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**THE BULGARIAN CPI AND THE INDEX OF A SMALL BASKET
OF GOODS AND SERVICES¹**

Submitted by National Institute of Statistics of Bulgaria

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Resume

The purpose of this paper is to give an overview of the practice of the Bulgarian National Statistical Institute in the field of consumer price statistics. Certain methodological aspects of the Consumer Price Index (CPI) are given. The CPI is calculated from May 1990. The reasons and basis for calculation of the so-called index of a “small basket” (ISB) are described. Parallels between both indices are drawn and this is followed by a short analysis of the price changes shown by ISB.

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I. INTRODUCTION

1. In 1989, a new period in the development of the Bulgarian economy started – its transition from planned towards market economy began. One of the most significant features of the transition was the liberalization of the retail prices of many consumer goods and services. These prices were the result of new market conditions. Therefore as a response to the new circumstances and the necessity to measure the changes in prices of consumer goods and services that were no longer set up by the government, the National Statistical Institute (NSI) established a new survey of consumer prices. The Bulgarian Consumer Price Index (CPI) is calculated from May 1990. Since then, there have been many changes and improvements in the CPI methodology and calculation procedure.

2. In 1997, work on the calculation of a Harmonized Index of Consumer Prices (HICP) started. The implementation of Eurostat's Regulations was very essential for the improvement of the CPI. It must be noted that the calculated Bulgarian HICP is still equal to the National CPI, i.e. there are no differences between them.

3. Another so-called Index of a Small Basket of goods and services (ISB) is being calculated from 2001. It measures the price changes of 100 goods and services that are considered to be socially useful and of vital importance for the well being of the people. The initiative for calculating the ISB belongs to the Ministry of Labour and Social Policy (MLSP) and representatives of trades unions in Bulgaria. A special working group with experts from the MLSP, NSI and unions was formed in 2000 and as a result the ISB was constructed and calculated.

II. MAIN PURPOSES AND USES OF THE CPI AND ISB

4. The purpose of the survey of consumer prices is to obtain country-representative data for the prices of goods and services and to compute overall and group indices of consumer prices. The overall CPI measures the general relative change in the prices of goods and services used by households for private (non-production) consumption. It is defined as a "pure price change" index and cannot be referred to as a measure of the cost-of-living.

5. The CPI is applied in three main areas as:

- (a) Macroeconomic indicator - as the official measure of inflation in Bulgaria;
- (b) Deflator of the values of indicators which do not have their own price measure;
- (c) Tool for possible indexation of salaries, pensions and other incomes from the Government when needed.

6. The ISB has quite different purposes and uses than the CPI. It provides representative monthly information about the price changes of 100 goods and services that comprise the so-called small basket. These goods and services are considered to be vital for the people with very low incomes. The ISB is constructed as a price index for the lowest-income households in Bulgaria.

7. The ISB can be used:
- (a) To increase the possibilities for making more extensive and qualitative analysis of the developing socio-economical processes in the country;
 - (b) To assist the regularly conducted negotiations of social partners by providing more detailed information;
 - (c) To provide information on which to base eventual amendments of the social transfers;
 - (d) To broaden the analysis of officially measured inflation in the country;
 - (e) To serve as a basis for creating more elaborate methodology and constructing price indices that measure price changes of goods and services, for example between regions (in geographical perspective), as well as certain indicators referring to the population (for example the part of the population considered to be living in poverty).

III. METHODOLOGIES AND MAIN FEATURES OF THE INDICES

8. The Bulgarian CPI is an annually chained Laspeyres index. During a calendar year it measures the price changes of a fixed basket of goods and services, taking the previous year as index, price and weight reference period. At the beginning of every year the index is up-dated:

- (a) Weights are replaced with new ones referring to the previous year;
- (b) Base prices refer to the average prices of the previous year;
- (c) The consumer basket is up-dated – old goods/services are excluded; new goods/services are included; replacements are made;
- (d) The sample of outlets is up-dated;
- (e) The target number of prices is compiled.

9. The up-dating of the CPI is necessary because consumers' tastes and preferences change over time, and the structures of retail trade and households' expenditures change too. These changes were quite obvious during the period of hyperinflation in Bulgaria in 1996-1997. The annual replacement of index weights allows for the maintenance of the monetary expenditure structure as close to the consumption pattern of the population as possible. Monthly Household Budget Survey (HBS) data ensures annual information for households' monetary expenditures that are used as weights in the CPI.

10. The Bulgarian CPI is calculated using the COICOP/HICP classification that was introduced in 1999. The two lowest levels (5- and 6-digit) of the classification are national and define the expenditures for individual consumption in the respective "group of goods" and "elementary aggregates".

11. The 12 Divisions (2-digit level) of the Classification are listed below:

- COICOP01 - Food and non-alcoholic beverages;
- COICOP02 - Alcoholic beverages and tobacco;
- COICOP03 - Clothing and footwear;

- COICOP04 - Housing, water, electricity, gas and other fuels;
- COICOP05 - Furnishings, household equipment and routine maintenance of the house;
- COICOP06 - Health;
- COICOP07 - Transport;
- COICOP08 - Communications;
- COICOP09 - Recreation and culture;
- COICOP10 - Education;
- COICOP11 - Hotels, cafes and restaurants;
- COICOP12 - Miscellaneous goods and services.

12. Both indices, the CPI and ISB use identical calculation procedures. Firstly, all missing prices are imputed. Then, the average national price for every good or service in the consumer basket is compiled as the geometric mean of all prices (actual and imputed). The base index for elementary aggregate (6th level) is calculated as the ratio of geometric mean prices, and the Laspeyres-type formula is used to calculate the upper COICOP levels. Monthly indices are calculated as the ratio of the base indices for the current month and the corresponding base indices for the previous month.

13. The main differences between CPI and ISB relate to the compositions of their “baskets” and their expenditure weights.

Baskets

14. The consumer basket used for the CPI calculation includes goods and services, which represent the final monetary consumption of households. The following principles are observed:

- (a) The goods and services to be priced in the CPI should be a fixed (unchanged) series of goods and services during the year, which has to reflect the average change in prices for all goods and services and has to correspond to the structure of households’ consumption;
- (b) A correspondence with the definitions in the System of National Accounts should exist in respect of private consumption and its coverage;
- (c) Consistency with the classification of goods and services used in international comparisons of prices in accordance with the Programme for European Comparisons (PEC) should exist;
- (d) Goods and services should include public utilities with “tariff” prices;
- (e) Goods traded between households, and goods bought in insignificant quantities, should be excluded.

15. The consumer basket for the year 2006 consists of 531 goods and services, divided into four basic groups:

- Foods - 150;
- Non-foods - 228;
- Services - 113;
- Catering - 40.

16. By using the small basket of 100 goods and services, the ISB calculation is built up on the premise that the composition of the basket allows the maintenance of a low but satisfactory level of living standard. Principally, this small basket is formed on the basis of two major criteria: the monetary expenditures that are represented by the selected goods and services should have the highest share in the budget of the lowest income households in Bulgaria, and to include goods and services without which normal physical and social existence would not be possible.

17. The small basket includes all basic foods. This is based on the assumption that there should be no restrictions regarding nutrition as the viability of the nation depends on it. At the same time alcohol and tobacco (COICOP02) are excluded from the small basket, because the Government uses their prices for certain fiscal purposes. Furthermore alcohol and tobacco cannot be considered as vitally necessary for human existence and it is well known that misuse of these goods may lead to shorter life and a premature decrease of active working capacity.

18. The small basket consists of 100 goods and services, divided into three basic groups:

- Foods - 52;
- Non-foods - 35;
- Services - 13.

19. Another two COICOP divisions are excluded from the small basket –“Education” (COICOP10) and “Hotels and restaurants” (COICOP11). This is based on the assumption that lowest income households cannot afford to use these services, especially paid private education, and according to HBS data their expenditures under these headings were insignificant.

Expenditure weights

20. Expenditure weights used for CPI calculation are derived from the Households Budget Survey (HBS). Additionally some other information sources for constructing the weights are used as well. CPI weights correspond, to a great extent, to the concept of final monetary consumption expenditures of households² and are considered to be representative for the population of the country.

21. On the other hand, expenditure weights of the ISB refer to the expenditures of the lowest income households in Bulgaria. On the basis of HBS information, ten groups with equal numbers of people arranged by their total income were differentiated. Separate sub-groups of persons from households having different total income levels were obtained using statistical clustering technique. This made it possible to distinguish the lowest 20% of the population that is considered to be living in poverty. Regular empirical information from the HBS shows that the budgets of this part of the population are most affected by the market reforms and difficulties during the transition towards market economy.

22. Regarding the *geographic coverage* and the *sample of outlets* both indices use the same information – that of the CPI. *Collected prices* that are used for the calculation of CPI are used

² The concept is not fully implemented, as foreign tourist expenditures made on the territory of the country are not included yet.

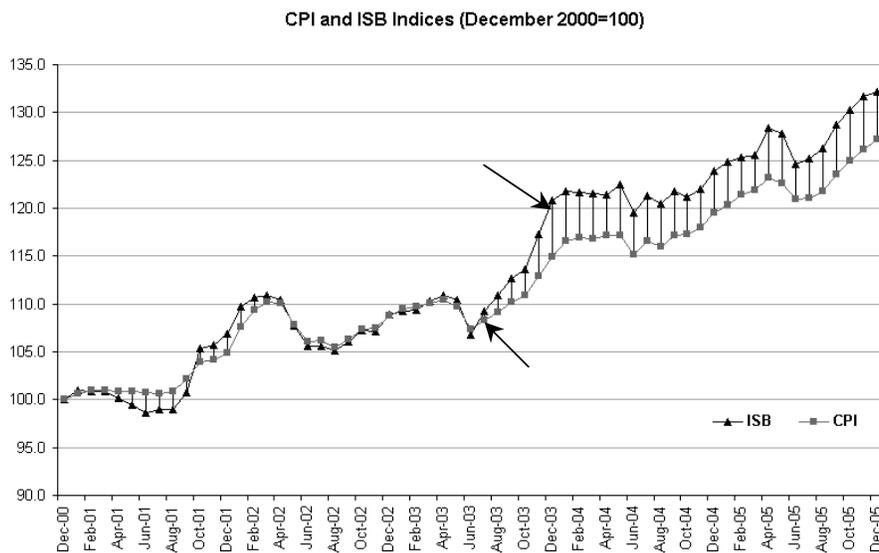
for calculating the ISB as well. This can be considered as a shortcoming of the ISB and probably a significant limitation of its use in preparing analyses. Therefore, and bearing in mind the small number of the basket's goods and services, the ISB cannot (and should not) be used as a macroeconomic indicator.

IV. COMPARISONS OF CPI AND ISB DATA AND ANALYSIS OF THE RESULTS

23. The total expenditures of the lowest income households, used as weights in the ISB calculation expressed as relative share from the total expenditure weights of the CPI, do not vary too much for the period 2000-2004 – from 8.5 percent in 2000 down to the lowest value of 8.0 percent in 2004. The highest share of the expenditures of the lowest income households from the total consumer expenditures is in 2002 – 8.6 percent.

24. Table 1 shows the relative structure of expenditures weights of the CPI and ISB during 2000-2004 by major COICOP groups (Divisions). It can be seen that the relative structures of both indices change in similar directions. It should be noted that food expenditures have the biggest share in consumer expenditures, and while in the CPI they account for 36.8 percent, from the total expenditures in the ISB they are nearly 60 percent. Since 2000 the share of food expenditures decreases in both indices but more slowly in the ISB. Another big discrepancy in the relative expenditure structures of the indices is in "Transport" (COICOP07). Its relative expenditure in the ISB is three times smaller than that of the CPI. This is due mainly to the exclusion of automobiles and motorcar fuels from the ISB scope, which on the other hand have significant share in the CPI expenditure weights. COICOP04 "Housing, water, electricity, gas and other fuels" has almost equal relative share from the total expenditure weights used in CPI and ISB. This is the second most important CIOCOP division in both indices. Regarding COICOP12 "Miscellaneous goods and services" the changes of the relative structures of the CPI and ISB in time show that they move in different directions – the relative expenditures in ISB increase while those of the CPI decrease and in 2004 both shares have close values.

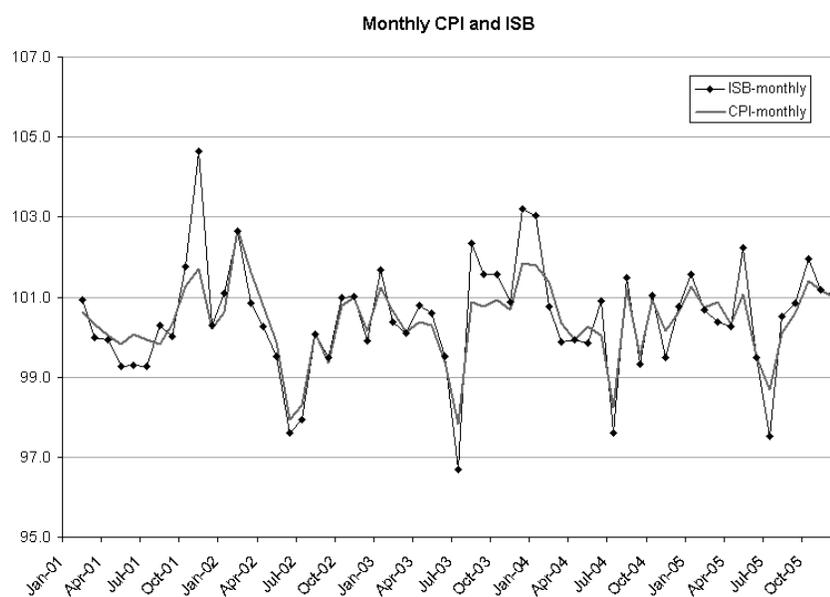
Figure 1



25. CPI and ISB time series, at December 2000=100, show similar developments. Up to July 2003 both indices move very close to each other but it can be seen that the ISB is more “sensitive” when the CPI shows bigger and sharper price changes (Figure 1). Since November 2003 the ISB values are consistently higher than the CPI and have the same tendency with relatively stable differences (expressed in percentage points) in their index levels.

26. The ISB’s “sensitivity” is even clearer if we look at the monthly indices on the figure below. In most cases when there is a sharp increase or decrease in consumer prices measured by the CPI the ISB shows a bigger increase or decrease respectively. An explanation for this should be looked for in the nature of ISB, its composition of goods and services and the pricing policy of the Government. Most of the monthly increases and decreases of ISB are due to the variation (incl. seasonal variation) of food prices and usually the most affected are summer months. The second very important factor for the sharp increases of ISB relates to the increases of certain service prices that are/were regulated (fully or partially) by the Government, such as electricity, heat energy and water supply.

Figure 2



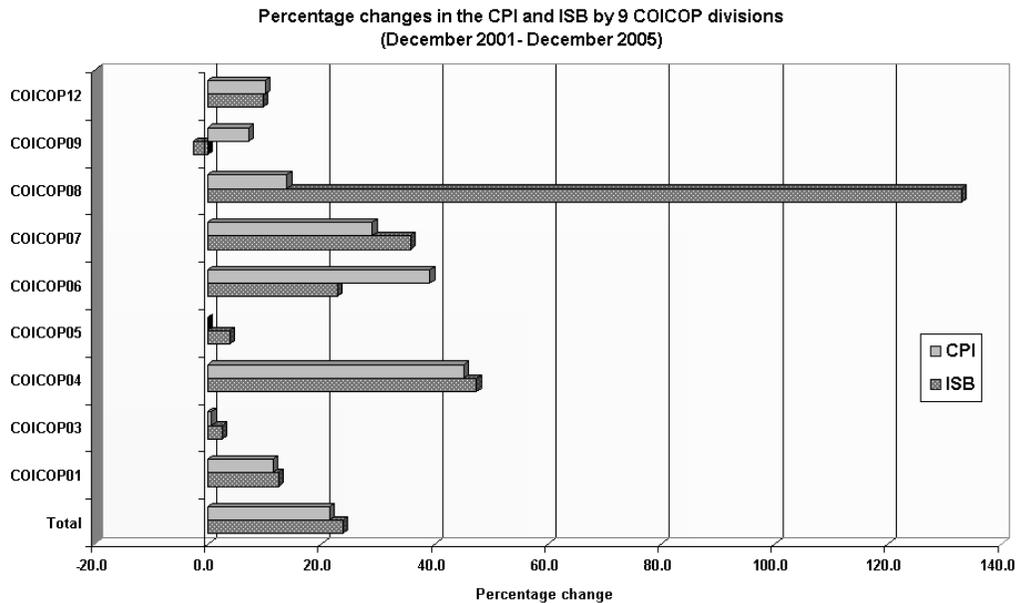
27. The ISB shows that for the period December 2000 - December 2005 the prices of goods and services consumed by the lowest-income population in the country have grown by 32.2 percent and this is 4.9 percentage points higher than the rise in consumer prices. The lowest income people experienced their highest monthly price increase in November 2001 (4.6 percent) while the monthly inflation was 1.7 percent only. In July 2003 the ISB had the lowest index level of 96.7 percent, as did the CPI – 97.8 percent.

28. The annual (December-to-December) comparison of the price changes measured by CPI and ISB shows that the lowest-income households have faced the highest price increases in 2001 and 2003 when the prices of the small basket rose by 6.9 and 11.0 percent accordingly

(Table 2). In 2002 and 2004 when the annual inflation was relatively low – 3.8 and 4.0 percent, the ISB shows a smaller increase in the prices of the goods and services included in the small basket – 1.9 and 2.5 percent respectively. In 2005 both indices have similar annual price change – 6.5 percent of the CPI and 6.6 percent of the ISB.

29. The highest price change in the ISB during December 2001 – December 2005 is in Communications (COICOP08) – 133.0 percent (Figure 3). This is due to the high price increase of local (interurban) telephone calls. And as the CPI measures the price changes of telecommunication equipment and more telecommunication services than ISB, its average price increase in COICOP08 is only 13.9 percent. Another division where ISB shows higher increase in prices is Transport (COICOP07). There are only 3 services included in this division in the small basket. They have risen by 35.7 percent on average compared to 29 percent in the CPI. It is interesting to notice that during the period the average prices of other goods and services have risen with very close percentages. These are under “Food and non-alcoholic beverages” (COICOP01), “Housing, water, electricity, gas and other fuels” (COICOP04) and “Miscellaneous goods and services” (COICOP12). ISB price changes in “Health” (COICOP06) are 16.3 percent points lower than those in the CPI due to its smaller number of medicines and the exclusion of private medical services. And finally, while the CPI shows an increase of 7.2 percent in the prices of the goods and services included in “Recreation and culture” (COICOP09), the prices of the goods and services under this division in the ISB decrease with 2.7 percent.

Figure 3



V. CONCLUSION

30. The paper gives a short overview of the main characteristics of the CPI and ISB and summarizes their price developments during the period December 2000 – December 2005. The ISB shows higher price increase for the period as compared to the CPI and there are reasonable explanations for this.

31. The ISB includes only 100 goods and services that are vital for human being and usually these goods and services experience frequent and relatively high price changes. Another important factor is the expenditure weight structure of ISB – nearly 60 percent of it is foodstuffs. Food prices are known to be among the more volatile prices of all consumer prices. All this demonstrates the “sensitivity” of ISB.

32. Finally, when analyzing ISB data it should be kept in mind that the index has certain limitations that prohibit its use as a microeconomic indicator. Also it cannot be used as an indicator measuring the cost of living. The ISB is designed to be used as an auxiliary tool in socio-economic analyses and in defining the social policy of the country. Ideally, a separate survey should be carried out for measuring of the price changes of the goods and services consumed by the lowest income people, but unfortunately it would be very costly.

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Table 1. Relative structure of expenditures by COICOP Divisions, 2000-2004

		COICOP 00	COICOP 01	COICOP 02	COICOP 03	COICOP 04	COICOP 05	COICOP 06	COICOP 07	COICOP 08	COICOP 09	COICOP 10	COICOP 11	COICOP 12
2000	ISB	100.0	62.6	-	3.5	18.0	2.1	3.7	2.0	4.1	1.0	-	-	2.9
	CPI	100.0	42.2	4.4	5.4	16.3	3.8	4.9	6.9	3.4	3.7	0.6	4.2	4.1
2001	ISB	100.0	64.2	-	3.0	16.5	2.2	3.3	1.8	4.8	1.0	-	-	3.2
	CPI	100.0	43.3	4.2	4.6	15.7	3.7	5.1	6.9	4.3	3.7	0.5	4.0	4.1
2002	ISB	100.0	59.2	-	3.4	18.5	2.2	4.1	2.2	5.9	1.0	-	-	3.4
	CPI	100.0	39.7	4.4	4.7	17.0	3.9	5.3	6.7	5.5	3.7	0.6	4.7	4.0
2003	ISB	100.0	58.0	-	3.2	19.8	2.2	4.6	2.0	5.9	0.9	-	-	3.5
	CPI	100.0	37.1	4.5	4.5	18.0	4.2	5.6	6.9	6.0	3.9	0.6	4.6	4.0
2004	ISB	100.0	59.6	-	3.1	19.2	2.1	4.6	1.9	5.0	0.8	-	-	3.7
	CPI	100.0	36.8	4.8	4.3	17.6	4.1	5.8	6.8	6.2	3.8	0.6	5.1	4.0

Table 2. Price changes of the CPI and ISB (December to December of the preceding year)

		COICOP00	COICOP01	COICOP03	COICOP04	COICOP05	COICOP06	COICOP07	COICOP08	COICOP09	COICOP12
2001	ISB	6.9	1.8	1.4	8.2	5.2	27.4	3.7	51.7	21.2	1.5
	CPI	4.8	2.7	0.0	7.5	1.7	24.2	1.8	13.3	6.0	2.9
2002	ISB	1.9	-5.1	0.5	20.6	-2.1	17.7	3.3	17.9	-2.1	4.0
	CPI	3.8	-4.4	-0.3	18.4	-0.6	15.9	7.0	1.1	-0.4	2.4
2003	ISB	11.0	13.7	-0.7	10.1	-2.4	2.0	4.9	15.6	-2.6	2.2
	CPI	5.6	8.5	-1.5	8.7	-1.4	5.1	-0.3	1.6	3.4	3.8
2004	ISB	2.5	-2.1	0.4	7.7	0.4	0.1	12.2	33.5	1.9	1.6
	CPI	4.0	0.8	0.4	7.3	-0.2	2.7	5.5	6.4	1.2	0.8
2005	ISB	6.6	6.6	2.3	3.0	8.2	2.2	11.6	28.0	0.2	1.6
	CPI	6.5	6.6	2.0	5.1	2.0	11.3	14.7	4.2	2.8	2.8