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ECONOMIC LOSSES OF ARTSAKH DUE TO BLOCKADE EVALUATION REPORT *

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Since late 2022, the only "Road of Life" connecting The Republic of Artsakh with the rest of the world and feeding Artsakh's economy was closed by the self-proclaimed "Eco Activists" of Azerbaijan. This situation disrupts the normal socio-economic life in Artsakh and brings considerable financial, economic and social losses. This research aims to implement assessment of those losses of Artsakh economy, including their primary, secondary and multiplier effects, as well as the size of social and fiscal impact. To increase the accuracy of the results, several methods have been used, (both computational and model-based) with the goal of reducing the vulnerability of the obtained results.

Estimates show that because of the blockade, the Republic of Artsakh suffers significant socio-economic losses, in total at least 652 million drams (1.6 million US dollars) per day, including the loss of tax revenues, which amounts 81 million drams or about 205 thousand US dollars per day and additional primary minimum social expenses of about 36.4 million drams (92 thousand US dollars). The total socio-economic (including welfare) loss is estimated at a minimum of 753 million AMD or 1.9 million USD per day.

Key words: *The Republic of Artsakh, blockade, "Road of Life", economic losses, econometric assessment of losses.*

INTRODUCTION

Artsakh has been under siege from December 12, 2022. The only "Road of Life" connecting with the external world and feeding Artsakh's economy has been closed by the self-proclaimed "Eco Activists" of Azerbaijan. It is absolutely unrealistic that, eco-activists of Azerbaijan, which is substantially lagging behind Armenia according to the ranking of international institutions for the freedom of speech and environmental issues, are worried about the environmental issues of Artsakh, which mirrors the environmental regulations and norms of Armenia, as well as has a society living with democratic values.

Moreover, Azerbaijan was the first country in the history of **"Extractive Industry Transparency Initiative"** (EITI) - international organization in the mining sector, whose

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status was suspended in 2017 and it was done on the basis of Azerbaijan's pressure on civil society, restrictive laws and failure to meet the corrective actions (“Azerbaijan”). The same problems, severe restrictions imposed on the civil society remained unchanged in Azerbaijan in the future, as evidenced by the assessments by other bodies (“CSOSI”). From the environmental protection perspective, Azerbaijan with its regulations is lagging unprecedentedly behind Armenia (and therefore also Artsakh) also in terms of the Environmental Performance Index (EPI), ranking 104th (Armenia ranks 56th) (“Azerbaijan: Country Scorecard”).

Unlike Azerbaijan, within the same EITI membership, Armenia was among 9 countries that received the highest rating not only for meeting the international standard in mining, but also for exceeding the requirements. In addition, Armenia received a special award from EITI Chairmanship.

At the time of preparation of this document, Artsakh's "Road of Life" is still closed, which results in economic as well as social costs for Artsakh. It is obvious that the closure of the "Road of Life" paralyzes Artsakh's economy, deprives it of the supply of essential resources, making it a classic autarky. Since Artsakh's economy is small, does not have an economy of scale and is not self-sufficient, every additional day of the blockade deepens economic costs and intensifies social tension with a multiplier effect.

This document has been prepared by the request of the Government of Artsakh. Here an attempt has been made to estimate the economic losses of Artsakh due to the blockade. For the purpose of achieving a potentially precise estimation of the problem, the team of economists made assessments with several approaches, applying various toolsets (econometric and statistical assessment methods, methods of analyzing enterprise data and macroeconomic data correlation method, expert judgements based directly on GDP structure trends and fundamentals data), in order to make the results invulnerable. Moreover, the estimated economic costs were broken down to a daily level, because it is not clear how long Azerbaijan's humanitarian crisis-creating actions will last or whether they will be repeated in the future or not. Apart from the assessment of economic costs, an attempt was made to assess the burden of additional social costs, which will inevitably arise as a result of the collapse of economic structures due to unemployment and loss of income of individuals. In addition to this, the budgetary impact was also assessed, because on the one hand, the budget will be deprived of taxes and this will lead to the forced non-fulfillment of some budgetary expenditures if the volume of financial allocations from Armenia remains unchanged, on the other hand, the demand for expenditures will increase with the dictates of mitigating the caused damages or withstanding similar shocks in the future.

The results show that the total financial and economic losses of Artsakh due to the blockade (including tax cuts and additional primary minimum social spending) amount to **at least AMD 651 million (USD 1.6 million) per day**[1]. At the same time, it should be

[1] The index is the weighted mean value of the scores obtained by 4 different methods. It should also be noted that this indicator includes the actual and potential losses (what Artsakh would have tomorrow if there was no halt of economic life today (missed benefit) and what Artsakh will inevitably have tomorrow due to being under today's blockade (residual loss)). For example, at the end of December, the number of actual unemployed people is not so large, because according to the requirements of the Labor Code, they can be released from their jobs with a 2-month advance notice by the employer. Until then, people are considered formally employed (they are considered employed, but they are either on involuntary unemployment or on vacation), but they are not actually working.

taken into account that the assessment of financial and economic costs or losses includes all types of costs, including loss in society's consumption (welfare) (part of these costs is not GDP, but society's consumption)[1]. If we apply this figure for the entire period of the blockade, which already exceeds 2 months, it will show that **Artsakh has already suffered an economic damage in the amount of AMD 52 billion (USD 132 million)** [2]. It should be noted that as a result of the total closure of the economy and suspension of the operation of enterprises, **at least 16.2 thousand people will become unemployed** (mean value for 4 methods), financial compensation, in the amount of AMD 68,000 needed to maintain their minimum living are covered in the calculations above as an additional financial burden on the state. [3] The daily financial burden is estimated at about **AMD 36 million (USD 92 thousand)**, and for the entire period of the blockade (calculated for 80 days) - about AMD 2.9 billion (**USD 7.4 million**).

It should also be taken into account that as long as an individual was employed and received a salary that was several times higher than the unemployment benefit in the amount of AMD 68,000, then there is also a **loss of social welfare**[4]. Thus, taking into account also the loss of social welfare, the daily socio-economic losses of Artsakh are estimated at about **AMD 752 million (USD 1.9 million)** per day, whereas the cumulative from the day of the road closure up to now – **about AMD 60.1 billion (USD152 million)**.

Laying-off the main directions of the economic system due to the blockade also means **less taxes and budget loss**, which will inevitably lead to the forced non-fulfillment of some expenditures if the volume of budget financing from Armenia remains unchanged. The loss of taxes is estimated at around **AMD 81 million (USD 205 thousand)** per day, and around **AMD 6.5 billion (USD 16.4 million)** during the entire period of the blockade (estimated to be 80 days).

The work done and the above figures do not include two factors that are also important to mention, since the calculations on them will further impair the picture of generated costs, for which more in-depth assessments will be made in the future.

1. **Depreciation (deterioration) of factors of production as a result of non-fulfillment of required expenditures.**

If two factors of production in the economics, i.e., the human and physical capital, fail to have the necessary amount of maintenance costs, they begin to wear out faster, resulting in the loss of the ability to create GDP in the future (loss of GDP potential). For instance, if an individual fails to consume food of required calories and / or does not receive medical care, becomes exhausted, which affects his/her labor productivity. Similarly, without the necessary maintenance costs for the industrial infrastructure, a

[1] For example, when a person receives a pension, which is used to purchase imported goods and services, both flows are not GDP, but public consumption.

[2] Calculated for 80 days and AMD 68,000 per 1 unemployed by calculating unemployment benefits. At the same time, the concept of “economic damage” includes all types of financial and economic losses, including non-fulfillment of expenses due to a reduction in budget taxes and the burden of additional social compensation.

[3] Moreover, Artsakh does not have its own means to cover this financial burden, and under other equal conditions, this will lead to the formation of a new debt for Artsakh and further deepening of the debt burden.

[4] The loss of social welfare, when a person is able to purchase additional goods and services for himself and his family members at the expense of high incomes, some of which are imported. The 2022 average wage index, i.e., AMD 255,8 thousand, of Artsakh was used for the calculations.

machine, equipment or road fails and will require much greater capital investment in the future to restore what was lost. In other words, there is a deterioration of the stock of human and physical capital in the economy.

This part is still missing in the performed exercise; thus, it can definitely be stated that the prolongation of the blockade day by day leads to a need of additional ***rehabilitation costs*** *for the economy of Artsakh in the future, resulting in substantial increase in the estimates above.*

2. **Creating buffers to avoid similar shocks in the future.** The experience of Artsakh in the last two years shows that Azerbaijan regularly encroaches on the economic life of Artsakh by blocking gas, electricity, telecommunications and recently a lifeline road. This will most likely continue episodically in the future as long as the Artsakh issue is under discussion. Therefore, right now it is necessary to form buffers, which in similar circumstance will allow minimizing the social and economic costs of the Artsakh society. The focus of such expenditures can be the creation of additional alternative sources of energy, the creation of essential food reserves/supplies and necessary warehouses for their storage, the creation of fuel supplies and the creation of new infrastructures for their storage, the creation of essential medical supplies and warehouses, necessary for their safe storage, etc.

It is obvious that the latter will require substantial financial expenditures, which may even reach hundreds of millions of dollars, but at the moment they are neither estimated nor included in the indicators above.

"The following sections of the document are organized as follows: Section 1 provides an overview of Artsakh's economic situation, including its dynamics. Section 2 offers a brief explanation of the loss estimation methods used to arrive at the final estimates, giving the reader a general understanding of the process." "Sub-Sections 2.1 to 2.4 outline the logic and approaches of each method, including the numerical database used and interpretations of evaluation results. Sub-Section 2.5 summarizes the assessments made by all four methods and the resulting mean value. Sections 3 and 4 provide estimates of additional social and budgetary losses, while Section 5 summarizes the final results of the analysis."

1. Economy of Artsakh

This section briefly presents the main economic indicators characterizing the economy of Artsakh and their dynamics in the last few years, so the reader may get a general understanding of the economic structure, developments and current state of Artsakh.

In the pre-war period, the economy of the Republic of Artsakh developed at a fairly high pace, but as a result of the war, the economy experienced a decline for two years in a row. In 2015-2019, in the pre-war period the economy of Artsakh had an average annual double-digit economic growth of around 11.2%. Moreover, in 2017-2019 economic growth was even higher, averaging 12.6% per year. This is mainly explained by the small size of Artsakh's economy. Basically, the economy of Artsakh is highly integrated with the economy of Armenia and the economic growth of Armenia resonates deeper in the economy of Artsakh.[1] However, starting from 2020, bearing the disastrous

[1] The economic developments of Artsakh and RoA have the same dynamics: positive growth in RoA leads to greater growth indicators in the economy of Artsakh and vice versa. Not to

consequences of the war, the economy of Artsakh experienced a decline for two years in a row, the rate of which was 17.6% on average per year.

The biggest contribution to the decline of Artsakh's economy was made by the industrial and agricultural sectors, providing 13.0 percentage points of the 17.6% decline index. In 2020-2021, 9.5 percentage points of the 17.6% decline on average was due to the decline of the industrial sector, and 3.5 percentage points was due to the agricultural sector, which is mainly explained by the loss of Artsakh's economic territories and GDP potential. As a result of hostilities, the livestock units were reduced by about 50 percent, around 75 percent of arable land, 85 percent of pastures, about 90 percent of irrigated areas, and a significant part of orchards were left out of the control of the Republic of Artsakh. The dynamics of the latter also led to the decline of the services sector, which counted for 5.3 percentage points in the 17.6% average annual decline of GDP. The only sector that has had a positive contribution is construction, which is due to the government programs launched in 2021 to ensure housing conditions for displaced people.

Starting from 2022 the economy of Artsakh started to recover. A significant high economic growth of 18.2 percent was recorded in January-September 2022. For nine months, GDP amounted to AMD 199.6 billion (or USD 445.2).[1] However, the high growth rate was undermined by the blockade at the end of the year, which was reflected in 2022 index of economic activity (IEA). Thus, in December, the IEA decreased by 20.7%, while in October and November, the IEA growth rates continued to be high, comparable to the growth of the previous 9 months and amounted to 27.7% and 13.5.8%, respectively. Under these conditions, the annual index of GDP, according to preliminary estimates, is about AMD 293.1 billion. [2]

Starting from 2022, the spheres that have declined in the previous two years have started to recover quickly in the light[3] of the relative stability prevailing in Artsakh. In January-September 2022, there was a significant increase in the volume of industrial output, which amounted to 46.4 percent, at the expense of the growth of "Mining industry and operation of open pits" (96.2 percent real growth) and "Supply of electricity, gas, steam and good quality air" (16.7 percent real growth). The agricultural sector has also significantly recovered. In January-September, 2022 the gross agricultural product amounted to AMD 29.5 billion (USD 65.8 million), which increased by 18.8 percent year-on-year, due to the real growth recorded in the fields of crop and livestock breeding, 34.3 and 13.0 percent, respectively. As for the construction industry, the latter registered a growth in the first 9 months of 2022, compared to the high base in 2021, which totaled 7.1 percent, and the volume of construction totaled about AMD 46.5 billion (USD 103.7 million).

Despite high integration of the economy of Artsakh with RA economy, it is substantially different from the structural point of view. For example, the weight of services in the general economy in Artsakh is almost twice as small as in Armenia (the

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burden the document, we do not additionally present the macroeconomic indicators describing these developments.

[1] The indicators in USD, presented in this and subsequent texts have been obtained using the average AMD/USD exchange rate of the Central Bank of Armenia for the relevant period.

[2] When preparing the material, there were no indicators of GDP of Artsakh, therefore, the annual estimate of GDP was given taking into account the GDP growth indicators of the previous 9 months and the Index of Economic Activity (IEA) growth of the next 3 months (October-December).

[3] This refers to the conditions of the blockade and the relative absence of hostilities

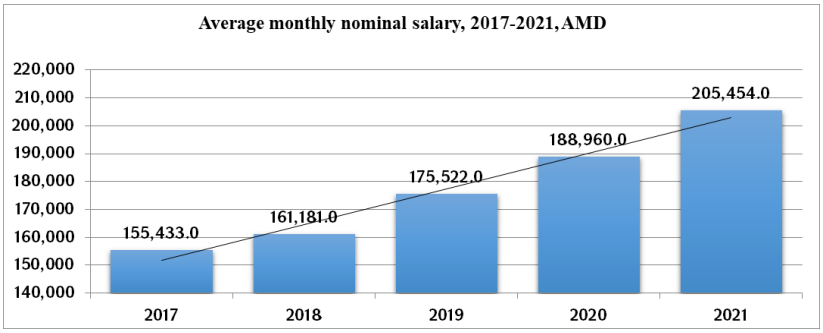
average for 2019-2022 was 19.9%, in Armenia - 40.1%). Instead, the weight of the public sector in the GDP of Artsakh is about 4 times greater than the same index of the RA economy (in 2019-2022, the average in Artsakh was 24.1%, in Armenia - 5.6%), which on the one hand provides small fluctuations of GDP indicator to exogenous shocks (in the conditions of economic standstill, civil servants do not immediately leave the workplace), but on the other hand, it significantly burdens the budget[1]. As for the sectors attributable to material production (industry, agriculture, construction), here the structure of Armenia's economy is inferior to Artsakh, in which case the stop of economic life of Artsakh (in the conditions of Azerbaijan's artificial impediments[2]) leads to a greater, in a negative sense, fluctuation of the GDP (2019 - 2022, the average weight of the mentioned sectors in Artsakh was 46.6%, in Armenia - 37.1%).

Labor Market

In post-war Artsakh, both the number and the weight of the economically active population in the total population decreased significantly, and the unemployment rate increased in 2021 vis-à-vis 2019. In 2021, the number of economically active population of Artsakh totaled 43.9 thousand, which is less than the same indicator in 2019 and 2020 by 28 thousand and 24.1 thousand respectively. The weight of the economically active population in the total population in 2021 totaled 44.9% vis a vis 52.3% in 2020, recording a drop of 7.4 percentage points. This points to the fact that after the war, mostly the employable population left the country. At the same time, the unemployment rate increased, totaling 14.1% in 2021 vis a vis 17.1% in 2020.

Most of the employed in 2021 were in the public sector (including education and healthcare sectors, around 22.2 thousand people). Those employed in the public sector made up around 60% of the total employed, but provided 35.4% of the GDP, which points to the low productivity of the post-war economy of Artsakh. The next largest sectors in terms of the number of employees are trade and services, where the number of employed is 4.5 thousand people, whereas in the industry - around 4.3 thousand people.

Graph 1. Dynamics of average wages in the Republic of Artsakh



[1] In Artsakh, education and healthcare are completely public, as opposed to Armenia, thus the public sector is larger in Artsakh. However, it is difficult to extract the indicators of public and private companies from the added values of the healthcare and education sectors in Armenia, and for comparability reasons, comparative indicators of the public sector have been taken.

[2] This refers to the situation when Azerbaijan cuts off the gas supply to Artsakh, closes the road, etc.

Table 1. GDP of the Republic of Artsakh, its structure and economic growth, 2019-2021

	GDP -by current prices, AMD B				*GDP -Structure, %*				*Tempo of real growth, %*				Contribution to GDP surplus	
	2019	2020	2021	2022*	2019	2020	2021	2022*	2019	2020	2021	2022*	2020	2021
GDP, including:	**342**	**271**	**249**	**309**	**100**	**100**	**100**	**100**	***110,3***	***77,6***	***87,3***	***114.1***	**-22,4**	**-12,7**
Agriculture, forestry and fishing	32.3	25.5	13.7	19.1	9.4	9.4	5.5	6.2	*96,4*	*77,4*	*48,7*		-2,1	-4,8
Mining industry and open pit operation	46.9	36.5	29.4	45.1	13.7	13.5	11.8	14.6	*96,2*	*77,0*	*50,3*		-9,2	-9,8
Manufacturing	28.5	10.6	10.1	8.9	8.3	3.9	4.1	2.9	*195,1*	*37,3*	*92,7*			
Supply of electricity, gas, steam and good quality air	26.8	24.3	16.6	20.2	7.8	9.0	6.7	6.5	*114,1*	*90,2*	*68,6*			
Water supply, sewage, waste management and recycling	0.4	0.4	0.6	0.6	0.1	0.2	0.2	0.2	*85,3*	*98,3*	*94,6*			
Construction	36.6	28.3	41.9	44.4	10.7	10.4	16.8	14.4	*123,2*	*77,2*	*149,9*		-2,4	5,2
Wholesale and retail trade, car and motorcycle repair	2.3	1.5	6.4	9.7	0.7	0.6	2.5	3.1	*109,0*	*66,1*	*77,4*		-6,4	-4,2

Organizing of accommodation and catering	1.2	2.7	4.4	4.3	0.3	1.0	1.8	1.4	*140,8*	*227,1*	*89,8*			
Information and contact	8.0	6.3	5.9	5.4	2.3	2.3	2.4	1.7	*113,0*	*78,1*	*106,2*			
Financial and insurance activities	31.1	29.8	26.9	33.0	9.1	11.0	10.8	10.7	*117,0*	*95,4*	*90,5*			
Public administration and defense, mandatory social insurance	79.8	70.0	61.6	69.8	23.3	25.8	24.7	22.6	*114,5*	*85,2*	*87,8*			
Education	17.7	15.9	15.7	15.4	5.2	5.9	6.3	5.0	*100,2*	*80,6*	*98,4*			
Health and social services to the population	12.0	10.1	11.0	12.1	3.5	3.7	4.4	3.9	*100,1*	*83,2*	*109,3*			
Culture, entertainment and leisure	3.7	3.6	3.2	4.1	1.1	1.3	1.3	1.3	*100,7*	*96,9*	*86,7*			
Other branches	9.9	6.4	9.2	11.4	2.9	2.4	3.7	3.7	*106,3*	*82,2*	*97,4*			
Taxes on products (minus subsidies)	16.2	11.6	10.2	19.1	4.7	4.3	4.1	6.2	*69,2*	*58,5*	*78,9*		-1,9	-0,9
Value added (gross, at basic prices)	326.3	259.3	239.1	289.5	95.3	95.7	95.9	93.8	*113,0*	*78,5*	*87,6*		-20,5	-11,9
FISIM	-11.0	-12.6	-7.7	-5.1	-3.2	-4.6	-3.1	-1.6	*87,4*	*113,9*	*60,9*		-0,4	1,8

*** The indicator is an estimate.**

In 2017-2021, an average annual increase of salaries by 6.2 percent was recorded in the republic. Moreover, the salaries increased even during the recession years, which was partly due to the fact that employers were creating additional incentives to keep their employees in Artsakh. By the results of January-September 2022, the average monthly nominal salary totaled AMD 255,836.0.

External Sector

In the post-war period, the geographical structure of Artsakh's foreign trade significantly deteriorated.

In particular, by the results of 2021, the Republic of Artsakh carried out foreign trade with 13 countries, whereas in the pre-war period - with 24 countries.

In 2021, the foreign trade of the Republic of Artsakh decreased by 14.6 percent vis a vis the previous year, while imports decreased by 8.0 percent and amounted to USD 258.4 million, and exports by 28.1 percent, amounting to USD 98.5 million. In 2021, 98.7 percent of the foreign trade was with the Republic of Armenia, 0.7 percent - the Russian Federation and 0.6 percent - other countries.

In January-September 2022, the export volume totaled USD 170.5 million, increasing 3 times year-on-year. The volume of imports increased by 72.1 percent in January-September 2022 and amounted to USD 318.9 million. The high tempo of import and export indicators also points to the rapid recovery of the Artsakh economy in the light of post-war declines.

2. Economic Losses Estimation and Estimation Methods

This section provides detailed description of 4 methods of estimating socio-economic losses caused by Azerbaijan's blockade of Artsakh. As it was stressed in the introductory part, the application of various methods and tools to estimate the emerging costs aims at strengthening the reliability of the estimation. Moreover, the estimates obtained through 4 methods were quite close to each other, hence their mean value will be presented below.

2.1. Economic Loss Estimation Method I (Estimating monthly GDP gap)

Description of the Selected Method and the Database Used

The quarterly GDP, as well as the monthly economic activity index (EAI) published by the National Statistical Service of the Republic of Artsakh were used as numerical data for the estimation using this method.

To assess the economic losses of Artsakh due to the blockade, the potential 2022 GDP (which would have been achieved if not the blockade) of Artsakh was estimated firstly (GDP is estimated based on trends without taking into account the impact of the shock). The difference between the latter and actual figures was then calculated, which represents the losses caused by the blockade (GDP gap estimate). Since, the Q4 actual GDP indicators for Artsakh were not available when preparing this document, but the actual monthly indicators for economic activity[1] were available, thus the first step was to estimate the actual GDP for Q4. The actual EAI-s of Armenia were also used for this, as well as the monthly seasonality coefficients

[1] The EAI for December is exclusive of the shock.

calculated for the monthly EAI. Since the economies of Armenia and Artsakh are fully integrated and are in the same cycle (the correlation coefficient of economic growth (EAI) is 0.95), therefore, by applying the EAI monthly seasonality coefficients of Armenia to the actual monthly growth of Artsakh, we got the quarterly EAI-s. After that taking the acceleration of Q3 and Q4 EAIs as well as applying the EAI/economic growth mean coefficient, the estimated GDP growth index (discrete) for Q4 for Artsakh was calculated. The latter was also adjusted by price variable and with the estimated nominal GDP growth index for Q4 the actual nominal GDP for Q4 was calculated, which totals AMD 93.5 billion (whereas the actual estimated annual GDP totals AMD 293.1 billion).

In the second phase, it was necessary to assess the potential level of GDP in Q4, which would have been achieved if the trends of previous quarters had been preserved and there had been no blockade of the Artsakh economy in December. For this, the economic trends of Armenia were taken for approximation purposes[1], i.e., what was the growth dynamics of economic activity in Q3 and Q4. This dynamic was also extended to Artsakh's EAIs, i.e., for December, not the actual contraction rate was taken (-20.7% in December vis a vis December 2021), but the growth rate of 12.5% without shock, calculated using a new approximation. Then the same steps are followed as in the first part to get the estimated Q4 GDP without shock. In the end, the difference between these two GDPs for Q4 is the GDP gap itself, or the amount of GDP that Artsakh lost as a result of the blockade in December. The resulting nominal value was divided by the number of days of blockade in December (December 12 to 31) and we got the **primary loss of GDP per day**.

It should also be noted that it is an economic thesis that similar economic losses also generate a loss of opportunities to create new value in the future. To be clear, if the roof of a house is damaged due to strong winds, and the landlord leases out this house and benefits from rent, then the landlord's loss is not only the cost of repairing the roof, but also the fact that the owner did not receive the amount payable during the entire repair period, i.e., he missed his profit. Thus, an attempt has also been made to estimate the missed profit or the multiplier effect of harm, as it is otherwise expressed in economic terms.

The annual growth of the Artsakh economy in 2023 without the impact of shock was estimated using the Holt Winter's exponential smoothing tool with the EViews toolset on the series of nominal growth indicators of the economy of Artsakh. [2] For 2022, a non-shock estimate was taken, i.e., the possible GDP in no-blockade situation, and Holt Winter's estimate of economic growth was applied to it. As a result, the annual nominal GDP indicator was brought to the daily, which represents the **economic loss of Artsakh, taking into account the multiplier effect of the loss**.

Assessment Results

With this approach, in Q4, 2022, it is estimated that the nominal GDP would have grown by 20.5% compared to the same quarter last year, but because of 20.7% decline of economic activity (instead of 12.5% potential growth), as a result, the actual growth of nominal GDP in Q4 was by around 8%. Therefore, it turns out that in Q4, 2022, the nominal GDP growth was lower than the potential growth by 12.5 percentage points. The estimated loss in December, 2022 was AMD 10.9 billion (about USD 27 million), or AMD 603 million drams (USD 1.5 million) per day (18 days of blockade). The latter is the primary effect of the estimated GDP loss, based on December

[1] Here we shall take into account that the integration of the economies of Armenia and Artsakh also means that the economy of Armenia was also damaged due to the blockade of Artsakh. Therefore, if we use the trends of RoA economy of the last 3 months of the year for approximation purposes, then it can be confidently asserted that the economy of Artsakh would have grown at the lowest approximate rates in December if it had the trends of RoA economy.

[2] Holt-Winter's tool allows more consideration of economic growth trends in recent years rather than in early years. In addition, the indicators of the war year and the following year were controlled (not taken into account) in order for the tool to give the accurate potential estimate.

indicators. When we try to take into account the multiplier effect (spread over 2023) in these estimates, it should be taken into account that December has larger relative share in a year, thus when applying the seasonality coefficients, this loss for 2022 is estimated on average at AMD 447 million per day (USD 1.1 million). In addition, taking into account the estimated possible GDP growth of 12.3% -with the multiplier effect, the GDP loss is **AMD 502 million (USD 1.2 million)** per day on average.

2.2. Economic Loss Estimation Method II (Estimating GDP Gap by Sectoral Structure)

Description of the Selected Method and the Database Used

In case of this method, the actual sectoral GDP indicators for the first 3 quarters of 2022, published by the National Statistical Service of the Republic of Artsakh as well as the Q4 GDP growth indicator, estimated by the previous method, have been used as digital data. Since, in case of the first method, we already have the estimated nominal values of the GDPs of 2022 and 2023 without the impact of the shock, using the sectoral weights we computed the sectoral GDPs. In particular, to estimate the 2023 sectoral GDP, the GDP forecast described in the first method was used and the estimated 2022 sectoral structure of the economy was applied to it. Then, the potential loss of each sector under the blockade environment was estimated through surveys of the companies representing each sector and based on expert judgment. For each sector, the expert judgment of the possibility of carrying out activities under the conditions of the blockade was applied with a range from 0 to 1, where 0 meant that the operation of the company (companies) of the sector was completely stopped as a result of the blockade (for example, mining) and 1, if the operation of the given sector continued even during the blockade (for example, healthcare services, although this as well as other similar sectors did not stop their operation, but it was impossible to continue their activities at the same pace. Only the loss of income of the population is enough to think that the volumes of output of such sectors will decrease). Moreover, in order to verify and strengthen the expert judgements, the turnover volumes were extracted from the January 2023 reports of 453 large taxpayers of Artsakh, were also studied (the turnover consolidation of these enterprises in accordance with the NACE classification was also performed for December indicators, which is reflected in the description of method III below). The coefficients applied for each sector are presented in Table 1.

Table 2. Coefficients derived from expert opinion on the potential for operating individual sectors amidst conditions of blockade.

Sector	Possibility of maintaining the activity in 2023 (In the range of 0 – 1, where 0 means the sector will stop its operation completely)
Agriculture, forestry and fishing	0.4
Mining industry and open pit operation	0
Manufacturing	0

Supply of electricity, gas, steam and good quality air	0.3
Water supply, sewage, waste management and recycling	0.6
Construction	0
Wholesale and retail trade; car and motorcycle repair	0.05
Transportation and warehousing	0.25
Organizing of accommodation and catering	1
Information and communication	0.8
Financial and insurance activities	0.8
Real estate activity	1
Professional, scientific and technical activities	0.2
Administrative and support activities	0.8
Public administration and defense; mandatory social insurance	0.8
Education	0.8
Healthcare and social services of the population	0.8
Culture, entertainment and leisure	0.1
Other maintenance services	0.5

Estimation Results

With this approach, the daily economic loss as a result of the blockade is estimated at around AMD 567 million (USD 1.4 million). In particular, in 2023 the nominal GDP forecast without the impact of the blockade is AMD 341.4 billion (USD 862.3 million), while in the case of a complete shutdown of some sectors, and partial suspension of the activities in the others, GDP will decrease by around AMD 207.1 billion (USD 523.1 M). If divide by the number of calendar days, the daily loss will be **AMD 567 million (USD 1.4 million)**.

2.3. Economic Loss Estimation Method III (Estimating GDP gap with a transition from microdata to macrodata)

Description of the Selected Method and the Database Used

In order to additionally verify the results obtained by the methods above, micro, i.e., enterprise level data were used under the Method III. In that sense, October-December, 2022 data as well as January 2023 data on the turnover of 453 major enterprises have been used.

The actual loss of turnover of the mentioned enterprises in December 2022 has been assessed and was converted into GDP loss, taking into account the ratio between the growth of the Economic Activity Index (EAI) and the growth of the

turnover of the selected enterprises for October-November 2022. In particular, from the microdata of individual enterprises, first a transition was made according to the classification of types of economic activity (NACE), i.e., the turnovers of enterprises were consolidated according to the NACE classification. Taking into account that the "public administration and defense" and "health care and social services of the population" sectors are missing, the data on these sectors was added in September-December 2021, taking into account the weight of the mentioned sectors in the GDP (28.5%), whereas the data for October-December, 2022 were computed by increasing the respective month in 2021 with the Q4 nominal growth of 18.2% of those sectors.

As a result, it turned out that in 2022 In October, the turnover of the selected enterprises increased by about 23% year-on-year, and in November, the growth accelerated compared to the previous month, reaching 62%. However, in December, the growth rate of turnover slowed down dramatically, making only 18.4%. Thus, in December, compared to October-November (average), the growth rate of turnover slowed down by around 61 percentage points. Considering the relation between October-November, 2022 growth in economic activity and growth in turnover from microdata of enterprises, it is estimated that the loss of EAI growth in December was around 29.5 percentage points. That is, in other equal conditions, if the "road of life" was open in December, then the December EAI would increase by about 9%, which is comparable to the growth, registered in October-November, 2022. (As a reminder - in October-November 2022, the EAI of Artsakh increased actually by about 20% on average year-on-year, and decreased by 20.7% in December).

Estimation Results

As a result of the above-mentioned estimations, the estimated GDP loss for December totaled AMD 9.5 B (USD 23.9 M). It should be noted that in December the "road of life" was closed for 18 days, i.e., the average daily loss in December totaled AMD 526 million drams (USD 1.3 M). At the same time, taking into account the fact that December has a relatively large weight in a year, so this loss for 2022 is estimated at an average of AMD 397 million or USD 1.0 million per day (annualized figure). Besides, taking into account the multiplier effect of the loss and the possible GDP growth (12.3% - multiplier effect) estimated using Holt-Winter tool in 2023, the loss totals **AMD 446 M (USD 1.1 M) per day on average**.

2.4. Economic Loss Estimation Method IV (Estimating GDP gap by econometric models)

Description of the Selected Method and the Database Used

To assess the possible GDP loss as a result of the blockade of Artsakh in 2023, the expert group also applied an econometric toolset, which, based on historical data and dynamic interactions of selected indicators, allows to estimate the expected loss of GDP at the macro level under conditions of blockade (autarky or economy without foreign trade). In particular, to estimate the possible loss of GDP,

including the multiplier effect, a structural vector autoregressive (SVAR) [1] model was constructed, and the annual data of 2002-2021 of nominal GDP growth, as well as increase of the value of export and import of Artsakh was used to estimate it. It is obvious that in case of a blockade, imports to Artsakh and exports from Artsakh come to a complete stop, i.e., the economy turns into autarky.

The model has the following matrix:

$$BY_t = C + AY_{t-1} + e_t$$

where Y_t=[〖IM〗 _t 〖,EX〗 _t, 〖GDP〗 _t] – is the vector of nominal growth of imports, exports and GDP. A is the matrix of lag effect parameters, C is the vector of "free" parameters, B is the matrix of structural parameters specified by the Cholesky structure, e_t is for the structural errors of the model.

The comprehensive (direct and indirect) effects of exports and imports on GDP were estimated using the model (see Appendix 1).

The results of the analysis of the impulse-response functions of the model show that 1% change in export growth leads to 0.11% change in nominal GDP growth, and 1% change in import growth causes 0.34% change in nominal GDP growth. [2] So, considering that 2012-2021 for years, the weight of exports in GDP was around 22%, and the weight of imports was around 58%, from the elasticity coefficients estimated by the above model, we can get the multipliers of exports and imports on GDP, i.e., what will be the change in GDP in drams in case of AMD 1 change in export and import.

The transition from elasticity to multipliers can be done with the help of the following formula:

$$\boldsymbol{M_i} = \frac{\boldsymbol{\rho_i}}{\boldsymbol{w_i}}, \qquad \boldsymbol{i} = \text{export}, \text{import}$$

Where M_i , is accordingly the multiplier of exports and imports for the GDP, ρ_i is the GDP elasticity from exports or imports, respectively, w_i is the weight of exports or imports in GDP.

Thus, applying this formula, the export multiplier is 0.48 and the import multiplier is 0.58.

Having the estimates of the export and import multipliers, we need to get an understanding of 2023 export and import volumes to estimate the GDP loss. The data for historical average nominal increase for 2012-2019 (exports - 24.7%, imports - 5.9%) were used to get the export and import volumes.

[1] For a more detailed description of SVAR models, see Walter Enders, “Applied econometric time series”, University of Alabama, Fourth edition, 2015, Chapter 5, pp. 313-335.

[2] It is important to note here that the effect of imports implicitly includes the effects of consumption and investment related to imports, since consumption and investment indicators are not included in the model. For this very reason, consumption and investment growth indicators were not included in the model in order to be able to estimate the indirect effects of imports that occur through imported consumption and investment. In addition, the positive multiplier of imports is also resulting of the fact that imported goods of intermediate consumption and capital nature are used in the production process and help create added value (GDP).

Estimation Results

Thus, in other equal conditions, if the current situation was not in place, the 2023 export of Artsakh would be around AMD 175.8 billion (USD 444.3 million), and the import would be around AMD 207.6 billion (USD 524.6 million). Assuming that it will not be possible to export and import during the blockade, then applying the multipliers **in 2023, the GDP loss will be AMD 561 million (USD 1.41 million) per day on average.**

2.5. Losses of GDP of Artsakh (Summary of 4 approaches)

The above-mentioned four methods reveal quite close and therefore worthy results regarding the economic losses of Artsakh. **Based on them, it can be concluded that the GDP loss totals USD 1.35 million per day**.

Table 3: Losses of GDP of Artsakh (summary of 4 approaches)

Approach	GDP loss in 2023, AMD M	Calculated for one calendar day, AMD M
Estimating the monthly GDP gap	183,143	502
Estimating the GDP gap by sectoral structure	207,086	567
Estimating the GDP gap with the transition from microdata to macrodata	162,686	446
Estimating the GDP gap with econometric models	204,846	561
Average, M AMD[1]	**195,949**	**534**
Average, M USD	**492.4**	**1.35**

3. Primary Social Costs Arising from the GDP Loss (Unemployment, Decline in Social Welfare)

The economic losses described above inevitably entail social tension and social costs that Artsakh has to bear. In other words, if once the life and well-being of an individual was ensured by his employment and participation in the economic activities of Artsakh, then after the blockade, the consequence of an individual's loss of job and income are costs, which have to be covered by the government of Artsakh. Therefore, in order to estimate these social costs, it is first necessary to estimate how many people will become unemployed in the conditions of a halt in economic life and a loss of GDP.

Additional unemployment resulting from the closure of road of life was estimated based on employment distribution and losses by individual

[1] Since Approaches 1 and 2 are essentially based on the December loss estimate, the average of these two approaches was used to calculate the total mean indicator.

industries/economic sectors. In particular, it was assumed that under the conditions of the same productivity, in case of such a loss of GDP, how much unemployment would arise. The main results were obtained on the basis of estimates of losses of individual sectors of the 2nd approach. As a result, it was found out that around 17.2 thousand people will become unemployed if the "road of life" remains closed. Then, taking into account the amount of GDP loss computed by other methods, the number of potential unemployed was also proportionally adjusted. **As a result, additionally 16.2 thousand unemployed people may appear on average.**

Therefore, another burden arises for the government to provide benefits to these newly unemployed people to meet at least the minimum social needs. **Thus, if AMD 68 thousand of benefit is paid per 1 unemployed person, then around AMD 36.3 M (USD 92 thousand) of additional expenditures will arise on the state budget per day.**

It should also be taken into account that as long as the individual was employed and had a job, his welfare was higher, because the salary received is clearly higher than the AMD 68,000 thousand benefit. Therefore, there is also a loss of welfare, when the individual and his/her family are deprived of the income that they received before. Therefore, to take this fact into account, the average salary of Artsakh for 9 months of 2022 was used in the calculations, which totaled AMD 255.8 thousand. As a result, in case of full compensation for the loss of welfare of unemployed persons, the daily costs will be around **AMD 136 million (USD 345 thousand).**

4. Increase in Budgetary Burden Due to the Loss of GDP

In the post-war period, about 73% of budgetary income of Artsakh is the budget loan from Armenia. The remaining 27% are tax revenues, of which 7 percentage points are taxes paid by the mining industry.

Table 4: State Budget Indicators of Artsakh

Indicators	Unit of Measure	2021 (Actual)	2022 (Plan)	2023 (Plan)
State budget revenues, including:	AMD M	175,548.3	189,554.1	185,850.0
Tax revenues (including other revenues)	AMD M	35,182.0	45,554.1	49,850.0
Budget loan from RA	AMD M	140,366.3	144,000.0	136,000.0
State budget expenditures	AMD M	224,158.5	221,035.2	215,171.4
State budget deficit	AMD M	-48,610.2	-31,481.1	-29,321.4

As for the level of expenditures and their structure, the structure of expenditures of Artsakh's budget is mainly social and this is also due to objective reasons, because in the context of the problem of about 30,000 citizens of Artsakh left homeless in the post-war

period, the share of social expenditures in the budget expenditures should obviously have increased. As a result of the loss of economic territories, the latter increases the budget tension even more against the background of the significant decrease in budget revenues and the increase in the demand for social expenses.

The structure of expenditures of the state budget of Artsakh is as follows:

Table 5: 2021-2023 State Budget Expenditures of Artsakh by Sectors

Indicators	2021 (actual, AMD M)	2022 (Plan, AMD M)	2023 (plan, AMD M)
State budget expenditures	224,158.5	221,035.2	215,171.4
including			
General public services (public and municipal administration, interest payments)	19,297.4	32,412.7	32,310.8
Public order, security and judicial activity	10,370.6	20,840.5	24,645.2
Economic relations, infrastructure, agriculture	34,018.3	31,644.9	23,544.4
Environmental protection	194.1	266.7	205.3
Healthcare	8,856.6	15,500.0	13,401.2
Culture	2,598.7	3,120.3	2,983.6
Education	13,850.7	17,331.2	15,497.0
Social protection	100,583.8	57,564.2	72,939.9
Capital investments	23,948.4	34,500.0	22,000.0
Centralized funds (Government's reserve fund, etc.)	10,439.9	7,854.8	7,644.0

The blockade of the Republic of Artsakh by Azerbaijan has a double effect on the state budget of Artsakh from the point of view of increasing the additional burden: on the one hand, due to further decline of budget revenues in the conditions of economic contraction, and on the other hand, due to the increase in the demand for mandatory fulfillment of unplanned and urgent expenditures.

Enterprises of almost all the sectors of material production and the service sector of the economy of Artsakh use imported raw materials to one degree or another (at least

fuel materials, since after the cut off of gas supply, the gas-powered transport fleet also stopped). In addition, since the overhead power transmission line from the Republic of Armenia was also disrupted by Azerbaijan, and domestic power generation only satisfies about half of the total demand, the electricity is not suppled to the production facilities. Under these conditions, only some enterprises (for example, in the financial or IT sector) or organizations in the public sector are able to continue their activities. Other organizations mainly do not conduct business and do not pay taxes.

Consequently, the limitation of the financial assistance provided by Armenia on the one hand and the fact of reducing the flows of the budgetary inflows on the other hand, lead to the fact that the budget of Artsakh has to make forced revisions reducing expenditures and setting new priorities, which means additional costs and loss in the Artsakh's socio-economic life.

Applying the tax to GDP ratio to the estimates of GDP losses by the four methods described above allows us to estimate the costs of taxes, and therefore revisions of budget expenditures and delaying, suspending or reducing the implementation of some expenditures, which is estimated at AMD 81 M or about USD 205 thousand per day and during the entire period of the blockade (calculated for 80 days) - about AMD 6.5 billion (USD 16.4 M).

On the other hand, the need to solve the problems that the state faces in a crisis situation forces the government of Artsakh to make many unforeseen expenditures from the state budget, such as:

- transportation and other expenditures incurred in order to provide the population with food and other commodities of basic need,
- due to the lack of imported electricity and gas, costs of maintenance and restoration of the energy system, of water supply in individual settlements,
- costs of ensuring accommodation of Republic of Artsakh citizens in the Republic of Armenia and of Republic of Armenia citizens staying in Artsakh,
- implementation of support programs for natural and legal persons aimed at mitigating the socio-economic consequences of the blockade and other costs.

On a daily basis, as mentioned in the previous section, the financial burden of minimum social costs alone is estimated at around AMD 36.3 M (USD 92 thousand), whereas during the entire period of the blockade (estimated to be 80 days) - around AMD 2.9 billion (USD 7.3 million). The rest of the costs are subject to further evaluation based on decision-making on the relevant measures.

Thus, the total direct burden of the state budget of Artsakh is at least AMD 117.6 M (USD 296 thousand) or 20 percent of the total budget expenditures on a daily basis. In this regard, the government of Artsakh has to cut down budgetary, first of all, capital and current expenditures of economic nature, deepening the contraction of the economy of Artsakh.

5. SUMMARY

The estimates of GDP losses, additional social expenditures and losses of budgetary taxes allow for a comprehensive understanding of the socio-economic consequences of the blockade and financial losses due to the crisis. In particular, depending on what kind of social policy target will be selected (providing minimum living conditions or normal living conditions), **Artsakh's losses are estimated to be at least AMD 651-752 M (USD 1.65-1.9 million) per day. Moreover, the longer the blockade**

lasts, the more optimistic the indicated indicators will become, because every additional day the blockade harms the economic potential of Artsakh, therefore, the costs of restoring the GDP potential are added to the estimated costs and their multiplier effects.[1]

Table 2: Financial-Economic Losses of Artsakh

Approach	Based on calculation for calendar day, AMD M (with per capita assistance of AMD 68 thousand)	Based on calculation for calendar day, AMD M (with per capita assistance of AMD 256 thousand)
Estimation of the monthly GDP gap	612	706
Assessing the GDP gap by sectoral structure	692	798
Assessing the GDP gap with the transition from microdata to macrodata	544	627
Assessing the GDP gap with econometric models	685	790
Average, AMD M[2]	651	752
Average, M USD	1.65	1.9

Annex. Description and Results from SVAR Model

Structural Vector Autoregressive (SVAR) Model Description and Steps.

A structural vector autoregressive (SVAR) model was built to estimate the possible loss of GDP as a result of the blockade of Artsakh.

The SVAR model allows to estimate the dynamic interactions between different indicators in one system/simultaneously, as well as with the structural parameters to estimate the effects between variables in the same period. The model also makes it possible to take into account the reasonable assumptions of theoretical provisions of economics or other necessary/reasonable assumptions.

The constructed SVAR model looks like this:

$$BY_t = C + AY_{t-1} + e_t$$

where Y_t =[〖IM〗 _t 〖,EX〗 _t, 〖GDP〗 _t] – is the vector of nominal growth of imports, exports and GDP at time t. A is the matrix of lag effect parameters, C is the

[1] For example, if the government does not spend the necessary money on road maintenance today, tomorrow it will be forced to rehabilitate the road, that is, to restore the functioning of the damaged road.

[2] Since Approaches 1 and 2 are essentially based on the December loss estimate, the average of these two approaches was used to calculate the total mean indicator.

vector of free term parameters, B is the matrix of structural parameters specified by the Cholesky structure, e_t is the structural errors/shocks of the model at time t.

The model was evaluated for 2002-2021, based on time series at annual intervals. The optimal lag length was chosen as one.

After the estimation of the model, the significance of the endogenous interactions between the variables was checked and the non-significant interactions were neutralized. Considering that the model was evaluated based on 2002-2021 annual data, i.e., the time series consists of only 20 observations, so zeroing out non-significant interactions reduces the number of parameters that need to be estimated and avoids the "problem of small degree of freedom".

After evaluation and quality/sustainability checks of the model, simulations were performed using impulse-response functions.

Estimated Results of the Model

The estimated[1] SVAR model has the following form of the matrix:

$$\begin{pmatrix} 1 & 0 & 0 \\ -1.13^{*} & 1 & 0 \\ -0.25^{**} & -0.07^{**} & 1 \end{pmatrix}\begin{pmatrix} IM_t \\ EX_t \\ GDP_t \end{pmatrix} = \begin{pmatrix} 24.9 \\ 46.4 \\ 31.0 \end{pmatrix} + \begin{pmatrix} 0 & 0.07 & 0.82^{***} \\ 0 & 0.58^{***} & 0 \\ 0 & 0 & 0.67^{***} \end{pmatrix}\begin{pmatrix} IM_{t-1} \\ EX_{t-1} \\ GDP_{t-1} \end{pmatrix}$$

As we can see, only 4 parameters out of 9 possible parameters were estimated in the estimated A-matrix, the estimation of the remaining parameters was limited to increasing the degree of freedom. The results of the SVAR model in the matrix above can be presented in the form of the following system of equations:

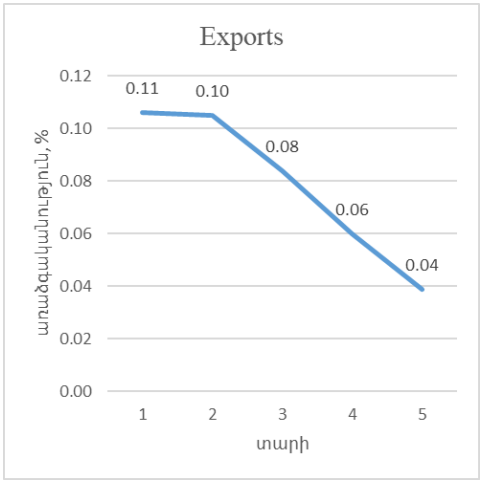
$$\begin{cases} IM_t = 24.9 + 0.07 * EX_{t-1} + 0.82 * GDP_{t-1} & (1) \\ EX_t = 46.4 + 1.13 * IM_t + 0.58 * EX_{t-1} & (2) \\ GDP_t = 31.0 + 0.25 * IM_t + 0.07 * EX_t + 0.67 * GDP_{t-1} & (3) \end{cases}$$

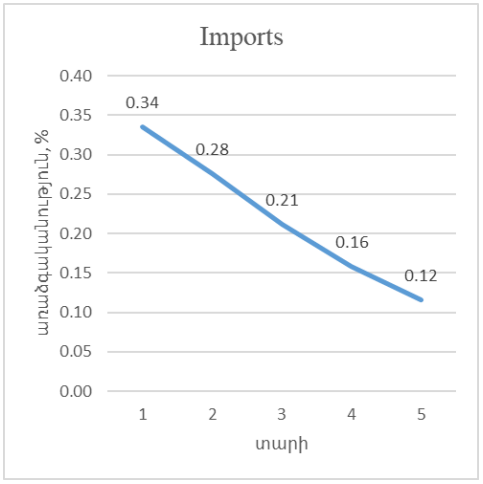
Equation 3 of the system shows that at time " t " the elasticity of GDP from exports is 0.07 and from imports is 0.25. However, as we can see from equations 1 and 2, the growth of exports and imports are endogenously interdependent. Therefore, in order to understand the full impact of the latter on nominal GDP growth, it is necessary to construct the impulse-response functions of the model.

Impulse-Response Functions of the Model

Response of 1% shock of export and import growth on GDP growth
(elasticity coefficients)

[1] Note: *** - significance level (p-value) < 1%, ** - significance level (p-value) < 7%, * - significance level (p-value) < 12%.





As we can see, from the impulse-response functions of the model, GDP elasticity from exports is estimated at 0.11%, and from imports at 0.34%.

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ՇՐՋԱՓԱԿՄԱՄԲ ՊԱՅՄԱՆԱՎՈՐՎԱԾ՝ ԱՐՑԱԽԻ ՏՆՏԵՍԱԿԱՆ ԿՈՐՈՒՍՏՆԵՐԸ ԳՆԱՀԱՏՄԱՆ ՀԵԿՈՒՅՑ

ՎԱՐԴԱՆ ԱՐԱՄՅԱՆ
Հանրային ֆինանսների կառավարման միջազգային խորհրդատու, ք. Երևան, Հայաստանի Հանրապետություն

2022 թվականի վերջից Արցախի Հանրապետությունը աշխարհին կապող և Արցախի տնտեսությունը սնող միակ «կյանքի ճանապարհը» փակվել է Ադրբեջանի ինքնահռչակ «էկոակտիվիստների» կողմից: Այս իրավիճակը խաթարում է Արցախի բնականոն սոցիալ-տնտեսական կյանքը և առաջացնում ֆինանսական, տնտեսական և սոցիալական զգալի կորուստներ: Սույն հետազոտության նպատակն է գնահատել Արցախի տնտեսության այդ կորուստները, ներառյալ դրանց առաջնային, երկրորդային և մուլտիպլիկատիվ հետևանքները, ինչպես նաև սոցիալական և ֆիսկալ ազդեցության չափը: Արդյունքների հուսալիության աստիճանը բարձրացնելու

համար օգտագործվել են մի քանի մեթոդներ (ինչպես հաշվարկային, այնպես էլ մոդելի վրա հիմնված)՝ նպատակ ունենալով նվազեցնել ստացված արդյունքների խոցելիությունը:

Հաշվարկները ցույց են տալիս, որ շրջափակման հետևանքով Արցախի Հանրապետությունն ունի սոցիալ-տնտեսական զգալի կորուստներ՝ ընդհանուր առմամբ առնվազն 652 միլիոն դրամ (1,6 միլիոն ԱՄՆ դոլար) օրական, ներառյալ հարկային եկամուտների կորուստը, որը կազմում է 81 միլիոն դրամ կամ մոտ 205 հազար ԱՄՆ դոլար օրական և լրացուցիչ առաջնային նվազագույն սոցիալական ծախսեր՝ շուրջ 36,4 միլիոն դրամ (92 հազար ԱՄՆ դոլար): Ընդհանուր սոցիալ-տնտեսական վնասը (ներառյալ բարեկեցությունը) գնահատվում է առնվազն 753 միլիոն դրամ կամ օրական 1,9 միլիոն ԱՄՆ դոլար:

Հիմնաբառեր՝ *Արցախի Հանրապետություն, շրջափակում, «կյանքի ճանապարհ», տնտեսական կորուստներ, կորուստների էկոնոմետրիկ գնահատում:*

ЭКОНОМИЧЕСКИЕ ПОТЕРИ АРЦАХА В РЕЗУЛЬТАТЕ БЛОКАДЫ ОЦЕНОЧНЫЙ ДОКЛАД

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С конца 2022 года единственная «дорога жизни», связывающая Республику Арцах с остальным миром и питающая экономику Арцаха, была закрыта самопровозглашенными «экоактивистами» Азербайджана. Эта ситуация нарушает нормальную социально-экономическую жизнь в Арцахе и приносит значительные финансовые, экономические и социальные потери. Цель данного исследования – осуществить оценку этих потерь экономики Арцаха, включая их первичный, вторичный и мультипликативный эффекты, а также размер социального и фискального воздействия. Для повышения степени достоверности результатов было использовано несколько методов (как вычислительных, так и основанных на моделях) с целью снижения уязвимости полученных результатов.

Расчеты показывают, что из-за блокады Республика Арцах несет значительные социально-экономические потери, в общей сложности не менее 652 миллионов драммов (1,6 миллиона долларов США) в день, включая потерю налоговых поступлений, что составляет 81 миллион драммов или около 205 тысяч долларов США в день и дополнительные первичные минимальные социальные расходы в размере около 36,4 миллиона драммов (92 тысячи долларов США). Общий социально-экономический ущерб (включая благосостояние) оценивается минимум в 753 миллиона драммов, или 1,9 миллиона долларов США в день**.**

Ключевые слова: *Республика Арцах, блокада, «Дорога жизни», экономические потери, эконометрическая оценка потерь.*