

TWINNING CONTRACT

Development of new statistical methodologies and indicators in selected areas of statistics in line with EU statistical standards

Ukraine



MISSION REPORT

on

Component no 4.1


Harmonised Index of Consumer Prices

Action 4.1.1: Assessment on Introducing HICP in Ukraine.

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List of Abbreviations

ToR	Terms of Reference
SSSU	State Statistics Service of Ukraine
HICP	Harmonized Consumer Price Index
CPI	Consumer Price Index
HBS	Household Budget Survey
BC	Beneficiary Country
MS	Member State
COICOP / HICP	Classification of Individual Consumption According to Purpose dedicated to HICP through HICP regulation no. 1749/1999

Executive Summary

SSSU is producing a CPI of very high quality in line with international standards.

In many aspects the Ukrainian CPI is already in line with the requirements for an HICP but some changes need to be implemented if the CPI should be a HICP. These changes especially concerns the weights used in the compilation of the CPI but also some other minor areas.

1. General comments

This mission report was prepared within the Twinning Project „Development of new statistical methodologies and indicators in selected areas of statistics in line with EU statistical standards”. It was the first mission to be devoted to HICP within Component 4.1 of the project. The mission was aimed at defining a strategic plan forming the base of the further implementation of the project in this statistical area.

The concrete objectives of the mission were:

Getting familiar with:

- organization of statistical observation on change of prices (tariffs) for consumer goods (services) and the CPI calculation methodology in Ukraine;
- data sources that are used for the generation of weight structure and consumer set of goods (services) – indices.

The consultants would like to express their thanks to all officials and individuals met for the kind support and valuable information which they received during the stay in Ukraine, and which highly facilitated the work.

This views and observations stated in this report are those of the consultants and do not necessarily correspond to the views of EU, SSSU or Statistics Denmark / Statistical Office of the Slovak Republic

2. Assessment and results

Very fruitful discussions with the BC Price Experts gave a good overview over the methodology and the working processes connected to the production of the Ukrainian CPI.

The Ukrainian CPI is currently compiled in line with international standards set out for the compilation of a CPI in the *Consumer Price Index Manual: Theory and Practice 2004* (ILO, OECD, Eurostat, United Nations, and the World Bank). The overall assessment of the quality of the Ukrainian CPI is that it is of very high quality and is already in line with most of the important requirements for calculating a HICP.

A detailed description of the methodology underlying the Ukrainian CPI is to be found in annex 3. The description in the annex is based on the findings of this assessment mission.

A presentation of the contents of the HICP regulations was given during the mission. The requirements that must be met in order to be able to call a CPI a Harmonized Consumer Price Index (HICP) were summed up under the headings:

- ☐ Scope
- ☐ Definition of Comparability
- ☐ Coverage
- ☐ Price concept
- ☐ Classification of consumption
- ☐ Index type
- ☐ Frequency
- ☐ Quality adjustments

- ☐ Weighting
- ☐ Sampling
- ☐ Timing
- ☐ Specific regulations for special areas of consumption

The presentation can be found in annex 4.

2.1 Assessment of the degree of compliance with HICP requirements for the Ukrainian CPI

In going through the assessment of the degree of compliance of the present Ukrainian CPI with the requirements for the HICP the headings from the above mentioned presentation was used

Scope

- The Ukrainian CPI covers all Ukrainian households' expenditure on goods and services. The HICP should however only cover expenditure made on the economic territory of the country (domestic concept), so expenditure by Ukrainians abroad should be subtracted from the weights and tourist's expenditure within Ukraine should in principle be added to the weights. **Partly in compliance** with existing HICP regulations.

Coverage

- **Mostly in compliance.**

Products and services should be included in the HICP if their share of total consumption exceeds 0,1 percent. This practise is used for food products in the Ukrainian CPI but for other products and services the borderline is set to 0,2 percent. This will have to be changed if a HICP should be produced.

Selected products and services discussed during the mission:

1. **Second hand cars** are not included in the Ukrainian CPI. Buying second hand cars from car dealers is assessed not to be widely spread in Ukraine as most second hand cars are sold on directly between private consumers. The latter should not be included in the HICP.
2. **Other second hand commodities** are not assessed to be significant in Ukraine.
3. **Kindergartens** of all kinds are included in COICOP group 10: Education. As Ukrainian children usually are 3 years old before starting in kindergarten and some teaching/preschool is taking place in the kindergartens this seems to be a reasonable approach. If the kindergartens were mainly used for day care they should be moved to COICOP 12.4: Social Protection.
4. **Rents** are included for apartments in the Ukrainian CPI. It is however difficult to get access to good price observations as the rental market to a large extent is "grey". Some Agencies are providing some data. The weight for rents only constitutes 0,8 percent of total consumption, so the problem is not a major concern.
5. **Mobile services** are covered using packages with a minute price for speaking. SMS, MMS and other services are not included in the sample. It is recommended to improve the sample for mobile services by including more packages and more services. Changes in price between packages could be estimated using some type of user profiles.

6. **Financial services** are covered using a percentage rate paid to the banks when paying for e.g. rent through the bank. A HICP regulation states how such financial services should be covered in the HICP (see specific regulations for special areas of consumption below).
7. **Health care** are covered by a representative sample of prices from private clinics. The prices are often published on websites. The consumer pays the full price as there are no subsidies. Public health care on the other hand are (officially) free are therefore not covered by the sample.
8. **Pharmaceuticals** are included by a representative sample of products. There is no prescription for most pharmaceuticals in Ukraine and also no subsidies.
9. **Waste collection** (COICOP group 04.4.2) is not covered as there are no prices for this. Ukrainians pay a fixed amount (depending on size of apartment etc.) to the government for housing services including waste collection.
10. **Internet shops** should in principle be included in the outlet sample to the extent that they gain a significant weight in where the consumption takes place. It is recommended to watch the area in the future and include internet shops if they become significant for consumer spending.
11. **Owner occupied housing.** This is not included into the HICP in Europe but a lot of work is going on to create price indices for OOH. However this topic is not the primary focus in this project because the OOH indices are not directly a part of the HICP (at present).

Price concept

- **Likely in compliance**
- According to HICP regulation no. 2601/2000, the price for services should be included into the index in the month when the service is consumed and not in the month when the service is purchased (if different from the month of consumption). SSSU should go through the services included in the CPI to determine where and if changes need to be implemented to be in compliance with this regulation. Areas where there could be differences in the time of the purchase from the consumption of the service are: airfares, package holidays, hotel services and recreation services.
- In case of a missing price from a particular outlet HICP regulation no. 1749/1996 states that the price may only be carried forward two months in a row for that particular observation. In the third month a substitute for the item should be found. This practise is already used in the Ukrainian CPI.
- Discounts should be included in the HICP (under some restrictions). This practise is already in use in the Ukrainian CPI.

Classification of consumption

- **In compliance.** The COICOP classification is applied in the Ukrainian CPI

Index type

- **In compliance** concerning both elementary indices (Jevons used) and aggregate indices (Laspeyres type used).

Frequency

- **In compliance.**

Quality adjustments

- **In compliance**
- SSSU are using implicit methods for quality adjustment on a case-by-case basis. When the old and new product is deemed to have comparable quality then the method of direct comparison is applied. Otherwise the method of overlap is used when it is possible to have a price for both products in the same month. If not bridged overlap is applied using a relevant price index. The procedures are deemed to be in compliance with the HICP requirements. To the extent possible, it is however recommended to look into more advanced and explicit quality adjustment methods (for instance option pricing or hedonics) for especially technological products. But more resources would probably be needed if such methods should be used in an ongoing production of the CPI.

Weighting

- **Partly in compliance**
- Weights must be reviewed and updated every year to be in compliance with HICP Regulation no. 1114/2010. This is already the case in the Ukrainian CPI.
- In connection to the requirements concerning weights it is also the overall requirement to take into account (preliminary) National Accounts data on consumption patterns of year t-2, except in exceptional and in duly motivated circumstances. SSSU is currently using data from the HBS from year t-1 for weights and should therefore look into whether it will be possible to use data from the national accounts when constructing the weights. SSSU is currently adjusting the data from the HBS in a number of ways to take account of for instance underreporting of alcohol consumption (using trade statistics) so SSSU should also look into whether use of data from National accounts would improve the quality of the weights at all. The weight on food products according to HBS is approx. 50 percent whereas it is approx. 35 percent in the National Accounts data. Such differences should be explained.
- New weights are implemented as soon as they are ready and therefore take effect from the Index in June. According the HICP regulations weight updates should take effect in the January index so the current procedure will have to be changed if a HICP should be produced.
- Regional weights are already in compliance with the HICP regulation requirement of them not being older than 7 years.

Sampling

- **In compliance**
- The sample in the Ukrainian CPI is constructed by using information from the HBS as well as trade statistics and other data sources. Advanced methods like probability sampling is being used for constructing the sample of outlets
- According to HICP regulation no. 1749/1996 new items must be included as soon as possible in the sample. The sample in the Ukrainian CPI is updated every 5 years but newly significant goods (and services) are included on a yearly basis.
- There are 335 elementary aggregates in the Ukrainian CPI and this is probably enough to ensure that there are sufficient elementary aggregates to represent the diversity of items within each category of the COICOP.
- The number of prices sampled for each item depends on the weight of the item and the price dispersion for the item in question.

Timing

- **In compliance**
- Prices for most goods and services are being sampled between the 1st and 28th of the month. For some products the full month is being used for price collection.

Specific regulations for special areas of consumption

- Prices for seasonal products in the Ukrainian CPI are handled by adding a “typical” within-season price in the first out-of-season month. In the following out-of-season months the price is being imputed using the price development of a corresponding product group. This is in line with the HICP regulation and is hence **in compliance**.
- The weight for insurances is to be a weight net of claims paid back to the household sector. It must be examined how the weight for insurances can be calculated in the Ukrainian case. Perhaps data from national accounts could be helpful here. **Not in compliance**.
- Service charges proportional to transaction values should be calculated on the basis of a representative unit value. Changes in this unit value can be estimated using a relevant price index and such changes should be shown as price developments in the HICP. The Ukrainian CPI contains service charges in financial services (e.g. 2 percent of amount paid through bank) and in this case it is recommended to adjust the unit value (1000 UAH) with for instance the rate of inflation before calculating the price paid to the bank. **Not in compliance**.

In the below example a consumer has to pay a fee of 2 per cent of an amount paid through the bank (e.g. payment for rent). A typical/average amount paid is 1000 euro in January. To get an estimate of the typical price in the following months the 1000 euro is carried forward using the development in a relevant index (e.g. the overall CPI). The price paid to the bank for the service in January then equals the 2 per cent of the typical amount. The following months are calculated in the same way using the actual percentage rate price (in June it changes to 2.5 per cent). The last line in the table below shows the prices paid to the bank as a price index.

Calculation of prices proportional to transaction values according to HICP Regulations, example:

	January	February	March	April	May	June	July
"Price" (percentage rate)	2	2	2	2	2	2,5	2,5
Inflation (overall CPI index)	100	101	101	101,5	102	101	101
Typical/average amount (Euro)	1000	1010	1010	1015	1020	1010	1010
Price paid to bank for transfer (Euro)	20	20,2	20,2	20,3	20,4	25,25	25,25
Price index for financial service	100	101	101	101,5	102	126,25	126,25

- According to HICP regulation no. 1687/98 where goods and services have been available to consumers free of charge and subsequently an actual price is charged, the change from zero to the actual price - and vice versa - should be taken into account in the HICP. This could for instance happen regarding health services. SSSU needs to be aware of this in case such a situation should arise.

3. Conclusions and recommendations

SSSU is producing a CPI of very high quality in line with international standards set out for the compilation of a CPI in the *Consumer Price Index Manual: Theory and Practice 2004* (ILO, OECD, Eurostat, United Nations, and the World Bank). In many aspects the Ukrainian CPI is already in line with the requirements for an HICP but some changes need to be implemented if the CPI should be a HICP. These changes especially concerns the weights used in the compilation of the CPI but also some other minor areas.

On the background of the findings in this mission the following recommendations and concerns regarding a HICP for Ukraine have been drawn up in close cooperation between the BC Price Experts and the MS Price Experts. The recommendations are listed in prioritised order.

1:

SSSU perhaps involving the political level has to decide on one of the following options:

- Continue to produce a CPI (but perhaps implement some of the recommendations presented below)
- Change the CPI to a HICP by implementing all the recommendations
- Produce both a CPI and a HICP

2:

New weights must take effect in the January index and not as currently in the June index to be in line with HICP requirements.

It is recommended to consider the impact of this change by recalculating past indices where the introduction of the weights have been postponed to December (taking effect in January).

3:

The weights are currently based on HBS data but the HICP COMMISSION REGULATION (EU) No 1114/2010 state that data from National Accounts should be used except in exceptional and in duly motivated circumstances.

It is recommended to examine whether data from National Accounts could be used for compiling the weights. In this regard differences between the two data sources should be explained.

A two-step procedure where national accounts data are used at an aggregated level and HBS data below this level is often applied in EU-countries.

4:

The Ukrainian CPI covers all Ukrainian households' expenditure on goods and services.

The HICP should however only cover expenditure made on the economic territory of the country (domestic concept that is defined by COUNCIL REGULATION (EC) No 1688/98), so expenditure by Ukrainians abroad should be subtracted from the weights and tourist's expenditure within Ukraine should in principle be added to the weights.

It is recommended to look into how weights could be modified to be in line with the domestic concept. Perhaps use of National Accounts data could solve the problem?

5:

Products and services should be included in the HICP if their share of total consumption exceeds 0,1 percent according to COUNCIL REGULATION (EC) No 1687/98 . This practise is used for food products in the Ukrainian CPI but for other products and services the borderline is set to 0,2 percent. This will have to be changed if a HICP should be produced.

It is recommended to analyse what effect such a change would have by looking at data from earlier periods.

6:

According to HICP regulation COMMISSION REGULATION (EC) No 2601/2000, the price for services should be included into the index in the month when the service is consumed and not in the month when the service is purchased (if different from the month of consumption).

It is recommended that SSSU is going through the services included in the CPI to determine where and if changes need to be implemented to be in compliance with this regulation.

Areas where there could be differences in the time of the purchase from the consumption of the service are: airfares, package holidays, hotel services and recreation services.

7:

The weight for insurances has to be a weight net of claims paid back to the household sector (COMMISSION REGULATION (EC) No 1617/1999).

It is recommended to find out how the weight for insurances can be calculated in the Ukrainian case in line with this requirement.

Perhaps data from National Accounts could be helpful here?

8:

According to HICP COMMISSION REGULATION (EC) No 1920/2001 service charges proportional to transaction values should be calculated on the basis of a representative unit value. Changes in this unit value can be estimated using a relevant price index and such changes should be shown as price developments in the HICP.

The Ukrainian CPI contains service charges in financial services (e.g. 2 percent of amount paid through bank) and in this case it is recommended to adjust the unit value (1000 UAH) with for instance the rate of inflation before calculating the price paid to the bank.

9:

It is recommended to improve the sample regarding mobile phone services.

Currently only price per minute of conversation is covered but it is recommended to also cover other types of services (SMS, MMS etc.) and other types of packages (e.g. ones where you pay a fixed monthly price and then for instance conversation is free).

Price changes between packages could be assessed using some type of user profile.

The international CPI manual, chapter 10, has some good views on this.

However the current weight of mobile services in the Ukrainian CPI is only approx. 0.2 per cent so this recommendation is not very important at the moment.

10:

Internet shops should in principle be included in the outlet sample to the extent that they gain a significant weight in where the consumption takes place.

It is recommended to watch the area in the future and include internet shops if they become significant for consumer spending

11:

The current procedures for quality adjustment in connection with product replacements in the sample in the Ukrainian CPI are deemed to be in compliance with the HICP requirements.

To the extent possible, it is however recommended to look into more advanced and explicit quality adjustment methods (for instance option pricing or hedonics) for especially technological products. But more resources would probably be needed if such methods should be used in an on-going production of the CPI.

Concerns:

1:

Currently the head office does not have direct face to face contact with the regional offices and the price collectors. In the past the head office went to the regional offices from time to time to educate the price collectors and discuss methodological matters.

If such procedures are not implemented again the high quality of the Ukrainian CPI could potentially be at risk as the quality of a CPI to a large extent depends on the work carried out by the price collectors.

2:

There is a very short time span for production of the CPI in the head office. Data are received at the end of the month and are published the 6th the following month.

Furthermore the head office only receives average prices with no detailed product descriptions. Detailed data are only received once a quarter after the end of the production period.

It would be beneficial if the head office could get access to data faster and in more detailed form. This would likely require some new software solutions.

The table below gives an overview of the tasks in connection with the above recommendations to be completed before the next mission to Slovakia in November 2012 and the final mission in Ukraine in March 2013.

Action	Deadline	Responsible person
Examine the impact of changing the borders for including products/services in the sample (recommendation no 5)	November 2012	SSSU
Analyse whether the timing of including services in the sample should be changed (recommendation no 6)	November 2012	SSSU
Study data from national accounts in close cooperation with colleagues from national accounts and reach conclusion regarding if and how such data	March 2013	SSSU

can be used for compiling weights (recommendation no 2, 3, 4 and 7).		
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Annex 1. Terms of Reference



Terms of Reference

for Short-term Mission to the State Statistics Service of Ukraine

Component 4.1: Harmonised Index of Consumer Prices

Action 4.1.1: Assessment on Introducing HICP in Ukraine.

Background information

Statistics Denmark in partnership with Statistics Finland, Statistics Lithuania, Central Statistical Bureau of Latvia, Statistical Office of Slovak Republic, INE Spain - National Statistical Institute of Spain and Statistics Sweden, implements in Ukraine "Development of New Statistical Methodologies and Indicators in Selected Areas of Statistics in Line with EU Statistical Standards" Twinning Project. The State Statistics Service of Ukraine (State Statistics of Ukraine) is the Beneficiary of this Project).

This action is being implemented under Component 4.1: Harmonised index of consumer prices. The purpose of this Component is to study the experience and practice of HICP calculation in the EU, including standards on elementary index formulas calculation, the procedure of reflecting in the index tariff prices, discounts, seasonal goods and housing services produced by owners of housing for their own consumption, control of price information quality, etc. The final stage implies determining changes of the national CPI calculation methodology, which are necessary for implementing HICP calculations in the statistical practice of Ukraine.

This action will contribute to achieving the abovementioned objective and reference indicators specified in the contract, namely:

- improving expertise and practical skills of State Statistics of Ukraine on HICP calculation standards;
- developing a draft methodology on HICP calculation for seasonal goods, taking into account discounts, adjusting goods (services) quality.

Purpose of the Mission

The prior purpose of the mission is:

Getting familiar with:

- organization of statistical observation on change of prices (tariffs) for consumer goods (services) and the CPI calculation methodology;
- data sources that are used for the generation of weight structure and consumer set of goods (services) – proxies.

Expected Results

1. Receiving expert recommendations on how to use data sources (from those available) to generate the weight structure, the consumer set of goods (services) – proxies.
2. Receiving from experts methodological recommendations on the list of priority prices needed for ensuring the compliance of HICP methodology in the EU.
3. Getting methodological and methodical assistance aiming at familiarising the SSSU with HICP calculation standards.

Actions

The tentative schedule of the mission is the following:

Date: 17.09.2012

Date: 21.09.2012

Other

Tasks to be fulfilled by SSSU to facilitate the mission

The Beneficiary will ensure the following:

Attendance of division managers and executives directly engaged in organization, implementation and improvement of the methodology of statistical observations on changes of consumer goods (services) price and calculation of indices.

Consultant and Partner

The mission will be conducted jointly with:

Martin Birger Larsen (Denmark)

Olga Kosseiova (Slovak Republic)

The partner from the country-beneficiary will be:

Kalabukha O.S., Director of Department for Price Statistics of the State Statistics Service of Ukraine;

Shkurkska I.Y., Deputy Director of Department for Price Statistics;

Profatska N.V., Head of Division for Consumer Price Statistics.

Timing

The mission will be conducted from September 17 to 21, 2012 in Ukraine.

Report

The summary report on the results of the mission should be submitted not later than two weeks after the mission is completed.

Annex 2. Persons met

SSSU:

Kalabukha O.S., Director of Department for Price Statistics of the State Statistics Service of Ukraine;

Shkurkska I.Y., Deputy Director of Department for Price Statistics;

Profatska N.V., Head of Division for Consumer Price Statistics.

RTA Team:

Irina Bernstein, RTA

Volodymyr Kuzka, RTA Assistant

Anna Chornous, Interpreter

Annex 3. The Ukrainian CPI

(based on IMF SDDS for Ukraine; Methodological guidelines on organizing statistical surveillance over change of prices (tariffs) on consumer commodities (services) and the core consumer price index calculation and own findings)

Concepts and definitions:

Consumer price index (CPI) describes time changes of the general level of prices for consumer goods and services purchased by population for household monetary consumption. The index shows the changes of the value of the fixed set of consumer goods and services in the current period versus the base period.

The methodology for the CPI compilation meets the general standards of the Consumer Price Index Manual: Theory and practice 2004 (ILO, IMF, OECD, Eurostat, United Nations, World Bank).

Scope:

- **Population coverage:** The CPI calculation is based on the consumer expenditure structure of all population.
- **Goods coverage:** The consumer basket underlying the CPI computation is unified for all 27 country regions and includes the goods and services that are the most representative and important for all households. The consumer basket contains 335 representative commodities /services.
- **Geographical coverage:** Observation on prices (tariffs) changes is conducted in all 27 regions of the country. Information on prices (tariffs) is collected in 140 selected administrative and territorial units, regional centers, cities of Kyiv, Simferopol, Sevastopol and others, which are chosen on the base of stratified multilevel sample with the elements of probability proportionate to size.

Sample of urban settlements where the observation of the goods (services) prices (tariffs) changes is conducted is carried out at the central level and is representative for the CPI calculation for each of 27 country regions.

Exceptions to coverage:

- **Geographical coverage:** Observation of prices (tariffs) changes is conducted in urban areas, it is not conducted in the rural settlements (but CPI weights are compiled using the consumer monetary expenditures of all (urban and rural) households).
- **Goods coverage:** Goods (services), which are bought for the purpose of accumulation (antiquities, works of art, antiquarian jewellery, etc.), investment (purchasing of dwelling, land and other tangible and intangible assets), savings, direct taxes payment, fees into the Pension Fund, life insurance, penalties are not included into consumer basket. Credit sale on the base of deferred payment, second-hand sale, goods (services) made for own consumption are also not included.

Classification:

CPI computation is based on COICOP classification (Classification of Individual Consumption by Purpose).

Prices:

Types of prices: Actual price on goods (services) is registered; including taxes that population pays (VAT, excise-duty and other indirect taxes). Prices are registered from 1st to the 25th day of each month. For specific goods (with significant share of expenses for their purchasing in general consumer expenditures of households and prices that are considerably variable during the month) price registration is conducted during a whole month. The following commodities are chosen for price collection for a whole month: Beef, Pork, Poultry, Frozen fish, Sunflower oil, Milk, Eggs, Sugar, Wheat flour, Rye bread, rye and wheat bread, Rice, Buckwheat cereals, Macaroni, Petrol.

Data sources:

Sources of weights: The weights for 335 commodities and services are derived from annual [household budget survey \(HBS\)](#). The survey data are used to check and correct the weights every year. It should be noted that weights reflect consumption pattern specific for period close to price observation. The new weights are implemented in June every year (this practise was introduced some years ago to use the updated information on weight structure as soon as it is available). Concept of CPI weight calculation is focused, first of all, on the expenditures of residents, not on the expenditures within the country territory (national concept). The weight structure is compiled separately for every of 27 country regions.

For calculation of consumer prices indices by regions, weight coefficients calculated at the level of 8 economic districts are used. Weight coefficients for each of the economic districts are calculated on the base of data on consumer monetary spendings of all households in view of HBS results. Methodological principles of forming the system of weight coefficients are uniform for all economic districts.

Weight coefficients by economic districts are used for calculation of CPI by every region that is included into the respective economic district. The city of Kyiv because of its special status and a different consumption model is surveyed as a separate district, thus the Central district is divided into two: Kyiv and Kyivska and Cherkaska Oblasts.

Economic district	Regions included into it
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Eastern	Kharkivska, Poltavska, Sumska Oblasts
Donetsky	Donetska, Luganska Oblasts
Prydnirpovsky	Dnipropetrovska, Zaporozhska, Kirovogradska Oblasts
Prychornomorsky	Autonomous Republic Crimea, Odeska, Mykolaivska, Khersonska Oblasts, city of Sevastopol
Podilsky	Vinnitska, Khmelnytska, Ternopilska Oblasts
Central	Kyivska, Cherkaska Oblasts
Carpathian	Zakarpatska, Ivano-Frankivska, Lvivska, Chernivetska Oblasts
Polisky	Volynska, Zhytomyrska, Rivnenska, Chernigivska Oblasts
city of Kyiv	city of Kyiv

Calculation of weight coefficients is conducted stage-by-stage and has a number of specific features.

The main steps of calculation are:

- establishing accordance between cost items of HBS and representative commodities (services) of the consumer basket;
- de-aggregation and redistribution cost items of HBS in accordance with the consumer basket and defining the detailed scheme of households' cost items distribution by the consumer basket items;
- correction of separate cost items of HBS using additional data sources.

Assessment of weights from HBS data: For some items and groups such as for instance alcohol, tobacco, mobile and communication, weights are not calculated using HBS data only but are assessed using also turnover data from other sources

Outlet selection and sample size: The observation on prices on goods / services changes (price collection) is conducted for selected number of outlets. For outlets selection advanced stratified multistage sampling method with probability proportional to size is used. The selection of outlets is executed by registrars of state statistics bodies in line with the recommendations of the State Statistics Service of Ukraine. SSSU also defines the number of price quotes on representative commodities. This approach is supposed to use HBS and retail trade data. The outlet sample is well elaborated using the advanced methods; large (hypermarkets, supermarkets), medium and small trade and services outlets are selected in every urban settlement, located both in the central part of urban settlement and those distance from the centre, i.e. those with different trade (servicing condition). It is possible to incorporate changes in selection of outlet due to the changed outlet network every year (e.g. if outlet closes down or loses a significant part of its market). The number of outlets where prices are registered monthly is more than 23 thousand.

Item selection and sample size: The consumer basket of representative commodities (services) on the basis of which surveillance over prices (tariffs) changes are conducted and CPI is calculated is uniform for all regions of the country (though weight structure differs in these 27 country regions to enable to calculate regional indices). The basket is defined in a centralized way by the Department for Price Statistics of the State Statistics Service of Ukraine (SSSU) in view of suggestions of territorial state statistics bodies, coordinated with interested economic institutions, trade unions, research facilities., remains unchanged during a

set period of time and is the starting point for selection of concrete commodities and services for prices registration in regions.

Process for selecting of goods and services is implemented based on the household budget survey data; a criterion for inclusion of new commodities into the consumer basket is their share in the total consumer spending of households - no less than 0,1 % for food and 0,2 % for non-food products. In every region price is registered for each of 335 representative commodities /services). On every representative commodity the predefined quota is defined taking into account the size of the center (e.g. different number of prices is collected in Kyiv, Simferopol, Sevastopol, cities and rayon centers) and the turnover in the given size of outlet (hypermarkets, supermarkets, medium and small outlet). For CPI compilation about 450 thousand registered prices are used every month.

Price collection methods: Data are mainly recorded by price collectors through paper reporting forms by visiting selected retail outlets. Registration of prices of the same concrete commodity (good/service) in the reporting month at the same baseline enterprise is conducted on the same days of the month as in the previous month. The variation can make no more than 1-2 days. Registration of prices on fresh produces in the market (for example, vegetables, fruit, milk and dairy products, fish, etc.) is conducted in the part of the day when the greatest number of purchases is made. Tariffs (which are the same for the whole country) such as communications, electricity, gas, etc. are recorded directly in the central office. Starting with the year 2012 the areas in which the prices are difficult to observe (such as rents and babysitting) were included into the consumer basket.

Item/product specification:

The set of goods and services (with corresponding definitions) is the same for all 27 country regions for their price registration. For each item, the description contains the full name of the commodity, country and producing enterprise, brand, sort, type, size of the container, etc. For most of the goods and services, loose specifications of items are provided to price collectors with instructions to select the most popular variety. The price collector has to select the most popular variety and mark additional characteristics in the form for registration of prices. The form consists of two sections: section A (trade, service enterprises (facilities) of all forms of ownership) and section B (markets). Prices on food and non-food products realized at organized markets by legal entities are included into section A, by individuals – into section B. Prices (tariffs) on services are only included in section A.

Statistical techniques for missing prices, seasonal products etc.:

Treatment of missing prices:

The following situations are possible in the consumption market:

- a commodity (service) is temporally absent;
- a commodity (service) has disappeared for ever;
- a commodity (service) is present in the market, but volumes of its realization gradually reduce.

In the case of (temporally absent) absence during the reporting month of the selected type of a commodity (services) at the baseline enterprise (at availability of information about that realization will be renewed in the future), calculation price defined based on one of the following methods is used:

- a) the price of the previous month is automatically carried on to the reporting month (provided a stable price situation);
- b) with application of the price index on a similar commodity (service) – it is intended to use this b) option as default in future

In the event a commodity disappears from sale forever or undergoes significant transformation, its replacement is carried out:

Selection of replacement items and Adjustments for quality differences (Quality Adjustment):

The replacement commodity is selected from among commodities with similar consumer qualities, thus, the main replacement criterion is volumes of sales of the "new" commodity. For the purpose of providing for a correct replacement, parallel registration of prices on "old" and "new" commodities is conducted during two or three months, and in this period in indices calculations prices on the "old" commodity are included. The final replacement of the commodity is carried out provided there is stably growing demand on the part of the population and permanent availability of the "new" commodity in the consumption market. Replacement and/or Quality Adjustment (QA) is carried out applying one of the following methods:

The method of direct replacement (direct price comparison) is used in the case of availability in the assortment of commodities offered by the outlet of a commodity with similar properties and consumer descriptions. Thus, replacement of the good/service is conducted by including into the form a detailed description of the "new" good/service and its price. When applying this method, the price of the "new" good/service is directly compared with the price of the "old" good/service and takes part in a calculation of the index for the reporting month.

For using the chain (bridged overlap) method, it is necessary to find a new commodity that does not have big differences from the old one and obtain the price on it for the previous month. This method is based on the assumption that, as the both commodities are for sale simultaneously, the difference in price between them proves a difference in quality. I.e., the good/service the price of which shall be registered disappeared and does not have a direct substitute, but there is a good/service close enough to the old one, the price on which is known for the previous month. Thus, the "old" commodity is replaced with the "new" one.

The use of implicit QA methods is well defined, explicit QA methods are not used at present.

Introduction of completely new products: Though consumer basket is updated every 5 years, newly significant goods/services are included every year if necessary.

Seasonal items: The treatment of seasonal items in CPI was recently changed – the method of imputation of prices in the out-of-season period was introduced for fruit and vegetable.

Other statistical procedures, index formulae used etc.:

Time period of current weights (that were introduced in June 2012): 2011

Frequency of weight updates: Every year.

Computation of lowest level indices: Indices of the lowest level are computed according to the geometric average unweighted formula (the implicit price weighting is assured by the predefined number of price quotas registered in the given type of outlet and/or in the given region). For selected goods (services) average prices calculation made by weighted arithmetic mean formula. Individual price indices and average prices of every good (service) are the basis for computing the CPI on the national and regional level. The regional

state statistics bodies calculate individual indices for each item and submit reports to the State Statistics Service of Ukraine.

Aggregation: Modified Laspeyres formula is used for indices aggregation. The aggregation aims to compile the commodity group indices and the general CPI.

Linking reweighted index to historical index: The new reweighted index is linked to the historical one.

Reference period: The base period for the CPI: 2007 = 100.

Historical data: The current CPI methodology was introduced in 1994. The data calculated by both previously and current methodology are comparable.

Seasonally adjusted indices: No seasonally adjusted indices are calculated.

Data validation:

- **Verification of prices:** Information on prices is carefully verified on accuracy and reliability after the registration at outlets. If necessary, additional clarification and verification are conducted, and the character of errors is clarified.
- **Verification of data processing methods:** For the verification of the CPI calculation on the different stages of processing output data control method is used.

Registrars (price collectors) of state statistic bodies control the accuracy of the observations conducting regular verification of the registration forms on consumer goods (services) prices, gained from urban settlements.

Control includes the following components:

Timeliness of the registration forms compilation;

- Explanations regarding unusual or considerable price changes;
- Availability, if necessary, of recalculation into standard unit;
- Replacement of items.

Periodicity and timeliness of CPI:

Periodicity: Monthly

Timeliness: CPI data are published on the 6th calendar date of month following the month to which CPI data are related (if it Saturday or Sunday the publication is shifted by one day).

Consistency:

Internal consistency: Comparability of statistical indicators provided by the unity of compilation methodology, input complexity and indicators mutual verification.

Temporal consistency: CPI compilation methodology ensures the comparability and consistency of indices over any time periods.

Integrity:

Professionalism: The principle of professional independence and autonomy of the state statistics is specified by Article 5 of the Law. Article 12 of the Law states that one of the main tasks faced by the state statistics bodies is as follows: ensure reliability and impartiality of statistical information; ensure accessibility, transparency and openness of statistical information, its sources and methodology to compile it. According to Article 14 of the Law, one of the main tasks faced by the state statistics bodies is to ensure the openness of statistical information, publication of statistical yearbooks, abstracts, bulletins, reviews, express-releases, etc., to conduct the press-conferences, to ensure equal access to statistical information for legal and physical persons. In case of misinterpretation or misuse of statistical data, the SSSU gives their comments to mass media that made mistakes (distortions) when interpreting statistical information for its further publication

Revision:

CPI data are final and not subject to revision.

Data accessibility:

An advance release calendar (ARC), which gives a one-quarter-ahead notice of the approximate release dates, is disseminated on the SSSU website (<http://www.ukrstat.gov.ua>). The precise release date is announced in the ARC no later than the end of the week prior to the data release.

Data are published on the SSSU website, in the monthly news release *Price Indices* and disseminated simultaneously to all interest parties by mail, e-mail or fax.

CPI data and price indices for specific goods /services for any period of time can be provided on requests. Intermediate information used for calculation of aggregated statistics is not provided on requests.

Disseminated level of detail:

CPI data for Ukraine and its regions along with detailed information by groups and some goods (services) are available. This information is published in *Statistical Yearbook of Ukraine*, short statistical abstract *Ukraine in Figures*, *Monthly Statistical Bulletin*, publication *Consumer Price Indices*, on the SSSU website.

Dissemination of information on contact points:

Information on responsible CPI contact persons can be obtained in statistical publications and on the SSSU website.

Availability of documents and services catalogs:

The Catalogue of Publications is sent to users of statistics and is available at the SSSU website.

Metadata:

Description of the CPI methodology and data sources is provided in the *Methodology for Statistical Survey of Changes in Consumer Prices of Goods and Services and CPI Computation*, annual statistical publication *Consumer Price Indices*, and on the SSSU website.

Annex 4. HICP Regulations; Presentation



HICP Regulations

In force:

- 19 different HICP Regulations
- 1 HICP Recommendation

Issued in the period 1995 til 2010

On the way:

- 2 more HICP Regulations

On going proces to refine and improve the HICP.
Initiative by Eurostat, Member States and often the ECB

Overview of contence of HICP regulations

- The set of HICP regulations marks out the legal framework for the HICP index through regulating:
 - ☐ Scope
 - ☐ Definition of Comparability
 - ☐ Coverage
 - ☐ Price concept
 - ☐ Classification of consumption
 - ☐ Index type
 - ☐ Frequency
 - ☐ Quality adjustments
 - ☐ Weighting
 - ☐ Sampling
 - ☐ Timing
 - ☐ Specific guidelines for special areas of consumption

Scope

"The HICP shall be based on the prices of **goods** and **services** available for purchase in the **economic territory** of the Member State for the purposes of **directly satisfying consumer needs**."

Economic territory is defined including extraterritorial enclaves situated within the boundaries of the country and excluding territorial enclaves situated in the rest of the world.

HICP is an **inflation index**

The **HICP can either replace the national CPI or it can supplement it**. Most EU countries have both indices serving different purposes.

The EU Member States moved towards an HICP through the production of an **interim HICP** based on existing data and excluding/postponing the more difficult areas.

Comparability

Not comparable:

HICPs that differ on account of differences in the concepts, methods or practices used in their definition and compilation

Comparable:

HICPs that reflects only differences in price changes or consumption patterns between countries

Methods that can prove to give indices that on the average yearly change differ by less than 0,1 pct. point, when compared to the methods stated in the Regulations

Coverage

Household final monetary consumption:

HICP covers only Household final monetary consumption:

Includes (e.g.):

- material for small repairs of dwellings typically carried out by tenants
- consumer durables
- repair of consumer durables
- financial services directly paid
- non-life insurance services by the amount of the implicit service charge
- expenditure financed out of non-life insurance claims

Excludes (e.g.):

- own produced commodities,
- public goods
- purchase of owner occupied housing,
- services from owner occupied housing
- interest payments,
- investments
- fines and penalties
- life insurance and pension funding services
- Products excluded: Games of chance, FISIM, narcotics

Coverage (cont.)

Must cover the consumption of all parts of the population:

- all parts of the income distribution
- all parts of the country

- irrespective of nationality or residence status
- individuals living in institutional households

COICOP-HICP:

- HICP shall include price indices and weights for each category given in **COICOP-HICP** (except named exclusions)

When to include a product:

- A product must be included in the index when it accounts for **more than one part in a thousand** of the total expenditure covered by all the categories.

Prices

What prices:

Purchase prices paid by households to purchase individual goods and services in monetary transactions

When to include prices:

- **Goods:** In the month when the price is observed

- **Services:** In the month in which the consumption of the service at the observed prices can commence.

Prices (cont.)

Price reductions:

HICP must take account of price reductions that:

- attributed to the purchase of an individual good or service and
- are available to all potential consumers with no special conditions attached and
- are known to the purchaser at the time of the purchase and
- can be claimed at the time of the purchase

Prices (cont.)

Missing prices

Monthly observations:

- estimates can be used for the first or second month but replacement prices shall be used for the third month

Observations less frequently than monthly.

- estimates can be used for the first period but replacement prices shall be used for the second period

Classification of consumption

Classification in force:

COICOP-HICP
4 digit level

Classification under preparation:

COICOP-HICP/HBS/PPP (under preparation)
5 digit level

NB!

Some goods and services are in the classification but are not part of the HICP requirements.

Index types

Elementary aggregates:

Jevons index:

$$I_w = \prod \left(\frac{p_t}{p_0} \right)^{\frac{1}{n}} = \frac{\prod (p_t)^{\frac{1}{n}}}{\prod (p_0)^{\frac{1}{n}}}$$

Dutot index:

$$I_w^D = \frac{\frac{1}{n} \sum p_t}{\frac{1}{n} \sum p_0} = \frac{\sum (p_t / p_0) p_0}{\sum p_0}$$

- Chaining of elementary indices is permitted
- The arithmetic mean of price relatives can not automatically be used (upward biased when chaining)

Aggregated indices:

Laspeyres type index:

$$\begin{aligned} I_{01}^{La} &= \frac{\sum p_1 q_0}{\sum p_0 q_0} = \frac{p_0 q_0}{\sum p_0 q_0} \sum \frac{p_1}{p_0} \\ &= \sum w_0 \frac{p_1}{p_0} \end{aligned}$$

Frequency

Price collection:

- shall be carried out once a month
- less frequent if assessed to still met the comparability requirements

HICP compilation:

- shall be compiled once a month

Quality adjustments

- Must be – in principle - based on explicit estimations of the value of the quality change
- Where no estimate is available the price change must be calculated as the difference between the price of the substitute and the replaced item.
- In no case should a quality change be estimated as the whole of the difference in price between the two items, unless this can be justified as an appropriate estimate.

Weighting

'Weighting reference period':

The 12-month period of consumption or expenditure from which the weights are estimated for the compilation of the latest HICP index figures.

- Weights used in the current year should be as representative as possible for consumers expenditure patterns in the previous calendar year.
- Revised yearly using National Accounts data from the year t-2
- National Accounts data can be supplemented with other relevant information from Household Budget Surveys or other credible sources

Weighting (cont.)

- Below sub-indices weights must not be older than 7 years.
- Weights must be price updated to December the previous year
- Change in weighing takes effect from the January index and HICP for previous years is not revised

Sampling

The sample

- shall be representative of products consumed
- shall represent the average prices in the calendar month
- shall take into account the price variability of the products
- shall have sufficient elementary aggregates to represent the diversity of items within the category

Timing

Price collection:

- Price collection shall take place across at least a one working week period near the middle of the calendar month to which the index pertains .
- For products known to typically show sharp and irregular changes within the same month (e.g. **energi and fresh foods products**) price collection shall take place over a period of more than one working week.

Regulations on special areas of consumption

- seasonal products
 - goods that are not available on the market all through the year or is bought in very small quantities
- health, education and social protection
- insurances
- tariffs
- service charges proportional to transaction values