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**METHODS OF ESTIMATING HIDDEN AND INFORMAL ECONOMIC ACTIVITIES
FOR NATIONAL ACCOUNTS IN SOME CIS COUNTRIES**

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Introduction

1.   Among the problems connected with the implementation of the 1993 SNA, great
attention is attached to estimating hidden and informal economic activities for national accounts.
This document describes the methods used to estimate the size of the hidden or informal
economy in five CIS countries - Armenia, Belarus, Kazakhstan, the Kyrgyz Republic and the
Republic of Moldova. These countries have informed the Secretariat of the methods they use
and the actual estimates made as part of the project to compile an inventory of national practices
in estimating hidden and informal economic activities.

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Armenia

2.   The overall adjustment of value added relating to "informal" economic activities for the household sector in 1997 amounted to 45 per cent. The term "informal economy" has been used here with the following meaning: "Informal economic activities are mainly undertaken on a legal basis by individual producers or by so-called unincorporated enterprises (i.e. enterprises owned by individuals or households, which are often not registered according to the prescribed order and are based on an informal relationship among the producers)".

Methods for estimating the non-observed economy

3.   Valuable sources for estimating the hidden economy include data from sample surveys of enterprises, labour force surveys and household budget surveys. Sample surveys are, perhaps, the most debatable of all the methods used in estimation, but they are nevertheless a main source for measuring the size of the hidden part of the economy. The complexity of the process of observing the hidden economy stems from the fact that it is difficult to correct for non-response, underreporting and misreporting.

4.   Bearing in mind the incomplete coverage, large degree of non-reporting and supply of unreliable information, the calculations are based on data on output and the number of persons employed in the economy. It should be noted that indirect macroeconomic methods are also employed, using a combined information base, i.e. all possible sources of information.

5.   The method used is based on an analysis of the supply of and demand for labour. The results serve to determine the number of persons engaged in legal kinds of activity, but their activities are not recorded. Another large category of information comprises data relating to production.

6.   According to a sample survey of small enterprises, of the 2,500 enterprises included in the sample at the time of the survey 51.6 per cent were not active for various reasons and 10.1 per cent could not be found because their registered addresses and actual place of operation did not match. In all, 34.2 per cent of the sample took part in the survey, with 26 per cent of the active enterprises supplying incomplete data. Only 22 per cent of the active enterprises work with hired labour. Hired workers account for 41.2 per cent of the total number of persons employed, 26.3 per cent of them working under verbal agreements. At these enterprises 6 per cent of employees are in one-time jobs each month. Labour inputs and the income earned by these employees and by unpaid working family members represented 24.6 per cent of the total, while unpaid working owners accounted for 11.2 per cent.

7.   The value of own production amounted to 78 million drams (Armenian currency unit, US$ 1 = 540 drams), while inputs (included in intermediate consumption) totalled 75 million drams, i.e. own production by the enterprises surveyed was underestimated by about 40 per cent. The average monthly wage of the hired worker and also of the owner (13,500 drams) was almost on a par with average monthly wages in the republic as a whole; however, according to interviews with the owners of these same enterprises, average monthly income was at least 56,000 drams.

8.   It should be pointed out that unregistered workers represented about 40 per cent of the labour force at the active enterprises covered by the survey and in different branches of the economy this figure ranges from 24 per cent (manufacturing) to 58 per cent (transport). Informal employment moreover, represents 12.2 per cent of the total.

9.   According to the labour force survey, about 65.7 per cent of the total number of persons employed were engaged in unregistered economic activities, with 8.6 per cent of employees, or 1 in every 12, working under a verbal agreement (mainly in the private sector). However, at the principal work place there was 8.5 per cent informal employment (verbal agreements), 27.7 per cent of the workers having an additional or second job.

10.   The phenomenon of hidden employment is more widespread in the sphere of self-employment: at the time of the survey one person in every two was nowhere carrying out unregistered activities at the principal work place, half describing their occupation as temporary, 28.3 per cent as continuous and 25.9 per cent as seasonal or occasional.

11.   According to the survey data, 49 per cent of employers and own-account workers were in fact carrying out unregistered activities that represented their main work. Unregistered activities were being performed by 81.5 per cent of employers and own-account workers as an additional or second job.

Use of survey data to improve the reliability of estimates

Methodological principles for estimating the hidden economy

12.   For the calculations, use is made of data on the number of persons employed in the economy and the number of persons engaged in a production process (as derived from regular statistical reporting). These two sets of data are used to determine the number of persons employed - for whom the necessary statistical information is lacking - and also to measure labour productivity in the relevant branches of the economy.

13.   To calculate the number of persons actually engaged in production, together with official statistical data use is also made of data from labour force surveys (in particular, to determine the number of persons on enforced leave, holding several jobs or employed for less than a full working day). This, in particular, is the practice for calculating coefficients to relate these indicators to the average number of persons listed as employed, which is obtained both from official statistics and from labour force surveys. An average coefficient is further calculated from these two sources and the total number of persons on enforced leave, holding several jobs or employed for less than a full working day are accordingly determined. These data are then applied by branch of the economy following the pattern established from the labour force survey data.

14.   The number of persons actually engaged in production is used as the basis for calculating labour productivity for the respective branches. Value added for the "non-recorded" part of the economy is then determined on the basis of this labour productivity and the number of persons employed (for whom the necessary statistical information is lacking).

15.   Bearing in mind the particularities of agricultural production, the results of annual checks on the reliability of data for numbers of livestock and areas sown to crops are used to determine non-recorded output from this branch. These data serve to determine any underestimation of livestock productivity and crop yields. Overall, the hidden part of agriculture as a branch constitutes about 21 per cent of its value added.

Estimating value added from the number of unemployed persons with a gainful occupation

16.   The next step in estimating the size of the economically active population is to estimate the number of workers officially recorded as unemployed, but nevertheless engaged in some kind of paid activity. According the Armenian employment service, the number of officially registered unemployed persons was, for example, 166,000 or 11 per cent of the economically active population in 1997. However, according to data from the sample survey of small enterprises and a labour force survey carried out the same year, the level of unemployment constituted 34 per cent or 343,000 persons, which is twice as high as the officially registered number. Nevertheless, 22 per cent of unemployed persons had a gainful occupation as an employer or own-account worker. Unemployment in Armenia has led to the development of activities that are often not properly registered.

17.   Data on labour productivity and the number of persons unemployed (but occupied as employers or own-account workers) that have been supplied from surveys for the respective branches are used to calculate the gross value added created by this category of workers.

Adjustment of value added for individual activities of the population

18.   Together with the above-mentioned sources, when calculating value added for the individual activities of the population (household sector) use is made of data from household surveys and as sample surveys. A sample survey of students enrolled at higher educational institutions in 1997 served, for example, to calculate total payments made to private tutors, which constituted about 60 per cent of the adjustment for "education". According to a survey of housing construction, the hidden share of individual housing construction represented about 22 per cent and constituted 14 per cent of the adjustment for "construction".

19.   A GDP calculation for the hidden economy (in the form of adjustments and corrections to indicators not fully covered by the information base) began to be made as of 1994. The share of the hidden economy in GDP was thus found to be about 27 per cent in 1994, and then 31.6 per cent in 1995, 34.3 per cent in 1996, 28.9 per cent in 1997, 25.6 per cent in 1998 and 29 per cent in 1999.

20.   The adjustment for the hidden economy in 1997 was, for example, 171 billion drams, but with further adjustment for individual activities of the population it amounted to 233 billion drams, or 28.9 per cent of total GDP. Of this 28.9 per cent, 18.7 per cent is attributable to the hidden and non-recorded economy and 10.2 per cent to the informal economy. Overall, the share of the informal economy (small enterprises and individual activities of the population) in the GDP adjustment is more than 35 per cent.

21.   The adjustment for the hidden economy in 1997 as finally recorded in GDP by branch, is given in table 1.

Table 1

	Total	Share of adjustment in GDP for:		
	Share of adjustment in GDP	Number of persons employed*	Number of persons unemployed	Informal activities**
Industry	28.7	76.8	10.4	12.8
Construction	46.1	64.2	20.9	14.9
Transport and communications	21.1	10.7	25.2	64.1
Trade	75.5	52.9	33.8	13.3
Agriculture	21.0	56.1	-	43.9
Other branches	27.1	59.6	1.1	39.3
Total at basic prices	31.5	59.0	14.5	26.5
Total GDP at market prices	28.9	59.0	14.5	26.5

    * Including adjustments at macro level.

  ** Informal individual activities of the population.

Methodology for making estimates for informal individual activities of the population

22.   Methods of determining the parameters of the informal activities of the population in various branches take different forms and the choice of method depends on the capacity of the information base. The main sources for determining the individual activities of the population include household budget surveys, sample surveys and customs statistics:

–   For branches of industry these data are calculated on the basis of household budget surveys. The adjustment includes production of wine, construction materials for sale, production of handicrafts items and other similar work and services relating to industrial activities.

–   In construction informal activities are defined from the data of individual housing construction surveys, according to which the hidden part represents 22 per cent, or 3.26 billion drams.

–   Figures for informal activities in agriculture are calculated on the basis of reliable checking of the data on numbers of livestock and areas sown to crops.

–   In trade informal activities are estimated from data on the number of persons engaged in individual entrepreneurship and the number of persons engaged in non-registered activities as found from sample labour force surveys.

‒ In transport informal activities relating to goods and passenger transport are estimated according to the share of the private sector in total goods and passenger transport operations.

‒ As regards health care informal remuneration for health-care services is calculated from data made available through the "State of public health" sample household survey.

‒ For housing informal activities (income from renting individual housing) are determined from household budget survey data.

23.   Overall, informal individual activities of the population in 1997 were estimated at 61,671 million drams, or 36 per cent of the household sector.

Belarus

24.   Since the 1990s the problem of statistical estimation and recording of the non-observed economy when compiling macroeconomic indicators has been extremely topical in the Republic of Belarus as the size of this part of the economy has been growing dramatically in the course of the implementation of economic reforms and marketization. This is connected with the expansion of the private sector as a result of the privatization of State enterprises and the emergence of new private enterprises, with the imperfections of accounting in respect of new sectors of the economy and of the breakdown of the population by levels of income, as well as with the population's need for additional forms of livelihood to maintain standards of living.

General approaches to measuring the non-observed economy

25.   The non-observed (hidden and informal) economy is the sum of all the respective economic activities that are hidden from statistical observation. Accounting for the non-observed economy takes place in three stages:

When measuring the output of goods and services by branch of the economy;

At the stage of coordinating (balancing) the basic national accounts indicators;

When compiling input-output tables for the supply and use of goods and services.

26.   When measuring the output of goods and services by branch of the economy, estimates for non-observed economic activities are made using the following methods:

‒ The commodity-flow method (on the basis of the input-output table and balances for selected products and services, cement, petrol, alcohol, public catering, transport and communications services);

‒ Combined methods of estimating indicators (alternative calculations of value added);

− Indirect methods, involving a comparison of data from various sources (comprehensive surveys or sample surveys of households and administrative sources);

− Methods of comparative analysis based on an estimation of the relationship between inputs and output in various groups of enterprises.

27.   Sample surveys of households are the main source of information on the informal sector of the economy. For such surveys in the Republic of Belarus a sample of 6,000 households, or 0.2 per cent of the national total, was taken. In order to ensure an even distribution of the sample throughout the republic according to the pattern of human settlement, a selection was made separately for the urban and rural population.

28.   The survey is arranged as a series of four consecutive quarterly interviews covering the whole calendar year for the sample of households selected, this being completely rotated and substituted thereafter with a new sample for the next calendar year.

29.   These surveys in Belarus provide data on the income and expenditure of households for a representative national sample and cover a wide range of goods and services.

30.   The provision of services by entrepreneurs is estimated from data on the number of licences issued for private individuals to perform certain kinds of services (road transport, medical treatment, concert tours, etc.). The reason for this is that a large proportion of the services is provided by individual entrepreneurs and collecting objective information from them directly remains problematical.

31.   GDP, as calculated by the production and final use methods, is coordinated at the stage of balancing of the main SNA indicators. Household final consumption expenditure is adjusted here for the population's consumption of services rendered by individual entrepreneurs. The Ministry of Statistics furthermore compiles input-output tables annually for the production and supply of goods and services. These tables provide the basis for checking on the agreement of the statistical data for flows of goods and services obtained from different sources. Compiling an input-output table shows up any weaknesses in accounting for the supply and use of goods and services, and adjustments are then made to the indicators. An adjustment is most commonly made to data for the non-observed sector.

32.   The share of the non-observed economy in the gross domestic product of the Republic of Belarus was 11 per cent in 1998 and 11.7 per cent in 1999. In 1999, the share of agriculture was 6.9 per cent, trade and public catering 1.9 per cent, housing construction 1.2 per cent, industry 0.6 per cent and services 0.6 per cent.

Kazakhstan

Methods of estimating the non-observed economy

33.   Measurement of the non-observed economy is made difficult from the statistical viewpoint because of a number of problems related mainly to the shortage of primary information.

34.   The methods of estimating the non-observed economy currently being used in Kazakhstan may be grouped as follows:

- Combined methods including implicit estimates of non-recorded activities, for example, crop production using data on areas sown, average yields and average prices;

- Indirect methods of estimation based on a comparative analysis of data obtained from various sources;

- The balance method, which serves to coordinate their supply and use.

35.   Broadly speaking, adjustments for the non-observed economy are made in the National Statistical Agency of the Republic of Kazakhstan in two stages:

1.   When calculating output from branch statistics;

2.   (a)   When determining output and gross value added by branch in national accounts;

(b)   When coordinating indicators for the main accounts.

36.   The adjustments made in the GDP calculations for hidden and informal activities rely mainly on indirect methods based on a comparative analysis of data obtained from various sources and data from closely related branches - for example, construction and the construction materials industry. An analysis is made of information about incomes, compensation of employees and costs. In cases where value added is less than the sum of its components, both value added and output will be increased accordingly to make up for the difference.

37.   The balance method involves compiling balances of supply and use for selected goods and services. This method is used when adjusting output for agriculture, trade and other branches. The Statistical Agency is now experimenting with introducing the commodity-flow method, which will help to track flows of goods and services from the producer to the consumer and correlate their supply and use not only for individual branches, but for the economy as a whole.

38.   To estimate the informal activities of households use is chiefly made of quarterly data from a special sample survey of production. The survey results serve to determine the branch structure of activities of the population, which is grossed up to cover the whole set of households. The volume of production is then determined per household in each branch and the results obtained are grossed up according to the branch structure.

39.   The commodity-flow method is used to calculate output in trade. The basic information for estimating output is provided by customs statistics and household surveys of the output of industrial and agricultural products for the market.

40.   The results of surveys of private farms and households are used to calculate the volume of production in agriculture.

Principles of statistical estimation of the non-observed economy and its reflection in national accounts

41.   Following the SNA methodology, for GDP calculations it is necessary to estimate all economic activities within the production boundary regardless of whether they are registered or not registered, legal or illegal, and whether or not statistical sources are available.

Registered enterprises

42.   The unreliability of the data is reflected in the underestimating of output and operating surplus and overestimating of intermediate consumption, mainly with a view to hiding income from taxation. The seriousness of this problem is illustrated in table 2.

Table 2

**Structure of GDP and payments to budget for 1999
at current prices**

	Structure of GDP	Structure of payments to budget
Total	100	100
Production of goods	38.1	75.4
Industry	28.2	65.7
Construction	4.7	6.3
Agriculture, forestry and fishing	9.9	3.4
Production of services	61.9	24.6
Transport and communications	12.1	13.3
Trade	14.2	4.0
Real estate activities	12.0	3.3
Other activities	23.6	4.0
Net taxes on products	5.7	

43.   The data in the table show that hidden activities are observed in those branches of the economy whose goods and services are supplied mainly for cash, and how unreliable is the information officially reported by them. In the case of trade, which accounts for more than 14 per cent of GDP, the share of taxes entering the budget from this sector is a mere 4.0 per cent. The service industries as a whole, while constituting nearly 62 per cent of GDP, transfer to the budget less than a quarter of all taxes.

44.   Incomplete coverage and non-reporting are statistical problems that mainly derive from the following factors:

–   Expansion of the private sector as a result of privatization and the emergence of new enterprises, including a great many small ones;

–   Need to adapt statistical observation to the new conditions of the economy.

Unregistered enterprises

45.   Given the legislation in force in the republic concerning the registration of legal entities, unregistered corporations are a rare exception.

Unincorporated enterprises

46.   This category includes households, family units or associations and individual entrepreneurs. The problems that arise in this area are as follows:

–   Under-reporting by registered unincorporated enterprises;

–   A large number of non-registered unincorporated enterprises;

–   Non-registered employees at unincorporated enterprises.

47.   Obtaining reliable statistical information on informal production in various branches, including agriculture, trade, construction and services, can be arranged only through systematic sample observations.

Illegal production

48.   Because of the lack of an appropriate methodology to account for and measure this aspect of the non-observed economy, estimates of illegal activities are not made in the republic.

49.   Table 3 below shows recent developments in the non-observed economy for the republic as a whole:

Developments in the non-observed economy (as % of GDP)

Table 3

	1997	1998	1999	2000
Non-observed economy of which:	37.9	30.3	27.4	26.8
hidden	15.5	11.2	12.2	12.4
informal	22.4	19.1	15.2	14.4

50.   Confronting the data at different levels permits various adjustments and corrections. Many of them relate indirectly to hidden or informal activities not covered in the primary data sources. Consequently, the hidden and informal economy included in national accounts estimates cannot be precisely defined and clearly illustrated. The magnitudes of the adjustments can, however, be adduced from comparisons of the primary data. The results of the corrections for 1999-2000 are set out in tables 4 and 5.

Table 4

	1999		
	Share of informal sector (*households*) in GDP, %	Share of hidden economy (*adjustments*) in GDP, %	Share of non-observed economy, in GDP, %
Agriculture	6.5	0.1	6.6
Industry	2.3	0.1	2.4
Construction	1.3	0.1	1.4
Trade	1.3	2.8	4.0
Hotels and restaurants	0.04	0.12	0.16
Transport	2.5	0.3	2.8
Education	0.5	1.1	1.6
Real estate, renting and business activities	0.4	5.6	6.0
Health and social work	0.3	0.2	0.6
Other community, social and personal service activities	0.1	1.7	1.8
Gross value added, total	15.2	12.2	27.4

Table 5

	2000		
	Share of informal sector (*households*) in GDP, %	Share of hidden economy (*adjustments*) in GDP, %	Share of non-observed economy in GDP, %
Agriculture	5.7	0.1	5.6
Industry	2.1	0.2	2.3
Construction	1.4	0.2	1.6
Trade	1.3	2.6	3.8
Hotels and restaurants	0.05	0.14	0.19
Transport	2.1	0.4	2.5
Education	0.7	1.2	1.8
Real estate, renting and business activities	0.4	5.7	6.1
Health and social work	0.4	0.3	0.7
Other community, social and personal service activities	0.3	1.7	2.0
Gross value added, total	14.4	12.4	26.8

51.   As there are three approaches to GDP in the System of National Accounts (the production approach, the income approach and the expenditure approach), adjustments for non-observed economic activities are necessary in each of these three cases. To measure GDP more precisely from the production side, an estimate must be made for gross value added deriving from hidden or illegal production. This estimate may either be included in the total for each of the producing industries or given under a separate heading, depending on the purposes of the exercise. The Statistical Agency thus makes an estimate for the non-observed economy for the most part indirectly in GDP calculations.

Kyrgyz Republic

52.   The presence of a non-observed economy in the Kyrgyz Republic is an accepted fact. It is generally recognized that the widespread nature of hidden economic activities has a substantial impact on the major macroeconomic indicators, including GDP. Without taking account of hidden economic activities, indeed, it is impossible to build an objective picture of the size of the national economy and especially of some of its components, such as trade and services. The lack of weighted and definite official estimates from the State statistical bodies leads, however, to a reliance on alternative calculations, many of which are not sufficiently professional and objective. Most of these estimates for various reasons overstate twofold or more the actual volume of hidden economic activities. The main approaches to measuring the parameters of the non-observed economy are discussed below.

53.   In the Kyrgyz Republic's statistical practice, the term non-observed economy includes both hidden and informal activities.

Methodology applied

54.   Adjustments for hidden and informal economic activities are based on the results of either sample surveys or additional and expert estimates drawing upon supplementary information from other sources.

55.   In the compilation of national accounts, adjustments for informal and hidden economic activities are made to GDP both from the production side and from the income and expenditure sides. The overall size of GDP thus appears to be determined quite correctly. However, there is some imprecision in the definition of indicators for the non-observed economy itself and in distinguishing between hidden and informal production.

56.   On the production side, adjustments are made to the statistics for industrial output, construction, transport, trade and marketed consumer services, including financial services. In practice, then, to one extent or another adjustments are made to the statistics for all the main branches producing marketed goods and services. Informal production in agriculture is also recorded, but it is not included in the total for hidden or informal production.

57.   On the income side, the respective adjustments by branch focus on mixed income, this being calculated as the difference between the figure for gross value added and the figures for wages and salaries and for taxes on products.

58.   On the expenditure side, the main adjustments are made to households' expenditures on final consumption, because this is calculated from figures for trade and thus fully linked to output. A small adjustment is made for fixed capital formation, mainly in respect of the construction of private dwellings. For exports, use is made of the figures reported officially by the Customs Committee.

59.   More specifically, adjustments by branch for hidden and informal production are effected by applying the following methodological approaches.

Industry

60.   The adjustments for informal and hidden output in industry are not very large. They mainly concern the handicrafts production of consumer goods carried on by households. These production activities are largely concentrated in the food industry and partly in the clothing, jewellery and some other industries. Data for this adjustment are obtained from special surveys. In general such production relates to the informal sector, but some handicrafts producers avoid paying taxes and thus constitute the hidden part of this sector.

61.   Aside from corrections for informal handicrafts production, adjustments are made for misreporting by enterprises. Underreporting of gross value added, as used for the GDP calculation, in industry may result either from concealment (total or partial) of the size of industrial output or from a deliberate overestimation of the share of intermediate consumption (expenditure). Both these actions reduce the taxable base and generate illegal income.

Construction

62.   Some construction activities in the republic are carried on not by professional and formally organized building firms but by informal and temporary construction teams or directly by residents themselves. These activities are taken into account by gathering data on the registration of buildings and dwellings so constructed with the local authorities. Such activities are related to the informal sector and not included within the boundaries of the hidden economy. The information obtained in this way is sufficiently reliable and correctly reflects new structures completed in physical terms.

63.   As regards estimations in monetary terms, the value of many structures may be understated at the time of registration. A similar situation also obtains with individual housing construction. For example, the actual value of one square metre of housing in Bishkek is estimated by the experts at US$ 150 to 300, whereas the recorded value per square metre does not exceed 300-600 soms, i.e. it is about 10-15 times lower.

Trade

64.   Trade is the branch where hidden economic activities are mainly concentrated. However, trade is the second largest branch after agriculture in which households' informal activities are concentrated. Hidden economic activities are immediately taken as including trade and public catering enterprises that have not been duly registered, the data for these enterprises then simply being adjusted on the basis of the average figures for the branch obtained from one-time direct surveys. Additional surveys and checks are, furthermore, conducted to correct misreporting by trade enterprises that, for example, over-report intermediate consumption to lower value added and operating surpluses.

65.   The informal part of trade activities is studied by carrying out systematic sample surveys of informal markets throughout the republic. Data from the surveys of informal markets are widely used not only when calculating the figures for trade as a branch of the economy, but also when calculating the population's consumption of tangible goods and services, since this information is more objective, for example, than data from sample budget surveys of households.

66.   An important positive aspect of the calculation of trade figures, moreover, is that with respect to various consumer goods, such as alcohol and cigarettes, additional controls are made by the balance method, and during these calculations the level of sales is compared with a reasonable level of consumption of such goods and, where necessary, corrected. In accordance with established practice, all the amounts for trade activities in informal markets are assigned to the informal sector.

Transport

67.   A significant part of transport services in Kyrgyzstan is provided by individual producers. Calculations are based on indirect information. The basis for the calculation is State Motor Vehicle Inspectorate data on the number of serviceable goods vehicles and buses owned or hired by private individuals, and details of average distances travelled, average loads carried, average earnings from transport operations, etc. Calculations for the carriage of passengers by taxis are

made by a roughly similar arrangement, on the basis of data for licences issued, since the holding of licences is checked not only by the road transport authorities but also by the drivers themselves, who are keen to avoid additional competition. The results of the calculations appear to be quite objective. The adjustment here is related entirely to informal activities.

Foreign trade

68.   Foreign trade transactions undertaken by persons engaged in "shuttle trade" are recorded on the basis of customs documents and of special surveys of long-distance trains that have been conducted quarterly since 1997. The activities of "shuttle traders" taking goods out of the country in small quantities in their hand luggage have to be estimated from surveys at railway stations, whereas traders bringing goods into the country in their hand luggage are required to declare them. The overall adjustments currently made for "shuttle trade" are quite large, but they are obviously not sufficient.

Hidden income

69.   Households' hidden income is calculated by the balance method. The idea in this calculation of hidden income is to compare all households' recorded income with their expenditure on final consumption, capital formation and net acquisition of financial assets. As a rule, the expenditure is found to be considerably higher than declared income. The difference may be treated as hidden income.

70.   Use has been made for the calculation of data from all accounts of the household sector, which contain figures on disposable income and on expenditure on final consumption and capital formation.

71.   Net acquisitions of financial assets also need to be counted for the household sector. This information should, according to the SNA methodology, be set out in the financial account. The National Statistical Committee is not actually in a position as yet to compile a financial account for any of the institutional sectors, including the household sector, but it does have the information needed to estimate approximately the net acquisition of financial assets for this sector. In particular, to quantify the net acquisition of financial assets, account has been taken of the increase in money available to the population (national currency), increase in investments in financial institutions and securities, increase or decrease in outstanding wages and salaries and pensions, and increase in available foreign currency. The latter has been calculated as the difference between expenditure on the purchase of foreign currency and income from its sale, making allowance for the expenditure of "shuttle traders" on informal imports.

72.   The second part of households' hidden income is comprised of the hidden part of transactions involving the informal production of goods and services, i.e. it constitutes the hidden part of mixed income. No further calculations are needed for its quantification; it suffices to use the value added already calculated for the hidden part of informal production. It is assumed here that no taxes are in fact paid from this part of value added, and wages and salaries are also missing. Value added therefore equals mixed income. The total for hidden income is the sum of hidden income and the hidden part of mixed income.

Consumption from hidden and informal sources

73.   Households' expenditure on consumption from informal sources directly corresponds to the adjustments made for informal trade when measuring the parameters of informal production. Use has also been made of information from household budget surveys because, in addition to a general question concerning expenditure on goods and services, the questionnaire for this survey contains a question on goods and services purchased from private individuals. The hidden part of goods turnover corresponds to consumption by households from hidden sources.

74.   Consumption of own output should also be included in informal consumption. This indicator is derived from the mixed income, in physical terms, earned by households engaged in informal agricultural production. The indicator is regularly computed by the National Statistical Committee to compile national accounts. It is of great significance for an analysis of the marketability of output and the development of market relations in the country.

75.   The hidden part of capital formation is the sum of the underestimated value of private dwellings and offices. Such a lowering in value is quite common and represents investment of hidden income. This figure is matched with the relevant adjustments for hidden construction activities.

76.   The most significant adjustments have been made when measuring hidden and informal imports of consumer goods by "shuttle traders". The National Statistical Committee indicates in its regular publications the size of informal "shuttle trade", based on the Customs Committee's official data. This valuation appears, however, to be insufficient.

77.   An adjustment of the figures for hidden imports (aside from the officially known size of "shuttle trade") has thus been made by the commodity-flow approach for the main high-liquidity consumer products in physical and value terms, with average market prices being used to estimate imports.

78.   The results of the calculations are set out in tables 1.1-3.1.

1.   General description of hidden and informal economic activities

Table 1.1. Parameters of hidden and informal economic activities

	(millions of soms)				
	1995	1996	1997	1998	1999
Value added resulting from hidden and informal production of which:	7 623.9	12 762.6	15 684.3	16 637.3	23 356.2
informal production complying with regulations	6 362.9	11 044.4	13 175.4	13 395.4	18 865.0
hidden production	1 260.9	1 718.1	2 508.9	3 241.9	4 491.2
hidden part of informal production	819.3	1 078.8	1 763.2	2 710.0	3 702.5
hidden production in non-financial sector	441.6	639.3	745.7	531.9	788.7

Table 1.1. (<u>continued</u>)

	(millions of soms)				
	1995	1996	1997	1998	1999
Hidden and mixed income of which:	7 852.7	13 862.0	14 415.0	23 894.8	26 882.2
mixed income complying with regulations	6 362.9	11 044.4	13 175.4	13 395.4	18 865.0
hidden income	1 489.7	2 817.5	1 239.7	10 499.3	8 017.2
hidden part of mixed income	819.3	1 078.8	1 763.2	2 710.0	3 702.5
other hidden income	670.4	1 738.7	-523.6	7 789.4	4 314.7
Uses of income for consumption from hidden sources* of which:	9 697.9	15 829.6	17 521.4	27 350.8	34 009.4
informal consumption (legal)	6 005.7	10 991.3	11 162.1	18 707.8	22 099.2
consumption from hidden sources	3 692.2	4 838.3	6 359.4	8 643.0	12 000.2

* Excluding smuggling.

Table 1.2. Parameters of hidden and informal economic activities

	(% of GDP*)				
	1995	1996	1997	1998	1999
Value added resulting from hidden and informal production of which:	47.2	54.5	51.1	48.7	47.9
informal production complying with regulations	39.4	47.2	42.9	39.2	38.7
hidden production	7.8	7.3	8.2	9.5	9.2
hidden part of informal production	5.1	4.6	5.7	7.9	7.6
hidden production in non-financial sector	2.7	2.7	2.4	1.6	1.6
Hidden and mixed income of which:	48.6	59.2	47.0	69.9	55.1
mixed income complying with regulations	39.4	47.2	42.9	39.2	38.7
hidden income	9.2	12.0	4.0	30.7	16.4
hidden part of mixed income	5.1	4.6	5.7	7.9	7.6
other hidden income	4.2	7.4	-1.7	22.8	8.9
Uses of income for consumption from hidden sources** of which:	60.1	67.7	57.1	80.0	70.0
informal consumption (legal)	37.2	47.0	36.4	54.7	45.3
consumption from hidden sources	22.9	20.7	20.7	25.3	24.6

* Official size of GDP used for calculation.

** Excluding smuggling.

2. Hidden income of households

Table 2.1. Calculation of hidden income in households

	(millions of soms)				
	1995	1996	1997	1998	1999
Disposable income in households	13 433.2	19 405.9	24 038.8	25 277.4	34 858.1
Expenditure on consumption and capital formation of which:	12 976.0	20 090.5	22 255.9	31 424.9	37 736.4
Expenditure on final consumption	11 761.7	18 703.2	20 559.4	29 759.5	36 208.1
Formation of fixed capital and inventories	1 214.3	1 387.2	1 696.5	1 665.4	1 528.3
Difference between income and expenditure (1-2)	457.2	-684.6	1 782.9	-6 147.5	-2 878.3
Net acquisition of financial assets (table 2.2)	1 127.6	1 054.1	1 259.3	1 641.9	1 436.4
Total used (2+6)	14 103.6	21 144.6	23 515.2	33 066.8	39 172.8
Difference between income and its use (hidden income) (1-7)	-670.4	-1 738.7	523.6	-7 789.4	-4 314.7

Table 2.2. Net acquisition of financial assets of households

	(millions of soms)				
	1995	1996	1997	1998	1999
Increase in money available in national currency	913.2	412.7	152.0	418.4	1 007.3
Increase in money available in foreign currency, total	523.3	1 231.6	1 027.0	778.6	1 201.9
Net shuttle-trade imports	396.8	703.5	400.4	167.9	519.0
Increase in foreign currency, adjusted (2-3)	126.5	528.1	626.6	610.8	682.9
Increase in deposits in banks	88.1	59.5	502.5	365.2	75.6
Increase in outstanding wages/salaries and pensions	0.0	40.1	-54.8	182.3	-349.3
Increase in value of securities held by public	-0.1	13.7	32.9	65.2	19.9
Total net acquisition of financial assets (1+4+5+6+7)	1 127.6	1 054.1	1 259.3	1 641.9	1 436.4

Table 2.3. Hidden income of households

	(millions of soms)				
	1995	1996	1997	1998	1999
Hidden income	670.4	1 738.7	-523.6	7 789.4	4 314.7
Mixed income from activities relating to hidden economy	819.3	1 078.8	1 763.2	2 710.0	3 702.5
Total hidden income of households (1+2)	1 489.7	2 817.5	1 239.7	10 499.3	8 017.2

3. Components of the hidden economy in GDP used

Table 3.1. Uses of income relating to the hidden and informal economy

	1995	1996	1997	1998	1999	1995	1996	1997	1998	1999
	in millions of soms					as % of GDP				
Imports										
Recorded imports of goods and services	6 338.6	13 234.1	14 173.8	19 834.1	27 782.4	39.3	56.6	46.2	58.0	57.0
of which: Informal imports (shuttle trade)	828.0	819.0	1 431.7	2 081.9	2 270.6	5.1	3.5	4.7	6.1	4.7
Plus: Smuggling (estimate)	83.1	167.7	258.5	361.6	425.7	0.5	0.7	0.8	1.1	0.9
Individual consumption of households	13 892.3	21 270.6	23 710.5	33 102.5	41 742.7	86.0	90.9	77.3	96.8	85.6
Goods turnover, total	7 468.4	10 001.4	13 576.0	16 489.4	22 641.6	46.3	42.7	44.2	48.2	46.5
of which: Legal informal market	1 296.0	2 451.4	4 008.9	4 413.0	6 683.9	8.0	10.5	13.1	12.9	13.7
Hidden sales	3 679.8	4 811.9	6 255.0	8 474.4	11 815.6	22.8	20.6	20.4	24.8	24.2
Consumption of own output	4 596.0	8 391.0	6 952.0	14 085.0	14 981.1	28.5	39.4	22.7	41.2	30.7
Gross fixed capital formation	3 290.0	5 243.5	3 802.0	4 403.7	7 663.1	20.4	22.4	12.4	12.9	15.7
Capital investment	3 221.0	4 766.2	5 692.2	4 214.5	6 708.2	20.0	20.4	18.6	12.3	13.8
of which: Informal construction	113.7	148.9	201.2	209.8	434.2	0.70	0.64	0.66	0.61	0.89
Hidden value of construction	32.9	101.9	104.4	168.6	184.6	0.20	0.44	0.3	0.5	0.4
Total[*] Informal sector (legal)	6 005.7	10 991.3	11 162.1	18 707.8	22 099.2	37.2	47.0	36.4	54.7	45.3
Hidden sector	3 712.8	4 913.8	6 359.4	8 643.0	12 000.2	23.0	21.0	20.7	25.3	24.6

[*] Excluding hidden and informal imports.

Moldova

79.   Specialists of the Department of Statistics and Sociology of the Republic of Moldova have carried out a large amount of crucial work in the last few years on a fundamental reform of the techniques, general methodology and organization of statistics in the context of socio-economic developments. The main outcome of these recent activities includes the introduction of the System of National Accounts and calculations of the main macroeconomic indicators.

80.   A certain consistency has now been achieved in the use of data sources providing for a higher degree of precision and quality in national accounts indicators, which have been prepared to date for the period from 1989 to 2000.

81.   The introduction of the SNA into national practice allows GDP calculations to be made following three approaches - the production, final use and income approaches. The methodology employed calls for comparability of the data recorded by kind of activity and for institutional sectors with subsequent corrections and adjustments for them to be related by means of the supply and use table to arrive at the total size of GDP.

82.   To ensure more complete coverage of the national accounts and reflect developments during the period of transition to a market economy in them, it is essential for the calculations and estimates to include indicators for both registered and non-registered units (including private individuals engaging in economic activities).

83.   The informal economy is defined as "consisting of units engaged in the production of goods or services with the primary objective of generating employment and incomes for the persons concerned. These units typically operate at a low level of organization, with little or no division between labour and capital as factors of production, and on a small scale. Labour relations - where they exist - are based mostly on casual employment, kinship or personal and social relations rather than contractual arrangements with formal guarantees". These units are assigned to the household sector and not to be grouped with other units. Their owners are fully liable for any financial or non-financial obligations assumed in the respective production activity.

84.   The informal sector embraces cottage industries and output from small farms, handicrafts production and the activities of a large number of own-account workers.

Methods of estimating the non-observed economy

85.   Using the information available and methodology developed, the Department of Statistics and Sociology takes account to varying extents in GDP calculations of all the above-mentioned facets of the "non-observed economy" except for illegal activities. The methods used to determine the parameters of the "non-observed economy" vary for the different economic activities and the choice of method depends on the capacity of the information base and the characteristics of the activities to be studied.

Estimating how far the payment of taxes is avoided by legal and natural persons producing goods or services and obliged to complete a balance sheet and declaration of income

86.   For legal and natural persons comprising, respectively, the non-financial corporations and quasi-corporations sector and the household sector, the State Customs Inspectorate has supplied information on:

   –   the number of enterprises inspected by kind of economic activity in which breaches
       have been discovered in the calculation of value added tax, operating surpluses and
       excise duties;

   –   the sum of additional charges to be made (after inspections) in respect of taxes and
       excise duties;

   –   the sum of administrative sanctions (fines and penalties).

87.   Enterprises producing goods or services exempted under national legislation from the payment of value added tax were deleted from the list of enterprises active in the reference year (according to the business register). Under the Value Added Tax Act of the Republic of Moldova, the said tax is calculated at the rate of 20 per cent of taxable turnover, making reference to prices and tariffs not inclusive of value added tax or excise duties. This rate of tax is applicable to enterprises producing goods or services. A rate of 16.67 per cent is applied to the turnover of enterprises engaged in retail trade or public catering and enterprises carrying out intermediation activities.

88.   From the additional charges calculated (from the results of checks by the State Tax Inspectorate) and the rates for value added tax and operating surpluses, an estimate was made of the concealed output of the enterprises inspected by kind of activity. The amount of output obtained was grossed up to cover all the active enterprises selected from the register. The shares of intermediate consumption derived from official reporting for the respective formal economic activities were used in calculating the intermediate consumption here. The results of the calculations are shown in table 6.

Table 6

Kind of economic activity	Hidden gross value added as % of:							
	Gross value added for the respective activity				Gross domestic product			
	1997	1998	1999	2000	1997	1998	1999	2000
Agriculture	8.7	16.1	2.3	0.6	2.2	5.1	0.6	0.2
Mining and quarrying				3.9				0.0
Manufacturing/processing	19.4	10.3	3.9	1.2	3.5	1.8	0.5	0.2
Electricity, gas and water supply	0.7	2.1	0.4	0.2	0.0	0.2	0.0	0.0
Construction	3.7	6.2	8.0	2.9	0.2	0.5	0.3	0.1
Wholesale and retail trade	17.8	7.0	24.3	9.6	1.5	1.1	3.7	1.2

Table 6 (<u>continued</u>)

Kind of economic activity	Hidden gross value added as % of:							
	Gross value added for the respective activity				Gross domestic product			
	1997	1998	1999	2000	1997	1998	1999	2000
Hotels and restaurants			19.1	7.0			0.2	0.0
Transport and communications	4.5	6.4	6.1	4.6	0.3	1.4	0.3	0.2
Financial intermediation	1.4	1.0	2.8	4.4	0.1	0.1	0.2	0.2
Real estate, renting and business activities	13.1	8.2	15.5	4.0	0.3	0.2	0.7	0.2
Education			1.4	0.3			0.1	0.0
Health and social security			9.7	9.4			0.3	0.2
Other community, social and personal service activities	5.4	8.0	15.0	4.2	0.1	0.3	0.2	0.1
Total	11.9	13.0	8.0	2.9	8.2	10.7	7.0	2.6

89.   <u>Incomes of non-registered natural persons</u> (dressmakers, teachers giving private lessons, street traders, private vehicle owners, medical practitioners) are estimated from the various statistical sources specific to each activity.

90.   <u>Manufacturing</u>. The number of women of a given age, with a breakdown for the urban and rural population, was used to estimate the non-declared income of dressmakers working at home. A determination was made of the average price for making one item and the number of items produced per year. Gross output was estimated in this way, but only expenditures on electricity were counted in intermediate consumption.

91.   <u>Construction. Adjustment for investment in individual construction</u>. The justification for this adjustment is the deliberate underestimation of the value of individual dwellings (as registered by the owners with the respective local authority) when compared with actual expenditures on their construction. Consequently, the living space of newly completed fixed capital assets was revised for individual construction, making reference to market prices.

92.   <u>Wholesale and retail trade</u>. The informal market includes the marketing by private individuals of goods produced domestically or brought into the country from the "rest of the world" (so-called informal imports) as part of free trade in special marketplaces for tangible goods. The turnover of the informal market was determined on the basis of budget statistics by comparing the public's total spending on consumer goods with figures on trade turnover for all registered trade enterprises over the respective period.

93.   Household budget survey data serve to determine the ratio applicable to purchases of goods from selected individuals in the formal sector. This ratio covers sales of goods in the formal market, as calculated from trade statistics, and sales of goods in the informal market are determined therefrom. The gross output (trade margin) is determined according to the same shares as observed with respect to officially registered trade enterprises.

94.   Transport. According to Traffic Police Department (Ministry of Internal Affairs) data on goods vehicles owned by private individuals, a coefficient of the serviceability of such privately-owned transport equipment and State Transport Inspectorate data on entrepreneurs (natural persons) holding licences for transport activities, only 18 per cent of individual owners are entitled - have obtained licences - to transport goods on a commercial basis. Their commercial goods transport operations are estimated quantitatively on the basis of responses to the questionnaires for weekly sample surveys approved by the Department of Statistics and Sociology in 1998. The calculation takes into account the number of weeks in the period under review, average goods transport operations per week and the number of private goods vehicles.

95.   In determining income use is made of the average charge per tonne-kilometre, calculated on the basis of general data on income from the carriage of goods by road transport enterprises (legal persons) and actual freight turnover. This information is used to estimate hidden incomes from services for the transportation of goods not complying with the prescribed rules (unlicensed operation).

96.   Health care. Services rendered to the public by medical practitioners in State-run health care institutions and paid for in cash (illegal activities) are estimated on a differential basis from anonymous surveys.

97.   Education. Figures concerning the non-observed economy for this activity cover the non-declared income of teachers giving private lessons. The number of students enrolled at higher and special secondary educational institutions by speciality was determined from statistical records. The price for one hour of teaching and the number of hours of lessons given over the respective period were established from informal surveys.

98.   It may be noted that responses to the labour force questionnaires introduced in the Republic of Moldova in 1999 are also used to estimate the incomes of non-registered natural persons.

99.   The results of the calculations for economic activities mentioned are set out in table 7.

Table 7

Kind of economic activity	Hidden gross value added as % of:							
	Gross value added for the respective activity				Gross domestic product			
	1997	1998	1999	2000	1997	1998	1999	2000
Mining and quarrying				1.3				0.0
Manufacturing/processing	9.4	4.1	13.8	12.2	1.6	1.0	1.8	1.7
Construction	28.6	11.8	13.6	28.0	1.4	0.3	0.5	0.8
Wholesale and retail trade	33.7	22.0	14.6	27.3	2.8	2.2	2.2	3.4
Hotels and restaurants				1.4				0.0
Transport and communications		4.6	12.8	4.1		0.1	0.6	0.2

Table 7 (continued)

Kind of economic activity	Hidden gross value added as % of:							
	Gross value added for the respective activity				Gross domestic product			
	1997	1998	1999	2000	1997	1998	1999	2000
Other business activities				5.9				0.1
Education	4.7	5.1	9.7	4.0	0.3	0.4	0.5	0.2
Health and social security	11.1	11.1	9.2	7.7	0.4	0.4	0.2	0.2
Recreational, cultural and sporting activities				6.4				0.1
Other service activities			11.5	18.1			0.2	0.0
Total	15.9	12.1	13.1	14.8	6.5	4.4	6.0	6.7

100.   The question of non-market activities in the household sector deserves some attention. These activities include the production of certain goods by households for their own consumption. In developed market-economy countries, such activities are not significant in quantitative terms, but they are extremely important for the Republic of Moldova, for example, insofar as the output and processing of crops and livestock products is concerned.

Included in the household sector, under "Agriculture", is output from:

−   individual household plots;

−   private farmers;

−   collective gardens and orchards.

101.   Calculations of output from individual household plots and collective gardens and orchards are based on sample surveys of households, comprehensive annual records kept by rural administrations concerning numbers of domestic animals and one-time studies, surveys or censuses. Crop and livestock production in physical terms is estimated on the basis of information from the above data sources.

102.   Output from private farms is calculated using annual statistical records of the results of these units' activities. At least 10 per cent of the farms are sampled using these records and the average results are grossed up to cover the whole group.

103.   Crop and livestock production is determined in value terms for each household category by directly estimating the main agricultural items produced in the reference year, taking an average price for their sale.

104.   The output of goods in the household sector included under "Manufacturing/processing" is calculated on the basis of sample family budget survey data for the following groups of goods:

−   wine and wine-making materials;

 – dairy products;

 – vegetable and fruit preserves;

 – meat and meat preserves;

 – vegetable oil.

105.   The calculation for goods produced includes:

 – output obtained from processing of the goods (average for the number of families surveyed) in physical terms;

 – average family size;

 – unit price of the goods;

 – mean annual population.

106.   For the informal sector a calculation is also made of the value of individual dwellings (from statistical records) and services of owner-occupied dwellings, thus arriving at a market price per square metre and for living space in private property.

107.   The results of the calculations relating to the household sector for the activities mentioned are set out in table 8.

Table 8

Kind of economic activity	Hidden gross value added as % of:							
	Gross value added for the respective activity				Gross domestic product			
	1997	1998	1999	2000	1997	1998	1999	2000
Agriculture	49.6	67.0	76.9	75.0	12.8	17.0	18.1	19.0
Manufacturing/processing	14.8	22.0	11.3	6.1	2.7	3.2	1.5	0.9
Construction	19.0	14.1	6.6	4.6	1.1	0.5	0.2	0.1
Real estate	15.0	16.2	32.2	75.1	0.0	0.0	1.6	2.0

108.   For an overview of the estimates for components of the non-observed economy, the most effective approach now being taken is the commodity-flow method, which tracks the "movement" of goods and services from the time of their production until when they are used by confronting the information contained in the consolidated supply and use table.

109.   The results of the above calculations thus indicate that in recent years the non-observed (hidden and informal) economy has accounted for more than 30 per cent of GDP in the Republic of Moldova.