Quarterly indicators of GDP and its elements

Basic notions

The calculation of the GDP physical volume indices is based on the application of a new methodology for building time series, which corresponds to the recommendations, contained in the "System of National Accounts, 1993", developed under the auspices of the UN Statistical Commission and IMF "Manual on Quarterly National Accounts".

GDP time series and its components at constant prices are obtained by multiplying GDP data and its components in the base period (for annual calculations, – year 2003, for quarterly calculations – the value of the conditional average quarter of 2003 (value of year 2003 divided by 4) by the corresponding chain indices of the physical volume of GDP and its components. The indices of the GDP physical volume and its components for the corresponding period of the previous year are calculated as the quotient of dividing the indicator of the reporting period at average annual prices of the previous year by the same indicator for the corresponding period of the previous year at average annual prices.

Such approach causes discrepancy between the GDP as a whole and the sum of its components, calculated at constant prices, due to changes in the structure of the weights used to calculate the specific portions of the indices.

Previously, GDP and its constituent aggregates at constant prices were calculated as the sum of their constituent elements at constant prices; however, this approach violates the correspondence between the chain GDP index and indices calculated based on the dynamic series of GDP at constant prices. Methodological changes in the GDP calculation at constant prices have been introduced based on the best practices of majority of developed countries. The advantage of the current method, using chain indices, is that it allows better accounting of changes in the GDP structure.

Estimation of produced and used GDP elements at constant prices

GDP estimation at constant prices has been carried out on the basis of dividing GDP at current prices into separate cost components and applying appropriate methods to re-estimate them at average annual prices of the previous year.

Deflation and extrapolation methods were used to re-estimate GDP and its components at average annual prices of the previous year. In some cases, the direct re-estimation method was also applied. Selection of the estimation method depended on the nature of indicator in question and available information.

Market goods and services are some of the components of GDP production and use. For these components there were available data on price changes, they have been estimated at constant prices, usually with application of deflation method; in other cases, by means of extrapolation method, based on volume indices. Non-market services, the cost of which at current prices is determined in terms of the current costs of their integral units (including fixed capital consumption), in most cases have been estimated at constant prices by extrapolation method with the help of quantitative indicators that indirectly reflect the dynamics of production development in a given industry. In this case indicators showing changes in the number of employees rendering these services were applied. In other cases re-estimation was carried out by means of deflation method based on deflators for similar types of market services.

Coordination of quarterly and annual indicators was carried out by adjusting the values of quarterly data, since annual estimates are based on more detailed information on prices and costs than available quarterly information. The adjustment methodology is based on minimizing deviations from the calculated values.

Quarterly outputs of industries, providing non-market services, were obtained on the basis of even distribution of annual values of current quarterly expenditures with their further re-estimation at current prices of each quarter (based on the ratio of consumer price indices for each quarter to the average annual consumer price index). Intermediate consumption of these industries for the quarters is calculated based on its average annual ratio to the corresponding year output. When calculating the final consumption expenditures, the sales at prices that have no economic significance as well as the costs for purchasing goods and services for transferring them to households, have been similarly taken into account.

Consumption of fixed capital is added for every type of non-market services to get the full volume of output and final consumption expenditures.

Seasonal adjustment has been applied to time series indicators of gross domestic product, gross value added by types of economic activity and to some GDP application elements at 2003 prices.

Seasonal adjustments allow to exclude the impact of the intra-annual seasonal structure arising from natural factors, administrative and legislative measures, socio-cultural traditions, as well as other systemic effects (number of working days during a given time period, events occurring at regular intervals every year but at different times).

Statistical seasonal adjustments are based on the standard ***X-12-ARIMA*** program.

Here are provided data on quarterly volumes of GDP for 1996-2003, calculated at 2003 average annual prices. Accordingly, physical volume GDP indices for the

corresponding quarters of the previous years have been adjusted compared to the values published earlier (indices for 1996-2000 were determined based on volumes at 1995 average annual prices, indices for 2001-2003 - based on volumes at 2000 average annual prices)

GDP physical volume quarterly indices corresponding to the quarters of previous years, slightly changed since 2004 in some cases, as compared to those published earlier due to the linking of quarterly and annual values at constant prices.