



EU Twinning Project

Forwarding Armenian Statistics Through Twinning

AM09/ENP-PCA/TP/04

MISSION REPORT

on

INTRODUCTION OF THE HARMONIZED CONSUMER PRICE INDEX (HCPI)



ACTIVITY E1 AND E2;

**IDENTIFICATION OF ISSUES
AND DETERMINATION OF ALTERNATIVES**

Mission carried out by
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Armenia, 4 – 14 April 2011

Version: Final

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List of Abbreviations

HICP	Harmonized Consumer Price Index
CPI	Consumer Price Index
ILCS	Integrated Living Conditions 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
ToR	Terms of Reference
NSSRA	National Statistical Services of the Republic of Armenia

Executive Summary

After obtaining an overview of the methodology and the working methods connected to the CPI currently compiled for Armenia, the overall evaluation of the Armenian CPI is that it is of high quality and is a good starting point for producing an HICP.

However the combination of scarce human and IT resources makes it practically unachievable to compile a national CPI and an HICP at the same time. The resource shortage is also a threat to achieving compliance with the HICP requirements within the time frame of this twinning project in particular and in general in the longer run as well.

Taking this general concern into consideration a road map for this twinning project has been drawn up covering the steps towards the best possible HICP for Armenia. The road map is based on the identified differences between the current CPI of Armenia and the requirements for an HICP. The main points on the road map concern: Sampling, Quality Adjustments and Weighting.

Furthermore action points for BC Experts to work on before the next mission in this component of the twinning project has been identified.

An area of concern touched upon with BC Experts is the need for continuous communication with users during the project regarding the idea of the HICP and the differences between the current CPI and the HICP. The aim of the communication is to prevent public mistrust in official inflation figures from introducing an alternative inflation measure.

1. General comments

This mission report was prepared within the National Statistical Service of the Republic of Armenia. It was the first mission to be devoted to the identification of issues and the determination of alternatives within Component E: *Harmonized Consumer Price Index*, of the project.

The objectives of the mission were:

- To facilitate the awareness among the BC experts regarding the process towards an HICP for Armenia.
- To gain understanding of the production methods applied in the Armenian CPI and in particular regarding the regional level.
- To identify the changes needed for achieving compliance with the HICP methodology and regulations.
- To draw up a road map to the best achievable HICP for Armenia.

The consultants would like to express their heartfelt thanks to all officials and individuals met in the Armenian Statistical Bureau for the kind support and valuable information which they received during the stay in Armenia, and which highly facilitated the work of the consultant.

The views and observations stated in this report are those of the consultant and do not necessarily correspond to the views of Statistics Denmark.

2. Assessment and results

The purposes of the activities of this mission are:

- To present and discuss the EU regulations on the HICP
- To obtain a basic overview of the methodology and the working methods connected to the CPI currently compiled for Armenia
- To identify the main differences between the current CPI of Armenia and the HICP
- To point out the areas of the HICP where development is most needed, i.e. where the benefits of development would be most significant compared to the invested resources,
- To identify potential methodological constraints connected to the introduction of HICP
- To identify potential IT- and process related problems connected to the introduction of HICP
- To involve relevant external stakeholders in the discussions

Very fruit full discussions with the BC Price Experts gave an excellent overview over the methodology and the working processes connected to the production of the Armenian CPI.

The Armenian 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 Armenian CPI is that it is of high quality.

A detailed description of the methodology underlying the Armenian CPI is to be found in annex 4. The description in the annex is based on the IMF SDDS and is clarified and supplemented with the findings of this assessment mission.

A presentation of the contents of the HICP regulations was given to both internal and external stakeholders at a work shop during the mission. The requirements that must be met in order to be able to call a CPI a Harmonized Consumer Price Index 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 5.

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

In going through the assessment of the degree of compliance of the present Armenian CPI with HICP principles the same procedure was followed

Scope

- In compliance

Coverage

- Mainly in compliance. The following areas need to be included, watched or examined:
 1. **Car insurances** must be included if significant. Car insurances were introduced as mandatory in Armenia from 1 January 2011. Other kinds of insurance, apart from property insurances which should not be included in a HICP, are not presently widespread in Armenia, but should be watched.
 2. **Second hand cars** are not included in the Armenian CPI despite of the fact that many consumers buy second hand cars. The practice is however to buy second hand cars from other consumers or to go abroad to buy a second hand car. Neither should be included in a HICP. Buying second hand cars from car dealers is assessed not to be widely spread in Armenia, but the area should be examined more closely.
 3. **Other second hand commodities** are not assessed to be significant in Armenia.

4. **Kindergartens** of all kinds are included in COICOP 10: Education. This goes whether teaching is taking place in the kindergartens or whether it is merely a place for playing for the children. It should be examined whether the fraction of kindergartens where only playing is taking place is large enough for this kind of kindergartens to be moved to COICOP 12.4: Social Protection.
5. **Internet shops** should in principle be included. At present internet shops is a newly emerging field in Armenia, and they will have to be included into the HICP in the future as they are gaining a significant weight in consumption. The area must be watched.
6. **Owner occupied housing.** This is not included into the HICP in Europe but a lot of work is going on to either include it into the HICP or to create a stand alone House Price Index (HPI). The Armenian Statistical Services has access to data that appears promising in connection to the compilation of a HPI for Armenia. However this topic is not the primary focus in this project because an OOH regulation for the EU member states has not been passed at present.

Price concept

- 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 where the price is observed. NSSRA should go through the services included in the Armenian CPI to determine where changes need to be implemented to be in compliance with this regulation. An immediate evaluation points to areas like: airfares, package holidays, hotel services and recreation services; having to be changed.
- In case of a missing price from a particular outlet, the price is carried forward using the average price development for the same item from all other outlets in the same region. According to HICP regulation no. 1749/1996 such estimation may only take place two months in a row for that particular observation. In the third month a substitute for the item should be found. It should hence be ensured that missing prices are only estimated for a maximum of two months.

Classification of consumption

- The COICOP classification applied in the Armenian CPI is a national version of the COICOP classification which is not all together in compliance with the COICOP/HICP. NSSRA needs to re-classify weights and prices to meet the COICOP/HICP.

Index type

- In compliance concerning both elementary indices and aggregate indices.

Frequency

- In compliance, as long as price collection is not started at the end of the previous month, but takes place only during the month in question.

Quality adjustments

- In NSSRA the main method applied when bringing newly significant products into the CPI is the price overlap method. This method automatically excludes price changes in connection with the introduction of new products into the market. There is a clear need for more case by case judgements regarding quality adjustments in order to comply with the HICP requirements. If the quality of an old product leaving the sample and a new product entering the sample are deemed comparable then the method of direct comparison should be applied. If on the other hand the quality of the two products are deemed to be significantly different then the overlap method could be used. According to the HICP regulation the default method should be direct comparison.
- NSSRA pointed to the need to have a closer look at how to implement product changes for technological products. An example from the Danish HICP is mobile phones. If one of the two phones compared have a camera or possibility of sending emails while the other phone does not, then the quality is estimated to be different and the overlap method is used. If both phones are having the same important functions (camera, email, internet etc.) then they are treated as having the same quality and direct comparison is applied. Differences in e.g. number of pixels and minor functionalities are disregarded.

Weighting

- Weights must be reviewed and updated every year to be in compliance with HICP Regulation no. 1114/2010. In the Armenian CPI weights are presently updated every five years in compliance with international standards as these are given in the *Consumer Price Index Manual: Theory and Practice 2004*. It will be a huge task to reach compliance in this field.
- 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. In Armenia, National Accounts data for consumption is not divided into consumption groups and it is not an immediate objective of *Component C: Improvement of the Exhaustiveness of GDP* to change this in the space of this project. On this background it does not make sense to include National Accounts data into the updating of HICP weights and the ILCS is and should still be considered the main source for weights.
- The ILCS is based on a sample of between 5,000 and 8,000 households a year depending on the funding available. The households participating are paid 1,500 Drams for the considerable work. Rich households tend to refuse to participate in the ILCS and hence poor families are overrepresented in the ILCS. Therefore the consumption pattern of the poor will have too big an impact on the calculated HICP weights. Since no registers or other information exist that could be used for enumeration from sample to population in the ILCS a solution to this problem is not readily available.
- The ILCS is currently not using the COICOP classification and hence a good deal of manual work is required to make the ILCS data useful for the HICP weights. Discussions between the Prices and ILCS units on how to solve this have begun. It is recommended that the ILCS uses the COICOP / HICP classification in their work.
- Regional weights are already in compliance with the HICP regulation requirement of them not being older than 7 years.

Sampling

- According to HICP regulation no. 1749/1996 new items must be included as soon as possible in the sample. In general there are two different cases of new items: A new variety of an existing item and a completely new good/service. If an item leaves the sample (not sold anymore) then a new variety of the product should be selected as soon as possible and the necessary quality adjustments be made. Regarding completely new products (e.g. internet connection) they should also be included as soon as possible when identified as significant. The recommended solution is to update the sample once a year when introducing new weights.
- There are 470 elementary aggregates in the Armenian 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. However the number of items per elementary aggregate and the number of elementary aggregates for each COICOP category should be examined and it should be judged whether the diversity of products in the consumption area in question is duly represented in the sample to assess whether the specific requirement of HICP regulation no. 1749/1996 regarding sampling is fulfilled.
- It should be analyzed whether the sample (size) could be optimized. It is recommended to analyse the consequences of leaving out the price collection on the 1st of each month to save resources that could be used for other tasks. Similarly it should be examined whether it would be advantageous to collect more prices for some product types and fewer prices for other product types.
- The sample of products and services in the HICP should cover the expenditures of the full population including foreigners living in Armenia. Hence both luxury products and cheap products should be included in the sample to the extent that they are significant. It should be examined whether more high end products and services should be included in an Armenian HICP.

Timing

- In compliance

Specific regulations for special areas of consumption

- Prices for seasonal products in the Armenian CPI are estimated in the out-of-season period using the price development of a corresponding product group. The estimation takes place at the level of average prices for a particular item in a particular region. Very high prices when the item enters the in-season period are disregarded on the grounds that they are not representative. Hence the items are first considered in-season when the prices are at levels where significant volume of trade is taking place. Since the HICP regulation no. 330/2009 on seasonal products states that the estimation of prices during the out-of-season period should take place on the level of the individual price observation it should be examined whether estimation at the level of average prices is in fact a comparable method. This is expected to be the case.
- The weight for insurances is to be a weight net of claims paid back to the household sector. It must be examined how this weight for car insurances can be calculated in the Armenian case and then whether car insurance is significant following the HICP definition of constituting more than 1/1,000 of total consumption expenditure covered by the HICP.

- 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, then the change from zero to the actual price - and vice versa - should be taken into account in the HICP. This is in Armenia the case for e.g. medical services that have been provided free of charge for some consumers depending on their income level. When some of these consumers subsequently are required to pay the price increase from zero to the general price this should be taken into account.

As an example (see table below) a medical service costs 1,000 Drams in both the previous and the current month. In the previous month the government pays the service for all households with an income level below 200,000 Drams. In the current month the government only pays for households with an income level below 100,000 Drams. Hence households with an income level between 100,000 and 200,000 Drams have experienced a price increase even though the price of 1,000 Drams is unchanged. The price index has been calculated as the development in the weighted average prices paid for the service.

Income level	No. of households	Price last month	Price of current month
0 – 100,000	5,000	0	0
100,000 – 200,000	4,000	0	1,000
200,000 – 300,000	3,000	1,000	1,000
400,000 -	3,000	1,000	1,000

Index **100** **166,7**

Changes in prices due to such changes in subsidies from the government should be included in the HICP. Substantial difficulties are foreseen in connection to including these price changes into the index in practice, not least taking the resource constraints into consideration.

3. Conclusions and recommendations

3.1 Constraints connected to the introduction of a HICP for Armenia

All methodological work connected to the Armenian CPI is done by the staff of the Price Statistics and International Comparisons Division of the NSS. Devoted to the work on the CPI are two full time employees. This is clearly very limited resources on this work demanding task.

The technological support in the work is limited to work on mostly stand alone computers and the software available for calculations is Microsoft EXCEL only.

The combination of scarce human and IT resources makes it unachievable to compile a national CPI and an HICP at the same time. It is also a threat to achieving compliance with the HICP requirements within the time frame of this twinning project in particular and in general in the longer run as well.

Due to this quite a bit of effort in this Twinning Projects Component E must be devoted to optimizing production systems and work processes. Since this is the most obtainable way to release the necessary resources for compiling an HICP.

Price collection takes place in the regional statistical offices of Armenia and here the IT constraint is outspoken. In the Yerevan regional office 5 price collectors share one computer in their work. A circumstance that periodically gives rise to delays in the reporting of prices to the main office and thus putting added pressure on the scarce resources there compiling the index. The situation in the other regions of Armenia is similar or even worse.

From the point of view of scarce resources, the need to be clear in the communication with users and the similarities of the defined scopes of the Armenian CPI and the HICP it is recommended to produce only one of the two indices and that being the HICP. From the political point of view this recommendation must be considered in the NSSRA and a decision made during or after this twinning project.

On the background of the findings in the assessment part of the mission a Road Map for the way forward towards the best possible HICP for Armenia has been drawn up in close cooperation between the BC Price Experts and the MS Price Experts.

The major areas to work with during the project are: Sampling, Quality Adjustments and Weights. But there are other minor areas that must be given attention as well.

The Road Map is presented in detail in annex 6.

It is recommended during the entire project to work with communicating the characteristics of the HICP in comparison to the CPI. Differences must be explained and the reasons for introducing the HICP must be given. This recommendation is given on the background of experiences from within the EU where the credibility of the HICP has been questioned at different occasions, and communication issues thus have been given much attention as a consequence.

3.2 Action Points before the next mission

Tasks to be completed and prepared before:

Activity E3: Development of technical methodologies, 5 – 9 September 2011:

- Complete a variety of analyses concerning the effect of not conducting complete price collections on the 1st of every month. Prepare a presentation of the results for discussion.
If written material; have it translated into English.
- Consider and describe what the organizational changes are that will have to be made, if timing and methodology of the price collection is changed.
If written material; have it translated into English.

- Prepare for discussions on how to manage yearly updating of the sample, including the use of price collectors in assessing the representative products.
If written material; have it translated into English.
- Prepare material for going through the distribution of the 901 individual items on the 470 elementary aggregates and the linking of the 470 categories to the COICOP (current COICOP where you do not yet have the COICOP/HICP ready).
Preferable written material; have it translated into English
- Prepare material for going through the Armenian methods for quality adjustment in specific areas of consumption
If written material; have it translated into English
- Status on the ILCS applying the COICOP/HICP before the end of 2011.
- Status on the transfer from COICOP to COICOP/HICP

3.3 After the Twinning Project

The regulations governing the HICP continue to be developed and supplemented. On this background it is a matter of concern how to ensure compliance with the HICP methodology after the ending of this Twinning Project.

Annex 1. Terms of Reference

EU Twinning Project

Forwarding Armenian Statistics Through Twinning AM09/ENP-PCA/TP/04

Terms of Reference (E1+E2); 4 - 14 April 2011

Component A	Quality Management
Component B	Business Register, Structural Business Survey, and Respondent Burden
Component C	Improvement of the Exhaustiveness of GDP
Component D	Agricultural Census
Component E	<i>Harmonized Consumer Price Index</i>
Component F	ICT Society

Activity E1-2 Identification of issues / Determination of alternatives

1. Purpose of activity

The purposes of the activity are:

- To present and discuss the EU regulations on the HCPI;
- To obtain a basic overview of the methodology and the working methods connected to the CPI currently computed for Armenia;
- To identify the main differences between the current CPI of Armenia and the HCPI;
- To point out the areas of the HCPI where development is most needed, i.e. where the benefits of development would be most significant compared to the invested resources;
- To identify potential methodological constraints connected to the introduction of HCPI;
- To identify potential IT- and process related problems connected to the introduction of HCPI;
- To involve relevant external stakeholders in the discussions.

2. Expected output of the activity

The expected outputs of the activity are:

- An overview of the differences between the current CPI and the HCPI;
- A prioritized list of the changes needed to obtain the HCPI for Armenia as compared to the current CPI;
- A roadmap to the best achievable HCPI;
- A lining up of work programme for the next activity (E3);
- To decide upon the preferred timing of the next activity (E3).

3. Project Participants

Mr. Gagik Gevorgyan, Member of State Council on Statistics (BC Component Leader)

Mr. Gurgen Martirosyan, Head of Prices Statistics and International Comparisons Division

Ms. Mariam Yeritsyan, Main Specialist, Prices Statistics and International Comparisons Division

Ms. Kirsten Balling, Head of Prices and Consumption Division, Statistics Denmark (*MS Component Leader*);

Mr. Martin Birger Larsen, Senior Adviser, Prices and Consumption Division, Statistics Denmark.

External Stakeholders taking part in the activity

The Central Bank of Armenia; Ministry of Finance; Ministry of Economy; International organisations.

Annex 2. Programme for the mission

Time	Place	Event	Purpose/Detail
Monday, 4 April Morning	Congress Hotel	Meeting with RTA	To discuss the programme of the mission
Monday, 4 April Afternoon	NSSRA	Meeting with BC Experts	Basic overview provided by the BC Experts: The methodology of the current CPI. Recent and on-going developments.
Tuesday, 5 April	NSSRA	Meeting with BC Experts	The IT set up and the working processes of the current CPI. What are the strongest and the weakest points of the current system?
Wednesday, 6 April	NSSRA	<u>Morning:</u> Workshop with external stakeholders <u>Afternoon:</u> Meeting with BC Experts	Presentation of the most important aspects of the HICP regulations. Discussions of the experience in the European Union countries with the introduction of the HICP.
Thursday, 7 April	NSSRA	Meeting with BC Experts	Presentation of methods used in the Danish HICP. Sharing experiences and gaining a mutual understanding of the HICP methodology in practice
Friday, 8 April Morning	NSSRA	Meeting with BC Experts	Studying details in the Armenian CPI production system. Discussions on the major priorities when developing a HICP for Armenia. What may be the most and the less important areas? Is the HICP to replace or supplement the current CPI of Armenia
Friday, 8 April Afternoon	Visit to the regional office of Yerevan	Meeting with BC Price Collectors from Yerevan	Introduction to the work processes in price collection in Yerevan. How are missing prices and product replacements handled and how is the price collection organized?
Monday, 11 April	Visit to the regional office of Ararat	Meeting with BC Price Collectors from Ararat	Identifying differences in the organization of the price collection between regions.
Tuesday, 12 April	NSSRA	<u>Morning:</u> Meeting with BC ILCS Experts <u>Afternoon:</u> Meeting with BC Experts	Discussion of the main data source in the production of weights for the CPI / HICP. Identify possible ways to facility the production process of weights. Preliminary recommendations by MS Experts – discussion and possible adjustments of conclusions.
Wednesday, 13 April	NSSRA	<u>Morning:</u> Meeting with BC Experts	Discussions on draft road map for the introduction of the HICP

		<u>Afternoon:</u> Debriefing with BC Project Leader	Presentation of results
Thursday, 14 April	NSSRA	Meeting with BC Experts	Discussions on draft road map for the introduction of the HICP. Conclusions and recommendations. Consequences for the next meeting and implied work programmes for BC Experts.

Annex 3. Persons met

Mr. Gagik Ananyan, Member of State Council on Statistics (BC Component Leader)
Mr. Gagik Gevorgyan, Member of State Council on Statistics (BC Component Leader)
Mr. Gurgen Martirosyan, Head of Prices Statistics and International Comparisons Division
Ms. Mariam Yeritsyan, Main Specialist, Prices Statistics and International Comparisons Division

Ms. Gayane Petrosyan, Main Specialist, Prices Statistics and International Comparisons Division
Ms. Karine Avetisyan, Leading Specialist, Prices Statistics and International Comparisons Division
Ms. Hasmik Karapetyan, 1st class specialist, Prices Statistics and International Comparisons Division
Mr. Zohrap Azizyan, 1st class specialist, Prices Statistics and International Comparisons Division
Ms. Lusya Yermoyan, statistician, Prices Statistics and International Comparisons Division
Ms. Lida Grigoryan, statistician, Prices Statistics and International Comparisons Division

Mr. Levon Davtyan, Head of Ararat Marz Agency of NSSRA
Mr. Vrezh Avetisyan, Head of Yerevan Agency of NSSRA
Mr. Hovhannes Hayrapetyan, Head of Trade and Prices statistics division, Yerevan

Ms. Ruzanna Rubenyan, price observer, Yerevan
Ms. Arpine Mkhitarian, price observer, Yerevan
Ms. Hasmik Apresyan, price observer, Yerevan
Ms. Narine Aghavelyan, price observer, Yerevan
Mr. Aleksandr Grigoryan, price observer, Artashat
Mr. Hovik Yegorya, price observer, Artashat

External Stakeholders taking part in the activity

The Central Bank of Armenia;
Ministry of Finance;
Ministry of Economy;
Twinning Project;
IMF

Workshop conducted by:

Ms. Kirsten Balling, Statistics Denmark (MS Component Leader)
Mr. Martin Birger Larsen, Statistics Denmark.

Workshop Participants:

RA Ministry of Economy, Artak Chilikaryan
RA Ministry of Finance, Lily Karapetyan
RA Ministry of Finance, Liana Harutyunyan
RA Ministry of Finance, Armenuhi Tsaghikyan
Central Bank of RA, Ashot Petrosyan
Central Bank of RA, Martin Galstyan
IMF, Aiko Mineshima
Twinning Project State Commission for Protection of Economic Competition , Nelli Sargsyan

NSSRA Council Members
NSSRA Statistical Information Dissemination and Marketing Division
NSSRA Macroeconomic Indicators and National Accounts Division
NSSRA Price Statistics and International comparisons Division
NSSRA Finance Statistics Division

Annex 4. The Armenian CPI (based on IMF SDDS and own findings)

Concepts and definitions:

The CPI is a measure of pure price change for a fixed-market basket of goods and services of a constant quantity and quality for the general population.

Scope:

Population coverage: All types of households, regardless of their income level.

Geographical coverage: Observations cover 11 large population centers (regions) in the Republic of Armenia and the capital city – Yerevan.

Item coverage: 470 commodities and services (901 representatives), of which 377 consumer goods (158 food and 219 nonfood goods) and 93 services. Both products from domestic origin and imports are included.

Exceptions to coverage: Nonmonetary expenditures, goods and services made for own final consumption and second-hand durable goods are not included. The COICOP groups 12.2 (prostitution) 12.4 (social protection) and 12.5 (insurance) are not included.

Classification:

A national version of a statistical classification of Individual Consumption is used, which corresponds to COICOP but only with 9 Divisions.

Prices:

Types of prices: Transaction prices actually paid by consumers, including taxes, such as the Value Added Tax (VAT). Prices are recorded three times for each month: as of days close to the 1st, the 10th and 20th of the reference month.

Data sources and price collection methods:

Sources of weights: The weights for goods and services that are used to aggregate indices are calculated on the basis of 2010 data from ILCS covering about 8,000 households. These weights were implemented in March 2011 and indices were recalculated back until January 2011.

Item selection: Process for selecting 470 goods and services (901 representatives) is implemented based on the household survey data on the most consumable goods and services provided to the population, as well as based on the periodical observations of trade and service outlets. Price collectors are consulted regarding item selection.

Outlet selection: Observation units are selected based on volume of turnover of goods and services, provided by other statistical units. Price collectors are consulted regarding outlet selection.

Sample sizes: Prices are surveyed for each of the items at 5–12 previously selected commercial enterprises and service enterprises in each of the 12 regions. In total around 2,655 different outlets are visited each month throughout Armenia. About 250,000 price data are registered and analyzed each month. Since each product/service in each region and each outlet is surveyed three times a month a total of around $250,000/3 = 83,333$ individual products are surveyed each month.

Price collection methods: Data are mainly recorded by price collectors through paper reporting forms by visiting selected retail outlets, after which the observations are entered into a spreadsheet. The filled in spreadsheets are transferred to the NSSRA by e- mail. Tariffs (which are the same for the whole country) such as communications, electricity, gas, etc. are recorded directly in the central office.

Rents are collected by the price collectors from a sample of apartments. The sample consists of 1 bedroom and 2 bedroom apartments from each region. The apartments that are included in the sample have been pre-specified with respect to different quality variables (housing condition, location etc.). If an apartment is renovated and falls outside the scope of the sample a new apartment fulfilling the product specifications is selected. Bigger apartments and houses are not included in the sample.

Item/product specification:

The set of goods and services with corresponding definitions is prepared by the staff of the Price Statistics and International Comparisons Division of the NSSRA and the same set of goods and services is used in all the regions for their price registration. For each item, specification is given in such details, as production country, quality indicators of goods, measurement unit, 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 (colour, composition, brand, model and so on). Price data are collected 3 times per month and provided to the central office three times a month after they have been typed into a spreadsheet. A complete set of data covering the whole month are send before the 23rd day of a current month.

Assessment of weights from ILCS data:

For some items and groups such as for instance alcohol, tobacco, mobile and communication, weights are not calculated using ILCS data only but are assessed using also turnover data from the business statistics divisions.

Statistical techniques for missing prices, seasonal products etc.:

Treatment of missing prices: In case of missing items, price changes for the corresponding item are used to estimate the missing price.

Selection of replacement items: When the variety is permanently unavailable it is replaced by a variety with similar parameters and features. Replacements usually only occurs 1 to 2 times a year. Item replacement is as far as possible made in the base year.

Adjustments for quality differences: Adjustment is made to a large extent using the overlapping method. In some cases direct comparison is applied.

Introducing completely new products: New products are not introduced in the item structure before the next weight update.

Seasonal items: The method of seasonal price adjustments is based on carrying forward the last real average price up in accordance with the development of a given group or sub-group of corresponding indices. The average price of the month in which the item reappears is compared directly with the estimated price from the previous month. The seasonal adjustment is not made at the level of individual price observations but at the level of geometric average prices for an item in a region.

Owner-occupied housing: No registration is made on owner-occupied housing and it is not included in the CPI.

Other statistical procedures, index formulae used etc.:

Time period of current weights: 2010.

Frequency of weight updates: Every 5 years.

Computation of lowest level indices: The lowest level indices (for each item) are computed as a ratio of average geometric prices recorded for each item for the reference and the base period. It is manually checked whether the same number of individual price observations from the same outlets are exactly the same in the current month as in the previous month below the level of the geometric mean of prices for a particular item from one region. This ensures that only matched prices are included in the calculations.

Aggregation: Modified Laspeyres formula with fixed weights is used to aggregate elementary indices by item groups and for regions to an index for the Republic of Armenia as a whole.

Alignment of expenditure and base period: Weights based on the ILCS are price adjusted so that they cover a full calendar year (currently 2010).

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

Reference period: Index reference period: 2010=100.

Seasonally adjusted indices: No seasonally adjusted indices are calculated.

Data validation:

Possible outliers are detected by calculating confidence intervals for the price level for each item.

Verification of processing: In case of large price variations, price collectors clarify what the reasons are. Control visits to observation units are made to verify the accuracy and reliability of collected price information.

Periodicity and timeliness:

Periodicity: Monthly

Timeliness: Data are published on the last working day of the reference month.

Consistency:

Internal consistency: The monthly and annual publications provide the following data for the CPI: a) with a breakdown for 9 major groups of goods and services, b) by 64 subgroups of foodstuffs, nonfood goods and services provided to the public, c) for 11 population centers surveyed, d) by 470 items. e) average monthly prices for 470 goods-items and service-items by the 11 surveyed population centers are also published.

Temporal consistency: Monthly publications provide the following data for the CPI as a percentage: a) compared to the base year; b) the current month compared to the previous month; c) compared to December of the previous year; d) compared to the corresponding month of the previous year; e) on a cumulative basis (compared to the corresponding period of the previous year). Annual publications provide the data similar to that published in monthly publications, as well as: a) chain indices according to the different periods, b) average annual indices, c) quarterly indices.

Revision:

The CPI is recalculated for the months January to March (in April), using new weights when the weights have been updated. Otherwise the indices are considered final when published. In the relevant publications data are designated as current (preliminary), revised, or final. Modified data are accompanied by explanatory footnotes.

Data accessibility:

Data are disseminated for the consumer price index, a modified Laspeyres index (2010 = 100), covering Yerevan and 11 large population centers in the Republic. The index is the weighted average change in prices of 470 commodities (901 representatives). The regional data on prices and indices data are aggregated in total for the Republic of Armenia using ILCS data. Separate CPIs are compiled for 11 population centers representing the whole 11 regions of country. The CPI is calculated both as a whole and for 3 main groups: Foodstuffs (including alcoholic beverages and tobacco) • Non-food goods • Services • The CPI is also calculated for the following subgroups: Foodstuffs • Alcoholic beverages and tobacco • Clothing and footwear • Rent, fuel, electricity • Household goods • Medical care and medicines • Transportation and communications • Recreational goods and service • Other goods and services • The indices are not seasonally adjusted. The data are disseminated in various hard copy publications and on the internet in mainly Armenian and Russian and only in some cases in English.

Metadata:

Brief methodological commentary on indicators is published in the Socioeconomic Position of Armenia monthly informational reports, in the Statistical Yearbooks of Armenia, and in greater detail in topical publications.

After the official publication of the monthly CPI indicators, ten-day CPI prices (95 from 470 items) are provided to the Central Bank of RA and State Tax Service at the Government of RA according to their request. Ten-day prices are a chronological disaggregation of the monthly CPI.

Annex 5. HICP Regulations; Presentation

HICP Regulations

Armenia

April 2011

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 content 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



STATISTICS
DENMARK

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



STATISTICS
DENMARK

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:

$$I_w = \prod \left(\frac{p_i}{p_0} \right)^{q_i} = \frac{\prod (p_i)^{q_i}}{\prod (p_0)^{q_i}}$$

Dutot index:

$$I_m = \frac{\frac{1}{n} \sum p_i}{\frac{1}{n} \sum p_0} = \frac{\sum (p_i/p_0) \cdot p_0}{p_0}$$

- 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

Annex 6. Road Map

EU Twinning Project
Forwarding Armenian Statistics Through Twinning
AM09/ENP-PCA/TP/04

Roadmap for an HICP for Armenia

Task / Time	2011												2012												2013
	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April
<u>Sampling and Quality Adjustments</u>																									
- Analyses of the effect of not collecting prices on the 1st every month																									
- Organizational consequences of changing the price collection																									
- Yearly updating of sample / using price collectors in assessing the representative products																									
- Determine for which areas of consumption to change the method for quality adjustment.																									
- Quality Adjustments for technological products																									
- Reduce the sample: Fewer sampling days in the month																									
- Ensure sufficient elementary aggregates to represent the diversity of items within each category of COICOP																									
<u>Weighting</u>																									
- Determine whether it is possible for the HBS to apply the COICOP/HICP in the terms of this project.																									
- Based on the Armenian experience and knowledge, make preparations for a new production system for weights.																									
- Producing an EXCEL-system to make the changing of weights less time consuming																									
- Inclusion of car insurances in HBS																									
- Calculate weights for car insurance																									
<u>Price concept</u>																									
- Find a less time consuming way to handle the check for missing prices / matching prices. An EXCEL solution.																									
- Include services into the index in the month they are consumed																									
<u>Classification of Consumption</u>																									
- Prepare for the COICOP/HICP in weights and allocation of prices																									
<u>Coverage</u>																									
- Include car insurances in the sample																									
- Analysis of whether more areas of consumption should be included in the index; Depending of their weight: Used cars, kindergardens in group 12.4, internet shops																									
<u>Special areas of consumption</u>																									
- Seasonal products. Analysis conducted and decision made																									

EU Twinning Project
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Roadmap for an HICP for Armenia

Task / Time	2011												2012												2013
	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April
Other topics																									
- Give recommendations on whether to produce both CPI and HICP or only the HICP in the future, on the basis of results from trial HICP calculations.																									
- Implement changed work processes in the statistical regional offices																									
- Communication																									
Missions																									
Activity E.1+2.: Identification of issues / Determination of alternatives: Mr. Martin Larsen and Ms. Kirsten Balling	4-14 / 4																								
Activity E.3.: Assistance mission in Armenia: Mr. Paul Lubson and Mr. Oskars Alksnis						5-9 / 9																			
Activity E.4.: Workshop with MS and BC policy experts. Participation from the regional offices. Ms. Nadiezda Aleveja and Mr. Oskars Alksnis											12-16 / 3														
Activity E.5.: Study visit to Statistics Denmark: 3 BC experts															4-8 / 6										
Activity E.6.: Workshop by MS policy experts to Armenia: Ms. Kirsten Balling and Ms. Nadiezda Aleveja																						3-7 / 12			