

**REPUBLIC OF MACEDONIA
STATE STATISTICAL OFFICE**

**MEASURING INFLATION IN THE REPUBLIC OF MACEDONIA
- PRACTICE IN STATE STATISTICAL OFFICE AND CHALLENGES -**

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Introduction

At the beginning I would like to greet the initiative of the National Bank of the Republic of Macedonia to organize the Workshop on Problems in measuring inflation.

The State Statistical Office supported the initiative, and today, we already have an opportunity to discuss this very important topic, which engages the experts' opinion and is of great importance not only to the economic analyses, but also to the analysis of the total living of population.

The State Statistical Office and the other stakeholders in the Programme for statistical surveys of interest to the country conduct approximately 250 surveys in different areas according to the methodologies and the recommendations of the Statistical Commission of the United Nations, the Statistical service of the European Union Eurostat, the International Labour Organization, the International Organization for Economic Cooperation and other relevant institutions.

The preparations for becoming member of the EU have imposed a need the State Statistical Office, in the last 10 years, very intensively, to organize and harmonize the surveys in accordance to the joint EU standards and, on that base, to develop special cooperation with Eurostat. In this direction, many of the surveys have been amended or changed and part of them are in the phase of implementation.

Till the end of 2007, the Five-year programme for statistical surveys of interest to the country for the period 2008-2012 should be prepared and brought. With it, it is expected to foresee and to draft the surveys according to the Recommendations and the Directives of the European Union, with which the statistical data of the Republic of Macedonia, according to the joint standards, will become part of the statistical data fund of the European Union and a good instrument for comparison and analysis for the users. This process of respecting the international standards refers also to the measuring of inflation, which is subject of discussion of today's symposium. That is why, by referring to the topic on inflation, I would like to give short review of the development of the prices statistics in the State Statistical Office.

The price statistics can be considered as one of the "oldest statistics". This statistics contain the theoretical statistical methods for calculating the indices and the aggregate indices, but also many international recommendations in relation to the standardization of the manners of collecting and calculating the prices. In the prices statistics are respected also the defined principles on identifying and classifying the goods and services that compose the contents of the prices index. This is so, because the change of prices is very important indicator for following the changes in the economy and the real presentation of the macroeconomic aggregates.

I mentioned that the price statistics are among the oldest ones, which is confirmed by the fact that published data on retail prices in the Republic of Macedonia exist since 1917 (Federal Statistical Office). Since 1950, when separate data on the Republic of Macedonia started to be collected, activities for calculating the retail prices aggregated index have started, even though in this period the biggest number of prices was regulated by the state, except for the prices of agricultural products. In the '70s of the 20th century is registered the biggest number of activities for calculating the prices for separate economy sectors (construction prices, agriculture input prices, producers prices, exported products prices, wholesale prices, health services prices, catering prices and etc.) for which very successful methodologies were developed, which were

internationally satisfactory from the aspect of applied methods and calculation techniques. After that period, special attention was paid to the development of the methodology for the retail price index and to the introducing of the living expenditures index, as indices that most appropriately reflect the household's consumption. The data source for the retail prices weights is the turnover in retail trade, and the administrative i.e. the quantitative data for the services in the retail prices. For the living expenditures index the weights are determined on the basis of the data from the household's consumption survey.

From 1990, the State Statistical Office is directing its activities towards faster implementation of the Regulations and the recommendations, which define the methodological bases for the consumption prices indices (CPI) and for calculating the index according to the classification (COICOP) i.e. the classification of consumption according to the needs of the households. The State Statistical Office makes preparations for introducing the procedures and the methods for calculating the Harmonized index of prices (HICP).

The improvement of the methodologies for the other types of indices is part of the future plans for improving the prices statistics. In the other areas are made efforts for establishing appropriate indices of energy commodities prices, export/import prices and etc.

1. Price indices, measurement for changing the prices in a period of time

The change or the increase of prices is in the focus of the economic theory, especially as an element of analysis of the economic cycles and as part of the monetary and the fiscal policy, and also in regards to the influence of prices on the economic growth. Parallel with the development of the economy analysis have also been developed the theory methods for calculation of aggregate indices as well as for development of methodology which creates comparable data for the prices movement among countries.

The International Labour Organization has special part in the development of unique methodologies and recommendations for calculation of the living expenditure prices index i.e. the consumption prices index. The European Union, following the Maastricht Agreement, drafts the Harmonized Index as consumer prices index, as a measure of the general price level in the European Union.

The consumer price index basically differs from the living expenditures index, because in the living expenditures indices are chosen identical products which, between two periods for comparison, reflect the constant living standard.

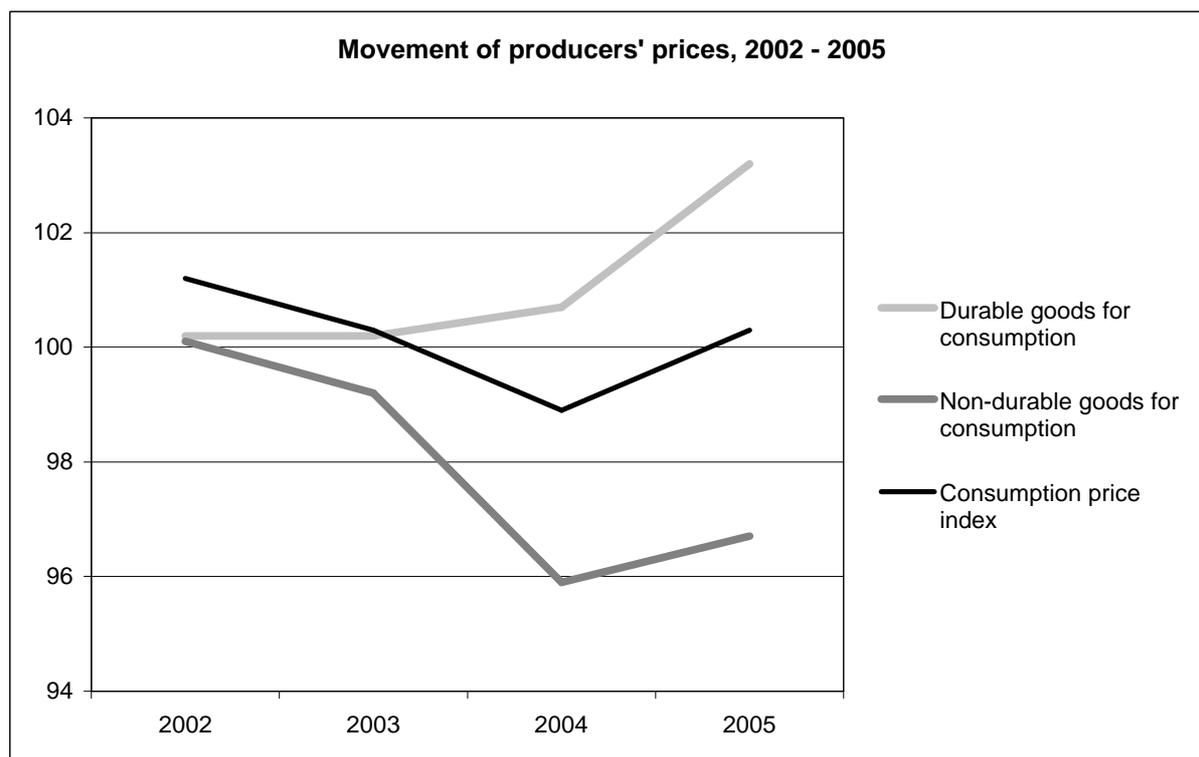
The consumer price indices and the harmonized index measure the price changes of products of the final monetary households consumption.

As the most appropriate index for providing comparison of prices according to the recommendation of the ILO and according to the recommendations for calculating the harmonized index of the European Union is considered the Lasper's aggregate index, because it allows monitoring the change in the average prices in two different periods at constant quantity of purchased goods. In the State Statistical Office this recommendation is implemented.

In the construction of the price index, the basic components are:

1.1. Defining prices-retail prices

The retail price contains the elements of production, the taxes, the commercial channels margins and the transport margins. With such contents, the price is subject to the pressure of the production factors, the margins rate and the taxes rate. The survey on the structure of retail prices in the Republic of Macedonia in 2003 and 2004 shows that the production prices participate with 60-70 % in the retail price depending on the products group. According to this, the retail prices movement mostly depends on the prices of the producers.



Source: State Statistical Office of Macedonia

The domestic retail prices rate is also influenced by the import prices (the imported products for final households consumption participate with 15-20 % in the total final consumption, and according to the import data, the participation of the general consumption products in the total import of the Republic of Macedonia is 25 % in 2004 and 2005). Especially important influence on the retail prices have the import prices of food products with 37 – 40 % participation in the final consumption, appliances and machines with approximately 90 %, rubber products and plastic masses with approximately 70 %, traffic means with 96 %, furniture with approximately 60 %, radio and telecommunication equipment with approximately 90 %¹. On the other hand, in the prices that make the living expenditures prices index in the Republic of Macedonia, big role have the so-called controlled or regulated prices, such as electricity, water and other.

In the structure of the prices of the living expenditures index a role have the so-called monopoly prices, the telecommunications, the rail, the post and others, even though they can be compared either as controlled or as subsidized prices.

¹ Source: Analytical tables on supply and use for 2000, SSO

Because of change of the market structure and the increasing participation of foreign products on the domestic market in the last years is present the so called “Chinese effect” i.e. an influence of prices of lower quality products with exceptionally low prices or dumping prices for certain products. Because they take bigger part in the turnover in the country and in the household’s consumption, bigger methodological caution is needed when constructing the weighting coefficients by products, which reflect the structure of the household’s expenditures.

At the service prices on the domestic market are also present many influences. Often, in these prices there is an influence of the “agreement component” or a component difficult for measuring that depends on many factors, which are less comparable and measurable (whether the transport costs are included in the product price or not, whether it is about repairing certain model of product or whether there is an authorized service shop for certain service and etc.). In the programme for International comparison-the Programme for purchase power parity organized by Eurostat and the OECD, are prepared many expert and theoretical manuals in order to identify the prices’ structure, including parameters for the products brands, an analysis for so called own brands of the shop and their classification in more appropriate homogenous groups of products in order to get more relevant product prices and, at the same time, to provide international comparability of prices that serve for calculating the purchase power of currencies.

The value of prices is influenced by the so called “seasonal products” whose price is directly connected to the supply of goods in a given period of the year, which results in an influence on the average price and in the so called “discounted prices”.

In the prices structure is important the so called “tariffs” price for a service in a different period, which changes the price rate, and a dilemma is the measurement of the price rate of some service that the citizens are paying, but which is not directly connected to the price of a certain service. This is the case with the price that the citizen is paying for a commercial transport to a certain destination, which is composed of the price for transport and the price of service of the bus station. Even though, in an accounting and turnover distribution point of view, is recognized that it is about two subjects that provide the same service, from the citizen’s aspect this price reflects the transport services.

Methodologically, in the statistical recording of prices, a special problem is the expression of prices of products and services in a non-market value – the government services for education and health, and the services prices, which are adapted for the conditions of the statistical measurement, such as the rent prices.

The expression of a pure price is also a methodological problem in statistics. Namely, in some of the prices at the moment of purchase are included also the interest expenditures (“paid during the purchase”). This is separate methodological issue. Very often the concept of valuing does not allow differentiating the part for the real paid price for the product from the part for interest for that product, which has implications during the calculation of the distribution of outputs and inputs in the economy sectors.

With the prices are connected more phenomena which result from the globalization of markets, the consumers’ habits, the ways of selling the products and especially the introduction of new products or luxury products and services or the so called connected services when in one defined price enter some services or the price is connected to other product. In the last years, separate discussions are led for expressing the prices of computer services and equipment, which is a big entry in the expenditures of the households and for the influence of the e-commerce index, as a separate form of selling of goods and services.

A special attention in the State Statistical Office is paid to the representativity of the prices, as part of the standard methodological recommendations, so that they can reflect the biggest sales or the separation of the especially luxurious products.

1.2. Weighting coefficients

The weighting coefficients are very important component for calculating the index. The quality of the index largely depends the quality of data for preparation of the weighting coefficients. By using the Lasper's formula for calculating the index, the weight reflects the unchanged quantity or the value of the consumption identical to the one from the previous comparison period. The adjustment of the base period with the change of prices during the year in the chain indices allows the comparison period to come near to the dates when the general revisions of the weights are done, which is usually every fifth year.

Besides the two listed components for calculating the index, we will mention several principles, which are very important for the index quality:

- Sources for prices data

It is in the practice of the countries that the prices be followed through direct recording on the spot – public prices or announced prices. This phase seems to follow mostly the market development and statistically it cannot represent a problem, especially that now in a situation of increasing the legal regulations for transparency the information on prices is available. The choice of products and shops in the Republic of Macedonia is appropriate to the distribution of the selling places in the space and it has always been taken care that it reflects the reality.

As part of the future methodological activities in the area of prices are also the considerations to include the sale of products with catalogue and the buying of products on the Internet.

In a situation of selling on irregular market, where the products can not be classified according to an appropriate specification, and the participation of the households consumption on these markets is significant, a methodological dilemma occurs if they should be included in the price index. Even though several solutions are possible, methodologically, is always started from the basic principles in statistics-to compare same categories, in this case prices, with unique structure.

- Optimal number of products

In the statistical circles a discussion is led about the possible and the best number of products which will be included in the prices index and which will represent the best solution. Statistically, it is very important to have sufficient number of products – a prices quote and a sufficient number of prices per product, so that the price can be representative and the main groups to be well presented. In the Programme for European comparison, for example, is defined the minimal number of entries in one group, but also the minimal number of prices per product. The bigger number of prices gives bigger opportunity for good approximating, but the analyses show that the varying in the average prices geographically does not have very important influence.

The State Statistical Office, on a monthly basis, calculates the aggregate indices of producer's prices with 548 chosen products, the retail price index with 586 products, and the Consumer Prices Index with approximately 565 products. The number of products in certain countries varies and it is a reflection of the availability of the products

on the market and the quality of information available for the selling of products by types.

- Description of the product

For the average prices that serve for calculating the index, the comparability of products is very important element. They should be described with the most appropriate parameters in order to have comparability in the space. This, in the national index, is simpler because the brands, the way of packing and the products' characteristics are quite homogenous and recognizable on a country level.

- Homogenization of prices in groups-classification

In relation to the classification of products, the statistical practice is on a high level. Even though the habits of the consumption and the change of products are very changeable, the statistical classifications allow homogenization which allows the products to be grouped accordingly, in order to receive appropriate statistical expression of every mark. Some of the criteria for classification are: the purpose of the use of the product, the value of the product among the investment means and very often the primary use. Some dilemmas in this direction are possible. For example, using the same phone for private and business purposes. This distinction is theoretically always possible when, for example, the information from the service supplier or the seller, on one hand, is compared to the information from the households, on the other. The constant efforts in the State Statistical Office are directed to the provision of additional information and data, with which is decreased the risk of bigger influence of the change of the type of information on the proportions of the weighting coefficients.

2. Consumption Prices Index – inflation measures

The analysis of the change of prices is the central point of analysis of the macroeconomic condition in the country. In a situation of bigger changes in economy, it is especially important to monitor the condition of the population consumption as a biggest part of the GDP, and especially important is the monitoring of the real purchase condition, even in a situation of increase of the households' income i.e. of increase of the wages. That is why, very often the consumption prices index is used for harmonizing the pensions and the other incomes in the countries. In order not to create hyper-production of certain products in the production or in the turnover in the countries where the other aggregates (for ex. the export) participate with smaller ratio, the consumption prices index is a good indicator for monitoring the purchasing power of the population. In the present market conditions of the Republic of Macedonia can be expected that the product prices do not reflect the real expenditure of the population for an appropriate product quality. But, in such conditions, also the consumption price index, from methodological aspect, is completely correct.

The consumption price index is considered as one of the inflation measures, because usually the final consumption represents more than 60 % of the economic value of the GDP in the countries of the European Union (with a decreasing tendency).

Participation of the final households' consumption in the GDP, including the non-profit institutions that serve the households (NPISH)

| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
|-----------------------|------|------|------|------|------|------|
| Republic of Macedonia | 74.4 | 70.0 | 77.1 | 76.3 | 78.8 | 77.7 |
| EU zone | 57.3 | 57.3 | 57.2 | 57.3 | 57.1 | 57.2 |
| Romania | 70.1 | 70 | 69 | 66 | 67.8 | 68.7 |
| Bulgaria | 69.2 | 69.5 | 68.8 | 68.8 | 68.1 | 69.4 |

The structure of the final households consumption in the Republic of Macedonia, analyzed according to the structure of the GDP, can be assessed as unfavorable. As an example is taken 2003, when from the total consumption on food were spent 33.3 %, 6.3 % on clothes, 4 % on furniture and household appliances, on services 46.4 %, on services, including government services and imputed rents 8.5 %, on cars 2.2 %. The participation of products from own production in the total final consumption is approximately 5 %.

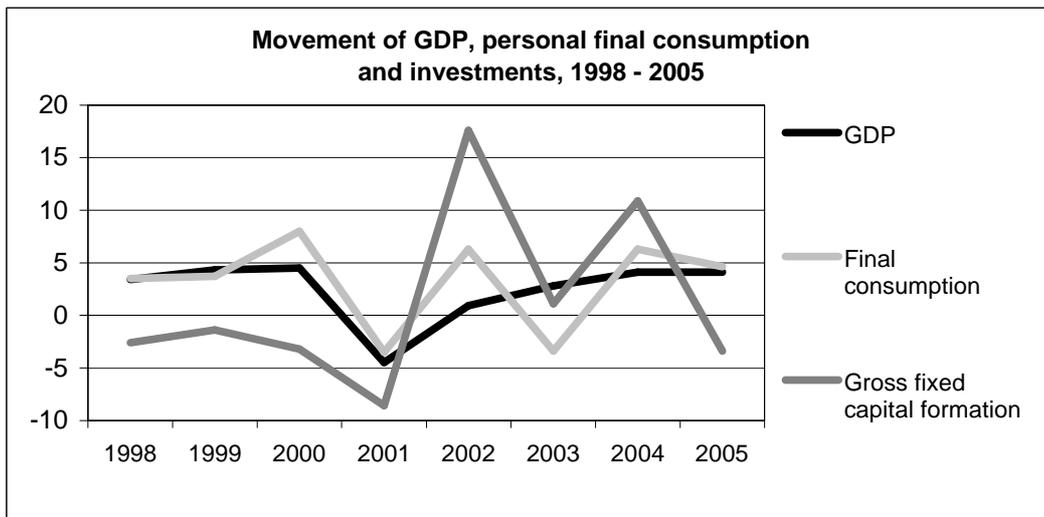
The investment of the households in gross fixed capital formation, mainly vehicles, machines and construction moves from 29.05 % of the total investments in the country in 2002, 32.1 % in 2003 and 36.5 % in 2004.

Movement of the values of the components in the GDP in the Republic of Macedonia, chain rates (final consumption according to expenditure components of the GDP, National accounts)

| | GDP | Final consumption ² | Gross fixed capital formation |
|------|------|--------------------------------|-------------------------------|
| 1998 | 3.4 | 3.5 | -2.6 |
| 1999 | 4.3 | 3.7 | -1.4 |
| 2000 | 4.5 | 8 | -3.2 |
| 2001 | -4.5 | -3.5 | -8.6 |
| 2002 | 0.9 | 6.3 | 17.6 |
| 2003 | 2.8 | -3.4 | 1.1 |
| 2004 | 4.1 | 6.3 | 10.9 |
| 2005 | 4.1 | 4.6 | -3.4 |

Source: State Statistical Office of Macedonia

² In the final consumption is also included the final public consumption



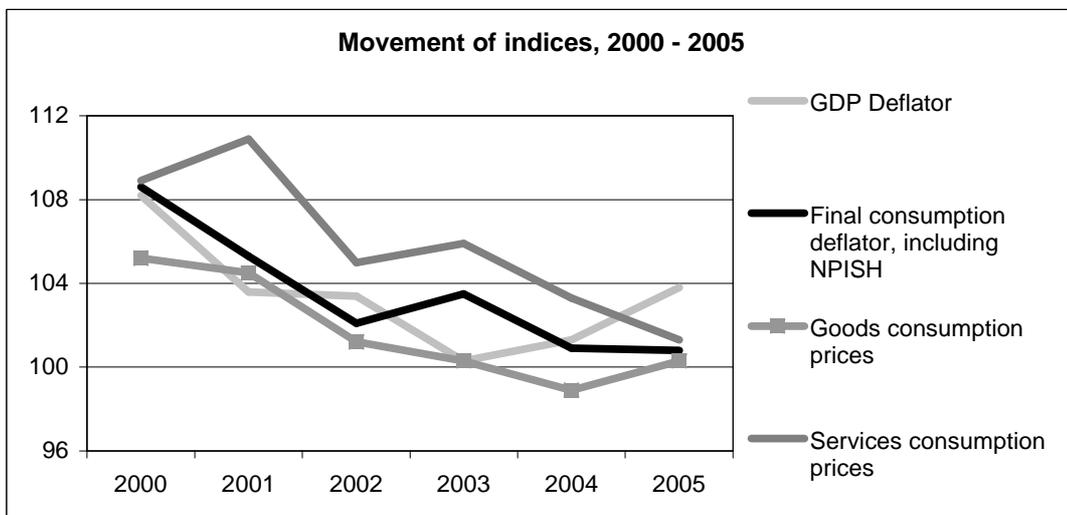
Source: State Statistical Office of Macedonia

3. The deflators as price indices

In a broader sense, the deflator of the GDP contains, besides the final consumption prices, also the investment goods prices, and the export/import of goods and services prices. In the value of the final consumption, when calculating the GDP are also included the value of the consumption of the own production appropriate to the concept of gross-output, according to the System of national accounts and the value of the compensations in kind no matter where they have been received from; also parts for bank services indirectly measured, the lottery-net principle and the securing of net principle, as well as the part of the government services, provided by the population, including the non-profit organizations.

In the calculation of the consumption in the expenditure side of the GDP are made additional adjustments, in a sense of balancing the gross value of certain sectors with the consumption, so-called imputed consumption, such as the imputed rents.

That concept, basically, makes the difference between the final consumption and the monetary final consumption for which most appropriate is the consumption prices index.



Source: State Statistical Office of Macedonia

In order the calculation of the final households consumption to be realistically presented in the calculations for the GDP, it is assumed that in the value of the data on the households' consumption from the Households Consumption Survey are included also the consumption of the collective households and the regular demographic change of population.

According to the above mentioned, we can notice the difference in the coverage of certain entries in the consumption prices index and the structure of the final households consumption, which is in accordance to the concept of the consumption prices index. The process of deflating of the GDP on a very low level of certain categories, such as the imputed rents and the use of other indicators for the total volume, allows consistency of the data. Thus, on the general level of the final consumption, the use of consumption prices index is appropriate and it represents the real changes of the final consumption.

Because the indices are prepared on a monthly level, the average annual change rate allows the deflating indicators to reflect the average annual change of the GDP.

Conclusions

The activities for improving the methods and the systems for calculating the consumption prices index in the State Statistical Office are part of the high priority activities. In these activities are included:

- The improvement of the data quality of the Household Consumption Survey by introducing diaries as a method of data collecting from the households;
- The harmonization of the households consumption survey with the European standards;
- On a methodological plan, special attention is paid to the harmonization of the structure of the domestic consumption prices index with the recommendations of Eurostat and the EU Regulations;
- In order to achieve methodological consistency and comparability of the consumer prices index of the Republic of Macedonia with the member countries of the EU, the State Statistical Office has intensified the activities for starting the appropriate procedures for calculating the Harmonized Index of Consumption Prices.