

OECD-EUROSTAT-GOSKOMSTAT of RUSSIA

**Joint Workshop on Measurement of the Non-Observed Economy
16-20 October, 2000, Russian Federation**

R E P O R T

**Methodology to Develop More Accurate Measures of Value Added
(Armenian Experience)**

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2000

METHODOLOGY TO DEVELOP MORE ACCURATE MEASURES OF VALUE ADDED

1. Informal Sector Sample Surveys, Their Use for Increase of the Reliability of the Value Added Indicator

1.1. Sample Surveys

During the transition to market economy the data collection by the classical entire method is practically impossible and it results in the problems of non full coverage by the official statistics, high level of data non-presentation, presentation of not reliable information.

At present one of the main tasks of the macroeconomic calculations is the evaluation and inclusion of the data on "hidden" (legal and illegal¹) economy into the system of national accounting.

The activity is considered "hidden" or for the economic reasons, when the administrative norms are not intentionally observed with the purpose to reduce the production costs, or for the statistical reasons, when the activity is not taken into account because of an ineffective information system or because of absence of understanding by institutional units.

Valuable source of the imputation of the hidden economy are the data of the sample surveys of the enterprises, labour force surveys, as well as households budgets surveys. The sample surveys are, perhaps, the most disputable from all methods of estimations, however, at the same time, they are one of the main sources of determination of the scales of the hidden part of the economy.

The National Statistical Service (NSS) of the Republic with the help of international organizations carries out the number of the sample surveys by main basic branches of the economy. Besides, within the framework of the "Informal Sector Survey" program (NSS and ILO joint project by the UNDP

¹ without the accounting of the criminal part

financial support) in the Republic the following special sample surveys have been conducted:

- Sample Survey of the small enterprises. In November - December 1997 the sample survey of the 2500 micro and small sized enterprises of the Republic (9.2 % of the such type of enterprises) having up to 10 workers was conducted. The purpose of the survey is determination of an actual number of the acting enterprises with the number of employees up to 10 persons, as well as use of the survey data for the evaluations of the under-recorded part of the economy, have an idea about the structure of the under-recorded part of the economy.
- Labour Force Sample Survey in 5000 households by cities of the Republic (December 1997). At the given stage NSS of RA² has refrained from survey of the agricultural firms, as the evaluation of the under-recorded part of the given sector is carried out separately, by the comparison of the outcomes of the special sample surveys and alternate statistical sources. The purposes of the survey were:

a) receiving of the information, describing an actual situation of the labour market , actual offer of the labour force, structure of the employment and unemployment, use of human resources

b) receiving of the information about non-registered economic activity, thereby, creating the basis for the following sample survey - survey of the employers and self-employed.

- Sample Survey of the employers and self-employed (December 1998 - January 1999), which included as 2046 registered at the state register of the

² Since May 2000, according to the new Law “ On State Statistics ”, the status of the Statistical Service has been changed. It has left the structure of government, is an independent state body (NSS) with the Supreme Body of Governance (State Council on Statistics).

individual entrepreneurs and 1800 employers and self-employed, revealed at the result of the labour force sample survey (about 1400 households).

According to the data of the sample survey of the small enterprises from 2500 enterprises covered by the sampling, at the moment of the survey 51.6 % - did not act for the different reasons, 10.1 % - were not found because of the discordance of the registration addresses and actual place of operation. As a whole, 34.2 % of the population participated in inquiry, from working the 26 % have presented not full data. From the acting enterprises only 22 % work, including the hired labour force. The hired workers compose the 41.2 % of all number of employees, from which 26.3 % work on the verbal understanding.

At these enterprises monthly on only once work the 6% are employed.

Labour introductions and the obtained incomes by these workers, as well as free of charge working family members have composed 24.6 % of the whole composition, and free of charge working proprietors - 11.2%.

The cost of own production has composed 78 Drams (currency unit in Armenia, for information, 1 \$ = 540 Drams), and the costs of production (included in composition of intermediate consumption) have composed 75 mln. Drams, i.e. the volume of own production is underestimated by the surveyed enterprises about 40%. Monthly average wages of the hired worker, as well as proprietor (13,5 ths. Drams) was almost at a level of monthly average wages in the Republic, simultaneously, based on data of inquiries of the holders of the same enterprises, the monthly average income was not less than 56 thousand drams.

It is necessary to mention, that at the acting enterprises covered by the inquiry, the under recorded labour force has composed about 40 %, in separate branches of economy this indicator changes within 24 (manufacturing industry) - 58 % (transport). When the informal employment composes 12.2%.

The informal or hidden employment is characteristic of the labour market of a transactions, for it the level of the informal labour market was considerably increased in additional or secondary employment. By one from problems of non full statistical coverage is implementation of non-registered (informal) activity,

which does not give in to the direct statistical evaluation, therefore its sizes are determined by indirect evaluations.

According to the data of the labour force survey from the total number of employed about 65.7 % implemented non-registered economic activity, 8.6 % of the hired workers or each 12-th worked on the verbal understanding (in main, in the private sector). At the same time, on the main job 8.5% had informal (on the verbal understanding) employment, from them 27.7% -on an additional or secondary place.

The phenomenon of the hidden employment is more distributed in the sphere of self-employment: during the inquiry each second implemented anywhere non-registered activity on the main job, when the half from them has mentioned the activity, as activity of the temporary character, 28.3 % of the constant character and 25.9 % - seasonal or one-time.

According to the data of the survey of employers and self-employed, actually, 49.0 % implemented non-registered activity, for which it was the main work. On an additional or secondary job 81.5 % of the employers and self-employed implement non-registered activity.

As a whole, according to the survey data from the total number of the employed population 13.4 % was employed on temporary and one-time work. 3.1 % of the employed population had the repeated employment , from which 27.7 % worked under the verbal agreement.

2. Use of Survey Data for Increase the Reliability of the Value Added Indicator

The data of the above mentioned sample survey enable to give evaluations of the actual labour costs, based on which can be appreciated the under-recorded and, in particular, hidden part of the economy.

As it is visible from the above-stated data, the main features of the hidden economy in the Republic are connected to the problems of not full coverage, high level of data non-presentation, presentation of not reliable information.

In the Republic, for the first time, GDP calculation on hidden economy (as imputations and adjustments to those indicators, which completeness does not supply information basis has become to be conducted based on the results of 1994. So, the share of the hidden economy in GDP structure in 1994 has composed about 27 %, in 1995 - 31,6 %, in 1996 - 34,3 %, in 1997 - 28.9 %, 1998 - 25.6 %, in 1999 - 29%.

2.1. Methodological Principles of Evaluation of the Hidden Economy

During definition of volumes of the hidden economy the study and analysis of the methodology and methods used in other countries was made.

Taking into account the facts of not full coverage, high level of data non-presentation, presentation of the not reliable information, the data on output and number of employed in economy are incorporated in the basis of calculations. It is necessary to mention, that indirect macroeconomic methods are applied, using combined information basis, i.e. all possible sources of an information.

The used technique is based on the implementation of the analysis of the supply and demand of the labour force. Based on these data the number of persons is determined that are employed in legal types of activity, but their activity is not taken into account. Other significant category of an information are the data relating production.

In the implementation of calculations on production and its distribution the data on employment of the population play the central role. However, for an evaluation it is not enough to use concept "employed". To reflect the integrated approach of the labour market it is necessary to define the number of employed, actively involved in production. During the definition of the employment it is necessary to take into account, that in the field of hidden activity there is a large variety of such phenomena as parallelism in work, the work in uncontrollable

units and not full time work, simultaneously in composition of the employed the number of temporarily disabled is also taken into account.

For the calculations of the data on number of employed in the economy and number of persons participated in production (obtained on the basis of the regular statistical reporting) are used. Based on these two sources the number of employed is determined, on which there is no necessary statistical information, as well as the labour productivity by appropriate branches of the economy is determined.

For the calculation of the number of really participating in production persons, alongside with data of official statistics, the data of labour force sample survey are used, (in particular, for definition of the number of the employees which were in conditions leave, working in combination, working not full time). In particular, the coefficients of the ratio of these indicators to the average number of employees, obtained both on data of official statistics and data of the labour force sample survey are calculated. Then the average coefficient on two sources is estimated, and the general level of the number of employees, which were in conditions leave, working in combination and working not full time is determined. Then these data are distributed on branches of the economy proceeding from the structure of data based on labour force survey.

Based on the number of the employees really employed in production, the labour productivity by appropriate branches is estimated. Then based on this labour productivity and number of employees (on which there is not the necessary statistical information) the value added “under-recorded” part of the economy is determined.

Here, it is necessary to underline, that during the calculations of the labour productivity we proceed from that hypothesis, according to which the labour productivity of the regularly employed is approximately the same, as persons not involved into the statistical observation. Such suppose can not absolutely correspond to the real, so, on all probability, the labour productivity of the individual entrepreneurs is a little bit higher, than in the state enterprises.

While we did not manage to receive more reliable data even by results of the sample surveys.

Taking into account the specificity of the production of agricultural production, for the determination of under-recorded produce of this branch the outcomes of the annual checks of data reliability on livestock and sowing squares are used. Based on these data the underestimation of the level of livestock productivity, as well as mechanical decrease of the produce productivity are estimated. As a whole, the hiding of the agriculture branch village is within the limits of 21 % from its value added.

2.2. Evaluation of the Value Added on Number of Unemployed, having Profitable Occupation

The following stage in an evaluation of the number of employed by the economically active labour is the evaluation of the number of the employees that officially were unemployed, but, nevertheless, employed by any paid activity. On data of the republican service of the employment the number of the registered unemployed, for example, in 1997 has composed 166 thousand persons, or 11 % from the level of economically active population. However, based on data of the sample survey of the small enterprises and labour force survey conducted in the same year, the level of the unemployed has composed 34 % or 343 thousand persons, that 2 times is higher, than is officially registered. At the same time, from among unemployed 22 % had profitable occupation as the employer or self-employed. The emerging of the unemployment in the Republic has brought to development of activity frequently realized without due registration.

Based on data of the labour productivity and number unemployed (employed as the employers or self-employed), revealed on sample data (by appropriate branches), the gross value added created by this category of the workers is estimated.

2.3. Imputation of the Value Added of Individual Activity of the Population

Alongside with the set of the above mentioned sources, during the calculation of the value added on the line of individual activity of the population (sector of the households) the data of the household survey, as well as the data of the sample inquiries are used. For example, on data of the sample inquiry among the school-leavers of the high education institutions in 1997 the sum paid to the private tutors is calculated, which has composed about 60 % of the imputation on "education" branch. On data of the housing construction survey the hiding on individual housing construction has composed within the limits of 22 %, or 14 % of the imputation on "construction" branch. As a whole in 1997. The imputation of the value added on "informal" economic activity by the household sector has composed 45%. It is necessary to mention, that the application of the term "informal" economy followed to the following definition:

“ The Informal economic activity is carried out in main on the legal basis by the individual producers or so-called uncorporate enterprises (these enterprises inhering to the separate persons or households, which frequently are not formed in established order and are based on the informal relations between the participants of the production) ”.

The methods of determination of the indicators of the informal activity of the population in various branches are diverse and their choice depends on possibilities of information basis.

One of the main sources on determination of the individual activity of the population are the data of budget surveys of the households, as well as the data of the sample surveys and data of the tax services.

On industry branches these data are calculated based on the budget surveys of the households. In composition of the imputation the production of wine, building materials for sale, production of the crude - craft work, and other

analogical work and service relating to industrial activity are included. In total on an industry these costs have composed 6620 mln. Drams.

In construction the informal activity is determined proceeding from the data of the survey of individual housing construction, by results of which the hiding has composed 22 %, or 3260 mln. Dramas.

The data on informal activity in agriculture are estimated based on reliable checks of the data on livestock and sowing squares. The imputation on individual activity in agriculture has composed 2180 mln. Drams.

In trade the informal activity is evaluated proceeding from data of the number of employed by individual entrepreneurship and from number of persons carried out non-registered activity on data of the labour force sample survey. The imputation on individual entrepreneurship has composed 7329 mln. Drams.

In transport the informal activity on cargo and passenger transportation proceeding is calculated based on the share of the private sector in total volume of the cargo and passenger transportation. As a whole, the volume of informal activity has composed 8208.0 mln. Drams.

On education branch the evaluation of the informal sector is made because based on the sample survey (among school-leavers and their accompanying), based on the number of school-leavers engaging and the sums paid by them. The total sum has composed 2705 mln. Drams.

On branch of the public health services the informal payment for services of public health services is calculated based on "Population health condition" household sample survey.

On housing branch the informal activity (incomes from the rent of the individual housing) is determined based on data of the households budget surveys. The total sum has composed 1999 mln. Drams.

As a whole the volume of informal individual activity of the population in 1997 has composed 61671mln. Drams, or 36 % in composition of the "households " sector.

Resume

In the Republic the imputation on hidden economy has composed 171 billion Drams, and taking into account the imputation on individual activity of the population - 233 billion Drams, or 28,9 % of GDP. From 28.9 % the 18.7 % belongs to hidden and under-recorded part and 10.2 % to informal economy. As a whole, the share of the informal economy (small enterprises and individual activity of the population) in the composition of the GDP imputation makes more than 35%.

Imputation on the hidden economy, which finally has been recorded in the GDP composition and imputation based on calculation of number of employed in economy and unemployed is resulted below:

	Imputation Share in GDP Composition			Share in composition of GDP Imputation		
	In total GDP imputation	of which		at the expense of		
		at the expense of number of unemployed	informal activity of population*	Number of employed**	Number of unemployed	informal activity of population*
Industry	28.7	3.0	3.7	76.8	10.4	12.8
Construction	46.1	9.6	6.7	64.2	20.9	14.9
Transport and communication	21.1	5.3	13.6	10.7	25.2	64.1
Trade	75.5	25.5	10.1	52.9	33.8	13.3
Agriculture	21.0	-	9.2	56.1	-	43.9
Other branches	27.1	0.3	10.6	59.6	1.1	39.3
Total in current prices	31.5	4.6	8.3	59.0	14.5	26.5
Total GDP at the market prices	28.9	4.2	7.7	59.0	14.5	26.5

It should be mentioned, that the listed in table ratios and share of GDP imputation by economy branches, in main, corresponded to the trends of the development of economy revealed based on above-mentioned sample surveys.

* Informal activity from the structure of individual activity of the population

** including the adjustments on the macro-level as well

Presently, one of the main sources of evaluation of hidden economy continue to be data of Sample surveys. Our experience shows, however, that these data should be used “with the proviso”. The surveys are the disputable method of evaluations, as it is considered, that it is difficult to achieve reliable results that the respondent is usually does not want to be recognized as the involved in hidden economy. The part of hidden economy has included in a hidden activity of the registered enterprise (reducing the sale level or increasing the own costs) and in case when the anonymity will be guaranteed, only a few people will agree to present the reliable information. The difficulty to observe the hidden economy is the difficulty to keep balance of rations between non-response, not full response and incorrect responses.

The hidden economy (and its "informal part", in particular), is phenomenon that is difficult to measure and the most part of methods does not give the comprehensive results for the determination of its real volumes. We consider that it is advisable to integrate the data of the all available methods, i.e. to use a method of “pasting ”, construction of “mosaic”, picture, by using the different methodologies for different parts, including, and especially, its “informal” part.