

How and How Much Has Azerbaijan's Economy Grown Over the Seventeen Years?

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Last year, the sum of newly created value in Azerbaijan – the gross domestic product (GDP) – exceeded 100 billion AZN, amounting to 133,8 billion. That is about 10,7 times higher in nominal terms (that is, at current prices) compared to GDP in 2005, when enormous windfall oil revenues started flowing into the country. According to statistics, in 2022, the nominal income of the country's population rose 8,5-fold compared to 2005, while expenditure increased almost 10-fold.

According to our calculations, based on data from the State Oil Fund of the Republic of Azerbaijan (SOFAZ) and the Ministry of Finance, in the period from 2006 to 2022, SOFAZ received 199,8 billion AZN (\$182,0 billion), and the state budget received 22,2 billion in profit tax from companies contracted under production sharing agreements (PSAs). In other words, the government obtained 222,0 billion AZN in oil and gas revenues from the oil and gas sector through these two sources between 2006 and 2022. Of this, approximately 170,0 billion AZN (76,6%) was spent in various areas over that same period.

According to our estimates [based on data](#) from the State Statistics Committee (SSC), a total of 242,2 billion AZN was invested in fixed capital between 2006 and 2022, of which 86,2 billion AZN (or 35,6%) went into the oil sector and 156,0 billion AZN (64,4%) into the non-oil sector. Public investments account for an estimated 119,5 billion AZN (49,3%) of the total during this period.

With such a large amount of oil and gas revenue and capital investment, how much has the country's economy really grown

over the past 17 years? In this article, we will explore the difference between nominal and real growth in Azerbaijan's economy.

Nominal and real growth

Statistics show that the GDP generated at current prices in 2021 amounted to 93,2 billion AZN and 133,8 billion AZN in 2022: during the reporting year (2022), the newly created value in the country at current prices was equal to 143,6% of GDP of the previous year, 2021; that is, GDP grew by 43,6% in nominal terms $((133,8 - 93,2)/93,2 * 100)$. The SSC reports that 2022 saw a growth in GDP of only [4,6%](#). Thus, we see that there is a significant difference between nominal and real GDP growth.

It is important to note that the real growth reflects the change in the volume of new value added (that is, GDP) created during the year: the calculation of real growth is based on the corresponding prices of the previous year and not on the current prices of goods and services in that year, which form the GDP of the reporting year. As a result of this calculation, GDP is *without regard* to the impact of the total price increase for goods and services during the reporting year. Given that real growth in 2022 was reported to be 4,6%(that is, if we calculate the newly created value in the country in 2022 on the basis of the prices of relevant goods and services in 2021), then the GDP in the reporting year would not amount to 133,8 billion AZN, but about AZN 97,5 billion AZN. The part of the 2022 GDP that exceeds this value is the result of price changes, in other words, inflation.

The impact of the price factor on nominal GDP can be seen more clearly in the structure of new value added. [According to statistics](#), 64,0 billion AZN (47,8%) and 69,8 billion AZN (52,2%) of the total GDP in 2022 were created in the oil and gas and non-oil and gas sectors, respectively. Last year, the year-over-year index of nominal GDP growth created in the oil

and gas sector was 178,9% and the index of real growth was 97,3% ([data from the SSC show](#) that by comparison with 2021, oil production in the country fell by 5,5%, while natural gas production increased by 6,6% in 2022). Despite the 2,7% decline in the physical volume of new value added generated in the oil and gas sector, the 78,9% increase in its nominal value is due to the sharp rise in global oil and gas prices last year. As a result, the difference between the real and nominal value of GDP in this sector was 83%.

In 2022, the real growth rate of new value added (increase in physical volume) generated in the non-oil and gas sector was 9,1%, while the nominal growth rate was 21,6%. As we have seen, there is also a difference between real and nominal GDP growth in the non-oil and gas sector, but here the impact of price increases is smaller than in the oil and gas sector – about 11%. Since the oil and gas sector has played a great role in Azerbaijani GDP for many years, rising oil and gas prices in world markets act as the main factor *inflating* the value of the GDP in nominal terms.

Incidentally, the price index, which expresses the general price change in the goods and services that form the GDP of the reporting year, is called the GDP deflator. The GDP deflator index of the reporting year is calculated based on the comparison of nominal and real GDP of that year ($\text{GDP deflator index} = (\text{Nominal GDP} / \text{real GDP}) * 100$). According to the [information](#) provided by the Central Bank of the Republic of Azerbaijan with reference to the State Statistical Committee, the GDP deflator index for 2022 was 137,3%. A GDP deflator index above 100% indicates a general price increase (or inflation) in the country in the reporting year, while an index below 100% indicates a general price decrease (i.e., deflation). So, in 2022, the total price of goods and services that make up GDP increased by 37,3% compared to 2021. As we can see, the difference between the nominal and real growth of GDP is just as much as the GDP deflator, which reflects the general price change, that is, the nominal value of GDP is

affected by price changes.

The figure below (Figure 1) illustrates the dynamics of GDP during the period 2005-2022 at current prices (blue columns) and at the previous year's prices (red columns). The blue curve in the figure shows the change in the GDP deflator index (expressed as a percentage on the right-hand side of the figure). In the pairs of columns for each year in the figure:

1. The fact that the blue bars are smaller than the red bars (the years 2009, 2014, 2015 and 2020) indicates a decline (deflation) in overall prices during the said years – the GDP deflator index is below 100% in these years;
2. The fact that these bars are roughly equal (the years 2013 and 2019) indicates overall price stability – the GDP deflator index is very close to 100% in these years;
3. While the blue bars are larger than the red bars (periods 2005-2008, 2010-2012, 2016-2018 and 2020-2022) reflect an increase in the overall price level (inflation) – the GDP deflator index exceeds 100% in these years.

The figure shows that the GDP deflator index between 2005 and 2022 exceeds 100% in most cases; it is even well above 120% in 2008 and 2021 and 130% in 2022. In other words, at the time of our analysis, most years were accompanied by high general price increases. The figure also shows the sharp differences between the sums of nominal and real GDP during the years when the overall price growth was high.

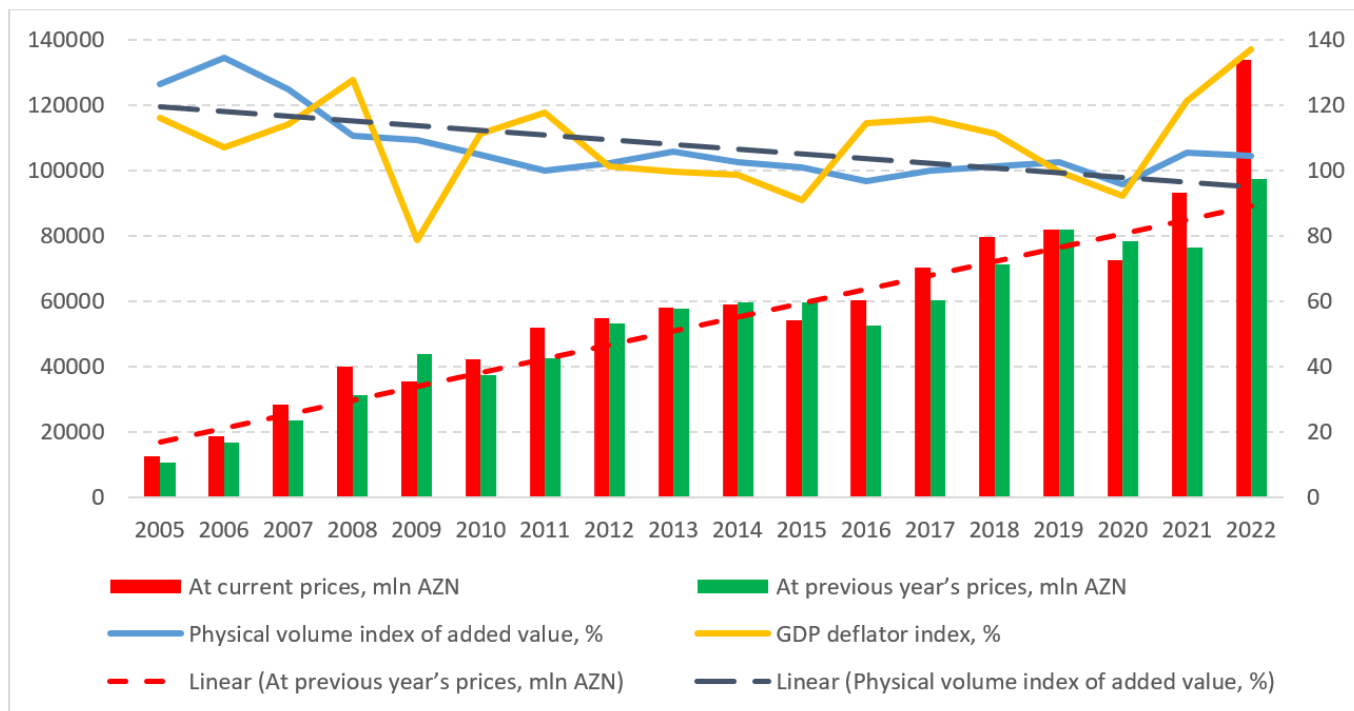


Figure 1. GDP dynamics at current and previous years' prices during the period 2005-2022 (million AZN), GDP deflator and real growth indices, % (Source: The figure is based on SSC data).

The red bars in the figure show GDP dynamics at the previous year's prices. An increase in the red bar compared to the previous year indicates real growth, while a decrease indicates that a real decline has occurred. As can be seen from the figure, GDP at the previous year's values for the same period shows an upward trend (the broken line in red): Despite declines in 2010, 2016 and 2020, the remaining years witnessed GDP growth. GDP at the previous year's prices amounted to 10,8 billion AZN in 2005 and 97,5 billion AZN in 2022: that is, GDP calculated at the previous year's prices rose 9,0 times over the period 2005-2022.

In fact, even this indicator cannot provide a complete picture of the real growth of the country's economy over the period. Because in this case the amount of the newly created value for each year is calculated *without regard* to the impact of price increases that occurred in the same year, while the impact of price increases that occurred in previous years is not

eliminated. In order to determine the growth *without regard to* the impact of price increases in previous years, we can use two indicators: 1) the real GDP growth rate by year and 2) the amount of GDP in prices of the base year (for example 2005, 2010 or 2015).

Index of physical volume of value added

The orange curve in Figure 1 traces the change in the real GDP growth index by year (in percentage terms). This indicator is also called the value-added index and shows the real growth rate of the economy compared to the previous year. As can be seen clearly, this indicator is in a downward trend during the period analyzed (the broken line in dark blue in the figure). Since the economic content of the year-over-year change in the GDP growth rate is very substantial, we will present it in a separate graph (see Figure 2).

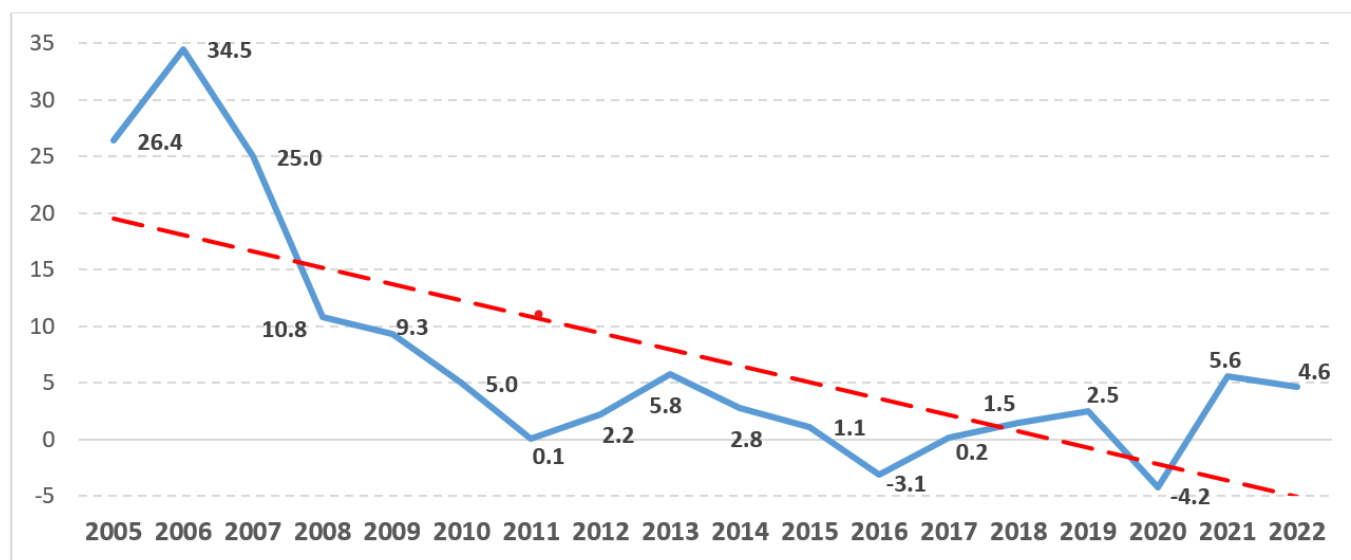


Figure 2. GDP growth rates during 2005-2022, compared to the previous year, % (Source: SSC).

As can be seen from Figure 2, the highest GDP growth rate in Azerbaijan was 34,5% recorded in 2006. In the following years, the growth rate gradually declined, surging only 0,1% in 2011. During the period after 2011, only two years – 2013 and 2021 – saw growth exceeding 5%, while in 2016 and 2020 there was a decline of 3,1% and 4,2%, respectively. On the other hand, the

trend line in the figure (broken line in red) shows that the growth rate is in a downward trend. From this figure, we can conclude that Azerbaijan's economy experienced strong growth between 2005 and 2010, but little economic growth during the post-2010 period.

GDP calculated at base year prices

To see if the above conclusion is valid, let us take a look at how GDP changed in 2011-2022 compared to 2010. The figure below shows the country's GDP for 2010-2022 at current prices of the respective years, at prices of the previous year and compared to [prices of 2010](#) (see Figure 3) [1].

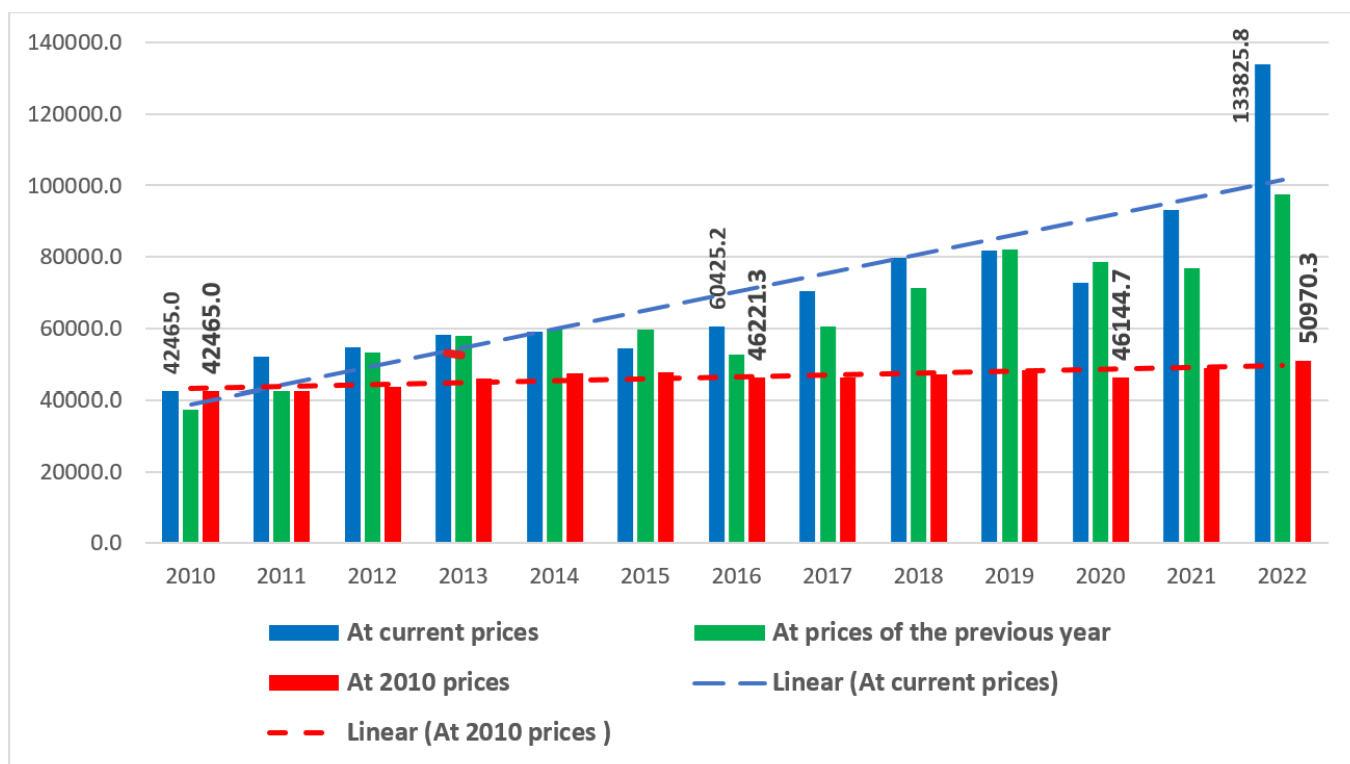


Figure 3. GDP output in 2010-2022, at current prices, at prices of the previous year and at 2010 prices, million AZN (Source: SSC)

Figure 3 shows that the country's GDP output in 2022 amounted to 133,8 billion AZN at current prices and 97,5 billion AZN at the previous year's prices and 50,97 billion AZN at 2010 prices. Above we mentioned that when GDP is calculated at previous year's prices, only the effects of the overall price

increase that occurred the previous year are eliminated. But when 2022 GDP is calculated at 2010 prices, it is *shown without regard to the impact of the total price increase for all years after 2010*. In 2022, the country's GDP, compared to 2010, grew by about 3,2 times at current prices of the corresponding years, by 2,6 times at the prices of the previous year, and by only 20% at 2010 prices. Thus, Azerbaijan's economy grew by only 20% after 2010 (through late 2022).

Taking 2005 as the base year, SSC calculates and discloses the GDP of all years by quarter at 2005 prices since 2001. Based on these data, we present in Figure 4 the GDP dynamics for 2005-2022 [at 2005 prices](#).

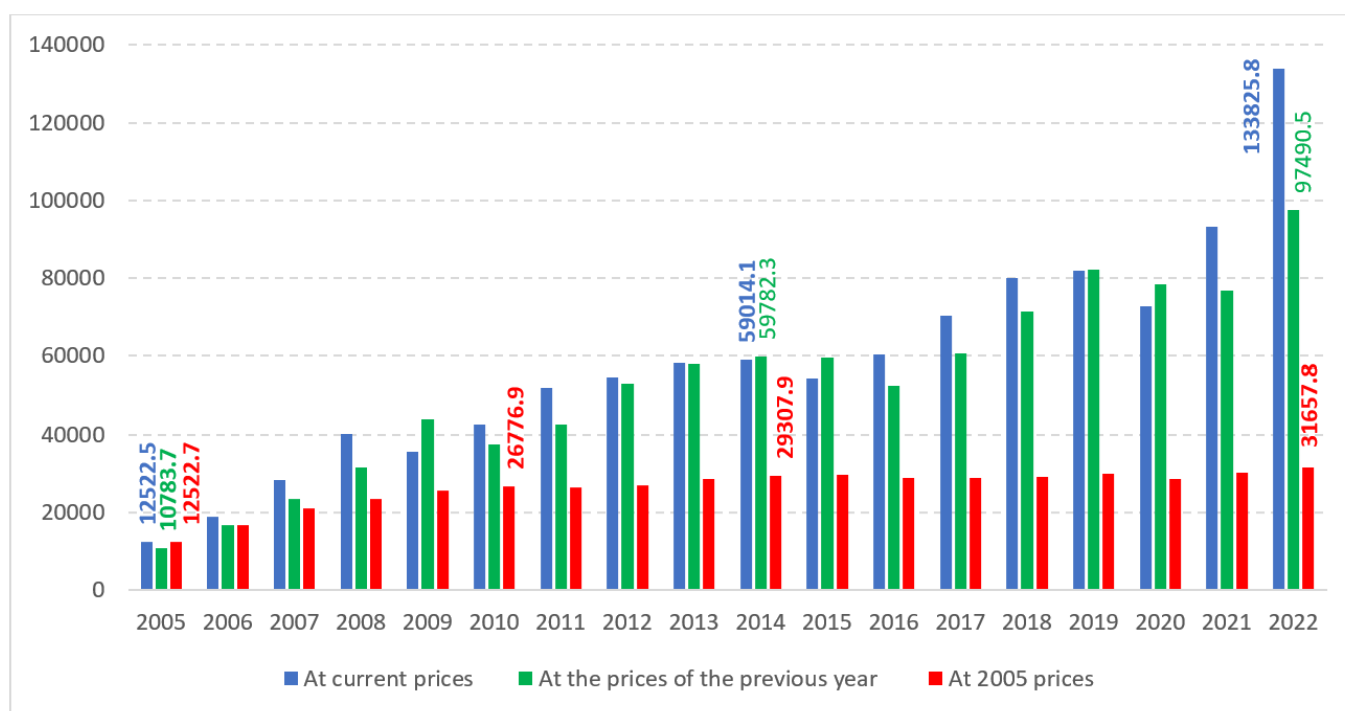


Figure 4. GDP output in 2005-2022, at current prices, at prices of the previous year and at 2005 prices, million AZN (Source: SSC)

As illustrated in figure 4, the country's GDP output in 2022 amounted to 133,8 billion AZN at current prices, 97,5 billion AZN at the previous year's prices and about 31,7 billion AZN at 2005 prices. This means that in 2022, Azerbaijan's economy

grew only 2,53 times compared to 2005 after being *calculated without regard to* the impact of the total price increase for the years after 2005.

The figure also confirms the conclusion we drew from Figure 2: for the period from 2005 to 2010, Azerbaijan's economy grew more rapidly: up to a factor of 2,14. And in the period after 2010, economic growth slowed down: overall economic growth of 18% to 20% was achieved between 2010 and 2022.

Conclusion

Thus, during the period 2005-2022, Azerbaijan's GDP at the current prices for the corresponding years went up 10,7 times, at the prices of the previous year 9 times, and only 2,53 times at the prices of 2005. The economic growth *calculated without regard to* the impact of the total price increase for the mentioned period was slightly more than 2,5 times. Mainly the period from 2005 to 2010 saw rapid growth in Azerbaijan's economy: our economy doubled in size during that five-year period. In subsequent years, the rate of growth slowed down sharply, reaching only 20 percent between 2011 and 2022.

Notes:

[1] It should be noted that [in the SSC database](#), GDP at 2010 prices is given for the years 2010-2021. The GDP amount for 2022 at 2010 prices has been calculated on a chained basis using the indicator of real growth rate for 2022.