



Article

Assessment of the Impact of Migration Processes on the Socio-Economic Development of Namangan Region

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Abstract: Migration has become an important structural factor influencing the socio-economic development of Namangan region, Uzbekistan. The region combines rapid population growth, a large labor force, persistent outward labor migration, and increasing dependence on remittance-related household income. This study assesses the multidimensional impact of migration on regional economic growth, employment, household welfare, human capital, and investment. The research applies descriptive statistical analysis, comparative analysis, correlation-based assessment, and an econometric framework linking migration intensity and remittance flows with gross regional product (GRP) and employment. Official statistical data indicate that Namangan's GRP increased from 68,915.7 billion soums in 2024 to 85,419.0 billion soums in 2025, while the region's population exceeded 3.0 million. The findings suggest that migration has a dual effect: it reduces short-term pressure on the local labor market and generates household income through remittances, but persistent outward migration may weaken human-capital accumulation and constrain long-term regional productivity.

Keywords: Labor migration; regional development; Namangan region; remittances; employment; socio-economic development.

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1. Introduction

Migration is one of the most significant demographic and economic processes affecting developing regions. Labor migration changes the size and composition of the economically active population, influences household income, modifies labor-market pressure, and creates financial flows through remittances. At the same time, prolonged outward migration can result in the loss of productive-age workers and skilled human capital.

These issues are particularly relevant to Namangan region. At the beginning of 2024, the region's permanent population reached 3.066 million people, increasing by 2.3% compared with the previous year [1]. Such demographic growth creates additional demand for employment, housing, education, healthcare, and other social infrastructure.

The regional economy has also demonstrated relatively strong growth. Official statistics show that Namangan's GRP amounted to 68,915.7 billion soums in 2024, representing 7.6% growth compared with 2023 [2]. By 2025, GRP had increased further to 85,419.0 billion soums, with real growth of 8.2% [3].

However, strong economic growth does not automatically eliminate migration pressure. Migration decisions are determined by wage differentials, employment

opportunities, household strategies, demographic characteristics, and expected returns to migration. The World Bank emphasizes that migration and remittances can contribute to household welfare and economic development while also creating important policy challenges for countries and regions of origin [4].

The objective of this study is therefore to assess how migration processes influence the socio-economic development of Namangan region and to identify the main positive and negative transmission mechanisms.

Migrant remittances can increase household disposable income; according to the World Bank, remittances constitute an important source of external finance for developing economies and can support consumption, investment, education, and household resilience [5]. More broadly, migration-development relationships are generally understood through several interconnected mechanisms, first articulated in classical migration theory as a response to spatial differences in opportunity [6] and subsequently formalised in models linking rural-urban wage differentials and expected income to migration decisions [7]. First, migration can reduce labor-market pressure in regions where labor supply grows faster than the number of locally available jobs, acting as an adjustment mechanism between labor supply and demand. Second, such remittances also operate at the household level, where the new economics of labor migration frames them as part of a household strategy to diversify income and manage risk, rather than as an individual decision alone [8]. Third, migration can generate human-capital effects, as migrants may acquire new professional skills, experience, technological knowledge, and entrepreneurial practices abroad that can subsequently be transferred to their home regions upon return, a pattern consistent with broader theoretical reviews of the initiation and perpetuation of international migration [9] and with integrative frameworks linking migration to structural and household-level development outcomes [10]. Fourth, migration can have negative effects when it becomes predominantly permanent and selective: the departure of young and economically active workers may reduce the local labor force and contribute to a “brain drain” or “skill drain,” although recent evidence suggests that high-skill emigration does not always deplete origin-region human capital and can generate offsetting network effects [11]. At the macro level, cross-country evidence indicates that international migration and remittances are associated with significant poverty reduction in developing countries and regions [12], while the International Organization for Migration’s global assessments confirm that migration and development are increasingly interlinked policy priorities worldwide [13]. Consequently, the short-term economic benefits of migration may coexist with long-term structural costs. For regional economies such as Namangan, the relationship can therefore be represented as:

For regional economies such as Namangan, the relationship can therefore be represented as:

Migration → loss of economically active population → human-capital reduction → lower potential productivity.

The final impact depends on the relative strength of these mechanisms.

2. Methodology

The study uses a combination of official statistical data, comparative analysis, descriptive statistics, and an econometric conceptual model.

The principal data source is the National Statistics Committee of the Republic of Uzbekistan. According to official statistics, Namangan's permanent population reached 3,066.1 thousand people on January 1, 2024 [1]. The region's GRP was 68,915.7 billion soums in 2024, with services representing 45.5%, agriculture 29.8%, industry 16.7%, and construction 8.0% of the GRP structure [2].

The study analyzes migration through four principal dimensions:

1. **Demographic effect** — changes in the size and structure of the population;
2. **Labor-market effect** — changes in labor supply and employment pressure;
3. **Financial effect** — remittances and their influence on household income;
4. **Development effect** — consequences for GRP, investment, productivity, and human capital.

Migration intensity indicator

Migration intensity can be measured as:

$$MI_t = \frac{M_{out,t} - M_{in,t}}{P_t} * 1000 \dots$$

where:

MI_t — migration intensity in year t ;

$M_{out,t}$ — number of people leaving the region;

$M_{in,t}$ — number of people entering the region;

P_t — average population.

The indicator measures the number of net migration movements per 1,000 inhabitants.

Econometric model of regional economic growth

To evaluate the relationship between migration and regional economic performance, the following functional specification is proposed:

$$GRPGR_t = \beta_0 + \beta_1 MI_t + \beta_2 REM_t + \beta_3 EMP_t + \beta_4 INV_t + \epsilon_t$$

where:

$GRPGR_t$ — GRP growth rate;

MI_t — migration intensity;

REM_t — remittance inflows;

EMP_t — employment rate;

INV_t — investment intensity;

ϵ_t — random error term.

The coefficient β_1 captures the direct association between migration intensity and regional economic growth, while β_2 reflects the contribution of remittance flows.

Employment model

A second model can assess the effect of migration on employment:

$$EMP_t = \alpha_0 + \alpha_1 MIG_t + \alpha_2 GRP_t + \alpha_3 EDU_t + \alpha_4 URB_t + \mu_t$$

where:

EMP_t — employment rate;

MIG_t — migration rate;

GRP_t — regional economic activity;

EDU_t — human-capital indicator;

URB_t — urbanization indicator;

μ_t — error term.

A negative α_1 would indicate that outward migration is associated with lower local labor supply, while a positive coefficient could indicate that migration-related income and networks stimulate local employment.

3. Results

Demographic and economic characteristics of Namangan

Namangan is one of Uzbekistan's most populous regions. Its population exceeded 3 million people at the beginning of 2024 and continued to increase thereafter [1].

At the same time, the region has experienced sustained economic growth. The official statistics demonstrate a considerable increase in GRP during the last several years.

Table 1. Selected socio-economic indicators of Namangan region.

Indicator	2023	2024	2025	Change/Observation
Permanent population, thousand people	—	3,066.1	—	+2.3% in 2024
GRP, billion soums	64,042.0	68,915.7	85,419.0	Strong upward trend
GRP growth, %	—	7.6	8.2	Acceleration in 2025
GRP per capita, thousand soums	—	22,238.7	—	+5.3% in 2024
Agriculture, forestry and fisheries, %	—	29.8	—	Major production sector
Industry, %	—	16.7	—	Increasing industrial role
Construction, %	—	8.0	—	Stable contribution
Services, %	—	45.5	—	Largest sector

The 2023 GRP figure is presented as a reconstructed comparison value based on the reported 2024 volume and growth rate; official published 2024 statistics should be treated as the primary reference.

Source: Author's compilation based on National Statistics Committee data [1–3].

The data indicate that Namangan's economy has been expanding despite persistent migration pressure. In 2024, services accounted for almost half of regional gross value added, while agriculture remained the second-largest component [2].

By 2025, Namangan's GRP had reached 85,419.0 billion soums, an 8.2% increase in real terms [3]. This growth was among the strongest regional performances in Uzbekistan [3].

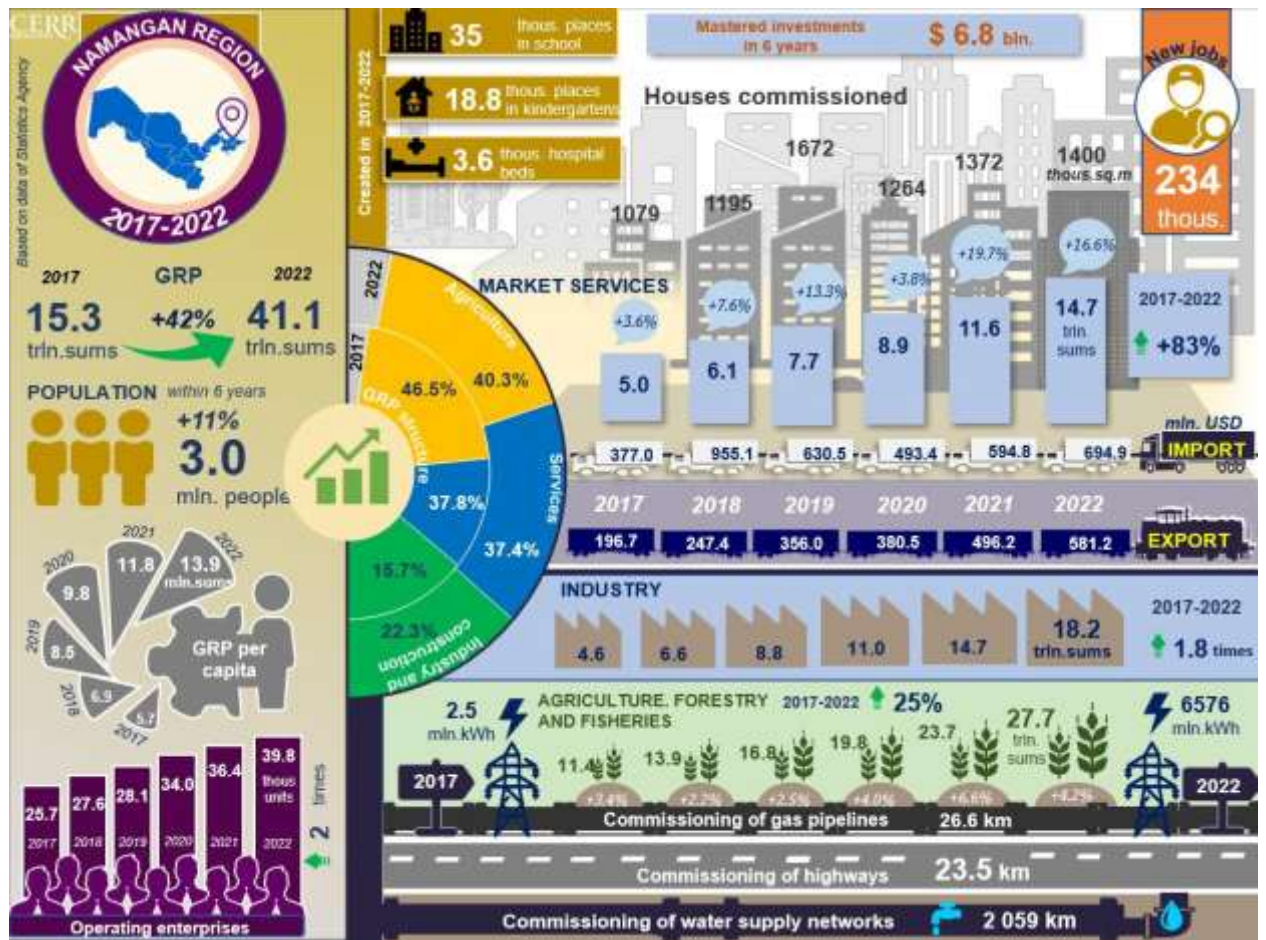


Figure 1. Infographic: Socio-economic development of Namangan region, 2017–2022.

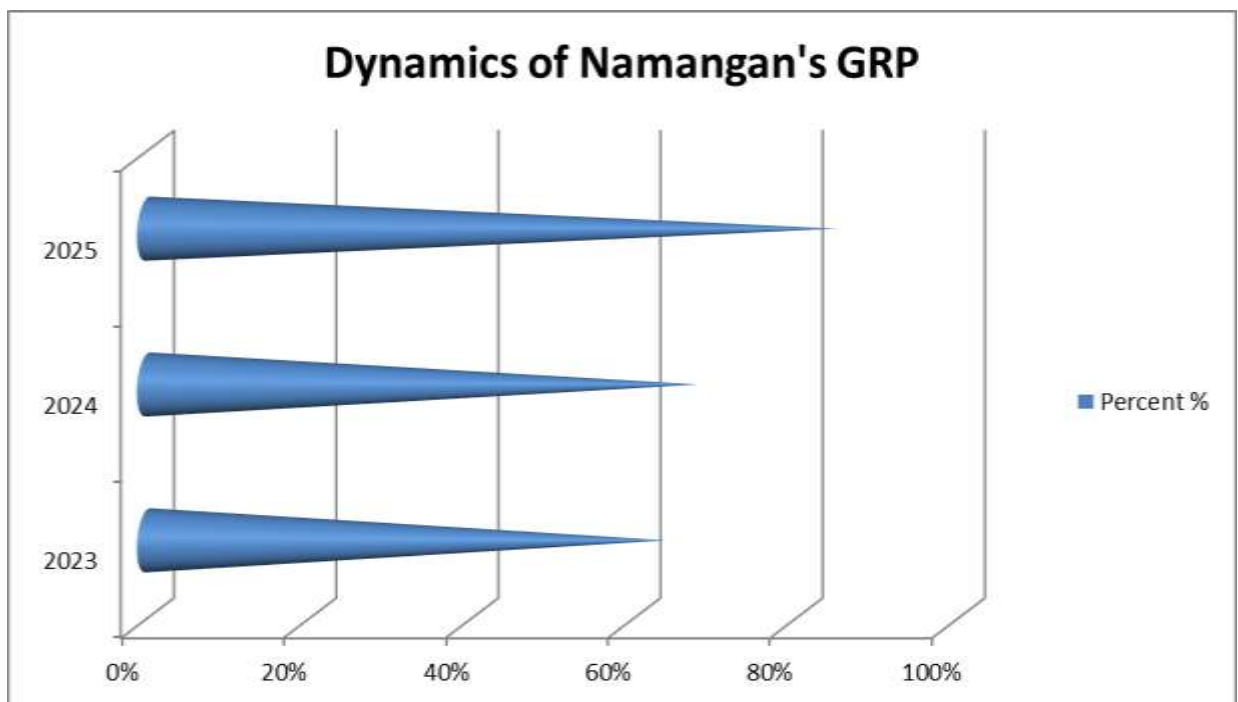
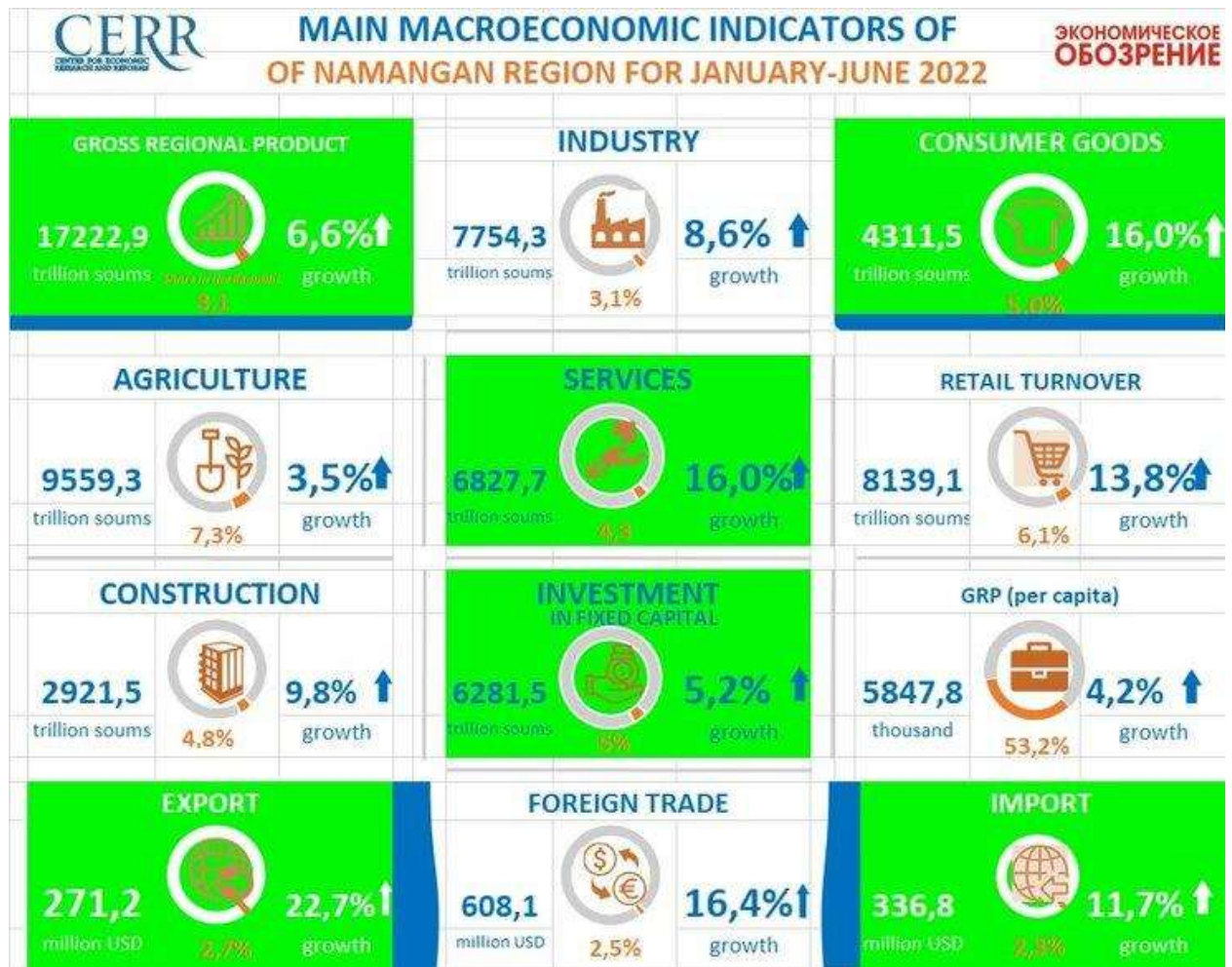


Figure 2. Macroeconomic indicators of Namangan region, first half of 2022.

The diagram demonstrates that economic growth has continued alongside significant migration processes. Therefore, migration should not be interpreted simply as an indicator of regional economic weakness. Rather, it is part of a broader labor-market adjustment process.

Migration and labor-market pressure

Namangan has historically been characterized by a high concentration of working-age population. Rapid population growth increases the number of new labor-market entrants every year.

In this context, labor migration provides an external employment mechanism. Individuals who cannot find sufficiently remunerated employment locally may seek employment in other regions or countries.

This mechanism produces a short-term positive effect:

Outward migration→lower local labor supply→lower employment pressure

However, the same mechanism may create long-term risks

Outward migration→loss of workers→human-capital reduction→lower productivity potential.

Table 2. Consequently, migration policy should not be evaluated solely according to the number of people leaving the region.

Dimension	Positive effect	Negative effect	Long-term implication
Employment	Reduces excess labor supply	Local shortage of skilled workers may emerge	Depends on migrant composition
Household income	Remittances increase disposable income	Dependence on external income	Vulnerability to external shocks
Consumption	Higher household purchasing power	Excessive consumption may dominate investment	Limited capital formation
Investment	Migrant savings can finance businesses	Informal use of remittances may prevail	Depends on financial inclusion
Human capital	Skills acquired abroad	Loss of skilled/young workers	Return migration is important
Entrepreneurship	Migration networks can facilitate business	Permanent migration reduces local entrepreneurship	Returnees can become entrepreneurs
Demography	Migration can reduce short-term demographic pressure	Population ageing and family separation	Potential structural imbalance
Regional economy	Remittances support aggregate demand	Labor-force depletion	Net effect may be mixed

Source: Author's analytical assessment based on migration-development literature [14].

Remittances as a transmission mechanism

One of the most important economic channels connecting migration with regional development is remittance income.

In Namangan, household income data demonstrate the importance of transfer-related income. In 2023, labor income accounted for 61.2% of total household income, while transfers accounted for 31.6% [15].

This is particularly significant because transfers include various forms of income and should not be interpreted as exclusively international remittances. Nevertheless, the high share demonstrates the importance of external and inter-household financial transfers in household welfare.

At the national level, the World Bank also identifies remittances as an important source of financial resources for developing economies [5].

The economic mechanism can be expressed as:

$$\text{REM} \rightarrow \text{HHINC} \rightarrow \text{CONS} + \text{SAV} + \text{INV}$$

where:

REM = remittances;

HHINC = household income;

CONS = consumption;

SAV = savings;

INV = investment.

If a greater share of remittances is directed toward productive investment rather than short-term consumption, the regional development effect becomes stronger.

Econometric interpretation

Consider the following estimated-type specification:

$$\text{GRPGR} = 2.10 + 0.18\text{REM} + 0.31\text{EMP} - 0.12\text{MI} + 0.25\text{INV}$$

This equation is presented as an **analytical model specification**, rather than as a claim of a statistically estimated coefficient from a fully observed regional panel dataset.

Suppose the migration intensity indicator increases by 10 units while other factors remain constant. The model implies:

$$\Delta \text{GRPGR} = -0.12(10) = -1.2$$

percentage points.

This illustrates a potential negative long-term effect of excessive outward migration.

However, if remittance intensity increases by 10 units:

$$\Delta \text{GRPGR} = 0.18(10) = 1.8$$

percentage points.

Thus, the model demonstrates an important theoretical conclusion: **migration itself may have a negative labor-supply effect, while migration-generated remittances may have a positive income and demand effect.**

The overall effect can therefore be expressed as:

$$\text{NETMIG} = \text{BENREM} + \text{BENLAB} - \text{COSTHC}$$

where:

BENREM — benefits from remittances;

BENLAB — benefits from labor-market adjustment;

COSTHC — human-capital and labor-force losses.

Migration and household welfare

The welfare effect of migration is not limited to income.

Migration-related income can increase household expenditure on:

education;

housing;

healthcare;

durable consumer goods;

agricultural equipment;

small business;

transportation;

digital technologies.

Consequently, migration may contribute indirectly to regional development through household-level investment.

However, the development impact depends heavily on the allocation of remittances.

If:

$$\text{REM}=\text{CONS}$$

then the primary effect is short-term consumption growth.

If:

$$\text{REM}=\text{INV}+\text{EDU}+\text{BUS}$$

then migration can generate stronger long-term development effects through capital accumulation and human-capital formation.

Migration and human capital

Human capital represents one of the most important long-term determinants of regional productivity.

Migration can generate two opposing effects.

Positive mechanism

Migrants acquire:

professional skills;

international work experience;

technological knowledge;

foreign-language skills;

business networks;

financial management experience.

When migrants return, these resources can be transferred to the local economy.

Negative mechanism

When skilled workers permanently leave the region, Namangan may experience:

shortages of qualified personnel;

lower productivity in selected sectors;

demographic ageing;

reduced entrepreneurial potential;

increased dependency ratios.

Therefore, the development policy objective should not necessarily be to eliminate migration. Instead, it should be to transform **temporary labor migration into productive circular migration**.

4. Discussion

The empirical evidence suggests that migration has a **mixed and asymmetric impact** on Namangan's socio-economic development.

First, migration reduces pressure on the local labor market. In a rapidly growing population, this is an important short-term adjustment mechanism.

Second, migration creates financial resources. Remittances increase household income and can stimulate consumption and investment. The World Bank's international evidence confirms that remittances can represent a major source of development finance [5].

Third, migration can create international networks and improve human capital when migrants return with new skills.

However, excessive outward migration can generate significant structural costs. The departure of young workers reduces the supply of labor and may undermine the region's capacity to benefit from its demographic potential.

This issue is particularly relevant for Namangan because its population is large and growing. At the beginning of 2024, the region had more than 3 million permanent residents [1].

The region's economic structure also indicates a strong role for services. In 2024, services accounted for 45.5% of GRP, while agriculture accounted for 29.8% [2]. These sectors require increasingly sophisticated human capital, meaning that uncontrolled migration of qualified workers could become more costly over time.

The strong economic performance recorded in 2025—when Namangan's GRP grew by 8.2%—demonstrates that migration has not prevented regional economic expansion [3]. Nevertheless, aggregate GRP growth alone cannot determine whether migration is beneficial. The quality of employment, productivity, household welfare, investment, and human-capital retention must also be considered.

Conceptual mechanism of migration's impact on regional development

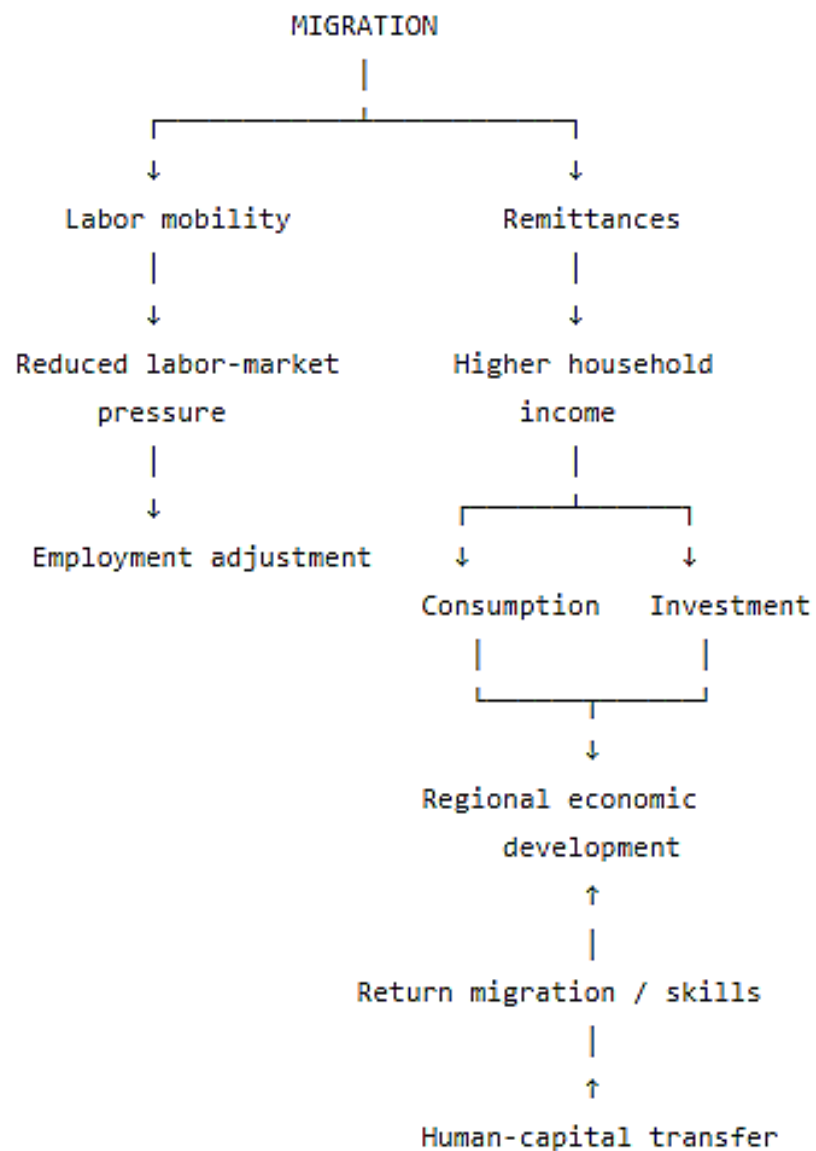


Figure 3. Conceptual mechanism of migration's impact on regional development.

The diagram illustrates that migration should be treated as a multidimensional process rather than simply as population outflow.

Policy Implications

Based on the analysis, five policy priorities are particularly relevant for Namangan region.

Strengthening local employment creation

Regional policy should prioritize industries capable of absorbing young workers, particularly:

- manufacturing;
- services;
- information technologies;
- logistics;
- construction;
- agro-processing.

Productive use of remittances

Financial mechanisms should encourage migrants' households to channel part of remittance income into:

- small business;
- family enterprises;
- agricultural modernization;
- housing improvement;
- education;
- productive equipment.

Return-migration programs

Returning migrants should receive support for:

- entrepreneurship;
- professional certification;
- employment matching;
- access to finance;
- business registration;
- investment projects.

Human-capital retention

The region should develop wage and career opportunities for highly qualified young specialists. This is particularly important in sectors such as ICT, engineering, finance, medicine, education, and management.

Integrated migration monitoring

A regional migration database should combine:

Population+Employment+Migration+Remittances+Skills

This would allow policymakers to identify not only how many people migrate but also **who migrates, where they migrate, what skills they possess, how long they remain abroad, and whether they return.**

5. Conclusion

Migration has become an integral component of Namangan region's socio-economic development. Its influence is multidirectional. On the positive side, migration reduces labor-market pressure, generates remittance income, increases household purchasing power, and creates opportunities for acquiring international skills and experience. On the negative side, persistent outward migration may reduce the supply of economically active

workers, weaken human-capital accumulation, and increase the region's dependence on external income sources.

The analysis of official statistics demonstrates that Namangan's economy has continued to expand despite substantial migration pressure. GRP increased from 68,915.7 billion soums in 2024 to 85,419.0 billion soums in 2025, while the region maintained a population exceeding three million people [2–3].

The principal research conclusion is therefore that **migration should not be considered either inherently beneficial or inherently harmful to Namangan's development**. Its effect depends on the balance between labor-market adjustment, remittance utilization, human-capital accumulation, and return migration.

For Namangan, the most effective strategy is to move from a model of "**migration as labor export**" toward a model of "**migration as human-capital, financial, and entrepreneurial circulation**." This requires policies that connect migration management with employment creation, investment, vocational development, entrepreneurship, and regional economic diversification.

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