

Results of the Economic Security Assessment of the South Caucasus Republics

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(Presented by Academy Member Avtandil Silagadze)

The research aims to assess economic security according to the methodology developed by the authors, based on the chosen 20 macroeconomic indicators. The country's economic security was evaluated using the score evaluation method and matrix creation. Limit (threshold) values are quantitative parameters through which it becomes possible to assess the degree of vulnerability and threat of the situation formed in specific sectors of the economy. According to the evaluation of the economic security level by matrix method, the indicators of economic security are classified by the probability of occurrence of the hazard, the extent of its impact, and the stability against undesirable manifestations. Studying the relations between the country's economic security and other indicators and identifying the connections between them is of great theoretical and practical significance. Such a study best characterizes the connections between these indicators, which proves the degree of dependence and influence of the connections between different macroeconomic indicators. © 2025 Bull. Georg. Natl. Acad. Sci.

economic security, South Caucasus, Armenia, Azerbaijan, Georgia, macroeconomic indicators, regional stability, security indicators, cross-border dynamics

Nowadays, more efforts are being taken to maintain and strengthen external and internal security. This phenomenon is observed in almost all countries. In the period of new geopolitical transformations, especially for countries with a small and open economy, studies of national security, especially economic security problems (in particular, its level), became meaningful. Such an assessment identifies achievements, gaps, and deficiencies when ensuring economic security.

This research aims to observe the country's economic security level by applying the evaluation methodology based on the change of macroeconomic indicators over a long period and their deviation from the marginal indicators and, based on the evaluation results, identify the main threats and risks of economic security.

As a result of the analysis, the authors identified the main threats to economic security and the corre-

lations of economic security indicators between three countries of South Caucasus region.

Avtandil Silagadze, in his study, analyzes the peculiarities of unemployment in post-Soviet countries, highlighting the “paradoxes” characteristic of this region, which are considered as threats to economic security [1: 136-141].

Tvalchrelidze and Silagadze, in their study, present a new economic method that allows calculating the Net Present Value (NPV) of a mining enterprise at the early stage of exploration. The authors emphasize that this method can contribute to the effective capitalization of Georgia's mineral resources and attract investments in international markets, which is closely related to ensuring Georgia's economic security, considering the significant share of mineral resources in the country's export volumes [2].

Many studies highlighted the issues considered necessary for the stability and resilience of national economies. G. Rodríguez, R. Vassallo, and P. Castillo [3] examined the impact of external shocks on economic growth and stability in developing countries. Other researchers, for example, O. I. Prodius [4], discuss the structure of the strategic planning model of national-economic security, including the concept and strategy of national-economic security. A. A. Kozitsyn and M. V. Dudinskaya [5] discussed the influence of external factors. The authors also consider separate components of economic security. The specific problems of economic security were discussed by V. Golovko [6], A. A. Lashitew, M. L. Ross, and E. Werker [7], A. Kh. Markosyan [8-10], E. A. Oleinikova [11], M. V. Subota [12], N. Verkhoglyadova, O. Kakhovska, and Y. Kovalenko-Marchenkova [13] and A. Zigunova, N. Shevkunov, L. Logvinova, I. Kislov, and V. Shevchenko [14]. The works of the mentioned and other authors significantly contributed to the understanding of the problems of economic security in transition countries and the development of national economic security strategies.

Evaluation of the economic security level makes it possible to assess a state's macroeconomic policy and, as a result, quantitatively assess its separate directions.

The marginal (threshold) values of indicators are different for different countries. Another study revealed that the level of economic security indicators is determined by the difference in the economic interests and level of development of countries [8: 111-115].

Evaluation of Economic Security Using the Method of Point Evaluations

It is accepted that the evaluations of indicators characterizing economic security vary between 0 and 1, depending on the deviation from the threshold value. Let us give the following example to illustrate this. Suppose the threshold value of the inflation rate is set at 5%-6% per year. If this criterion is met in the given economy, this indicator can be evaluated with 1 point. As the inflation rate increases, the score will decrease proportionally to 0, which means that the inflation rate has reached unmanageable levels.

Let us consider the relative assessment of confirmed and probable (potential) threats as the main characteristic defining economic security. This assessment will represent the weighted average of indicators characterizing the given economy, which will be taken as the main characteristic. It will vary between 0-1.

The countries, where the main characteristic of the indicators is equal to 1 are considered safe, 0.7-0.9 – safe, 0.5-0.6 – sufficiently safe, and 0-0.4 – dangerous.

The threshold values of all included indicators were calculated based on international experience. The deviation of the actual value of each indicator from the threshold value is determined as follows: (the actual value of the given year / the threshold value of the given indicator) x 100 – 100.

If the deviation is greater than 100%, this indicator is given a score of 0 points. When the deviation varies

from 0 to 100%, the score is reduced by 0.1 points for every 10% deviation from the threshold. By averaging the scores, the economic security index (or main characteristic) was determined for each year.

Assessment of Economic Security Through Matrix Method

According to the matrix method, economic security indicators are classified by the probability of occurrence of the hazard characterized by the indicator, the extent of its impact, and the stability of the condition of its undesirable manifestations.

This method is useful for the complete analysis of economic security indicators because it allows for the study of the multifaceted interrelationship between different indicators (i.e., how the change of any indicator occurred and how it will affect other indicators).

The following values were adopted as a result of the analysis in the evaluation using indicators: The effect is rated as small if the mean value or marginal value ratio is between 0.66 and 1, medium if between 1 and 3, and big if greater than 3.

Although the general logic of the matrix method suggests that the maximum number of pointers should appear in the first box for high security, the movement of pointers will probably not occur in the shortest time, on the order of 9...5...1 box. There are many possible ways to improve performance.

The matrix applies to all selected economic security indicators. In practical application, it allows one to assess each indicator's actual state, characterize the mutual relationship between different indicators, and contribute to their planned and systemic improvement.

The evaluation procedure using the matrix is based on the analysis of past developments, the study of the factors influencing the achievement of the indicators' actual levels, and the complex observation of the operating economic mechanisms and the formed conditions.

Let us present the requirements for the indicators in the first, fifth, and ninth boxes as an example.

The fifth box should include averages of probability of occurrence and magnitude of impact. Their behavior is stable and around a defined threshold value.

Indicators in the ninth box are threats to economic security. They deviate from the defined limit values in the long term and threaten economic security due to the extent of their impact and the probability of occurrence of danger. The maximum degree of vulnerability and the high probability of the threat's implementation intersect; therefore, the realization of economic interests is greatly endangered.

A comparative analysis of the ten countries with the best living standards recognized by the United Nations, the ten best countries with the highest GDP per hour, the ten countries with the best human freedom index, and their economic security indicators have been carried out.

Analysis

The assessment of the level of economic security for specific groups of countries (whether they are united on a regional basis or by any other principle of collaboration, including globally recognized economic unions) enables not only the evaluation of the economic security levels of those countries and the countries within these unions but also provides insights into the logic and justification for the inclusion of certain countries in these formations and unions. It is clear that it is difficult to unite countries with significantly differing levels of economic security into the same union or group and to foster collaboration. In other words, the level of economic security of specific groups of countries can serve as a basis for selecting member countries for unions.

Moreover, while the formation of numerous existing economic unions globally (around 50 in number) is based on various approaches and principles, many of which cannot be quantitatively measured, the clear measurement of economic security levels can become one of the key criteria

for justifying the feasibility of forming economic unions and assessing their economic cooperation potential. Furthermore, while the formation of current economic unions often relies on political, cultural, geographical, religious, and other known and unknown approaches, the assessment of countries' economic security levels serves as a means to justify the creation of such unions and their subsequent economic activities.

In addition, evaluating the economic security levels of specific groups of countries and economic unions allows for a calculated and well-grounded approach to the future restructuring of these organizations and unions and the creation of new ones. In such cases, economic security level assessments can form the basis for the merging, consolidation, division, or separation of economic unions.

It is also worth noting that the calculated economic security indicators for individual countries or groups of countries, as well as the comprehensive assessments derived from these indicators, help identify and specify macro-indicators included in the economic security system. This, in turn, reveals the likelihood of risks and challenges emerging within the economies of these organizations and unions, the extent and duration of their impact, and the speed of changes in undesirable manifestations.

The assessment of the economic security threats of the South Caucasus countries has been carried out by us both through a scoring evaluation and using a matrix. The latter has revealed the economic security threats and the issues requiring priority solutions.

The comprehensive economic security indicators of the three South Caucasus Republics (Armenia, Georgia, and Azerbaijan), obtained through scoring evaluations, are presented in Figs. 1 and 2.

Figure 1 illustrates that the level of economic security has been the highest in Azerbaijan since the middle of 2001-2006 period. Meanwhile, during the 1995-2000 period, the composite indicator of economic security grew at the fastest rate in Armenia, and starting from the mid-2000-2006 period, the economic security levels of Armenia and Azerbaijan became equal (reaching 11.3 points). Following this, Azerbaijan experienced a continuous increase in its economic security level, peaking at 14.8 points during the 2012-2016 period, after which a slow but noticeable decline in its economic security level was observed. Notably, Azerbaijan's composite indicator of economic security began to show a downward trend starting in 2012-2016, decreasing to 13.6 points during the 2017-2022 period.

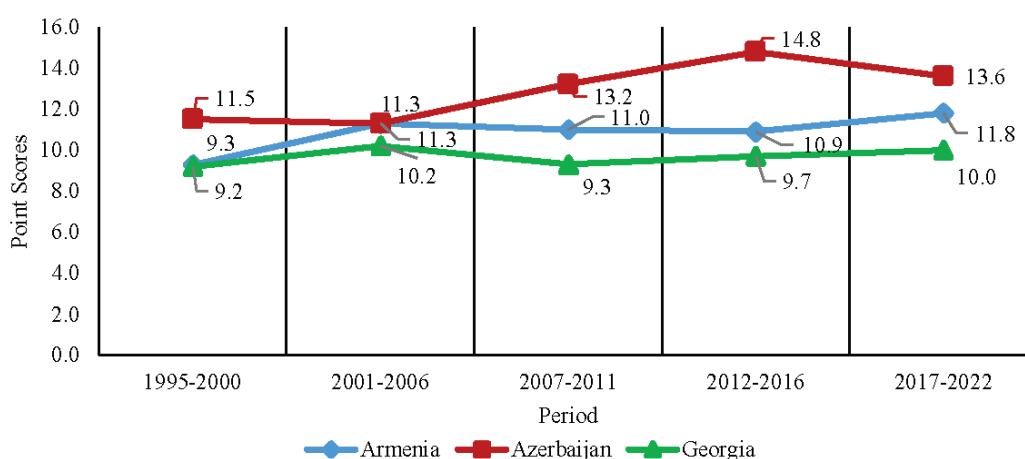


Fig. 1. Results of the Economic Security Assessment of the South Caucasus Republics Based on Average Indicators for Different Periods.

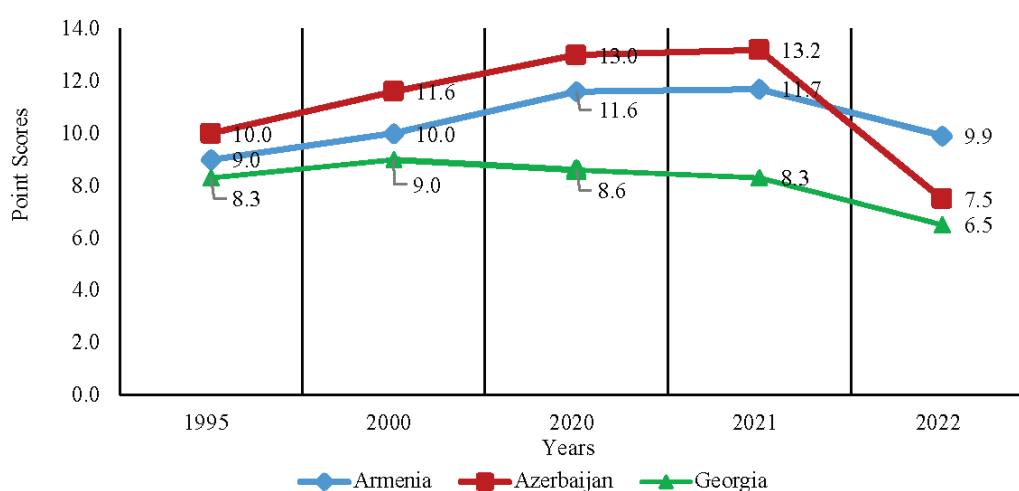


Fig. 2. Results of the Economic Security Assessment of the South Caucasus Republics Based on Indicators Recorded by Certain Years.

Armenia's economic security level demonstrated the highest growth rate among the South Caucasus republics, increasing from 10.9 points in 2012-2016 to 11.8 points in 2017-2022. In Georgia, the respective indicator rose from 9.7 points to 10.0 points, whereas in Azerbaijan, it decreased from 14.8 points to 13.6 points, reflecting a decline of 1.2 points.

The high growth in Armenia's economic security level during the initial period under review can be attributed to the radical and successful economic reforms implemented from the late 1990s to 2000. However, Armenia's economic security level experienced a noticeable decline during the 2001–2006 period, dropping to 11.3 points (a decrease of 0.3 points compared to the previous period). For an extended period (2001-2016, or over 15 years, which can be considered a stagnation period), Armenia's economic security level showed no significant upward changes and even declined by 0.4 points. Specifically, it dropped from 11.3 points in 200-2005 to 11.0 points in 2007-2011 and further to 10.9 points in 2012-2016, indicating stagnation in economic security and the need for reforms.

This situation underwent some changes during the 2017-2022 period, particularly after 2018. Improvements in Armenia's economic security would have been more pronounced if not for the

deterioration of key macroeconomic indicators caused by the COVID-19 pandemic in 2019 and the 44-day war in 2020 (notably, Armenia's economic contraction rate in 2020 was 7.2%).

As for the Republic of Georgia, its economic security level remains in a less favorable position compared to the other South Caucasus countries.

The behavior of the economic security indicators of the South Caucasus republics by certain years (Figure 2) provides a clearer depiction of the changes in economic security indicators in these countries, particularly highlighting the trends in recent years. It follows that the indicators for the Republic of Armenia show a dynamic growth trend compared to the other two countries and were essentially the highest in 2021, reaching 11.7 points. As for 2022, Armenia recorded the highest level of economic activity, with 9.9 points, while the other two republics experienced significant declines: Azerbaijan recorded 5.7 points, and Georgia 1.8 points.

Conclusions

The analysis of economic security indicators across the South Caucasus republics reveals several key findings. Over the period from 1990 to 2022, the economic security levels of Armenia, Georgia, and Azerbaijan have exhibited both commonalities and

differences, influenced by structural changes in their economies.

Commonalities among the South Caucasus Republics. A significant number of economic security indicators have shown similar trends across all three republics. In particular, indicators such as GDP per capita, the Gini coefficient, and the share of machinery in industrial production have remained within the same matrix cell for all countries, indicating persistent economic challenges and vulnerabilities.

The poverty rate and income inequality (Gini coefficient) have been at consistently high levels across the region, highlighting the need for targeted social policies to address economic disparities.

External factors, including global economic conditions, trade relations, and regional stability, have played a crucial role in shaping economic security trends in all three countries.

Differences in economic security across the region. The economic trajectory of Azerbaijan has diverged from that of Armenia and Georgia, primarily due to its oil and gas exports, which significantly boosted GDP growth, especially between 2004 and 2014. However, post-2014, Azerbaijan's economic security levels declined, reflecting a dependency on natural resource revenues.

Armenia and Georgia have shown greater economic security similarities, particularly in areas such as unemployment rates, household consumption levels, and investment in fixed assets. This suggests that both economies face similar structural challenges and may benefit from common economic strategies.

Public debt levels also differ across the three republics, with Georgia exhibiting higher external debt-to-GDP ratios, while Armenia has maintained relatively stable debt levels.

Economic growth and structural adjustments.

The period between 1995 and 2003 saw economic security indicators converge, indicating a period of relative stabilization after the economic downturn of the early 1990s.

From 2004 onward, the divergence in GDP per capita widened, with Azerbaijan benefiting from oil revenues, while Armenia and Georgia pursued more diversified economic strategies.

Investment in R&D, industrial production, and infrastructure development has remained low across the region, affecting long-term economic security and competitiveness.

Social-Policy Implications and Recommendations [see also 15, 16]. Given the high levels of economic vulnerability, governments in the region should prioritize policies aimed at economic diversification, reducing dependence on a single industry (such as oil in Azerbaijan) or external financial support.

Enhancing human capital, improving technological capacity, and strengthening regional cooperation could contribute to greater economic stability.

Addressing poverty and income inequality remains a key challenge that requires comprehensive social policies, including labor market reforms and investment in education and innovation.

The findings underscore the need for sustainable economic policies that can mitigate risks associated with global market fluctuations, resource dependency, and structural imbalances. While Azerbaijan has leveraged its natural resource wealth, Armenia and Georgia have focused on gradual economic diversification. Moving forward, regional cooperation, economic reforms, and strategic investments will be crucial in enhancing the economic security and stability of the South Caucasus republics.

ეკონომიკა

სამხრეთ კავკასიის ქვეყნების ეკონომიკური უსაფრთხოების შეფასების შედეგები

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(წარმოდგენილია აკადემიის წევრის ა. სილაგამის მიერ)

წინამდებარე კვლევის მიზანია შერჩეული 20 მაკროეკონომიკური მაჩვენებლების საფუძველზე ავტორების მიერ წარმოდგენილი მეთოდოლოგიის მიხედვით ეკონომიკური უსაფრთხოების განსაზღვრა. ქვეყნის ეკონომიკური უსაფრთხოება განისაზღვრა ქულებით შეფასების მეთოდისა და მატრიცის საშუალებით. ზღვრული მნიშვნელობები წარმოადგენს რაოდენობრივ პარამეტრებს, რომელთა მეშვეობითაც შესაძლებელია ეკონომიკის კონკრეტულ სექტორებში არსებული მდგომარეობის მოწყვლადობისა და საფრთხის ხარისხის შეფასება. ეკონომიკური უსაფრთხოების დონის მატრიცული მეთოდით შეფასების მიხედვით, ეკონომიკური უსაფრთხოების მაჩვენებლები კლასიფიცირდება საფრთხის წარმოქმნის ალბათობის, მისი ზემოქმედების მასშტაბისა და არასასურველი გამოვლინებების მიმართ სტაბილურობის მიხედვით. ქვეყნის ეკონომიკურ უსაფრთხოებასა და სხვა მაჩვენებლებს შორის კავშირების შესწავლასა და მათ გამოვლენას დიდი თეორიული და პრაქტიკული მნიშვნელობა აქვს. ასეთი კვლევა კარგად წარმოაჩენს და ადასტურებს სხვადასხვა მაკროეკონომიკურ მაჩვენებლებს შორის კავშირების დამოკიდებულებისა და გავლენის ხარისხს.

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