THE BASIC PROBLEM OF ECONOMIC GROWTH CALCULATION IN THE REPUBLIC OF ARTSAKH

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Introduction. Economic development is often defined as a long-term process that provides per capita income or economic growth. In the understanding of modern economics, the main economic problems are caused not only by growth, but also by structural and institutional changes that affect the quality of life. Economic growth refers to the quantitative increase in the production of goods and services, and the term "economic development" includes changes in economic conditions that make most members of society more comfortable. Economic development, as a complex long-term and multifactorial process, is anchored on economic growth. Since the beginning of 2020, the rate of economic growth has undergone unforeseen changes all over the world, the series of global factors in Artsakh has been completed by the war unleashed by Azerbaijan.

Methodology. Statistical, analytical, comparison and abstracting methods were used in the presented scientific work. Using the statistical method, a research database was created, the most important data were selected using the abstraction method, the results were compared with the data of different countries, and the selected important factors were investigated using the analytical method.

Literature review. In researches related to economic growth, different economists presented different characteristics and interpretations. A. Lewis believed that developing economies exhibit dualism, where two economies with different structures can operate within the same country [Lewis, 1954, 92]. In the research presented by S. Das, priority is given to the two-factor model of economic growth [Das et al., 2015, 91]. It is noteworthy that in the initial stages of the research of factors related to economic growth, the authors considered productivity growth as the main factor contributing to economic growth, paying less importance to others [Griliches, 1996, 1324]. According to R. Lucas, the characteristics of economic growth have qualitative or quantitative characteristics. In this case, the quantitative factors of economic growth are influenced by the change in the savings rate, and the qualitative factors are influenced by the efficiency of investments [Lucas, 1988, 21-23]. Modern economic research emphasizes multifactor models of economic growth, which can include more than two dozen factors.

Scientific novelty. By studying the dynamic series of statistical data characterizing the economic growth, the main factors of the economic growth of the Republic of Artsakh,

the features of accounting, the possibilities of economic development in the thirty-year period around the establishment of the republic were presented, and the impact of the 2020 war on them. The comparison with the economic growth indicators of the region and countries with small economies made it possible to assess the real achieve-ments of the economic development of Artsakh, which has a closed economy.

Analysis. In the modern world, statistics is quite an "expensive pleasure", and count-ries with small and limited resources like the Republic of Artsakh, as a rule, do not have the opportunity to conduct alternative statistics in addition to the published official sta-tistics, which would allow dispelling all doubts or identifying deviations by data iden-tification. It cannot be denied that statistics is an exact science, and by combining various indicators in the economic chain, it is possible to study the main components that ensure economic growth, to assess their reliability and objectivity. The Republic of Artsakh had a dynamically developing economy before the war un-leashed by Azerbaijan in 2020. 2012-2019 the average indicator of economic growth was 10.5 percent, the indicator of gross domestic product in nominal terms also increased significantly from 150.0 billion drams to 342.5 billion drams, the indicator of GDP per capita, respectively, increased from 1023.0 thousand AMD to 2307.6 thousand AMD.

Table 1. Main macroeconomic indicators of the Republic of Artsakh

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Nominal GDP	150015	168563	188840	209345	229651	272070	310252	342463	270907	249354	288792
(million drams)	373368	411502	454030	438035	477952	563620	642358	712797	553991	494977	662870
Nominal GDP in USD	9.9	9.3	8.9	9.1	9.2	15.6	11.9	10.3	-22.4	-12.7	12.2
Real GDP growth, %	0.7	2.8	2.9	1.6	0.5	2.5	1.9	0.1	2.0	5.5	3.2
GDP deflator, %	1023.0	1174	1308.7	1443.8	1577.3	1855.9	2103.3	2307.6	1820.1	1671.9	1922.6
GDP per capita USD	2546.1	2867.7	3146.5	3021.0	3282.7	3844.7	4354.7	4803.0	3722.0	3318.8	4413.0
volume of GDP per capita (prev.year, %)	108.5	111.7	108.3	108.6	108.7	114.8	111.2	109.6	77.3	87.1	111.4
Consumption/ GDP, %	-	-	-	-	-	86.1	81.8	81.6	80.6	80.8	81.0
Private consump-tion/GDP, %	-	-	-	-	-	66.8	64.9	65.1	64.8	64.7	65.2
Gov. consump-tion/GDP, %	-	-	-	-	-	19.3	16.9	16.5	15.8	16.1	16.1
Investm./GDP, %	49.8	33.3	31.5	32.5	17.1	17.7	18.1	16.2	11.3	11.8	9.2
Net export / GDP, %	-64.2	-50.5	-51.9	-41.6	-35.9	-18.6	-20.1	-10.8	-24.9	-30.4	-24.3
Inflation (to Decem-ber last year), %	3.0	5.9	4.5	0.2	-1.4	1.5	-0.2	0.4	2.7	7.5	7.5
Inflation (period average), %	2.0	4.9	4.5	3.5	-1.5	-0.5	1.8	0.7	0.8	5.9	8.4
AMD:USD ex. rate hourly average	401.79	409.63	415.92	477.92	480.49	482.72	482.99	480.45	489.01	503.77	435.67
Index of import volatility	0.221	0.263	0.252	0.305	0.360	0.650	0.640	0.798	0.522	0.442	0.325
openness of the economy	50.3	43.3	43.5	39.0	38.1	43.8	45.7	48.2	39.5	39.3	41.4

These indicators of economic growth conditioned the positive trends recorded in the main branches of the economy, the changes in the industry, construction, and services sectors are especially noteworthy. Also important is the acceptable inflation background in the economy, which almost maintained the level of macroeconomic forecast indicators. It is also interesting to consider the changing trends of the GDP deflator and inflation in 2013-2022;
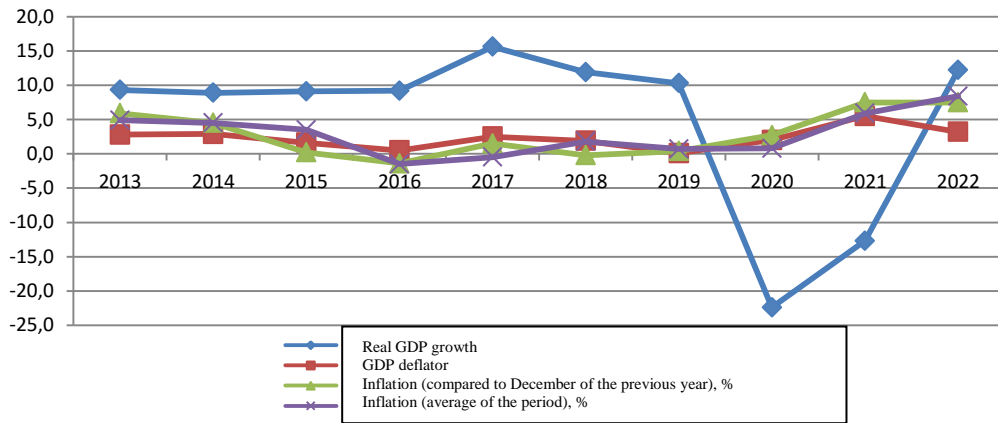

Chart 1. Trends in GDP deflator and inflation in 2013-2022.

We consider it necessary to emphasize that a number of qualitative indicators, however, have undergone worrying changes, in particular, the investment/GDP indicator decreased from 49.8 percent in 2012 to 16.2 percent in 2019, the import coverage indicator increased from 0.221 to 0.798, the economy openness indicator from 50.3 to 48.2 (showing a minimum index level of 38.1 during that period).

Being an unrecognized state, in Artsakh, however, official statistics were conducted in line with international methodology, which allows comparisons with other countries to be made. According to the International Monetary Fund's "World Economic Development Prospects" database, Equatorial Guinea ranks first with 9185% economic growth in 1990-2020, and China ranks second with 2178% [http://data.woridbank.GDP , PPP]. Moreover, if in the case of Equatorial Guinea, when the GDP index was increased from 274 million dollars in 1990 to 25,161 million dollars in 2020, it was perhaps not a difficult problem, then in the case of China, which has a large economy, such a growth rate is really an economic miracle, when the 1990 1114,609 million dollars is increased to 24274131 million dollars in 2020. It is also interesting to observe the progress of the indicators of the countries of the region. Armenia's economic growth in 1990-2020 was 402%, Russia's - 348%, Azerbaijan's - 387%. The indicator of economic growth of Artsakh in 1996-2019 was 1956.0% [https://stat-nkr.am].

Developing countries tend to have economies that are more dependent on the exploitation of natural resources in the environment [Green Growth 2012]. Green technologies and sustainable development are not very affordable or accessible to them [Shreekaracharya et al., 2012]. Naturally, they are less able to protect themselves from the negative effects of climate change and environmental degradation.

The essence of the concept of green growth is that, while economic growth is a primary goal for a country, it needs to be separated from resource use and negative environmenttal impact. A key driver of green growth is the transition to sustainable energy systems. In this context, Artsakh, as a developing country, also did not have the opportunity to protect itself from climate change or neutralize the negative effects of environmenttal degradation, especially since the introduction of a sustainable energy system in recent years (the volume of electricity production in Artsakh exceeded domestic demand in the last two years before the war) was anchored to water resources. on application.

Economic developments in the Republic of Artsakh were characterized by the economic activity index (hereinafter referred to as the economic activity index), which is published monthly, and the gross domestic product index (hereinafter referred to as GDP), which is calculated and published quarterly. The first of these, indicator of economic activity, according to the methodology of the National Statistical Service of the Republic of Azerbaijan, is an aggregated indicator of the change in the real volume of output in the country's economy. It includes all types of economic activity and is initially calculated at the average annual prices of the previous year, which gives the opportunity to have the real change in the output volume of the given month compared to the previous month and the corresponding month of the previous year. Figure 2 shows the indicator of economic activity in 2020-2022 in monthly intervals compared to the same period of the previous year (cumulative).
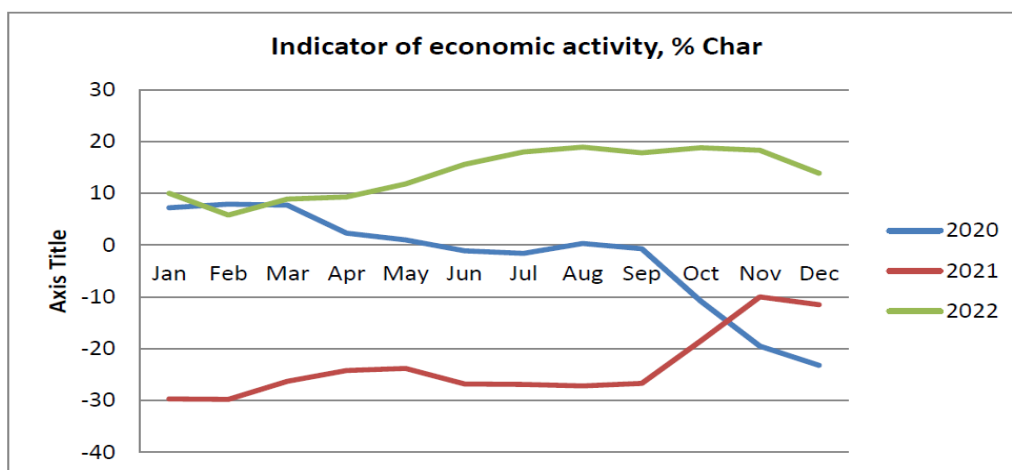

Chart 2. Economic activity index (cumulative compared to the same period last year)

It is obvious from the given indicators that since the middle of 2020, the indicator of economic activity has experienced a decline, continuing to deepen in 2021, but has improved significantly in 2022. This indicator certainly does not claim to be a reliable one for the economic growth of Artsakh, because there are deviations between the indicator of economic activity and economic growth. For economic developments, having monthly publications, indicator of economic activity creates a wide range of opportunities for studies. In particular, by looking at the changes in sectorial indicators, one can get a clear idea of which sectors have contributed to the growth or decline of economic activity. It is noteworthy that in all months of 2022, the impact of the agriculture and trade sector on the GST was positive, while the impact of the industry and construction sectors was variable.

The next and main indicator characterizing economic growth is gross domestic product, which, according to the above-mentioned source, characterizes the value of goods and services produced in the country's economy (excluding intermediate consumption) intended for final consumption, accumulation and net export. Moreover, the GDP also includes an estimate of the unobserved economy. It should also be noted that GST does not include net taxes on products and indirectly measured services of financial intermediation, which are included in quarterly and annual GDP production-based calculations. In Artsakh, in 2005-2017 the GDP indicator was calculated in two ways (production and income formation) due to the lack of an appropriate database. In 2005-2022, according to the method of income formation, 33.9-43.6 percent of the GDP was made up of the economy's gross profit and gross mixed income.

Table 2 Account and structure of PC revenue formation, 2005-2022

	2005	2010	2015	2020	2021	2022
1. Domestic output (at gross market prices)	51379.4	118187.2	209345.7	270907.2	249354.9	288792.8
	100.0	100.0	100.0	100.0	100.0	100.0
2. Gross profit and gross mixed income of the economy	21030.6	48996.4	91344.1	105303.5	84601.6	99837.4
	40.9*	41.5*	43.6*	38.9*	33.9*	34.6*
3. Consumption of fixed capital	3907.8	9010.8	24270.9	46094.5	41875.1	50069.0
	7.6*	7.6*	11.6*	17.0*	16.8*	17.3*
	18.6**	18.4**	26.6**	43.8**	49.5**	50.2**
4. Net profit and net mixed income of the economy	17122.8	39985.6	67073.2	59209.0	42726.5	49768.4
	33.3*	33.8*	32.0*	21.9*	17.1*	17.2*
	81.4**	81.6**	73.4**	56.2**	50.5**	49.8**

note: current prices in the numerator, million drams, announcement
*% to GDP, **% to gross profit and gross mixed income of the economy.

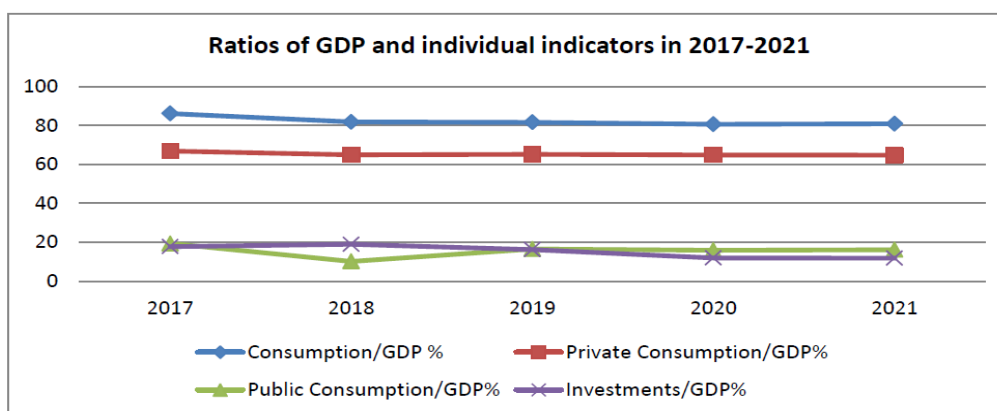Ratios of GDP and individual indicators in 2017-2021. are given in Figure 4.

Figure 4. Ratios of GDP and individual indicators in 2017-2021

According to the way of using the GDP, the final consumption expenses in 2017-2022 made up 80.7-86.2 percent of the index (see table 3).

Table 3. Use and structure of PC GDP, 2017-2022

The index	2017	2018	2019	2020	2021	2022
1. GDP, at current prices	272070.8	310252.7	342463.6	270907.2	249354.9	288792.8
	100.0	100.0	100.0	100.0	100.0	100.0
2. Final consumption costs	234528.9	254153.6	279734.5	218624.4	201863.7	241088.9
	86.2	81.9	81.7	80.7	81.0	83.5
3. Gross accumulation	49347.3	54482.1	61335.1	51836.5	47192.4	46548.6
	18.1	17.6	17.9	19.1	18.9	16.1

Table 4. Account and structure of Artskh's disposable income, 2017-2022

The index	2017	2018	2019	2020	2021	2022
1. Gross disposable income	311 155.50	352 799.80	382702.3	328 237.50	299 040.50	362012.8
	100.0	100.0	100.0	100.0	100.0	100.0
Usage:						
2. Final consumption costs	234528.9	254153.6	279734.5	218624.4	201863.7	241088.9
	75.4	72.0	73.1	66.6	67.5	66.6
3. Gross savings	76 626.60	98 646.20	102 967.80	109 613.10	97 176.80	120 923.90
	24.6	28.0	26.9	33.4	32.5	33.4

The GDP of the Republic of Artsakh in 2022 amounted to 288,792.8 million drams in 2021. 249354.9 million AMD. The GDP growth rate was 112.2 percent, the GDP deflator index was 103.2 percent. After the 2020 war, the economy of Artsakh was experiencing an economic decline for two years, which is objectively understandable. The war also had a heavy impact on the economy. The significant loss of resources (human resources, agricultural land, gardens, production capacity, etc.) had a multifold effect on the economy. And, despite the recorded double-digit economic growth in 2022, the economy was still in the recovery phase compared to the pre-war period. From the study of the GDP

"gap", it becomes clear that the main engine of economic growth in 2022 is the industry sector, from 12.2 percentage point to 9.6 percent. The services and trade sector also contributed to the economic growth, the growth of which is 5.0 percent compared to the previous year, and the contribution is 2.7 percent.

Thus, from the analysis of indicator of economic activity and GDP components, it becomes clear that although the economic growth is not widespread in all sectors, but due to the high rates of growth recorded in some of them, the average indicator is also quite high. However, this is only one side of the phenomenon, which gives an opportunity to assess the foundations of economic growth. On the other hand, talking about the strength of these foundations, we must be able to assess their reliability. As we have already mentioned, the GDP indicator, apart from the actual data of the sectors of the economy, also includes the unobserved part of the economy. The National Statistical Service of the Republic of Artsakh, in accordance with the internationally accepted methodology, adds its estimated shadow of the economy to the GDP indicator. As a rule, the government fights against the shadow with various measures. From this point of view, the simplest indicator to characterize shadow reduction is the tax revenue/GDP ratio. It is no secret that "one of the main problems of the state is to provide tax revenues due to economic growth and to increase tax revenues due to the reduction of the shadow" [Hakobyan, 2022, 101], which steadily decreased in the Republic of Artsakh from 14.8 percent in 2008 to 10.8 percent in 2008-2013. The increase in the 2017-2020 tax revenue/GDP index was partly a consequence of the reduction of the shadow, which, however, was not taken into account in the calculations of the National Statistical Service, as a result, the reduction of the shadow was reflected to a significant extent in the economic growth index, additionally contributing to the recording of a high economic growth index. , it also becomes clear from the study of the series that, along with the growth of the tax revenues/GDP indicator, the assessment of the unobserved economy has decreased, which also substantiates what has been said.
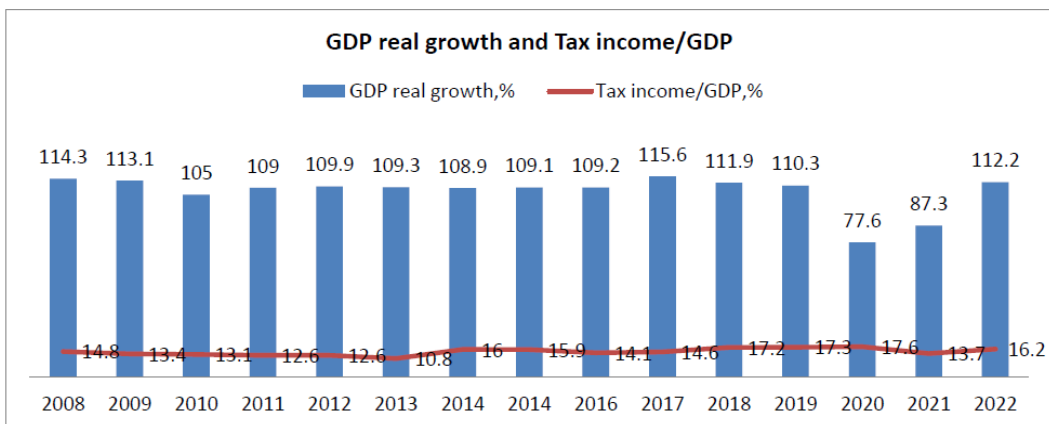

Figure 5. Taxes/GDP and Real GDP Growth (%)

Figure 5 shows the dynamics of taxes/GDP and real GDP growth indicators for 2008-2022. In 2014, the tax/GDP index increased by 5.2 percentage points compared to the previous year, mainly due to the inclusion of mandatory social payments in the income tax, and this effect was maintained in the following years as well. It is noteworthy that the tax/GDP indicator in the considered period had the highest level in 2020: 17.6 percent, which was recorded in the conditions of 22.4 percent economic decline.

Conclusions. We can conclude that, due to a number of factors, before the 2020 war, the economy of the Republic of Artsakh recorded a rather high growth vector, as a result of which above-average economic growth is continuously recorded, which is mainly due to achievements in the services and trade sectors, as well as industry and con-struction. is due to branch activation. At the same time, one of the "secrets" of recorded economic growth is the methodological problem of not revising the assessment of the unobserved economy, which, at the expense of reducing the shadow, creates the illusion of additional growth, which is also statistically reflected as economic growth.

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The basic problem of economic growth calculation in the Republic of Artsakh
Key words: economic growth, economic activity index, economic development, sustainable growth, gross domestic product, tax/gross product ratio

In the understanding of modern economics, the main economic problems are caused not only by growth, but also by structural and institutional changes that affect the quality of life. It is no secret that economic development, as a complex long-term and multifactorial process, is based on economic growth, the latter is a quantitative increase in the production of goods and services, the term "economic development", in turn, includes such changes in economic con-ditions that for most members of society make them more comfortable. For about thirty years, Artsakh has built an independent, free, state anchored on democratic values, where a person is a real value, along with his freedom and preferences. Having gone through a difficult path of establishment, having a closed and degraded, impoverished economy with limited develop-ment opportunities, however, Artsakh recorded quite good indicators of economic growth, which were higher than the countries of the region. Since the beginning of 2020, the rate of economic growth has undergone unforeseen changes in Artsakh all over the world.