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**ESTIMATES OF THE NON-OBSERVED ECONOMY IN THE SLOVAK  
REPUBLIC**

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### **Estimates of the non-observed economy in the Slovak Republic**

Estimates of the non-observed economy in the Slovak Republic are based on the recommendations of Eurostat in this area, which give a standard structure (detailed below) for approaching the problem systematically. Eurostat projects are oriented towards the impact of the non-observed economy on the exhaustiveness of National accounts, i.e. that GNP and GDP calculations cover not only activities directly observed in statistical surveys or administrative files, but include also activities which are not directly observed. Estimates of the non-observed economy are understood more widely as including a number of special types of under-coverage (production for own final use, tips, wage and salaries).

In addition to this focus on the non-observed economy, it is obvious that all improvements to basic statistics contribute to improving the coverage (exhaustiveness) of the Slovak Republic's National Accounts. Various projects, referred to below, have been carried out by all EU candidate countries. In the area of statistical surveys, a new structural survey has been proposed which is fully harmonised with European standards. The statistical verification, imputations and grossing-ups being used in these surveys have been proposed in compliance with similar approaches used by EU member countries. Thus, the year 2000 is to be considered as a benchmark year in the System of National Accounts of the SR.

In co-ordination with other projects we have succeeded in improving some estimates and calculations related to GDP. In the "Final Consumption of Households" project, a bottom-up method of the compilation of final consumption is being developed in combination with several data sources. The results of this project are also reflected in the construction of other components of GDP.

Within the Supply and Use Tables project, a method of estimating theoretical VAT has been developed. This identifies the scope of hidden activities which have been included in the calculation of GDP, independently of the production approach of the calculation of GDP.

The results of the "Employment data reconciliation" project will also be applied to the practice of national accounts compilation and to the linkage of labour force statistics with estimates of production. This method is partially already used in estimating the size of the non-registered labour force, i.e. in the case of employees of small traders, or small enterprises and in the consequent estimate of value added. It also forms the background for estimating the consumption of resident households abroad and of non-residents in the territory of the SR. In comparison with the previous project, the calculation of GDP (by the production approach) includes some new items, for instance tips, production of forest fruits, and the production of stump wood. Based on statistical surveys, wages and salaries in kind were explicitly surveyed.

Concerning estimates of underreporting, we have not succeeded in obtaining detailed data from Tax Authorities on the results of verifications and audits and no survey has been introduced in this area. Thus, this area is still the weakest area in estimating the non-observed economy. In the field of illegal activities, the approaches proposed in the previous project have been further developed and improved. As compared to the previous project, both profits together with expenditures on the sale of illegal software in the SR have been experimentally estimated.

The main results or estimates of the non-observed economy made by the output and expenditure approaches to compiling GDP are summarised in the following points.

#### ***A. Output approach***

All types of exhaustiveness adjustments which were estimated and included in the GDP by output approach represented a value of 138 479 million SKK in the year 2000, which was 14.8 % of GDP.

**Table 1**  
**Exhaustiveness types by output approach of GDP calculation (percentage of GDP)**

Institutional sectors	N1	N2	N3	N4	N5	N6	N7	Total	% of GDP
Non-financial sector						21 859	2 108	23 967	2,57
Financial sector								0	0,00
General government sector								0	0,00
NPISH sector								0	0,00
Household sector		3 978	47 684		15 795	46 243	812	114 512	12,26
Total	0	3 978	47 684	0	15 795	68 102	2 920	138 479	14,83
% of GDP	0,00	0,43	5,10	0,00	1,69	7,29	0,31	14,83	

(in 2000 SR GDP = 934 079 SKK)

The particular components of exhaustiveness are presented according to following types of adjustments (N1-N7):

**N1. Enterprises deliberately not registering - underground**

No estimates were made for this item. The statistical register includes all legal units including foreign 'physical' persons as well as resident 'physical' persons. The register is regularly updated.

**N2. Enterprises deliberately not registering – illegal**

Estimates of some illegal activities have been made simultaneously with estimates of the non-observed economy within the framework of legal activities. It is obvious that illegal activities have a significant share in the GDP measure and might remarkably distort the macro-economic indicators. It is supposed that all kinds of illegal activities might reach about 1-3% of GDP. But until now only estimates for drugs and prostitution were included in the NA, the value added of which represented about 0.43% of GDP.

Within the Exhaustiveness Project, SOSR estimated these types of illegal activities:

- trafficking and distribution of illegal drugs;
- prostitution;
- illegal imports;
- selling stolen goods (fencing);
- selling of illegal software.

**N3. Enterprises not required to Register**

Units for which registration in official registers is not required are included under this heading. This mainly includes the non-market production of households, which is produced by households for their own final use, i.e.:

- production of goods for own final consumption;
- production of goods for own gross fixed capital formation, e.g. own-account construction of houses and other buildings, reconstruction of houses and dwellings.

Some activities of households with a low share in market production have also been included under the item N3.

Output for own consumption (value added) amounts to 33 384m SKK, which is 3.57% of GDP (of which 20.4b SKK is agricultural production, 0.8b SKK is forest fruit for own consumption and 12.1b SKK is own-account construction of houses, huts, garages of households).

Some additional market activities of households with a low share of the market, mainly such services as tutoring, care-taking, personal services, various repairs etc. were considered under this item. Estimates were based on the results of the inquiry (pool) which measures the expenditures of households at markets as well as the expenditures of households on various services without receipt. The total value added for these market activities of households represented 14.3 billion SKK.

Altogether, the item N3 represents about 5.1% of GDP.

#### **N4. Enterprises (legal persons) not surveyed**

Under this item no estimates of exhaustiveness were made. Analysis of the statistical register showed that all units registered by the end of the year 2000 were included in the file of reporting units for the year 2000.

#### **N5. Registered entrepreneurs not surveyed**

Estimates of production, intermediate consumption and value added for entrepreneurs who are not registered on the business register, and whose economic situation was not surveyed, were classified under this heading. When making an estimate, data from the sample survey of self-employed (average data) and data from accounting annexes to tax declarations were combined. Firstly, the total number of entrepreneurs, who were active in the given year and contributed to the value added formation, were estimated. Entrepreneurs who submitted tax declarations including the accounting annex were considered as registered surveyed entrepreneurs. Others, who submitted the tax declaration without the accounting annex, were considered as registered non-surveyed entrepreneurs.

The estimate of production and intermediate consumption for entrepreneurs being registered but not surveyed represented 33 190 million SKK and 17 395 million SKK respectively, thus, the value added was 15 875 million SKK, i.e. 1.69% of GDP.

#### **N6. Enterprises deliberately misreporting**

In the NA of the SR it is assumed that the undervaluation of production and overvaluation of intermediate consumption might occur in all production units, albeit with a differing intensity. There is no further information or survey available for the National Accounts which could trace the range of this undervaluation (except for the amount of tax evasions surveyed by the Tax Authority). The smaller the production unit, the higher the undervaluation that might be expected.

For the estimation of undervaluation, several methods and/or approaches are being used:

1. A comparison of indicators of production and intermediate consumption is made for those selected units which were audited (big enterprises). The audited data are compared with the corresponding data surveyed from enterprises within the framework of the statistical survey. The comparison for previous years showed that the undervaluation of value added in the statistical survey, in comparison to the results after the audit, was 1% on average.
2. Results from the annual statistical survey are compared with the results of quarterly surveys (small enterprises). The analysis is made separately by particular branches. It has been found that the output in quarterly surveys of selected branches is higher in comparison to the annual survey, and conversely the intermediate consumption is lower in some branches.
3. The estimate of undervaluation of value added for entrepreneurs is broken down into three parts:

- an estimate of wages for non-registered employees;
- an estimate of the undervaluation of salaries being paid;
- an estimate of the undervaluation of the net operating surplus of the entrepreneur.

The estimates are based on the comparison with other units and on the assumption about undervaluation.

The undervaluation of total value added for all units has been estimated at the level of 68.1b SKK, which represents about 7.29% of GDP.

### **N7. Other statistical grossing-up (non-exhaustiveness)**

Some additional calculations or estimates which fall into the production framework in the SNA and which can represent non-exhaustiveness in the calculation of GDP were included in this item.

#### **Tips**

The estimation of tips was co-ordinated with the "Final consumption of households" project. When estimating tips, two data sources were used. The results from a public opinion inquiry, which is organised by the Institute for the Public Opinion Research at the SOSR, gives a picture of the amount of tips offered. A second estimate of tips results from the total amount of services rendered and from the comparison of an average wage.

National accounts have recorded tips amounting to 1230 million SKK as production as well as compensation of employees. Final consumption of households has recorded expenditures at the level of 950 million SKK, while the amount of 280 million SKK has been recorded as exports.

#### **Stump wood**

The SOSR estimated the value of stump wood in 2000 as 1690 million SKK. The estimate has been made in co-operation with the Forestry Research Institute.

Altogether, item N7 represented about 0.31% of GDP.

## **B. Expenditure approach**

The expenditure approach for the calculation of GDP is considered an independent approach in the annual national accounts of the SR. At the same time, it is the basic method for the calculation of GDP within the framework of quarterly national accounts. Estimates of the non-observed economy within the framework of the expenditure approach are presented according to the particular items of final use.

**Table 2**  
**Exhaustiveness types by expenditure approach of GDP calculation (percentage of GDP)**

Aggregates of expenditure approach	N1	N2	N3	N4	N5	N6	N7	Total	% of GDP
Household final consumption		4 015	21 213				8 420	33 648	3,60
Final consumption of general government								0	0,00
NPISH final consumption								0	0,00
Gross fixed capital formation			24 342		658		28 124	53 124	5,69
Acquisition less disposal of valuables							814	814	0,09
Changes in inventories					786		1 313	2 099	0,22
Exports		1 160					8 417	9 577	1,03
Imports		-1 196					-9 434	-10 630	-1,14
Total	0	3 979	45 555	0	1 444	0	37 654	88 632	9,49
% of GDP	0,00	0,43	4,88	0,00	0,15	0,00	4,03	9,49	

(in 2000 SR GDP = 934 079 SKK)

In the case where the expenditure approach of GDP calculation was applied, different data sources to those used in the output approach were used (e.g. household budget surveys, foreign trade statistics). Therefore the particular estimates of exhaustiveness can differ from the estimates showed in the table 1 (mainly in categories N6 and N7).

### **Household final consumption**

The calculation of household final consumption is solved within the "Household final consumption" (HFC) project. Estimates of those parts of HFC which correspond to the production approach are solved within the framework of both projects simultaneously.

The method of estimation of final consumption of households can be characterised as a method of the estimation of *particular commodities from several data sources*. In principle, two independent estimates of HFC are prepared, one based on household budget surveys and the next one on the basis of retail trade statistics or other statistics broken down by COICOP. Both estimates of HFC are consequently adjusted by items which have not been recorded in the basic data source, in order to ensure that exhaustiveness and the definition of HFC is in line with ESA95 (national and domestic concept). Two independent estimates of HFC in the commodity breakdown are finally compared and for each commodity an estimate is chosen which is to be considered as the best one. When confronting, other partial information is also used.

Many adjustments and estimates within the calculation of HFC were made, as follows:

- an estimate of final consumption for rich households, which are not well covered by the household budget survey;
- an estimate of the final consumption of persons living in institutional households;
- an estimate of the undervaluation of the consumption of some items, especially alcoholic beverages, tobacco, and also purchases of cars;
- a grossing up of the final consumption of entrepreneurs;
- production for own final consumption;
- tips;
- consumption of drugs;
- expenditures on prostitution.

Under the items of exhaustiveness, only those estimates have been included which correspond to estimates of production and which were not recorded in any of the basic data sources, i.e.:

- wages and salaries in kind (N7);
- production for own final use (N3);
- consumption of drugs (N2);
- expenditures on prostitution (N2);
- tips (N7).

Altogether, exhaustiveness items represented 3.6% of GDP.

### **Final consumption of government**

The calculation of final consumption in the government sector is based on EC Regulation No. 1500/2000. All data required for the calculation of final consumption are obtained from accounting statements for units belonging to the sub-sector of central government and local government and from the statistical survey for units of the Social Security Funds.

No grossing up for exhaustiveness has been identified in the government sector.

### **Final consumption of non-profit institutions serving households**

The calculation of final consumption expenditures of the non-profit institutions serving households (NPISH) sector is also related to the calculation of output. The expenditures consist of non-market production decreased by sales of goods and services to other units. Data required for the calculation of output and final consumption are obtained from a statistical sample survey (grossed up to the file of active units being registered on the statistical register). No further grossing up for exhaustiveness is made in this sector.

### **Gross fixed capital formation**

Estimates of the non-observed economy for gross capital formation mainly follow output calculations. Under particular items of exhaustiveness, we include those items of GFCF for which a direct statistical survey has not been introduced:

- grossing up of GFCF for entrepreneurs who did not submit the accounting annex;
- methodological adjustments of GFCF of entrepreneurs;
- estimates of the increase in dwelling construction and the construction of garages and huts;
- purchase of dwellings for private ownership;
- repairs and reconstruction;
- increase of non-produced non-financial assets;

The estimates are supported mainly by administrative data. The grossing up in the households sector is mainly in question.

Altogether, the adjustments represented 5.69% of GDP, of which dwelling construction and construction of garages and huts by households represented 2.6% of GDP.

### **Changes in inventories**

The indicator "Changes in inventories" also includes increases of stump wood. The estimate has been made in co-operation with the Forestry Research Institute. When determining the value of stump wood, the following is used as a starting point; the total stock of stump wood in the forests of the SR, the total increase of wood, and the actual extracting of wood (broken down into coniferous and leafy trees). The increase of stump wood is declared according to the relevant rules within the inventory of forests.

An actual increase of stump wood to the value of 1690 million SKK was included in changes in inventories.

Estimates for the hunting of animals and the production of fish living freely in rivers and fish ponds (i.e. non-cultivated) are currently under preparation and have to be worked out. However, these figures will not represent significant quantities.

#### *The balancing item included in changes in inventories*

Within the balancing of aggregates of supply and use of GDP, a balancing item (the use was higher than supply) representing 377m SKK was included in changes of inventories.

The exhaustiveness adjustments in changes in inventories represented about 0.2% of GDP.

### *Export and import of goods and services*

The basic data sources for the determination of export and import of goods are foreign trade statistics figures, which are based on customs declarations. These data in f.o.b prices are also part of the BoP of the SR, which is compiled by the NBS.

Data on the export and import of services are carried over from the BoP of the SR. Basic data on the export and import of goods and services are furthermore adjusted within the National Accounts. These adjustments are related to the illegal production and the consumption of non-residents as well as residents.

#### *Export of prostitution services*

Exports also include prostitution services which are rendered in the territory of Slovakia to foreigners. They have been included to the amount of 60% of the total of such services, i.e. at the level of 1160 million SKK.

#### *Estimate of the consumption of non-resident households in the SR*

Another correction has been made in the estimate of consumption of non-resident households in the SR. The figure from the BoP is considered as undervalued, thus, a new estimate has been made which has increased the amount of exports given in the BoP.

The estimate has included:

- the consumption of non-resident employees in the territory of the SR.
- the consumption of non-residents within the framework of tourism.

#### *Import of drugs*

The import of goods also includes the import of drugs which are consumed in the territory of the SR. The estimate of the amount of imported drugs has been made within the framework of the estimation of consumption of drugs and the trade margin from the trade with drugs. In 2000, drugs were included at the amount of 1196 million SKK in the import of goods.

#### *Estimate of the consumption of resident households abroad*

Another correction has been made in the estimate of the consumption of households abroad. The BoP figure is to be considered as underestimated, thus, a new estimate has been made which has increased the import figure by the amount of 9434 million SKK.

The estimate has included:

- consumption of resident employees abroad.
- consumption of residents within the framework of tourism abroad.

Estimates being made in the National Accounts which reflect corrections of the amount of exports and imports of goods and services represent 1.03% and 1.14% of GDP respectively.

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