

## TABULAR APPROACH FROM PRODUCTION SIDE

### Introduction

The calculation of the Gross Domestic Product (GDP) and compilation of macroeconomic accounts for the Republic of Serbia according to international valid standards have been performed since 1997, and data thereof published. In the past period, we underwent certain important changes in the accounting system and the economy in general, passing through phases of political and financial instability, sanctions, rather high inflation, ownership and organizational transformation. Under such circumstances, although the state administration takes efforts to register and legally control the economic activities and the official statistics strives to make them as exhaustive and accurate possible and present through the system of national accounts, some transactions are not recorded and activities in the „black market“ are difficult to be controlled.

In the first phase of the Project on Non-observed Economy during 2004 and 2005, the Statistical Office of the Republic of Serbia (SORS) tried to study the exhaustiveness of national accounts and lacks of available data sources, which are the base for calculating macroeconomic aggregates. By applying the recommended Eurostat Tabular Approach, one has identified certain lacks, non-exhaustiveness elements, statistical errors and failures, underestimation or overestimation of some categories, which directly or indirectly influence the value of the GDP. The evaluation of the non-observed economy has required the non-observed transactions and activities, performed irregularly, to be quantified and presented in terms of value through the non-exhaustiveness adjustment of value added in order to determine the size of the GDP total correction. Different types of non-exhaustiveness adjustments (N1-N7) have been established and corrected according to their proportion in some institutional sectors and activities CA (NACE, Rev.1) and according to experiences of other countries.

In total, exhaustiveness adjustments from production side for the Republic of Serbia are shown in the following table.

### Breakdown by non-exhaustiveness type (N1 to N7)

*Exhaustiveness adjustments: relative importance (% of GDP)*

#### Republic of Serbia

Non-exhaustiveness type	N1	N2	N3	N4	N5	N6	N7	Total
2003 phase I	4.28	0.96	-	2.30	0.16	6.43	0.42	<b>14.56</b>
2003 phase II	3.95	0.80	-	3.60	0.63	6.76	0.44	<b>16.18</b>
2004	3.28	0.81	-	3.42	0.26	4.69	0.41	<b>12.87</b>
2005	4.03	0.82	-	3.29	0.37	4.55	0.38	<b>13.46</b>

Misreporting" (N6) by producers stands for the largest exhaustiveness adjustment.

### Breakdown by non-exhaustiveness type (N1 to N7)

*Exhaustiveness adjustments: relative importance (%) of types N1 to N7*

#### Republic of Serbia

Non-exhaustiveness type	N1	N2	N3	N4	N5	N6	N7	Total
2003 phase I	29.4	6.6	-	15.8	1.1	44.1	2.9	100.0
2003 phase II	24.4	5.0	-	22.2	3.9	41.8	2.7	100.0
2004	25.5	6.3	-	26.6	2.0	36.4	3.2	100.0
2005	30.0	6.1	-	24.5	2.8	33.8	2.9	100.0

Exhaustiveness adjustments are the most significant in non-financial corporations and households sectors.

### **Breakdown of total exhaustiveness adjustments by institutional sector**

*Exhaustiveness adjustments: relative importance (%) of the various institutional sector*

#### **Republic of Serbia**

Institutional sector	Non-financial corporations	Financial corporations	General government	Households	Non-profit institutions	Total
2003 phase I	68.0	-	0.3	31.7	-	100.0
2003 phase II	52.6	-	0.3	47.1	-	100.0
2004	52.7	-	0.3	47.0	-	100.0
2005	52.1	-	0.3	47.6	-	100.0

The largest exhaustiveness adjustment was made to NACE sections G -Wholesale and retail trade; repairs, O - Other community, social and personal service activities, F - construction, D - Manufacturing and K –Real estate, renting and business activities.

### **Breakdown of exhaustiveness adjustments by economic activity**

*Exhaustiveness adjustments: relative importance (%) of different economic activities*

#### **Republic of Serbia**

NACE section	G	O	F	D	K	Other	Total
2003 phase I	30.8	17.0	15.3	10.7	9.0	17.2	100.0
2003 phase II	33.4	13.9	13.6	15.8	6.4	16.9	100.0
2004	26.5	9.7	19.0	18.8	2.7	23.3	100.0
2005	26.6	13.6	18.4	17.3	3.1	21.0	100.0

In the mean time, organizational and ownership transformations have taken place in the economy of our country, as well as changes in the statistical system. Also, one has continuously worked on the implementation and harmonization of existing data sources with national accounts requirements. One of the objectives of the second phase of the Project, during 2007, was to find out and implement new data sources and indicators for measuring the non-observed economy, which would enable to overcome lacks in the statistical system, improve the quality of produced estimations and enhance the reliability of obtained results. Owing to better co-operation with official institutions, implementation of the statistical business register and LFS, switching to international accounting standards in financial reporting in 2004, implementation of VAT in 2005 and to available financial reports of a part of entrepreneurs, which have double-entry book-keeping since 2004, we were able to go on with the survey and finding out new ways of calculation and to practice a supplementary checking of results from the first phase.

In addition to certain changes for 2003, because the GDP was in the mean time revised, we kept working on the computation of the non-observed economy for 2004 and 2005. This way, one has reached data consistency, as much as possible, and examining the results in time series provides the possibility of control, harmonization and verification before their integration in national accounts.

Exhaustiveness Adjustments: Results for the Republic of Serbia  
 Republic of Serbia

**Table 1 Summary of GVA Adjustments, for the year 2003 I phase, in mill. Din.**

Sectors/NACE sections	Type of non-exhaustiveness adjustment							Total	
	N1	N2	N3	N4	N5	N6	N7	Absolute	% of GDP
1	2	3	4	5	6	7	8	9	10
Non-financial corporations	33745.0			25226.0		49270.7	256.9	108498.6	9.90
Financial corporations									
Government sector							436.4	436.4	0.04
Households	13153.0	10561.1			1794.3	21131.6	3945.2	50585.2	4.62
NACE A				5206.9	181.5	386.8		5775.2	0.53
NACE B				19.3		9.7		29.0	0.00
NACE C				621.4	13.3	19.4		654.1	0.06
NACE D				4550.7	1163.2	11382.5		17096.4	1.56
NACE E				0.0				0.0	0.00
NACE F	12275.0			1007.8		11084.3	30.0	24397.1	2.23
NACE G	13989.0	3258.7		3294.2	333.8	28235.3	95.7	49206.8	4.49
NACE H	1675.0			427.1		925.5	360.7	3388.3	0.31
NACE I				2760.9		1532.2	6.4	4299.5	0.39
NACE J	4856.0			1006.5	102.4	35.0		5999.9	0.55
NACE K				2646.4		11695.0		14341.4	1.31
NACE L				2661.9				2661.9	0.24
NACE M	242.0			195.9		116.4	3506.6	4060.9	0.37
NACE N				44.2			480.5	524.7	0.05
NACE O	13861.0	7302.4		782.8		4980.2	152.3	27078.7	2.47
NACE P				0.0			6.3	6.3	0.00
Total:	46898.0	10561.1		25226.0	1794.3	70402.3	4638.5	159520.3	
Percentage of total adjustment	29.4	6.6		15.8	1.1	44.1	2.9	100.0	
VA adjustment as % of GDP	<b>4.28</b>	<b>0.96</b>		<b>2.30</b>	<b>0.16</b>	<b>6.43</b>	<b>0.42</b>		<b>14.56</b>

**Exhaustiveness Adjustments: Results for the Republic of Serbia**  
**Republic of Serbia**

**Table 1 Summary of GVA Adjustments, for the year 2003 II phase, in mill. Din.**

Sectors/NACE sections	Type of non-exhaustiveness adjustment							Total	
	N1	N2	N3	N4	N5	N6	N7	Absolute	% of GDP
1	2	3	4	5	6	7	8	9	10
Non-financial corporations	8190.0			42172.9		49270.8	143.5	99777.2	8.52
Financial corporations									
Government sector							492.6	492.6	0.04
Households	38078.0	9393.7			7380.3	29890.2	4545.1	89287.3	7.62
NACE A				2452.4	217.7	288.9		2959.0	0.25
NACE B				56.0		72.2		128.2	0.01
NACE C				2028.2	16.8	23.8		2068.8	0.18
NACE D				13853.3	3635.2	12446.4		29934.9	2.56
NACE E				645.4				645.4	0.06
NACE F	12146.0			2568.6		11084.3	30.0	25828.9	2.20
NACE G	13822.0	3247.2		7967.9	3388.6	34828.1	95.7	63349.5	5.41
NACE H	1655.0			619.9		925.5	359.4	3559.8	0.30
NACE I				8458.7		1920.0	10.5	10389.2	0.89
NACE J	4233.0			2949.4	122.0	47.6		7352.0	0.63
NACE K						12137.4		12137.4	1.04
NACE L									0.00
NACE M	283.0					133.6	3981.2	4397.8	0.38
NACE N							545.5	545.5	0.05
NACE O	14129.0	6146.5		573.1		5253.2	152.6	26254.4	2.24
NACE P							6.3	6.3	0.00
Total:	46268.0	9393.7		42172.9	7380.3	79161.0	5181.2	189557.1	
Percentage of total adjustment	24.4	5.0		22.2	3.9	41.8	2.7	100.0	
VA adjustment as % of GDP	<b>3.95</b>	<b>0.80</b>		<b>3.60</b>	<b>0.63</b>	<b>6.76</b>	<b>0.44</b>		<b>16.18</b>

Exhaustiveness Adjustments: Results for the Republic of Serbia  
 Republic of Serbia

**Table 1 Summary of GVA Adjustments, for the year 2004, in mill. Din.**

Sectors/NACE sections	Type of non-exhaustiveness adjustment							Total	
	N1	N2	N3	N4	N5	N6	N7	Absolute	% of GDP
1	2	3	4	5	6	7	8	9	10
Non-financial corporations	6481.2			49006.5		41493.8	167.8	97149.3	6.78
Financial corporations									
Government sector							549.5	549.5	0.04
Households	40475.8	11635.7			3676.6	25634.5	5093.6	86516.2	6.05
NACE A				2809.1	103.6	2359.6		5272.3	0.37
NACE B				38.1				38.1	0.00
NACE C				1870.6	3.3	50.0		1923.9	0.13
NACE D				15750.4	1436.4	17411.2		34597.8	2.42
NACE E				1619.1				1619.1	0.11
NACE F	15385.0			3685.1		15938.1	48.6	35056.9	2.45
NACE G	11711.0	4024.7		8234.6	1762.7	22959.6	114.2	48806.8	3.41
NACE H	2301.0			566.5		1030.7	424.6	4322.8	0.30
NACE I				7637.0			12.4	7649.4	0.53
NACE J	10189.0			6364.7	370.6			16924.3	1.18
NACE K						5065.3		5065.3	0.35
NACE L									0.00
NACE M						4.7	4441.0	4445.7	0.31
NACE N							608.5	608.5	0.04
NACE O	7371.0	7611.0		431.3		2309.1	154.7	17877.1	1.25
NACE P							6.9	6.9	0.00
Total:	46957.0	11635.7		49006.5	3676.6	67128.3	5810.9	184215.0	
Percentage of total adjustment	25.5	6.3		26.6	2.0	36.4	3.2	100.0	
VA adjustment as % of GDP	<b>3.28</b>	<b>0.81</b>		<b>3.42</b>	<b>0.26</b>	<b>4.69</b>	<b>0.41</b>		<b>12.87</b>

Exhaustiveness Adjustments: Results for the Republic of Serbia  
 Republic of Serbia

**Table 1 Summary of GVA Adjustments, for the year 2005, in mill. Din.**

Sectors/NACE sections	Type of non-exhaustiveness adjustment							Total	
	N1	N2	N3	N4	N5	N6	N7	Absolute	% of GDP
1	2	3	4	5	6	7	8	9	10
Non-financial corporations	5412.4			57641.4		59534.1	205.1	122793.0	7.01
Financial corporations									
Government sector							627.8	627.8	0.04
Households	65156.6	14454.0			6509.0	20101.5	5890.7	112111.8	6.41
NACE A				2695.9	245.0	2309.8		5250.7	0.30
NACE B				41.8		35.4		77.2	0.00
NACE C				2011.3		184.4		2195.7	0.13
NACE D				17902.9	2639.0	20133.3		40675.2	2.32
NACE E				2443.3				2443.3	0.14
NACE F	28932.0			4039.5		10194.4	57.8	43223.7	2.47
NACE G	8131.0	5109.1		10000.8	3131.0	36067.1	164.1	62603.1	3.58
NACE H	3120.0			729.0		839.8	527.2	5216.0	0.30
NACE I				8041.7			13.6	8055.3	0.46
NACE J	7287.0			8859.0	494.0			16640.0	0.95
NACE K						7346.7		7346.7	0.42
NACE L									0.00
NACE M	3874.0						5073.6	8947.6	0.51
NACE N							695.2	695.2	0.04
NACE O	19225.0	9344.9		876.2		2524.7	178.8	32149.6	1.84
NACE P							13.3	13.3	0.00
Total:	70569.0	14454.0		57641.4	6509.0	79635.6	6723.6	235532.6	
Percentage of total adjustment	30.0	6.1		24.5	2.8	33.8	2.9	100.0	
VA adjustment as % of GDP	<b>4.03</b>	<b>0.82</b>		<b>3.29</b>	<b>0.37</b>	<b>4.55</b>	<b>0.38</b>		<b>13.46</b>

## Type N1 (producers engaged in legal activities who should be registered)

Non-exhaustiveness adjustment N1 has been determined on the basis of data on the total number of employees from financial reports and current statistical survey on entrepreneurs and results of LFS-full-time employment. Type N1 refers to small producers, which avoid registration in order not to lose social benefits (if they are registered as unemployed) or in order to avoid payments taxes and security contributions. The high number of non-registered units is related to the level of unemployment.

### Non-exhaustiveness type N1 (LFS results)

In 2004 SORS implemented LFS according to ILO standards. Based on first results on the total number of employees from this survey (only full-time employment), estimation has been also made for 2003 by applying the structure from 2004 to data from 2003, which were, at the total level, comparable. Unfortunately, as we could not break down self-employed workers and family workers by activities, we did have data at lower level. Coefficients of ratio, according to number of employees from financial reports and current statistical survey on entrepreneurs (reports of municipal tax authorities) by activities, have been used in correcting the value added from already existing reports. In relation to the estimation from the first phase, when the total of non-exhaustiveness amounted to 4.28% of GDP, now it amounts to 3.95% of GDP. The difference is almost insignificant and is the result of the above mentioned GDP revision

### Republic of Serbia, 2003

#### Non-exhaustiveness adjustment - type N1

NACE section	Employment		Coefficient (LFS/FS)	VA adjustment (mill. din.)		% of GDP	
	LFS full-time	enterprises and entrepreneurs FS <sup>1)</sup>		I phase	II phase	I phase	II phase
<b>F</b>	136680	105527	1.30	12275	12146	1.12	1.04
<b>G</b>	398541	344141	1.16	13989	13822	1.28	1.18
<b>H</b>	73386	63943	1.15	1675	1655	0.15	0.14
<b>J</b>	43455	40065	1.08	4856	4233	0.44	0.36
<b>M</b>	132044	131197	1.01	242	283	0.02	0.02
<b>O</b>	103096	65879	1.56	13861	14129	1.27	1.21
<b>Total:</b>	<b>887202</b>	<b>750752</b>		<b>46898</b>	<b>46268</b>	<b>4.28</b>	<b>3.95</b>

<sup>1)</sup> Sources: Financial statements and Survey on entrepreneurs.

In addition to full-time employees, one has also estimated employment by full-time equivalent (*FTE*), based on hours worked, also by applying the structure by activities from 2004. Coefficients have significantly changed with construction, trade and hotels and restaurants, which is understandable because, in these activities, one works longer than full-time and part-time if it is an extra job. Besides the previous activities, Transport, storage and communications (I) and Real estate, renting and business activities (K) have also been included in the computation. The correction has been made the same way as for full-time employment, but the total non-exhaustiveness adjustment has significantly increased, which is why it cannot be accepted as sufficiently reliable because, observed in time series, it shows a decrease in following years, which only confirms our previous opinion that we cannot apply the correction based on FTE for 2003 and that the first LFS results must be taken with reserve. Here, one of the next years could be taken as benchmark estimation for taking the series backwards or average values should be

used as replacement for extreme values. We hope that with time, the LFS quality will keep growing because, next year, instead of carrying out the annual survey we plan to conduct a semi-annual one.

**Republic of Serbia, 2003**  
**Non-exhaustiveness adjustment - type N1**

NACE section	Employment		Coefficient (FTE/FS)	VA adjustment FTE (mill.din.)		VA adjustment FTE (mill.din.)	
	LFS full-time equivalent	enterprises and entrepreneurs FS <sup>1)</sup>		I phase	II phase	I phase	II phase
<b>F</b>	164686	105527	1.56	23311	23066	2.13	1.97
<b>G</b>	470249	344141	1.37	32428	32041	2.96	2.73
<b>H</b>	86529	63943	1.35	4006	3959	0.37	0.34
<b>I</b>	172073	156672	1.10	7918	7758	0.72	0.66
<b>J</b>	45751	40065	1.14	8146	7099	0.74	0.61
<b>K</b>	84512	79787	1.06	5927	9020	0.54	0.77
<b>M</b>	132805	131197	1.01	459	537	0.04	0.05
<b>Total:</b>	1156606	921332		82194	83480	<b>7.50</b>	<b>7.13</b>

<sup>1)</sup> Sources: Financial statements and Survey on entrepreneurs.

The correction according to FTE (7.13%) has not changed significantly either in relation to the previous time (7.50%), except in the part referring to the imputed rent, which was one of the reasons for GDP revision.

The following table shows the results of non-exhaustiveness adjustments for full-time employment in the respective period.

**Republic of Serbia**  
**Non-exhaustiveness adjustment - type N1**

	VA total adjustment mill.din. full-time employment				VA total adjustment % of GDP			
	2003 I	2003 II	2004	2005	2003 I	2003 II	2004	2005
<b>F</b>	12275	12146	15385	28932	1.12	1.04	1.07	1.65
<b>G</b>	13989	13822	11711	8131	1.28	1.18	0.82	0.46
<b>H</b>	1675	1655	2301	3120	0.15	0.14	0.16	0.18
<b>J</b>	4856	4233	10189	7287	0.44	0.36	0.71	0.42
<b>M</b>	242	283		3874	0.02	0.02	0.00	0.22
<b>O</b>	13861	14129	7371	19225	1.27	1.21	0.51	1.10
<b>Total:</b>	46898	46268	46957	70569	<b>4.28</b>	<b>3.95</b>	<b>3.28</b>	<b>4.03</b>

Corrections according FTE for 2004 and 2005 can be considered the most reliable because they were based on LFS results instead on estimation as for 2003. FTE has been especially calculated for all types of employed persons by working status – self-employed, employees and family workers at the level of activities. This was an important improvement compared to the previous time, which is obvious from the presented results.



Republic of Serbia

**Non-exhaustiveness adjustment - type N1**

	VA total adjustment mill.din. full-time equivalent				VA total adjustment % of GDP			
	2003 I	2003 II	2004	2005	2003 I	2003 II	2004	2005
<b>F</b>	23311	23066	31569	50322	2.13	1.97	2.21	2.87
<b>G</b>	32428	32041	30278	25261	2.96	2.73	2.12	1.44
<b>H</b>	4006	3959	5333	5181	0.37	0.34	0.37	0.30
<b>I</b>	7918	7758	8580	4232	0.72	0.66	0.60	0.24
<b>J</b>	8146	7099	9501	3827	0.74	0.61	0.66	0.22
<b>K</b>	5927	9020			0.54	0.77	0.00	0.00
<b>M</b>	459	537	356		0.04	0.05	0.02	0.00
<b>Total:</b>	82194	83480	85617	88823	<b>7.50</b>	<b>7.13</b>	<b>5.98</b>	<b>5.07</b>

**Non-exhaustiveness type N2 – illegal activities**

According to the *SNA 1993* and *ESA 1995*, illegal production forbidden by law or carried out by unauthorized producers – should be included in national accounts.

The estimation of non-exhaustiveness adjustments for drugs and prostitution in 2003 made in phase I has been continued in phase II for 2004 and 2005 on the basis of new and more reliable data from the Ministry of the Interior, specialized health institutions from international surveys and reports (European Monitoring Centre for Drugs and Drug Addiction - EMCDDA and The United Nations Office on Drugs and Crime – UNDOC).

**Drugs**

Estimation has been made independently from supply and demand side and based on various information on amounts and rates of drug seizures, domestic use rate, purity of drug, street and wholesale prices, number of people that are in the process of drug addiction treatment, number and structure of addicts in relation to grown-up population aged 15-64 from international reports for different types of drugs consumed on the territory of Serbia. The fact is that the seized amounts vary in years and they certainly depend on the police actions' efficiency, referring to smuggling prevention and transition channels discontinuation. However, the seized amounts are not firmly connected with the domestic market changes or the number of addicts. Therefore, we decided to use data on average seized amounts in the period 2003 – 2006 and exclude extremely huge seized amounts in 2003.

Income that is achieved through illegal drugs trade presents, from the production side, the difference between value of sold amounts to final consumers, at retail prices and street purity and, on the other hand, value of imported amounts, at purchasing prices and import purity. The trade margin presents, on average, about 82 % of the value of sold amounts at retail prices, while 18 % of such value refers to purchasing prices. Output is the equivalent of the total income and, supposing that intermediate consumption is negligible, it is equal to the value added that is attributed to trade activities. We calculated the value added by deducting quantities for domestic use, multiplied by import (wholesale) prices, from final consumption.

### Estimates of final consumption of drugs and output, 2006

Drugs	Number of drugs users	Value of sold drugs – retail prices (mill. EUR)	Value of imported drugs – purchasing prices (mill.EUR)	Output - margin (mill.EUR)	%GDP
Heroin	9634	57.1	8.0	49.2	0.19
Cocaine	3647	8.2	2.9	5.3	0.02
Cannabis	80173	13.6	3.0	10.6	0.04
Amphetamines	10007	3.3	0.9	2.4	0.01
Ecstasy – pcs.	3577	1.1	0.1	1.0	0.00
<b>Total:</b>	<b>107038</b>	<b>83.4</b>	<b>14.9</b>	<b>68.5</b>	<b>0.27</b>

Estimations of drugs consumption from both sides gave us the opportunity to check reliability of the obtained results and initial data such as number of drug users and daily doses. The obtained 2006 data were used as benchmark estimations for the previous years' series. Moreover, Eurostat also proposes producing of benchmark estimates once in a five – year period and extrapolation between benchmark years, by using the number of drug users and seizures.

### Non-exhaustiveness adjustment for drugs

	2003	2004	2005	2006
<b>Number of drug users</b>				
Heroin	7023	7803	8671	9634
Cocaine	2659	2954	3282	3647
Cannabis	58444	64940	72156	80173
Ecstasy	2608	2897	3219	3577
Amphetamines	7295	8106	9006	10007
<b>Total</b>	<b>78029</b>	<b>86700</b>	<b>96334</b>	<b>107038</b>
<b>HFCE in mill. EUR</b>				
Heroin	41.7	46.3	51.4	57.1
Cocaine	6.0	6.6	7.4	8.2
Cannabis	9.9	11.0	12.3	13.6
Ecstasy	0.8	0.9	1.0	1.1
Amphetamines	2.4	2.7	3.0	3.3
<b>Total</b>	<b>60.8</b>	<b>67.5</b>	<b>75.0</b>	<b>83.4</b>
<b>HFCE in % of GDP</b>	<b>0.34</b>	<b>0.34</b>	<b>0.36</b>	<b>0.33</b>
<b>Output in mill. EUR</b>				
Heroin	35.8	39.8	44.3	49.2
Cocaine	3.9	4.3	4.8	5.3
Cannabis	7.7	8.7	9.4	10.6
Ecstasy	0.7	0.8	0.9	1.0
Amphetamines	1.8	1.9	2.2	2.4
<b>Total</b>	<b>49.9</b>	<b>55.5</b>	<b>61.6</b>	<b>68.5</b>
<b>Output in % of GDP</b>	<b>0.28</b>	<b>0.28</b>	<b>0.29</b>	<b>0.27</b>

So, the total non-exhaustiveness adjustment – type N2 from production side for narcotics in the observed period amounts to 0.28% of GDP on average. Respective to the previous 2003 calculations (performed in the first phase of the project), the absolute difference can be ignored, while in the relative sense, it is the result of the meanwhile revised GDP, which is now increased, when compared to the previously published data. Non-exhaustiveness adjustment from expenditure side, in the same period, amounts on average to 0.34 % of GDP.

### 3. Prostitution

It is fairly difficult to obtain the officially supported and reliable data and estimates in this field. We have used all accessible information: the Internet, newspapers, TV programs, surveys of anonymous suppliers and users of services and statements of the respondents, interested in legalization of prostitution.

The output imputed to the activity O - Other community, social and personal service activities has been estimated on the basis on data of registered persons in the last 15 years and apprehended persons in 2006 dealing with prostitution on the territory of Belgrade, of unemployed female population that could be a potential for street prostitution, published advertisements offering this kind of services, the number of services, i.e. clients, and corresponding prices. This is also at the same time HFCE from expenditure side. Intermediate consumption has been estimated at 20%.

#### Supply side estimates of prostitution, 2006

Type	Number of prostitutes	Number of working days	Average daily earning, EUR	Total turnover mill. EUR
Street, individuals working	2250	260	60	35.1
Hotels, escort services, advertising	2900	200	200	116.0
High prostitution	258	100	500	12.9
<b>Total</b>	<b>5408</b>	<b>220</b>	<b>156</b>	<b>164.0</b>

The benchmark estimation for 2006 was done and the previous years' series were created according to the number of new registered police charges in the period 2003-2006 and unemployment rate of the female population was extrapolated on the whole territory of Serbia. This situation is similar to the situation with narcotics, so it is also adequate to monitor long – term trends, and inclusion of estimates in national accounts is not expected to have a significant effect on GDP growth in a short-time period.

#### Non-exhaustiveness adjustment for prostitution

	2003	2004	2005	2006
<b>Number of prostitutes</b>	4048	4494	4885	5408
Street, individuals working	1915	2126	2417	2250
Hotels, escort services, advertising	1961	2177	2269	2900
High prostitution	172	191	199	258
<b>Turnover =Output = HFCE (mill. EUR)</b>	<b>116.9</b>	<b>129.8</b>	<b>138.4</b>	<b>164.0</b>
Intermediate consumption – 20%	23.4	26.0	27.7	32.8
<b>Value added (mil. EUR)</b>	<b>93.5</b>	<b>103.8</b>	<b>110.7</b>	<b>131.2</b>
<b>GDP(mill. EUR)</b>	18008.7	19723.5	21113.4	25249.5
<b>HFCE in % of GDP</b>	<b>0.65</b>	<b>0.66</b>	<b>0.66</b>	<b>0.65</b>
<b>VA in % of GDP</b>	<b>0.52</b>	<b>0.53</b>	<b>0.52</b>	<b>0.52</b>

The total non-exhaustiveness adjustment for prostitution is, from production side, about 0.52% of GDP, and from expenditure side, it approximately amounts to 0.66% of GDP.

Finally, the total non-exhaustiveness adjustment – type N2, from production side, for illegal activities in the observed period amounts on average to 0.8% of GDP and from expenditure side, it is about 1% of GDP.

#### **Non-exhaustiveness adjustment for illegal activities**

	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>
VA in % of GDP - drugs	<b>0.28</b>	<b>0.28</b>	<b>0.29</b>	<b>0.27</b>
VA in % of GDP - prostitution	<b>0.52</b>	<b>0.53</b>	<b>0.52</b>	<b>0.52</b>
<b>Total supply side in % of GDP</b>	<b>0.80</b>	<b>0.81</b>	<b>0.81</b>	<b>0.79</b>
HFCE in % of GDP- drugs	<b>0.34</b>	<b>0.34</b>	<b>0.36</b>	<b>0.33</b>
HFCE in % of GDP- prostitution	<b>0.65</b>	<b>0.66</b>	<b>0.66</b>	<b>0.65</b>
<b>Total expenditure side in % of GDP</b>	<b>0.99</b>	<b>1.00</b>	<b>1.02</b>	<b>0.98</b>

#### **Non-exhaustiveness type N3 – producers not required to register**

Error type N3 covers production for own consumption, crops and livestock products, processing of agriculture products and construction of dwellings. Estimates of value added in crop and vegetable production as well as production of livestock products are based on reliable data of special annual reports by municipalities, and also price and trade statistics. The value of total agriculture production is included in the gross output. Valuation is made using the quantity – price method and there is no need for specific adjustments of non-coverage. Regarding construction of dwellings, the procedure for obtaining buildings permits has been simplified and control and penalties in case of illegal construction are now stipulated by law. As building and adaptation of dwellings cannot begin without a building permit, delivered by municipal authorities, non-registered construction for own account is that considerable anymore.

As far as dwelling construction is concerned, construction statistics implemented a quarter survey on delivered building permits and an annual one on occupancy building permits as a pilot survey in 2006, which is planned to become, in 2007, a regular monthly survey. It will observe both legal and physical entities as investors, which will enable a more complete coverage of the building activity and a more reliable estimation of investments in the household sector.

On the other hand, as non-exhaustiveness adjustment-type N1, through full-time employment in construction activity, amounts to 2.20%-2.47% of GDP from 2003 to 2005, or through FTE to 3.14%-3.7% of GDP, it should also cover construction for own account because all workers and total hours worked in building are included. Because of the fact that there may be overlaps or mixture of different recommended non-exhaustiveness types, as in this case between N1 and N3 we have no decided to do a special calculation for the type N3.

#### **Non-exhaustiveness type N4 - company is registered but not surveyed**

Up to 2005 the Statistical Office of the Republic of Serbia had held in charge and maintained the administrative Register of legal persons. It has been used as a frame for statistical data collection. The information provided through statistical surveys on kind of activity, address, status of activity, etc. resulted in no feedback and were not used to update the Register or the frames. SORS commenced the project of defining and establishment of the Statistical business register by using data bases from several administrative sources: financial statements register, tax payers register, VAT payers register and, from 2005, the administrative register of business entities is in charge of The Serbian Agency for Business Registers. For the purposes of this type

adjustment for 2003, we could use only administrative register. Comparing the status on the day of 31/12/2003 as presented in the administrative register and that according to the TIN from The Tax Authority, we identified enterprises with active status in 2003. Adding the closed legal persons during the year, however assuming they had been active for four months on the average, the frame for the GDP calculation was defined. Within the system of national accounts the main sources for the GDP calculation from production side are the financial statements of enterprises compiled by The National Bank of Serbia. They are primary source for definition of the active status of the enterprises. Comparing the frame from administrative register and number of submitted financial statements, for those failing to submit financial statements, the value added was determined respecting the average of the activity they are included in and then corrected by the ratio of the VAT payers number (in 2005) and the total number of tax payers (with TIN) on the total level, since we supposed that those who paid VAT in fact realized turnover and, therefore, should be included in the calculation. Such a rough assumption has been introduced in order to diminish the error occurring by also covering the enterprises, which because of their negligence towards the Tax Payers Register, were kept in it without doing business.

During the second phase of the project we could use improved way of obtaining the frame for the GDP calculation. For 2004 and 2005, we have used the situation of active enterprises from the current statistical business register compared with data of the Tax Administration. VAT was introduced in 2005 so that we have compared, for 2005, active enterprises, which are in the Register of VAT Payers, with their submitted balance sheet. In order to have consistent estimations for previous years, we have used relations between active enterprises and VAT payers from 2005 compared to 2003 and 2004, but now at the level of activities. This approach has not been applied for enterprises not being included in the VAT system. The correction has been performed by multiplying the established difference in the number of reference units with the value added in the corresponding activity on the basis of submitted balance sheets of enterprises that were included in the computation. The following table shows the results of the calculation and the exhaustiveness adjustment for N4. One can notice that it diminishes every year, which is the consequence of a better quality of the SBR.

**Republic of Serbia**  
**Non-exhaustiveness adjustment - type N4**

	VA total adjustment mill.din.				VA total adjustment % of GDP			
	2003 I <sup>1)</sup>	2003 II	2004	2005	2003 I	2003 II	2004	2005
<b>A</b>	5206.9	2452.4	2809.1	2695.9	0.48	0.21	0.20	0.15
<b>B</b>	19.3	56.0	38.1	41.8	0.00	0.00	0.00	0.00
<b>C</b>	621.4	2028.2	1870.6	2011.3	0.06	0.17	0.13	0.11
<b>D</b>	4550.7	13853.3	15750.4	17902.9	0.42	1.18	1.10	1.02
<b>E</b>		645.4	1619.1	2443.3	0.00	0.06	0.11	0.14
<b>F</b>	1007.8	2568.6	3685.1	4039.5	0.09	0.22	0.26	0.23
<b>G</b>	3294.2	7967.9	8234.6	10000.8	0.30	0.68	0.58	0.57
<b>H</b>	427.1	619.9	566.5	729.0	0.04	0.05	0.04	0.04
<b>I</b>	2760.9	8458.7	7637.0	8041.7	0.25	0.72	0.53	0.46
<b>J</b>	1006.5	2949.4	6364.7	8859.0	0.09	0.25	0.44	0.51
<b>K</b>	2646.4				0.24			
<b>L</b>	2661.9				0.24			
<b>M</b>	195.9				0.02			
<b>N</b>	44.2				0.00			
<b>O</b>	782.8	573.1	431.3	876.2	0.07	0.05	0.03	0.05
<b>Total:</b>	<b>25226.0</b>	<b>42172.9</b>	<b>49006.5</b>	<b>57641.4</b>	<b>2.30</b>	<b>3.60</b>	<b>3.42</b>	<b>3.29</b>

<sup>1)</sup> Estimated according to the ratio of VAT payers and tax payers in 2005 (28%).

## Non-exhaustiveness type N5 – registered entrepreneurs not surveyed

The SORS was maintaining the Unique Register of Shops based on the data received by the local government (municipalities) that hold in charge their registers of private entrepreneurs. The crucial problem for our Register was time lag of data from municipalities and that caused certain discrepancies with some other sources. The activity code and the activity status given in the Register of The Tax Authority and in the Unique Register of Shops of SORS were not fully corresponding. From the beginning of 2006 The Business Registers Agency has sole responsibility for the registration of entrepreneurs. Entrepreneurs registered with the municipal administrative authorities prior to 2006 are obliged by law to re-register into the Business Register.

In determining the non-exhaustiveness type N5 all above mentioned was taken into account. On the other side we had available data of the statistical survey of entrepreneurs, provided by the municipal tax administration and presenting aggregated data on the activity level concerning the number of employers and employees, their wages and tax and contributions paid, which are used in calculating output, intermediary consumption and values added for the household sector. The coverage of the survey is very good if the Unique Register of shops is compared to the Tax Authority register. The GVA adjustment was effected for the sectors of activities A – Agriculture, hunting and forestry, C – Mining and quarrying, D – Manufacturing, G – Wholesale and retail trade, motor vehicles repair and J – Financial mediation. For the part of lower coverage of the statistical survey compared to the status in the registry of shops featuring TIN, as well as for the shops closed in 2003, the non-exhaustiveness adjustment was based on the estimated number of employment and the average VA per employee in small-size privately owned enterprises from their financial statements.

For 2004 and 2005, as improvement, one has taken into account data from balance sheets of entrepreneurs, which have been introduced since 2004 as a form of financial reporting for those entrepreneurs having double-entry book-keeping. Also, we had now at our disposal corrected data on the number of owners and employees during the year through the number of months actually worked reduced to the number of month in the year, which, altogether with the revised GDP data, has influenced the change of obtained results. The following table shows the exhaustiveness adjustment for N5.

### Republic of Serbia

#### Non-exhaustiveness adjustment - type N5

	VA total adjustment mill.din.				VA total adjustment % of GDP			
	2003 I	2003 II	2004	2005	2003 I	2003 II	2004	2005
<b>A</b>	181.5	217.7	103.6	245.0	0.02	0.02	0.01	0.01
<b>C</b>	13.3	16.8	3.3	-	0.00	0.00	0.00	-
<b>D</b>	1163.2	3635.2	1436.4	2639.0	0.11	0.31	0.10	0.15
<b>G</b>	333.8	3388.6	1762.7	3131.0	0.03	0.29	0.12	0.18
<b>J</b>	102.4	122.0	370.6	494.0	0.01	0.01	0.03	0.03
<b>Total:</b>	1794.3	7380.3	3676.6	6509.0	<b>0.16</b>	<b>0.63</b>	<b>0.26</b>	<b>0.37</b>

If we compare the obtained results for 2003 in relation with to previous ones, the amount of the total correction in relation to GDP is small, but the change of the results is more considerable because now the owners and employees have reduced to the work equivalent of 12 months, which has led to a decrease of their number. The obtained difference, observed in relation to the situation from the register of shops, is increasing, particularly with manufacturing

and trade activities. The reason is to be found in the fact that a large number of units are founded and cease in these activities. Unfortunately, the register is not sufficiently up-to-date for all changes to be recorded. For the next years, corrections have been done the same way, but instead of small-size enterprises, the value added per employee from entrepreneurs' financial statements has been used to be the correcting factor.

### Non-exhaustiveness type N6 – deliberate misreporting of income

The largest part of the NOE is recorded as a consequence of underreporting by businesses in order to reduce tax payments and social security contributions. As we have not available the individual data by the tax authority on the turnover and the tax and contributions paid in 2003, for the survey of the non-exhaustiveness type N6 we used the results of the statistical survey on entrepreneurship and the financial statements of small-size enterprises. The starting point was the assumption that small-size enterprises have been mainly privatized, with a small number employment, in order to survive the market competition these enterprises have to be led by a rational business approach, to get adapted to the market changes and to be more productive if compared to the large ones. Also, the entrepreneurs have to act as small size enterprises. Regarding the relationship of intermediate consumption and output and the GVA per employee, whether the intermediate consumption was overestimated or the output underestimated, resulting in the smaller GVA calculated, the double correction was made. Improvement in estimations for 2004 and 2005 is noticeable through the use of data from entrepreneurs' financial statements having up to 9 employees. The total exhaustiveness adjustment in 2003 – type N6 was 79161 mill. din. or 6.76% of the GDP.

### Republic of Serbia, 2003

#### Non-exhaustiveness adjustment - type N6

	VA mill.din.	IC mill.din.	VA corrected	IC corrected	VA adjustment enterprises	% of GDP	VA adjustment entrepreneurs	% of GDP	Total % of GDP
<b>A</b>	5013.4		5302.3		288.9	0,02			0,02
<b>B</b>							72.2	0,01	0,01
<b>C</b>							23.8		0,00
<b>D</b>	28504.9		37952.6		9447.7	0,81	2998.7	0,26	1,06
<b>F</b>	11045.6	36487.9	22129.9	30330.5	11084.3	0,95			0,95
<b>G</b>	27969.1	45699.7	45328.6	38706.1	17359.6	1,48	17468.6	1,49	2,97
<b>H</b>	1254.7		2180.2		925.5	0,08			0,08
<b>I</b>							1920.0	0,16	0,16
<b>J</b>							47.6	0,00	0,00
<b>K</b>	13116.2	27586.0	19259.0	23193.7	6142.8	0,52	5994.6	0,51	1,04
<b>M</b>							133.6	0,01	0,01
<b>O</b>	2653.1	3936.6	6675.0	2402.0	4021.9	0,34	1231.2	0,11	0,45
<b>Total:</b>	<b>89557.0</b>	<b>113710.2</b>	<b>138827.7</b>	<b>94632.3</b>	<b>49270.7</b>	<b>4,21</b>	<b>29890.2</b>	<b>2,55</b>	<b>6,76</b>

The total exhaustiveness adjustment in 2004 – type N6 amounted to 67128 mill. din. or 4.69% of the GDP. The correction of original data with entrepreneurs is now significantly lower as it has been done on the basis of indicators from their balance sheets instead from small-size enterprises.

Republic of Serbia, 2004

Non-exhaustiveness adjustment - type N6

	VA mill.din.	IC mill.din.	VA corrected	IC corrected	VA adjustment enterprises	% of GDP	VA adjustment entrepreneurs	% of GDP	Total % of GDP
A	5207.7		7567.3		2359.6	0,16			0,16
B									
C							50.0	0,00	0,00
D	36950.3		48781.6		11831.4	0,83	5579.8	0,39	1,22
F	14049.4	51572.7	29987.5	43590.8	15938.1	1,11			1,11
G	38607.3	62354.2	61566.8	55906.5	22959.6	1,60			1,60
H	1419.3		2450.1		1030.7	0,07			0,07
I									
J									
K	21186.7	34004.5	26252.0	32220.9	5065.3	0,35			0,35
M							4.7	0,00	0,00
O	4025.8	3822.8	6334.9	3258.1	2309.1	0,16			0,16
<b>Total:</b>	<b>121446.5</b>	<b>151754.2</b>	<b>182940.3</b>	<b>134976.3</b>	<b>61493.8</b>	<b>4,30</b>	<b>5634.5</b>	<b>0,39</b>	<b>4,69</b>

Republic of Serbia, 2005

Non-exhaustiveness adjustment - type N6

	VA mill.din.	IC mill.din.	VA corrected	IC corrected	VA adjustment enterprises	% of GDP	VA adjustment entrepreneurs	% of GDP	Total % of GDP
A	5948.3		8258.1		2309.8	0,13			0,13
B									
C							35.4	0,00	0,00
D	48638.6		63058.0		14419.4	0,82	5714.0	0,33	1,15
F	14918.5		25112.9	43640.6	10194.4	0,58			0,58
G	60223.2	45965.7	82608.7	72457.1	22385.5	1,28	13681.6	0,78	2,06
H	2359.6	72005.5	3199.4		839.8	0,05			0,05
I									
J									
K	27628.3	34817.0	34975.0	31946.3	7346.7	0,42			0,42
M									
O	6090.5	7505.3	8129.0	6404.8	2038.5	0,12	486.2	0,03	0,15
<b>Total:</b>	<b>165807.1</b>	<b>160293.6</b>	<b>225341.1</b>	<b>154448.8</b>	<b>59534.1</b>	<b>3,40</b>	<b>20101.5</b>	<b>1,15</b>	<b>4,55</b>

If we compare all obtained results, we can conclude that there were no important changes with enterprises in 2003, regardless whether small-size or micro enterprises were observed because most of small-size enterprises have up to 9 employees. As far as entrepreneurs are concerned, their obligation to submit balance sheets is one of the ways to control their business. That is why we believe that the results for 2004 and 2005 are more reliable than those obtained for 2003.



Republic of Serbia  
**Non-exhaustiveness adjustment - type N6**

	VA total adjustment mill. din.				VA total adjustment % of GDP			
	2003 I	2003 II	2004	2005	2003 I	2003 II	2004	2005
<b>A</b>	386.8	288.9	2359.6	2309.8	0.04	0.02	0.16	0.13
<b>B</b>	9.7	72.2	0.0	35.4	0.00	0.01	0.00	0.00
<b>C</b>	19.4	23.8	50.0	184.4	0.00	0.00	0.00	0.01
<b>D</b>	11382.5	12446.4	17411.2	20133.3	1.04	1.06	1.22	1.15
<b>F</b>	11084.3	11084.3	15938.1	10194.4	1.01	0.95	1.11	0.58
<b>G</b>	28235.3	34828.1	22959.6	36067.1	2.58	2.97	1.60	2.06
<b>H</b>	925.5	925.5	1030.7	839.8	0.08	0.08	0.07	0.05
<b>I</b>	1532.2	1920.0	0.0	0.0	0.14	0.16	0.00	0.00
<b>J</b>	35.0	47.6	0.0	0.0	0.00	0.00	0.00	0.00
<b>K</b>	11695.0	12137.4	5065.3	7346.7	1.07	1.04	0.35	0.42
<b>M</b>	116.4	133.6	4.7	0.0	0.01	0.01	0.00	0.00
<b>O</b>	4980.2	5253.2	2309.1	2524.7	0.45	0.45	0.16	0.15
<b>Total:</b>	<b>70402.3</b>	<b>79161.0</b>	<b>67128.3</b>	<b>79635.6</b>	<b>6.43</b>	<b>6.76</b>	<b>4.69</b>	<b>4.55</b>

**Non-exhaustiveness type N7 – other statistical deficiencies**

Resulting from the ad hoc statistical survey carried out within the first phase of NOE project, non-exhaustiveness type N7 for the Republic of Serbia equals to 0.42% of GDP. Obtained data were used to summarize certain elements of NOE and for estimates and calculations of GVA adjustments. The corrections were related to the household final consumption expenditure for health services, separately in private sector, for education i.e. supplementary private classes and the information on tips of various kinds: in restaurants, bars and cafes, hairdressers and beauty shops, for taxi, craftsmen and other services. For various services, the value of the tips, relative to the services value, range from 6% to 10%. For the section of health care the correction was done for the direct payments (mainly in kind) by the households considered as wages and salaries in kind.

The estimation for 2003 has been slightly corrected due to the change of the average annual exchange rate for EUR and the total GDP. The same method has been used both for 2004 and 2005.

Republic of Serbia

**Non-exhaustiveness adjustment - type N7**

NACE section	VA adjustment in mil.din.			% GDP		
	2003	2004	2005	2003	2004	2005
<b>F</b>	30.0	48.6	57.8	0.00	0.00	0.00
<b>G</b>	95.7	114.2	164.1	0.01	0.01	0.01
<b>H</b>	359.4	424.6	527.2	0.03	0.03	0.03
<b>I</b>	10.5	12.4	13.6	0.00	0.00	0.00
<b>M</b>	3981.2	4441.0	5073.6	0.34	0.31	0.29
<b>N</b>	545.5	608.5	695.2	0.05	0.04	0.04
<b>O</b>	152.6	154.7	178.8	0.01	0.01	0.01
<b>P</b>	6.3	6.9	13.3	0.00	0.00	0.00
<b>Total:</b>	<b>5181.2</b>	<b>5810.9</b>	<b>6723.7</b>	<b>0.44</b>	<b>0.41</b>	<b>0.38</b>

**Conclusion**

SORS will continue to search for elements of the non-observed economy taking into account all obtained results and knowledge gained during the Project on the non-observed economy, which enabled us both to see various data sources and estimate their quality, and to overcome, via the implementation of adequate assumptions, their defects and to solve the problem.

The results of the ad-hoc survey, carried out in the second phase of the Project, will be used for the calculations for 2006. Although they will mostly serve for the estimation from expenditure side, they will indirectly improve the estimations of production side, through parallel observation and harmonization of both sides.

Nevertheless, one has to stress out that, under circumstances when we do not have all necessary sources of data for such a calculation, when the statistical system cannot evenly grow in all fields and meet the needs of national accounts, our work is not made easy while the expectations are enormous. By gradually implementing SUT in national accounts, which SORS plans soon, the measuring of the non-observed economy will grow regular and will be one of the ways to conciliate total supply and total use.

Finally, national accountants can evaluate rather well the quality of initial information, the sustainability of introduced assumptions and the reliability of obtained results, and this is why only non-exhaustiveness adjustments, which will be for sure considered to be within acceptable limits, can be included into the official national accounts estimates.