

# **Practical experience in measuring health services and pharmaceuticals in the consumer price index of the Republic of Belarus**

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## **Abstract**

The initial data for measuring some goods and services in the CPI in Belarus sometimes is partial and requires additional actions for proper inclusion of these items to the CPI.

The paper reviews the difficulties with obtaining the weights for the pharmaceuticals and health services, sampling of the representative items, using the administrative data for the both – weighting and sampling, creating the additional survey for health services within the CPI estimation.

## **Introduction**

A very important issue while constructing consumer price index is obtaining the relevant price samples and weight structure for getting accurate sub indices. With the development of domestic pharmaceutical market in Belarus (the production of wide range of generics), as well as large share of imported medicine products, an issue has been raised of accuracy of reflecting the price changes for this group in the Belorussian CPI. It was noticed that the existed approach to measuring pharmaceuticals sub indices tended to underestimate the total price index for this group and the total CPI as well.

This also concerns price indices for medical services, which share in the consumer spending is not yet high due to the existing system of free medical help, but obviously is increasing.

Due to the high interest to these price indices both among the government agencies and media, it was decided to review the current approach to weighting and maintain the price samples for both pharmaceuticals and medical services to provide relevant indices reflecting latest buying habits of population.

The structure of the paper is as follows: in section 2 the improvements which have been made in measuring of medical services in the CPI are described; section 3 is devoted to the measuring of pharmaceutical indices.

## **Measuring medical services in the CPI**

The distinctive feature of the Belorussian medical care system is that there is the large segment of free of charge medicine, provided by the government according to the law, and at the same time there's rapidly developing marked of

payment medical services, provided by private and state clinics. Medical insurance system is not well developed and currently comprises an extremely small share in providing medical care services.

Because of these features and the objective to respond the demand for the accurate medical care price indices it was decided to undertake a broad survey within CPI estimation, allowing to reflect actual patterns of consumers behavior.

There are two main issues in building medical care price indices for Belarus:

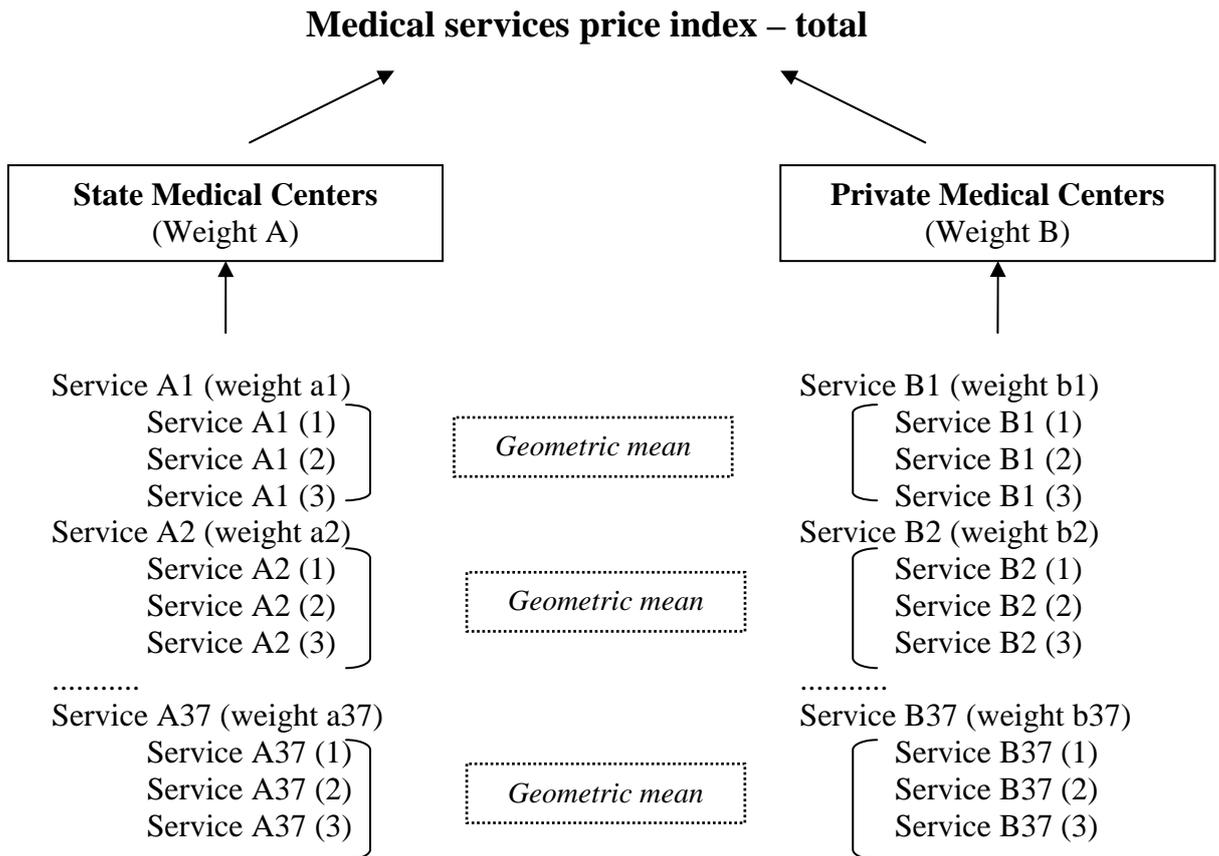
- a) there are state and private medical centers, providing the wide range of these services, which have significant gap in the price level and the prices in private and state sectors exhibit quite diverse price behavior;
- b) within one single class of medical service (e.g. consultation of a specialist; diagnostics; laboratory diagnostics, etc.) there is wide range of specific services (e.g. diagnostics includes electrocardiography, ultrasonic, endoscopic researches, X-ray, etc.)

The first step was to divide the weight for a group `medical services-total` derived from the annual Household Budget Survey, in order to get the weights for the services provided by the state and by the private centers separately and then within these two stratum to derive the weights for each basic class of service. For that purpose National Statistical Committee initiated the development of the annual reporting form collected by the Ministry of Health of the Republic of Belarus on the values of medical services provided to population per annum, disaggregated by state and private centers, by the basic classes of medical services within each property form and by residents and non-residents consumption. Thus after consultations with the directorate of the largest clinics the reporting form for providing the values for 37 classes of medical services by the whole range of private and state medical centers was adopted.

The second step was the selection of representative services within 37 basic classes of services. For the selection of the representative items a Questionnaires on the most relevant medical services consumed by population within basic classes of medical services were sent to the largest and most popular medical centers countrywide. After the processing of the questionnaires total of 60 representative medical services were selected the same for all the regions of the country.

The sampling of the medical centers for every region (31 cities for the CPI estimation) was provided by the price collectors thus that the organizations sampled should represent not less than 70% of the total value of the medical services provided in this region. One more requirement for the organizations sampling was including both the large centers, providing complex of services and middle and small single-service medical centers.

On the first stage of estimating the total price index for medical services, price relatives for all the representative services are aggregated into basic classes of services using the geometric mean formula. Thus for each of two stratum (private and state medical centers) 37 aggregated indices are estimated. Then these indices for each stratum are aggregated into `medical services (total)` using the weights, estimated on the basis of administrative value of medical services data. At final stage two indices for state and private property form are aggregated into the total index, which is included to the CPI.



The scheme above represents the levels of estimation of the price index for medical services.

The issues emerging in the medical services estimation now mostly concern the scope of the sample satisfying the demand for the accurate indices from the one hand and the adequate load for price collectors regarding their limited quantity and the limited resources.

### **Measuring pharmaceuticals in the CPI**

Annual Household Budget Survey is the main source for obtaining the weights for the CPI in the Republic of Belarus for most of the items. It has been a problem for decades to derive proper weights for measuring pharmaceuticals in Belorussian CPI as HBS doesn't provide with detailed data on that. During a long period of time there were only 4 simple types of pharmaceuticals (for which it was possible

to make the weights assessment): aspirin and analgin; antibiotics; vitamins; nitroglycerin. The weights for these items were derived by the way of dividing the total weight for pharmaceuticals from the HBS with the use of additional sources and assessments, and were mostly approximate.

This approach to estimation of total index for pharmaceuticals had two important issues, affected the accuracy of the index:

- a) mostly domestic pharmaceuticals were included to the sample, because chosen groups are widely presented by domestic generics and thus the price movement for the imported drugs, widely presented in other classes was ignored;
- b) the prices for many domestic drugs are regulated by the government, and they show different behavior in comparison with imported ones.

Since the existed indices for pharmaceuticals were widely discussed by users, it was decided to seek for the administrative and other sources for deriving the weights and thus to broaden the sample for pharmaceuticals in the CPI. A request was made to the organization which is the main state net seller and producer of pharmaceuticals on provision of the data of any kind, which would be suitable for dividing the total weight for pharmaceuticals into detailed sub classes.

So it provided Belstat with annual data on the sales share of 14 main groups of pharmaceuticals by international anatomic-therapeutic classification. And based on this data there were chosen total 5 from 14 groups by their sales share as items to the consumer basket for the CPI estimation (e.g. drugs for the alimentary tract and metabolism; drugs, influencing blood and blood forming organs; drugs for cardiovascular system, etc.) The weights for these items were estimated according to their sales share.

The next issue was raised on the sampling stage within those 5 pharmaceutical classes, every of which is a very large class (e.g. including groups, sub groups, and specific drugs. The problem was to make the choice of representatives inside these 5 groups the most proper way to reflect the price changes for the high demanded pharmaceuticals by population.

It was the survey undertaken by the price collectors and supervised by Belstat in each of the 31 cities included into the CPI estimation. During the survey price collectors were required to select from 5 to 10 pharmacies (depending on the size of the city), and question the specialists-pharmacists on the drugs, purchased more often within every of 5 chosen groups. The results of the survey showed that the purchasing trends for drugs differ depending on the city size and region. So it was decided to choose from 3 to 5 kinds of particular drugs for every group in every pharmacy included to the sample for the CPI estimation, often purchased by population – in different cities different representatives may be selected.

The price relatives for all the representative drugs for every of 5 groups of pharmaceuticals are combined into one index using the average geometric means (because the weights for drugs on sub levels are not available).

The total price index for pharmaceuticals estimated with the new approach was compared with the one, estimated using the previous one, and the comparison showed a significant difference between two indices (as showed below).

Table 1

**The results of the estimation of the price index  
for pharmaceuticals by two approaches  
(previous month=100)**

|                                   | I     | II    | III   | Quarter |
|-----------------------------------|-------|-------|-------|---------|
| Pharm. index<br>(previous method) | 100.8 | 100.4 | 100.1 | 101.3   |
| Pharm. index<br>(new method)      | 101.5 | 102.4 | 101.4 | 105.3   |

The comparison of the indices indicate that total index for pharmaceuticals estimated by the new approach was much higher than the previous ones – so, it means that some important price movements for the drugs often consumed by population were ignored by the previous sampling. And therefore the total CPI could be underestimated. The issue which remains relevant is the question of measuring the imported and domestic pharmaceuticals in the CPI. The discussion point is – should it be separate weights to combine the price movement for domestic and imported drugs? The price for the imported ones is usually much higher and the consumption patterns for them are different depending on the class of drugs.

### Conclusions

The need in reconsidering of measuring medical services and pharmaceuticals in the CPI was caused by doubts in the weights accuracy and possibility to use new sources (e.g. administrative sources of the Ministry of Health) to derive more appropriate weights for these groups. With the procedure of getting the accurate weights it was necessary to provide samples maintenance to adjust to new weight patterns. As a result of the work done, the index for medical services tends to be more accurate and the problem of underestimation and underreporting of the price movements for the imported pharmaceuticals was solved. In the case of medical services it was important to build a sample in the way that reflects all the processes on the medical services market in correspondence with the consumer's behavior. There is an opinion that the sample tends to be large and affects the pressure on the price collectors, but at present time it shows the more accurate results in our opinion.