

The Socioeconomic Impact of the Zangezur Corridor on the South Caucasus Region

Соціально-економічний вплив Зангезурського коридору на регіон Південного Кавказу

Elshan Hashimov ^{A B}

Dr in National Security and Military Sciences, Professor, e-mail: hasimovel@gmail.com, ORCID: 0000-0001-8783-1277

Aziz Talibov ^B

Dr in National Security and Military Sciences, Professor, e-mail: talibovaziz65@gmail.com, ORCID: 0000-0002-0572-7212

Khayal Iskandarov ^C

Corresponding author: PhD in National Security and Military Sciences, e-mail: khayal1333@gmail.com, ORCID: 0000-0001-8975-6530

Ельшан Хашимов ^{A B}

доктор у галузі національної безпеки та військових наук, професор, e-mail: hasimovel@gmail.com, ORCID: 0000-0001-8783-1277

Азіз Талібов ^B

доктор у галузі національної безпеки та військових наук, професор, e-mail: talibovaziz65@gmail.com, ORCID: 0000-0002-0572-7212

Хаял Іскандаров ^C

Corresponding author: к. наук з національної безпеки та військових наук, e-mail: khayal1333@gmail.com, ORCID: 0000-0001-8975-6530

^A Azerbaijan Technical University, Baku, Azerbaijan

^B National Defense University, Baku, Azerbaijan

^C Institute of Control Systems, Baku, Azerbaijan

^A Азербайджанський технічний університет, Баку, Азербайджан

^B Національний університет оборони, Баку, Азербайджан

^C Інститут систем управління, Баку, Азербайджан

Received: June 06, 2025 | Revised: August 09, 2025 | Accepted: August 31, 2025

DOI: <https://doi.org/10.33445/sds.2025.15.4.1>

Purpose. To critically assess the socio-economic impact of the Zangezur Corridor on the regions it traverses, with a focus on key indicators such as employment, income levels, migration trends, local business development, and social infrastructure.

Method. SWOT and PESTEL analyses, triangulation analysis.

Findings. The research is among the first academic studies evaluating the socio-economic effects of the Zangezur Corridor. Its operation has already led to the creation of new jobs in the region. According to the survey, 72% of respondents feel that new employment opportunities have emerged. Official statistical forecasts predict that while the unemployment rate stood at 8% in 2021, it will drop to 4.5% by 2025. Approximately 70% of respondents indicated a willingness to remain or return to the region. Enhanced employment opportunities and the development of social infrastructure have reduced migration to large cities and, in some cases, even encouraged reverse migration. The construction of new roads, transport networks, and logistics centers has accelerated economic development. The corridor has facilitated the market access of agricultural and industrial products, thereby expanding export possibilities. The results demonstrate that the Zangezur Corridor is not merely a transportation route but also a strategic project that fosters the region's socio-economic development. Successful implementation of the project requires stronger public-private partnerships and the formulation of long-term socio-economic plans.

Practical implications. Strategic recommendations are provided for future economic and infrastructure projects in the region. The results suggest that targeted investments in transport infrastructure can stimulate the growth of local businesses, enhance market access for agricultural and industrial goods, and diversify regional economies.

Value. This paper offers original empirical insight into one of the most strategically significant yet understudied infrastructure projects in the South Caucasus—the Zangezur Corridor.

Paper type. Empirical.

Мета дослідження. Критично оцінити соціально-економічний вплив Коридору Зангезур на регіони, через які він проходить, з акцентом на ключові показники, такі як зайнятість, рівень доходів, тенденції міграції, розвиток місцевого бізнесу та соціальна інфраструктура.

Метод дослідження. SWOT і PESTEL аналіз, триангуляційний аналіз.

Результати дослідження. Це перше академічне дослідження, яке оцінює соціально-економічні наслідки Коридору Зангезур. Його робота вже призвела до створення нових робочих місць у регіоні. За опитуванням, 72 % респондентів вважають, що з'явилися нові можливості працевлаштування. Офіційні статистичні прогнози прогнозують, що рівень безробіття, який у 2021 році становив 8 %, скоротиться до 4,5 % до 2025 року. Близько 70 % респондентів висловили готовність залишитися або повернутися до регіону. Посилення можливостей працевлаштування та розвиток соціальної інфраструктури зменшили міграцію до великих міст і, в деяких випадках, навіть сприяли зворотній міграції. Будівництво нових доріг, транспортних мереж і логістичних центрів сприяло економічному розвитку. Коридор полегшив вихід на ринок сільськогосподарської та промислової продукції, розширюючи можливості експорту. Результати свідчать, що Коридор Зангезур — це не просто транспортний маршрут, а стратегічний проект, який сприяє соціально-економічному розвитку регіону. Успішна реалізація проекту вимагає посилення державно-приватного партнерства та формулювання довгострокових соціально-економічних планів.

Практична цінність дослідження. Наведено стратегічні рекомендації щодо майбутніх економічних та інфраструктурних проектів у регіоні. Результати свідчать, що цілеспрямовані інвестиції в транспортну інфраструктуру можуть стимулювати зростання місцевого бізнесу, покращити доступ до ринку сільськогосподарської та промислової продукції і диверсифікувати регіональні економіки.

Цінність дослідження. Ця робота пропонує оригінальні емпіричні висновки щодо одного з найстратегічніших, але недосліджених інфраструктурних проектів у Південному Закавказзі — Коридору Зангезур.

Тип статті. Емпірична.

Key words: Zangezur corridor, social situation, regional integration, unemployment, logistics infrastructure, transport corridors, environmental security.

Ключові слова: коридор Зангезур, соціальна ситуація, регіональна інтеграція, безробіття, логістична інфраструктура, транспортні коридори, екологічна безпека.

Introduction

Geopolitical realities play a decisive role in shaping a state's foreign policy orientation. The geopolitics of the South Caucasus is particularly complex, volatile, and fragile. Comprising three independent states—Azerbaijan, Georgia, and Armenia—that once belonged to the same imperial structure, the region underwent significant transformation following the dissolution of the Soviet Union. Since gaining independence, each of the South Caucasus republics has pursued a distinct geopolitical trajectory: Armenia has aligned itself with the Collective Security Treaty Organization (CSTO), Azerbaijan has adopted a more independent and balanced foreign policy vis-à-vis major powers, while Georgia has consistently signaled a strong pro-NATO stance. The region's persistent instability is exacerbated by the absence of a comprehensive peace agreement between Armenia and Azerbaijan, Russia's growing assertiveness, and the lack of a substantive NATO presence—all of which are key factors in understanding the current geopolitical landscape of the South Caucasus (Iskandarov et al., 2019). Although the three republics of the South Caucasus have pursued divergent policy paths since the dissolution of the Soviet Union, their destinies remain inextricably intertwined. As Sadiyev and Iskandarov (2018) argue, it is impossible to assess emerging security threats in the region without accounting for the broader geopolitical and interdependent realities among these states. The strategic significance of the South Caucasus–Caspian region is further amplified by the presence of vital transport corridors that generate substantial economic benefits for a wide range of countries. One of the most secure, efficient, and geopolitically viable routes connecting East and West originates in China, traverses Central Asia, the Caspian Sea, the South Caucasus, and Türkiye, and ultimately extends to Europe.

In recent years, large-scale infrastructure projects—particularly in transport and logistics—have substantially elevated the South Caucasus region's geostrategic significance (Abdirakhimova, 2024; Talibov et al., 2023). In this context, the Zangezur Corridor assumes particular significance. Presently, there is a unique opportunity to enhance the abovementioned route's efficiency and security through the establishment of this corridor. By unlocking the full potential of this corridor, the region stands to benefit from strengthened economic and trade relations across a vast geography, thereby fostering greater regional development and integration. In this context, Azerbaijan's proactive role in developing and operationalizing the East–West transport corridor has been widely acknowledged and appreciated by partner nations. Azerbaijan continues to pursue a dynamic and multi-layered cooperation strategy aimed at enhancing the corridor's functionality and strategic value (Gawliczek & Iskandarov, 2023). Beyond enhancing trade and transport connectivity, this corridor has the potential to bring about qualitative shifts in the socio-economic landscape of the regions it traverses. Global experience demonstrates that large-scale transport initiatives not only expedite regional integration but also exert a profound influence on local livelihoods improving income levels, infrastructure development, and employment prospects.

It is important to underscore that initiatives like the Zangezur Corridor are not confined to bolstering economic power alone; they also hold considerable potential to foster social development and promote cultural integration (Hajiyeva, 2024). This is particularly vital in the post-conflict period, as it contributes to improving living standards, generating employment opportunities, and integrating local entrepreneurs into regional and global markets. Enhanced infrastructure in the region also strengthens key sectors such as agriculture, tourism, and industry. At the same time, pressing social challenges—including migration management, the prevention of rural depopulation, and even the stimulation of reverse migration—gain prominence.

The launch of the Zangezur Corridor, beyond its economic advantages, significantly accelerates the attraction of new investments in the construction, transport, and service sectors (Macid et al., 2024). This development creates broad opportunities for public–private sector collaboration. Enhancing logistics, production, and processing infrastructure, in turn, revitalizes the

region's agricultural sector by increasing the export capacity of agricultural products (Saqib & Naazer, 2023). Moreover, the planned infrastructure along the corridor extends beyond roads and transportation to include anticipated improvements in communications, energy, water supply, and other essential utilities.

The primary objective of this article is to undertake a comprehensive analysis of the Zangezur Corridor's impact on the social conditions of populations residing in the regions it traverses. The study begins by examining existing theoretical frameworks and practical experiences related to the integration of large-scale transport projects into the socio-economic sphere. Subsequently, drawing on surveys and official statistical data from the region, the research evaluates the corridor's effects on key indicators such as social welfare, employment, income levels, and migration dynamics. From a sustainable development perspective, the article also seeks to propose ways to uphold ecological integrity and social justice. Ultimately, the research aims to offer a holistic understanding of the opportunities and prospects that the Zangezur Corridor presents for local communities.

The implementation of large-scale transport projects stimulates economic activity and brings about positive changes in the social conditions of populations in the affected regions. Transport corridors often promote job creation, boost tourism development, and enable the faster and more efficient export of local products to international markets. While numerous studies on the Zangezur Corridor have primarily emphasized its geopolitical and logistical significance, research on its social impact remains relatively scarce. To address this gap, more comprehensive studies are needed—particularly those that explore aspects such as social welfare, migration patterns, and cultural-spiritual dynamics. Indeed, major international transport corridors not only enhance trade turnover but also lay the foundation for long-term infrastructure renewal and improvements in overall social well-being.

Theoretical background

Theories of regional integration suggest that the formation of transport corridors in any region serves to expand that region's economic, social, and even cultural ties. In this context, transport projects playing a transit role between Central Asia and Eastern Europe (e.g., the "One Belt, One Road" initiative) have significantly influenced regional integration (Saqib & Naazer, 2023). Aliyeva et.al (2023) claim that the success of such projects depends not only on economic factors but also on political stability, social support, and adherence to environmental standards.

Numerous studies underscore the substantial influence of transport corridors on social well-being, particularly through their positive effects on employment rates and income generation. The construction of new roads and rail infrastructure generates short-term employment in the construction sector while fostering long-term job creation in logistics and related services. For instance, a World Bank study demonstrates that the development of transport corridors not only revitalizes regional economies but also improves access to essential resources such as healthcare, education, and public services, thereby substantially enhancing overall social welfare (Stokenberga et al., 2024). Global experiences reveal that investments in transportation infrastructure—particularly fast and comfortable mobility—strengthen the so-called "multiplier effect" in the tourism sector. This effect helps local communities create additional jobs in lodging, dining, entertainment, and cultural activities (Frechtling & Horváth, 1999). In the agricultural sector, improvements in logistics infrastructure expand opportunities for processing and exporting products. For farmers, the formation of more favorable logistical networks helps reduce product losses and improve production efficiency. At the same time, local producers gain broader access to foreign markets, enabling them to gain additional income sources (Abbasov, 2024). Environmental impacts have also drawn scholarly attention, with some researchers specifically focusing on their assessment in the context of transport corridors (Teo et al., 2019). However, there is a noticeable paucity of scholarly research specifically addressing the prospects of the Zangezur Corridor, which

underscores the relevance and timeliness of this topic for academic inquiry. Shokri (2024), Gawliczek & Iskandarov (2022; 2023) discuss the plausibility of the Zangezur corridor being used and highlights its importance as an integral element of the global transit route. The authors conduct comparative analysis of different transit routes and justify the advantages of opening this corridor for all stakeholders and underscore the regional unity in the South Caucasus as a prerequisite for eliminating or at least mitigating economic dependence and healing the “regional fracture” of decades. Iskandarov et al. (2020) highlight the geopolitical importance of the Caspian basin and the impact of its energy resources on the energy security of non-regional countries. The book edited by Azhgaliyeva et al. (2024) provides an in-depth analysis of the development of the Middle Corridor within the Central Asia Regional Economic Cooperation (CAREC) region, with particular emphasis on supply chain resilience and trade facilitation. It explores the potential economic benefits of transport corridors, including the enhancement and diversification of cross-border trade, stimulation of domestic production, attraction of investment, job creation, and reduction of transportation costs. At the same time, the book highlights significant barriers to the further development of trade and transport infrastructure, such as difficulties in securing long-term financing, regulatory divergence, high initial costs, the complexity of managing large-scale investments, risk mitigation challenges, and uncertainties regarding the projected benefits. Deen et al. (2023) highlight the establishment of a transport link between mainland Azerbaijan and its exclave Nakhchivan—commonly known as the Zangezur Corridor—as one of the most contentious yet strategically significant elements of the Armenia–Azerbaijan normalization process. A segment of the existing literature posits that improved infrastructure can mitigate migration flows to major urban centers by stimulating economic activity within the region. Concurrently, the generation of new local employment opportunities may curb rural depopulation and even foster return migration. This perspective is particularly reinforced by studies examining socio-economic rehabilitation in post-conflict regions (Isgandarli, 2022).

In summary, a comprehensive review of the literature suggests that large-scale infrastructure projects such as the Zangezur Corridor have both direct and indirect effects across a range of economic sectors. These effects encompass employment, migration, agriculture, tourism, and the preservation of cultural and spiritual values. The analysis of existing studies underscores the importance of integrating environmental and social responsibility into such initiatives to ensure their contribution to sustainable development.

Data and methods

A mixed-method approach was employed to comprehensively assess the impact of the Zangezur Corridor on the social conditions of populations residing in the areas it traverses. The methodological framework integrates both quantitative and qualitative data collection and analysis, enabling a multifaceted evaluation of economic-statistical indicators alongside in-depth insights into the social welfare of local communities. The primary methods and analytical tools used are outlined below:

1. **Collection of Statistical Data:** Official reports and statistical bulletins from the State Statistics Committee, the Ministry of Labor and Social Protection, and other relevant governmental bodies were reviewed. Key indicators such as population growth, employment levels, average monthly incomes, and agricultural and industrial output were gathered. These data sets served as the basis for comparing socio-economic conditions before and after the operationalization of the corridor.

2. **Modeling Socio-Economic Indicators:** Descriptive and regression analyses were conducted using the compiled data. A multiple regression model was applied to explore the relationship between socio-economic outcomes and various independent variables—such as infrastructure spending, the number of logistics facilities, and population migration. The model helped establish statistically significant associations between the corridor’s development and changes in employment and income levels.

3. Semi-Structured Interviews: Interviews were carried out in several strategically selected regions along the corridor. Participants included local residents, farmers, municipal leaders, and representatives of local executive authorities. These interviews focused on perceived changes in social welfare, migration trends, employment opportunities, and public attitudes toward the corridor project. This qualitative data helped contextualize the observed trends in the quantitative analysis.

4. Focus Group Discussions: Focus groups were organized in the same regions, targeting specific social segments such as youth, women, farmers, and small and medium-sized entrepreneurs (SMEs). These discussions yielded rich, contextual insights into the corridor's socio-economic effects and captured current concerns and expectations regarding infrastructure development. Findings were cross-compared with interview data to identify convergences and discrepancies.

5. Triangulation Analysis: To enhance methodological robustness and reduce bias, a triangulation strategy was employed, comparing results from both quantitative and qualitative streams. This integrative analysis enabled the identification of inconsistencies and reinforced the overall validity of the findings.

6. SWOT and PESTEL Analyses: A SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) was conducted to evaluate internal and external factors influencing the corridor's development. Additionally, a PESTEL framework (Political, Economic, Social, Technological, Environmental, Legal) was applied at the macro level to systematically analyze broader structural influences affecting the corridor.

The main limitations of the methodology are as follows:

Restricted access to certain areas during fieldwork constrained direct observation efforts.

The subjectivity of respondents in interviews may have introduced bias; to mitigate this, data were triangulated by comparing inputs from multiple respondents within each category.

Temporal discrepancies in statistical datasets—owing to variations in reporting intervals and data coverage—posed challenges for conducting precise longitudinal comparisons.

This mixed-method research design facilitates a comprehensive and balanced analysis of both quantitative and qualitative dimensions of the socio-economic landscape in regions influenced by the Zangezur Corridor. By integrating diverse data sources and methodologies, the study enhances the reliability, validity, and objectivity of its findings, thereby offering a nuanced evaluation of the corridor's actual impact on social welfare and regional development.

Results

Building on the methodological framework outlined earlier, this study offers a comprehensive analysis of the socio-economic transformations in the regions affected by the Zangezur Corridor. The section begins with a presentation of the quantitative (statistical) data, followed by an examination of the qualitative findings derived from interviews and focus group discussions. Finally, the results from both approaches are triangulated to provide an integrated and holistic assessment.

Quantitative Analysis Results

Based on data from the State Statistics Committee, the Ministry of Labor and Social Protection, and other official sources, notable shifts were observed in several key socio-economic indicators along the Zangezur Corridor (see Table 1).

In the five years preceding the corridor's operationalization, the average annual population growth rate in the region stood at approximately 1.2 %. Following the expansion of infrastructure under the project, this figure increased to 1.8%, accompanied by signs of reverse migration in certain rural areas.

Additionally, the unemployment rate declined significantly—from 12.5 % to 7.5 %—with the majority of new employment opportunities emerging in construction, agriculture, logistics, and the service sector.

Table 1. Changes in Major Socio-Economic Indicators in the Region

Indicators	Before the Corridor	After the corridor (Forecast)
Population (thousands)	250	280
Unemployment Rate (%)	12.5	7.5
Average Income Growth (%)	2.0	6.5
Industrial & Business Growth (%)	5.0	15.0

Average monthly income increased from 2.0% to 6.5% compared to previous years. The growth rate of entrepreneurial activity nearly tripled, in parallel with the support of vocational training courses and local start-ups.

Due to reduced logistics costs, farmers' productivity rose by 15–20%. New enterprises focusing on product processing and packaging have enabled farmers to generate added value.

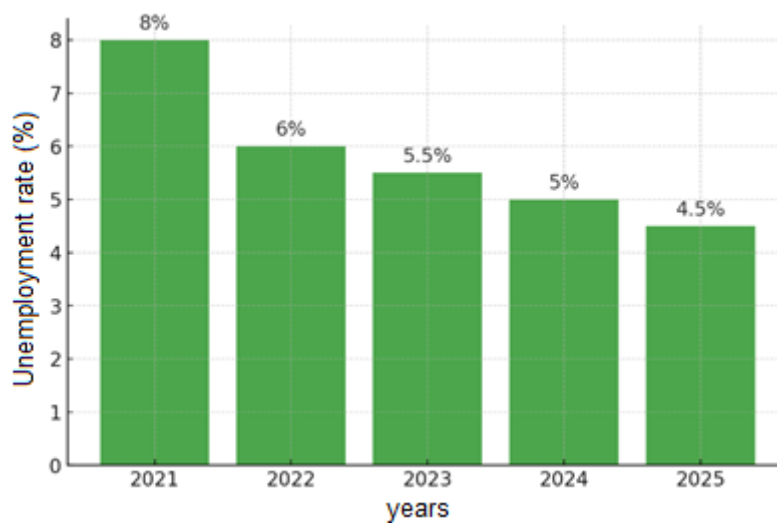


Figure 1. Comparison of unemployment rates before and after the launch of the Zangezur Corridor

A survey of 300 people was conducted to measure local awareness of the Zangezur Corridor, its impact on employment and income growth, and individuals' future plans regarding residence. The survey findings indicate that the majority of respondents (85%) are aware of the corridor and believe it has contributed to socio-economic changes in the region.

According to the survey:

72% of respondents feel that new employment opportunities have been created in the area;

65% believe their income has increased;

70% plan to remain in or return to the region.

Table 2 summarizes the survey results.

Table 2. Survey Data (n=300)

Question	Positive Response (%)	Negative Response (%)
Are you generally aware of the Zangezur Corridor?	85	15
Do you feel the corridor has created new job opportunities here?	72	28
Do you believe your income has increased?	65	35
Do you intend to stay in or return to the region in the future?	70	30

These findings are consistent with official statistical indicators. For example, the unemployment rate stood at 8 % in 2021 and is projected to decline to 4.5 % by 2025. This trend corresponds with survey results, where 72% of respondents reported observing the creation of new employment opportunities.

Official economic reports indicate that the average monthly income, which stood at 520 AZN in 2021, is projected to increase to approximately 750 AZN by 2025. This upward trend is supported by survey findings, with 65 % of respondents reporting an improvement in their income levels. Taken together, both the statistical data and public opinion surveys suggest that the socio-economic impact of the Zangezur Corridor is both substantial and far-reaching.

Qualitative Findings

Semi-Structured Interviews. Representatives from municipal and executive authorities highlighted not only the economic advantages of infrastructure projects but also their broader social benefits. In particular, they emphasized that infrastructure modernization has enhanced the quality of essential public services such as healthcare and education. Many farmers and rural residents also pointed out that improved transport networks have significantly increased their ability to deliver agricultural products to market, thereby enhancing their competitiveness in local economies. As market access has expanded, household incomes have risen, and in some instances, individuals who had previously migrated to urban areas have returned to their home communities. Furthermore, the opening of a major transport corridor has reduced shipping times for both raw materials and finished goods, prompting logistics companies to lower freight costs—thereby creating favorable conditions for the emergence of innovative business models.

Focus Group Discussions. As part of this study, focus group discussions were conducted to capture the perspectives of various social groups regarding the impact of the Zangezur Corridor. Participants included youth, women, farmers, entrepreneurs, and local community representatives. The primary objective was to assess how the economic and social effects of the corridor differ across groups and to identify the expectations of the local population.

Findings from the focus group discussions indicate that young people generally perceive the Zangezur Corridor positively, particularly in terms of enhanced employment opportunities. Many youth participants emphasized the scarcity of job prospects in the region, noting that new infrastructure projects are creating career pathways in fields such as logistics, trade, agriculture, the service sector, and tourism. However, some respondents highlighted the need to modernize local higher education and vocational training institutions, arguing that the long-term benefits of such infrastructure initiatives will be fully realized only through the development of a skilled workforce.

Women participating in the discussions reported that the corridor's operation, and the subsequent growth in service-sector employment—especially in tourism, hospitality, public catering, and small business—have contributed to increased female economic activity. Nonetheless, participants emphasized that the expansion of women's entrepreneurship is contingent upon improved access to investment, credit facilities, and targeted state support. Women engaged in household production and small-scale businesses particularly stressed the importance of gaining access to broader markets via the corridor as a key factor for future growth.

Representatives from the farming and agricultural sectors noted that, since the corridor became operational, market access for agricultural products has significantly improved. In the past, long delivery times and high transportation costs resulted in substantial post-harvest losses. The improved transport infrastructure has helped mitigate these challenges. Farmers also expressed strong support for the development of local processing and packaging facilities along the corridor, emphasizing that such infrastructure would increase the added value of agricultural goods and enhance their export potential.

Entrepreneurs highlighted the corridor's positive impact on the regional business climate. Participants pointed to reduced logistics costs, expanded access to new markets, and improved trade

linkages as drivers of increased commercial activity. However, they also identified the need for greater investment inflows and reinforced state support mechanisms to fully capitalize on these gains.

Local community representatives observed a decline in outward migration from the region, and in some cases, even a reversal of migration trends. One of the key factors prompting the return of former residents is the emergence of new employment opportunities generated by the corridor. At the same time, several respondents underscored the need for continued investment in social infrastructure—particularly in education, healthcare, and housing—to ensure sustainable regional development.

Focus group discussions revealed the following key insights:

New employment opportunities have emerged for youth, however, enhancements in vocational and higher education systems remain necessary.

Women have benefited from increased opportunities in small business and the service sector, yet, sustained state support is essential for advancing women’s economic participation.

Farmers have gained improved access to markets for agricultural products, however, the establishment of local processing and packaging facilities is critical for value addition.

Entrepreneurs have identified new trade opportunities, nevertheless, further investment and the introduction of concessional financing mechanisms are needed.

Outmigration from local communities has decreased; yet, continued development of social infrastructure—particularly in education, healthcare, and housing—is imperative.

These findings suggest that the Zangezur Corridor has a transformative impact not only on economic development but also on broader aspects of social welfare. To fully realize the corridor’s potential, it is essential to strengthen public-private partnerships, prioritize local needs, and develop comprehensive long-term strategies.

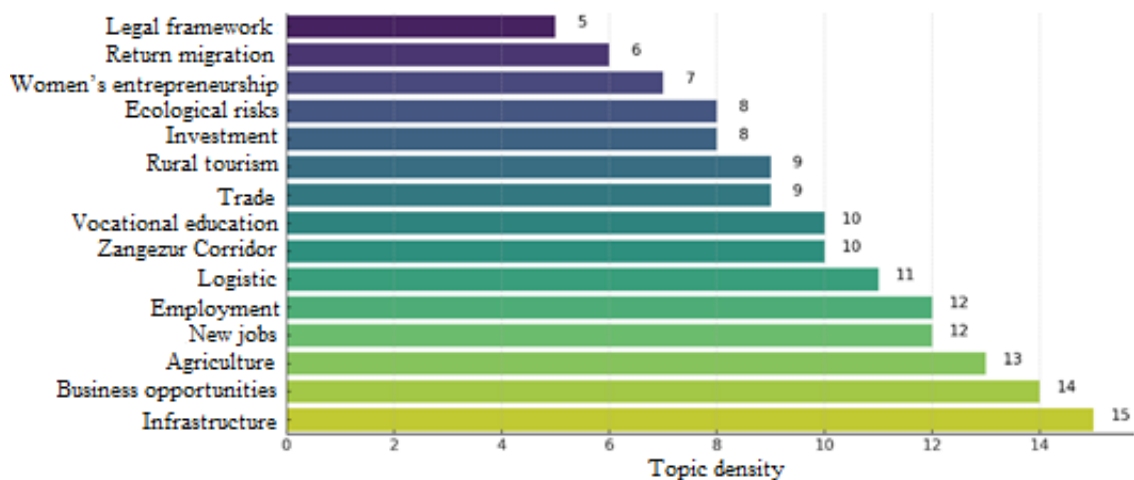


Figure 2. Key topics identified from focus group discussions – frequency diagram

Triangulation Analysis. In this study, a triangulation approach was adopted to ensure consistency and cross-validation between quantitative and qualitative data. By employing this method, the degree of convergence among data collected from various sources was assessed, thereby strengthening the objectivity and credibility of the findings. This approach is rooted in the comparative analysis of statistical (quantitative) data and field-based (qualitative) evidence.

During the triangulation process, official statistical indicators, field observations, interview responses, and focus group findings were systematically compared. The alignment across these data sources was evaluated according to the following key dimension:

1. Unemployment Rate and Expansion of Employment Opportunities:

Quantitative data: Statistical evidence shows that the unemployment rate stood at 8% in

2021 and is projected to decline to 4.5 % by 2025.

Qualitative data: Results from focus groups and field interviews confirm that new infrastructure projects—particularly in transport and logistics—have played a pivotal role in expanding employment opportunities.

Triangulation conclusion: Both data sets point to a marked decline in unemployment and a notable increase in job availability. However, some regions continue to face shortages of skilled labor, highlighting the need for targeted workforce development.

2. Income Growth and Local Economic Activity

Quantitative data: According to statistical projections, the average monthly income increased from 520 AZN in 2021 to an anticipated 750 AZN by 2025.

Qualitative data: Entrepreneurs interviewed and surveyed in focus groups reported that the development of new transport infrastructure has enhanced trade turnover and contributed positively to household incomes.

Triangulation conclusion: Both data sources converge, indicating a rise in average income levels. The key contributing factors include reduced logistics costs, expanded trade opportunities, and increased agricultural productivity.

3. Local Business Expansion and Investment Inflows

Quantitative data: The number of small and medium-sized enterprises (SMEs) in the region rose from approximately 1,200 in 2021 to a projected 2,000 by 2025.

Qualitative data: Field interviews confirmed notable growth in commerce and service sectors, driven by heightened demand along the corridor.

Triangulation conclusion: Both sources confirm the expansion of the business sector. Nevertheless, entrepreneurs emphasized the necessity for increased investment and more accessible concessional financing to sustain growth.

4. Migration and Settlement Patterns

Quantitative data: Official statistics indicate a decline in out-migration to urban centers and a modest rise in return migration to the region.

Qualitative data: Focus group discussions and resident interviews supported these trends, attributing them to improved local economic conditions and job creation along the corridor.

Triangulation conclusion: The alignment of qualitative and quantitative data suggests that the availability of new employment opportunities has mitigated rural-to-urban migration and, in some areas, stimulated reverse migration.

5. Assessment of Environmental and Social Issues

Quantitative data: Available statistical data on environmental impacts remain limited; however, the scale of infrastructure and industrial development may entail ecological risks.

Qualitative data: Several focus group participants expressed concerns regarding the environmental implications of infrastructure projects and noted deficiencies in social service provision in certain areas.

Triangulation conclusion: Environmental and social concerns are more prominently reflected in qualitative accounts. The lack of comprehensive statistical data underscores the need for further research to assess ecological sustainability and the adequacy of social infrastructure.

As a result of the triangulation analysis, the following key conclusions have been drawn:

Both official statistics and qualitative research consistently confirm a decrease in unemployment alongside an expansion of employment opportunities.

Rising average incomes and increased business activity are evident across both quantitative and qualitative data sets.

A decline in outward migration and a corresponding increase in regional settlement have been observed; however, further longitudinal research is necessary to assess the sustainability of this trend.

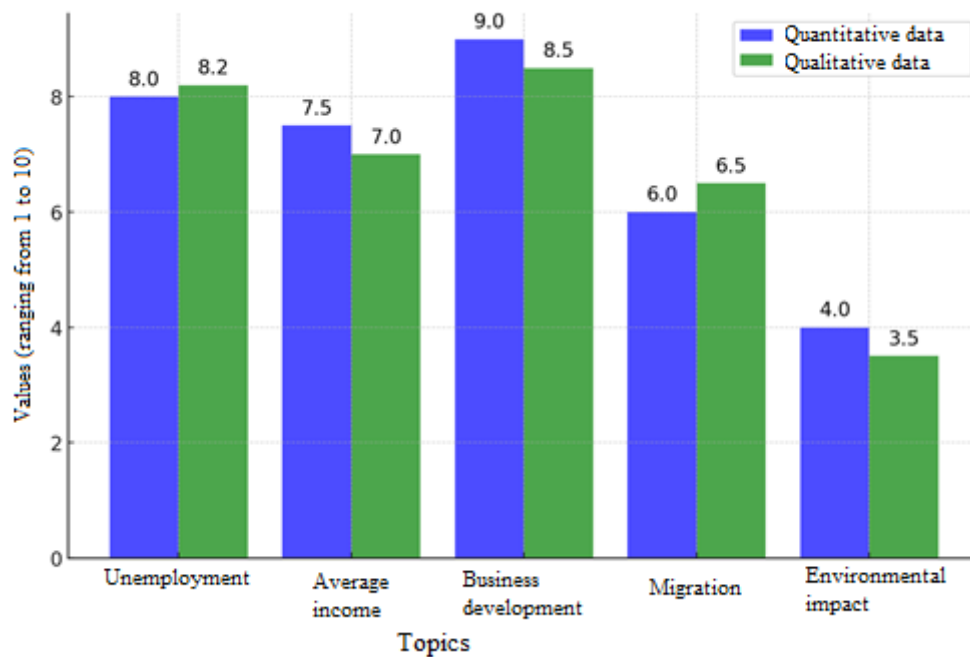


Figure 4. Triangulation analysis: a bar chart comparing quantitative and qualitative findings

Data on ecological and social impacts remain insufficient, with official statistics limited and local communities expressing diverse perspectives, underscoring the need for more comprehensive data collection.

These findings suggest that the socio-economic impact of the Zangezur Corridor is generally consistent across official statistics and field research. Nonetheless, additional investigations—particularly into ecological concerns and social infrastructure—are essential. The integration of diverse data sources has facilitated a more objective and balanced analysis, thereby informing strategic recommendations for future planning.

Table 3. Main indicators of the SWOT analysis

Category	Description
Strengths	Strengthened regional economic development, enhanced logistics and transport infrastructure, increased export potential, tourism development, and government/international support.
Weaknesses	Incomplete infrastructure projects, a shortage of skilled human resources, insufficient social services in certain areas, and inadequate assessment of environmental impacts.
Opportunities	Broader international trade, growth in agriculture and industry, adoption of technological innovations, increased investment flows.
Threats	Geopolitical risks, ecological and ecosystem-related challenges, financial constraints, and strains on the regional labor market.

PESTEL Analysis

The PESTEL framework provides a comprehensive lens through which to examine the political, economic, social, technological, environmental, and legal dimensions shaping the Zangezur Corridor's operations and long-term viability. The key findings are summarized below:

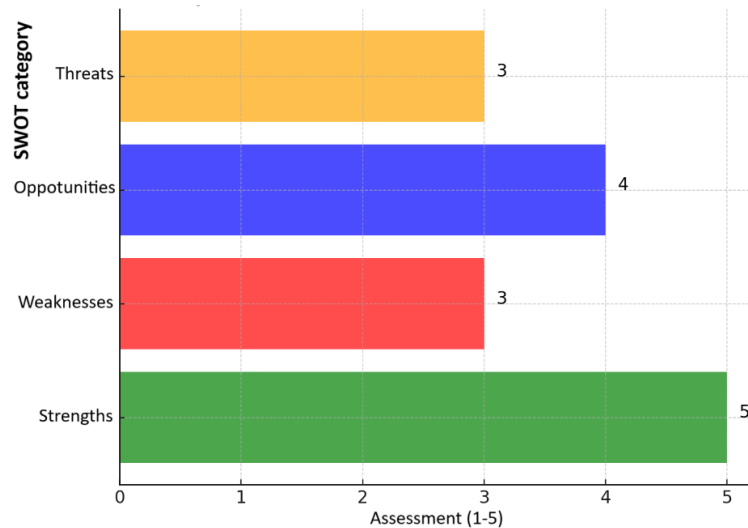


Figure 5. A bar chart illustrating key SWOT indicators

1. Political Factors

The Zangezur Corridor is a strategically significant transport and logistics initiative with both regional and international implications. Political dynamics and state involvement are central to its implementation:

The Azerbaijani government has played a proactive role, offering substantial financial and infrastructural support.

The corridor is poised to enhance regional trade connectivity and streamline international freight transportation.

Volatile inter-state relations and potential regional conflicts pose risks to long-term stability.

Nonetheless, by fostering interdependence through economic cooperation, the corridor may contribute to regional political stability.

2. Economic Factors

The economic implications of the Zangezur Corridor are among its most prominent features, promising to stimulate regional development:

Investment attraction: The corridor has increased the region's attractiveness to both domestic and foreign investors.

Employment generation: The development of logistics hubs and supporting sectors has contributed to a decline in unemployment.

SME growth: Enhanced connectivity has bolstered the competitiveness of small and medium-sized enterprises.

Infrastructure funding gap: Full operationalization of the corridor demands continued investment from public and private stakeholders.

Trade expansion: Improved export opportunities have emerged for both agricultural and industrial producers situated along the route.

3. Social Factors

The corridor's social implications are reflected in improved livelihoods, migration regulation, and expanding economic participation:

Job creation: The corridor has generated new employment opportunities, directly improving household incomes.

Migration reversal: Economic revitalization has slowed outward migration and encouraged return migration to the region.

Uneven access to services: Deficiencies in healthcare and education infrastructure remain, particularly in more remote areas.

Empowerment of women: Women's participation in the workforce has grown, particularly in service-oriented sectors such as tourism, hospitality, and retail.

4. Technological Factors

Technological modernization is a critical driver of the corridor's efficiency and future scalability:

Digital logistics: The deployment of automated freight systems and digital supply chain platforms has improved logistical performance.

E-commerce growth: Local businesses increasingly utilize digital trade platforms, expanding their market reach.

Innovation gaps: Full technological integration is constrained by funding limitations and a shortage of technical expertise in certain sectors.

Skills development: Strengthening vocational and technical education is essential to building a capable workforce aligned with modern logistics and IT standards.

5. Environmental Factors

Large-scale infrastructure initiatives inevitably interact with local ecosystems, necessitating a careful balance between development and sustainability:

Ecological disruption: Road and infrastructure construction pose risks to local biodiversity and landscapes.

Green transport solutions: Integrating renewable energy sources into logistics operations can mitigate environmental degradation.

Waste management concerns: Rising levels of industrial and agricultural waste require robust environmental monitoring systems.

Sustainable tourism: Promoting ecotourism and the green economy can add environmental and economic value to the region.

6. Legal Factors

A robust legal framework is essential to facilitate smooth operations, protect stakeholders, and ensure long-term success:

Alignment with international law: The corridor aligns with key legal frameworks governing cross-border trade and transit.

Regulatory reform needs: Gaps persist in legislation concerning environmental protection, transport safety, and trade facilitation.

Investor protections: Enhancing legal guarantees for private sector actors remains a priority to encourage sustained engagement.

The Zangezur Corridor is positioned as a transformative project capable of advancing regional development, international trade integration, and socio-economic welfare. However, its long-term success depends on addressing several structural challenges—including ecological sustainability, comprehensive technological integration, and legal reform. Realizing the full potential of the corridor will require robust public-private collaboration, with strategic emphasis on environmental stewardship and inclusive development.

Discussion

The analysis reveals that the socio-economic effects of the Zangezur Corridor are multifaceted and evolving. Prior to the corridor's establishment, socio-economic indicators in the region remained at moderate levels. However, the launch of large-scale infrastructure projects, the enhancement of logistics capacities, and the influx of new investments have collectively contributed to reshaping the region's macroeconomic landscape.

Employment and Labor Market Dynamics. A marked reduction in unemployment and the creation of new jobs—especially within the construction, agriculture, logistics, and service sectors—have significantly stimulated economic activity. Several rural localities that previously suffered from chronic unemployment have witnessed instances of reverse migration, which serves as a strong proxy for both economic revitalization and improved social well-being. To sustain this momentum, emphasis must be placed on workforce specialization and aligning local educational institutions with emerging labor market needs.

Income Growth and Entrepreneurial Expansion. The rise in average monthly income, coupled with the proliferation of entrepreneurial ventures, has strengthened the region's economic resilience and autonomy. The expansion of trade networks and access to new markets has particularly benefited small and medium-sized enterprises (SMEs), reinforcing their contribution to local economic dynamism. In this context, increasing the availability of concessional financing and enhancing government support frameworks could act as catalysts for accelerated and inclusive regional development.

Migration and Demographic Trends. The corridor has also had a stabilizing effect on regional migration flows. As employment prospects and infrastructure improve, a growing number of former migrants are contemplating a return to their home regions. Nevertheless, the long-term sustainability of this trend depends on the continued enhancement of social services, particularly in healthcare, education, and community infrastructure. Without such developments, the region may struggle to retain or attract populations in the long run.

Forecast models for the next 5-10 years

As part of this research, a series of forecast models were developed to examine the projected socio-economic impacts of the Zangezur Corridor over a 5–10 year horizon. These models facilitate the evaluation of key indicators such as unemployment rates, average monthly income trajectories, and migration dynamics.

The forecasting methodology was grounded in historical statistical data, which served as the empirical foundation for constructing linear regression models. Optimal parameters were identified through model calibration to ensure accuracy and robustness in the projections. Based on these parameters, socio-economic forecasts for the period 2026–2035 were generated, providing insights into anticipated trends under current developmental trajectories (see Figures 6–8).

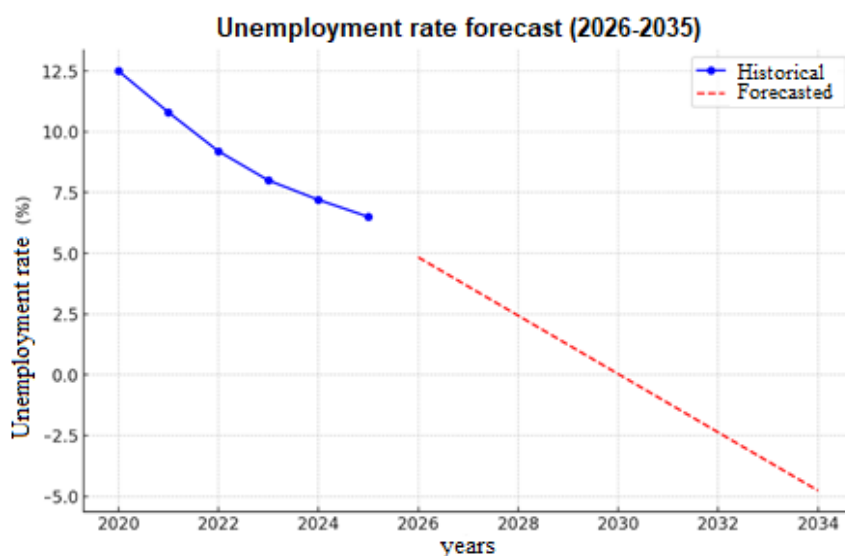


Figure 6. Forecast of unemployment rate for the years 2026-2035.

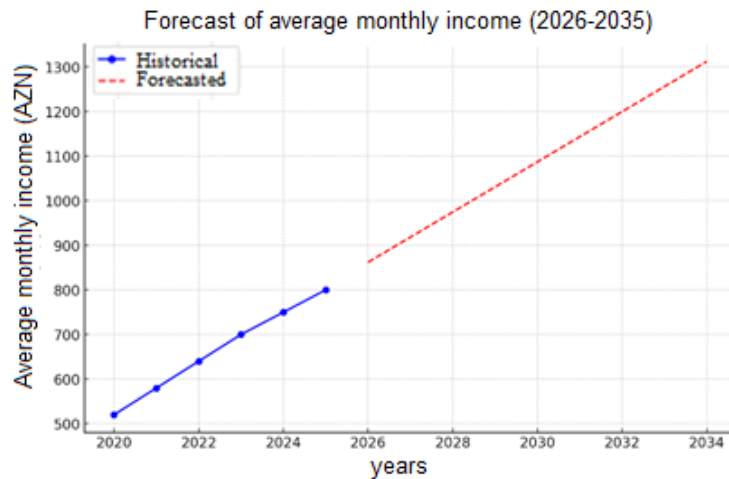


Figure 7. Forecast of average monthly income for the years 2026-2035.

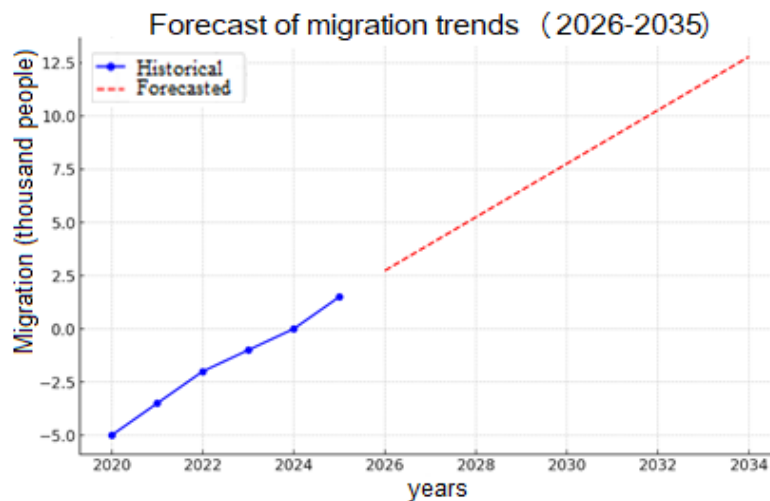


Figure 8. Forecast of migration trends for the years 2026-2035.

The analysis yielded the following key forecasted indicators for the Zangezur Corridor region:

1. **Unemployment Rate Forecast:** Based on current statistical data, the unemployment rate stood at 6.5% in 2025. Projection models suggest a stabilization of this rate between 4% and 5% by 2035. This positive trend is primarily linked to increased regional economic activity and the creation of new employment opportunities across diverse sectors.

2. **Average Monthly Income Growth:** The average monthly income reached approximately 800 AZN in 2025. Forecasts indicate a further rise to between 1,100 and 1,200 AZN by 2035. This income growth is attributable to the expansion of emerging industries, the development of small and medium-sized enterprises (SMEs), and efficiencies gained through reduced logistics costs.

3. **Migration Trends:** Migration analysis reveals an initial population outflow of approximately 5,000 individuals from the region in 2020. However, by 2025, this trend reversed, showing a net inflow of 1,500 people. Projections suggest continued positive net migration through 2035, reflecting an increasing return of residents to the region as socio-economic conditions improve.

Strategic Recommendations:

Enhancing Public-Private Sector Collaboration: Strengthening partnerships between governmental and private actors is critical for sustaining job creation and enhancing the region's economic appeal.

Investments in Social Infrastructure: Targeted improvements in education, healthcare, and public services are essential to support demographic stability and positively influence migration patterns.

Maintaining Ecological Balance: Integrating environmental considerations into development plans is vital to ensure the long-term sustainability of regional growth.

These forecast models offer a comprehensive perspective on the potential socio-economic impacts of the Zangezur Corridor, providing policymakers and economic analysts with actionable insights for strategic planning and evaluation.

Conclusion

This article has examined the socio-economic impact of the Zangezur Corridor on the communities along its route. The research findings reveal several key benefits attributable to the corridor's operation:

1. Employment and Income Growth: A decline in unemployment rates coupled with an enhanced entrepreneurial environment has stimulated economic activity.

2. Advancement of Social Infrastructure: Upgrades to roads, communication networks, healthcare facilities, and educational institutions have contributed significantly to improving residents' quality of life.

3. Regulation of Migration Patterns: The emergence of new job opportunities and improved social services have helped mitigate migration outflows, with some evidence of reverse migration encouraging population retention.

4. Activation of Cultural and Tourism Potential: The promotion of the region's historical and cultural assets, alongside the development of new tourism routes, has diversified local income sources and fostered economic resilience.

Collectively, these findings underscore the Zangezur Corridor as a pivotal catalyst for sustained socio-economic development in the region. To fully realize its potential, it is imperative to emphasize ecological sustainability, social equity, and long-term development planning. The evidence illustrates that the corridor transcends its function as a mere transport artery, positioning itself as a strategic instrument for regional socio-economic advancement. Achieving this vision necessitates robust public-private partnerships and the formulation of comprehensive, forward-looking socio-economic strategies.

Funding

This study received no specific financial support.

Competing interests

The authors declare that they have no competing interests.

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