available for both institutional sectors and the economy as a whole are not used by the governments when deciding issues of economic policy. One reason for this phenomenon is inadequate interaction and communication between the statistical offices and other government agencies.

It is likely that the CIS countries will participate in the next round of the International Comparison Program (ICP) in 2011. In this connection, it is essential to implement in standard statistical practice the international classification of consumption expenditure by households (COICOP) and by the government (COFOG), which will make it possible to solve the problem of classifying the GDP using basic headings. The experience of the CIS countries in the 2005 round of comparison has shown that this breakdown of the GDP using basic heading presented a considerable problem, due to the failure of many countries to use the above classification in the standard compilation of their national accounts (Ivanov, 2007).

Appendix: Main Differences between the MPS and the SNA

MPS	SNA
1. Differences in underlying concepts and definitions	
Economic production is restricted to the production of material goods and material services	Economic production is defined to include all activities for producing goods and services, except for domestic services that are produced by households for their own use
Primary income is restricted to income received by enterprises and the population for their participation in the production of material goods and material services; income from property is not included in this flow	Primary income is defined as incomes that accrue to institutional units for their participation in the production in all industries of the economy or the ownership of assets that are used for production
The redistribution of income is defined as the payment of conventional transfers (taxes, insurance premiums, social benefits, etc) plus payments for non-material services and wages in the non-material sphere, plus income from property	The redistribution of income is defined to include transfers (both in cash and in kind), i.e. transactions in which one institutional unit provides a good, service, or asset to another unit without receiving any good, service, or asset from the latter
2. Differences in the structure of the two systems of national accounting	
A system of tables and balances that are used for recording transactions with material goods and material services, material balance, as well as the flows of income from these activities. Financial balance: table on stocks of tangible fixed assets is also a part of the MPS	A system of accounts (current, accumulation, and balance sheet), the compilation of which makes it possible to analyze all major phases of the economic process: production, generation of income, distribution, redistribution and use of income, accumulation, and stocks of assets
3. Differences in the content of indicators and classifications	
Net material product is defined as the sum of value added that originated in the material sphere in the territory of the given country	Gross domestic product is defined as the sum of gross value added that is produced by the resident-producers in all industries of the economy of the given country
The NMP is classified by branches of the material sphere	The GDP is classified by industries and institutional sectors
The disposition of the NMP includes final uses of material goods and material services on final consumption, accumulation, losses, and net exports	The disposition of the GDP includes final uses of all goods and services on final consumption, gross capital formation, and net exports
The NMP can be also regarded as the sum of primary income that is payable to participants in material production (population and enterprises)	The GDP can be also regarded as the sum of compensation of employees, gross operating surplus, and net taxes on production and imports
National wealth is defined to include the stock of fixed assets and inventories on a certain date	National wealth is defined to include the stock of all assets (non-financial and financial) less the stock of liabilities on the same date
The major classifications in the MPS is classification by branches of the national economy (CBNE) and by social type of unit (state, cooperative, private, and so forth)	In the SNA, in addition to the ISIC classification by the institutional sectors of economy, as well as such classifications as COICOP and COFOG, are also important. The ISIC differs considerably from the CBNE

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