Methodology for Core Inflation Calculation

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- In order to study the development of inflation processes and analyze the alternative price indicators, that would more precisely outline the impact of the monetary policy on the price situation, the SSSU jointly with the National Bank of Ukraine and the Ministry of Economic Development and Trade of Ukraine have developed the Methodology for Core Inflation Calculation.

- Core Inflation Indices of Ukraine are calculated starting from 2008.

- Until 2008, pilot calculations of core inflation were made by the National Bank of Ukraine with the application of different methods.

Methods for Core Inflation Calculation

▶ Method of exclusion of variable list of goods (service)-representatives

▶ **Method of exclusion of constant list of goods (service)-representatives**

▶ Method of current average

▶ Method of truncated average

▶ Method of median inflation

▶ Structural vector-autoregressive method

Method of exclusion of variable list of goods (service)-representatives was chosen from the outlined methods. This method is considered as one of traditional methods in the European practice. Advantages of this method are that it ensures the compability of index time series and intelligibility to the community.

Construction of the Core Inflation

► Core inflation reveals sustainable price dynamics with minimization of short-term erratical price changes, caused by supply shocks and administrative control and, respectively, more fully reflects the effects from the change of actual monetary conditions.

► Core inflation index is a consumer price subindex, as its compilation is based on existing methodological principles of CPI calculation.

Main stages of core inflation construction:

► Formation of the list of goods (service)-representatives

► Formation of weighing structure

► Core inflation calculation

Formation of the list of goods (service) - representatives

Core inflation is calculated on the basis on the fixed list of goods (service) - representatives, that is formed on the basis of the consumer goods (services)-representatives basket by excluding the goods (services), which price dynamics is, to a significant extent, defined by the effects of non-monetary factors and is characterized by the highest volatility.

Prices for the goods (services) that are excluded from the consumer basket are:

► subject to substantial seasonal fluctuations;

► controlled (determined) by the government or local bodies of executive power;

► depend on world market prices, environmental conditions or natural monopoly prices;

► raw or with a low degree of industrial processing.

Formation of the list of goods (service) - representatives

The following items are excluded from the consumer basket:

▶ fresh vegetables and fruits, given that price dynamics for these goods has clear seasonal nature and, to the significant extent, affects the value of CPI throughout a year;

▶ housing and community amenities service, preschool facilities, certain types of bakegoods etc, as administrative influence on price formation might be carried out directly or indirectly (by means of fixed trade markups, excise duties etc.);

▶ fuel and its secondary products, as erratical and, in many cases significant, price changes for resources of energy are connected with market conjuncture and their dependence on world market prices;

▶ certain types of services (railway transport, communication), that relate to the monopoly sphere and the trends of which price changes are not connected with the monetary policy tools;

▶ cereals, meat and milk products, that are raw products or products with low degree of industrial processing.

Update of the list of goods (service) - representatives

▶ Update of the list is executed once in 5 years.

But as:

▶ changes take place at the consumer market, such as setting or lifting of administrative restrictions,

▶ other reasons,

▶ and the ratio of such goods (services) amounts to more than 5% of total expenditures of consumer explicit costs,

▶ the update might be carried out more frequently.

Formation of weighing structure

Weighing coefficients for construction of core inflation are defined on the basis of consumer explicit costs structure and expenditures of all households, used for formation of the weighing coefficients for CPI calculation, excluding the share of goods (services) expenditures that are not involved in the calculation of core inflation.

Calculation of the weighing coefficients are executed by the means of standardization by the formula:

$$W_{j,n} = \frac{W_{j,o}}{\sum_i W_{j,o}}$$

where:

$W_{j,n}$ - standardized weighing coefficient of goods (services) – representatives (j) in the calculation of the core inflation;

$W_{j,o}$ - weighing coefficient of goods (service) – representatives (j) in the calculation of CPI;

$\sum W_{j,o}$ - sum of the weighing coefficients of goods (services) – representatives , that are on the list of (service) – representatives for the calculation of the core inflation.

Therefore, each of goods (service) representatives is given additional weight by means of proportional increase.
Substitution of the weighing structure is carried out annually.
Basic index period – December of the previous year.

Weighing coefficients for CPI and Core CPI generation

CPI Coefficients	CPI	Core CPI[1]
01.Food products and non-alcohol drinks	0,50784	0,41533
02. Alcohol drinks, tobacco products	0,06255	-
03. Clothes and footwear	0,07276	0,15152
04. House, water, electro energy, gas and other types of fuels	0,11448	0,02437
05. Household goods, household appliances and current household maintenance	0,02614	0,05444
06. Healthcare	0,03806	0,07927
07. Transport	0,04870	0,02234
08. Communication	0,03285	0,05844
09. Recreation and culture	0,02282	0,04752
10. Education	0,01571	0,02582
11. Restaurants and Hotels	0,02873	0,05983
12. Miscellaneous goods and services	0,02936	0,06115

[1] Goods (services) ratio for calculation of core inflation amounts to approximately 50% of total expenditures of consumer explicit costs, that are used for formulation of weighing coefficients for CPI calculation

Core Inflation Calculation

is carried out by the Laspeyres modified formula:

$$I_{t/t-1} = \sum [W_{j,n,o} \times \frac{i_{j,t/0}}{i_{j,t-1/0}}]$$

where:

$I_{t/t-1}$ - price index of the reference year to the previous;

$W_{j,n,0}$ - standardized ratio for goods (service) representative (j) in the base year (o);

$i_{j,t/0}$ - long term price index of goods (service) representative индекс (j) of the reference year (t) to the base year (o);

$i_{j,t-1/0}$ - long term price index of goods (service) representative индекс (j) of the previous year (t) to the base year (o).

Calculation of the Core Inflation is carried out with the use of Microsoft Excel software.
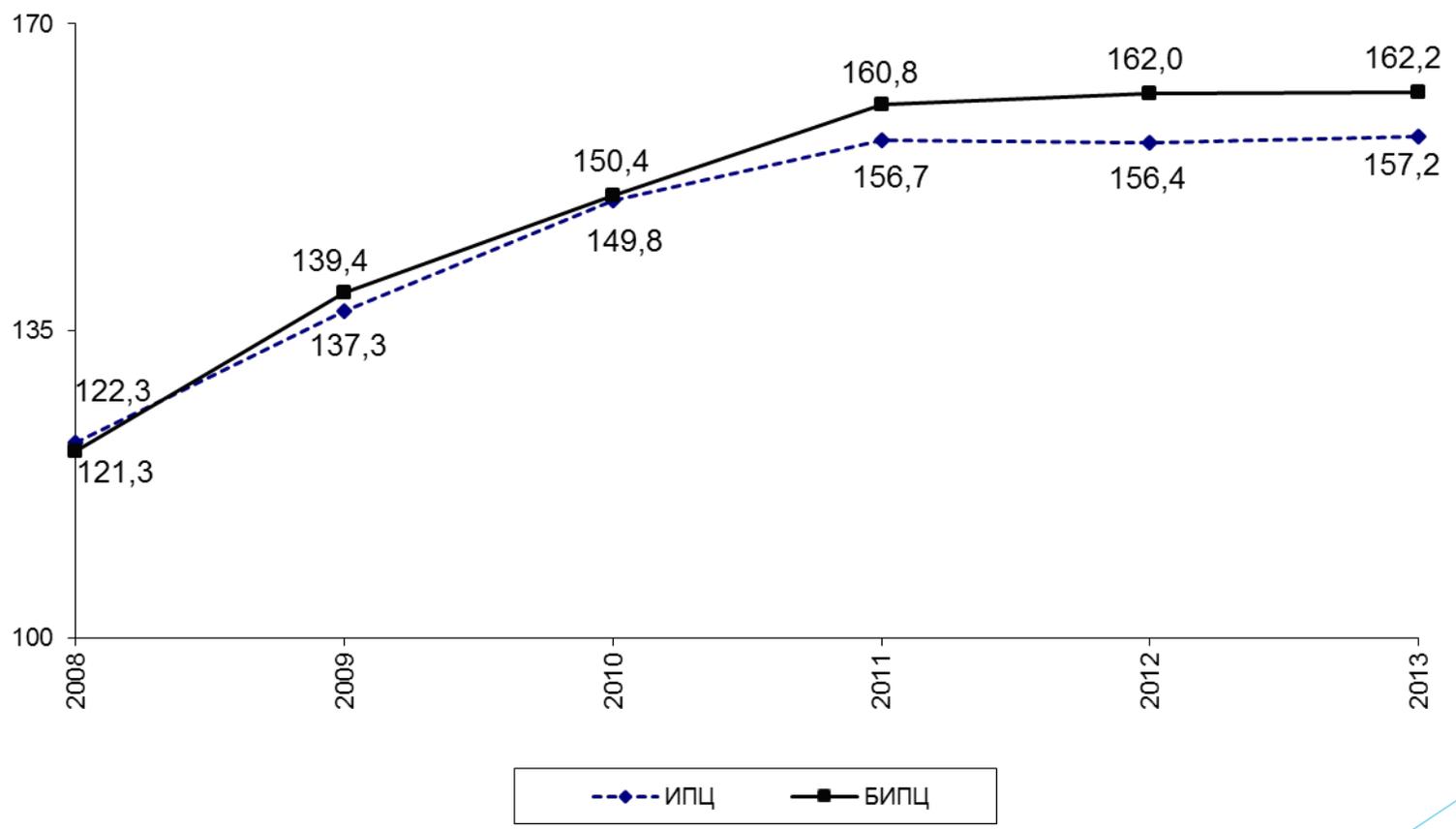
CPI and Core CPI in Ukraine

(December to December of the previous year; percent)

	Increase/decrease (-)	
	CPI	Core CPI
2008	22,3	21,3
2009	12,3	14,9
2010	9,1	7,9
2011	4,6	6,9
2012	-0,2	0,8
2013	0,5	0,1

State Statistics Service of Ukraine

CPI and Core CPI in Ukraine in 2008-2013

(to December of 2007; percent)

Thank you for attention!