Journal of Geography and Planning
Online ISSN: 2717-3534 Print ISSN: 2008-8078
Homepage: https://geoplanning.tabrizu.ac.ir

An Analysis of Intra and Extra-Provincial Migration Flows Across East Azerbaijan Counties (2011–2016)

Mohsen Aghayari Hir[1]✉, **Mohammad Valaei**[2], **Fatemeh Anjomani Alanagh**[3]

1. Corresponding Author, Associate Professor, Department of Geography and Rural Planning, University of Tabriz, Tabriz, Iran. E-mail: mohammad.valaei@tabrizu.ac.ir
2. Assistant Professor, Department of Geography and Rural Planning, University of Tabriz, Tabriz, Iran. E-mail: mohammad.valaei@tabrizu.ac.ir
3. Master's student in Urban Planning, Faculty of Planning and Environmental Sciences, University of Tabriz, Tabriz, Iran. E-mail: fatemeh.anjomni1402@ms.tabrize.ac.ir

Article Info

Article type:
Research Article

Article history:
Received: 13 May 2025
Revised: 12 January 2026
Accepted: 27 January 2026
Published: 29 July 2026

Keywords:
Immigration,
Emigration,
Network Analysis,
UCINET,
Iran.

ABSTRACT

Migration plays a crucial role in demographic studies because, alongside fertility and mortality rates, it influences the size, structure, and characteristics of the population and has a decisive impact on population distribution and labor force growth. Accordingly, the present study designed to analyze intra and extra provincial migration flows of East Azerbaijan Province. The research is applied and descriptive-analytical. The geographical scope of the study encompasses the counties of East Azerbaijan and their interactions with all other provinces across the country. Data were collected through documentary method, fundamentally based on secondary data from the 2016 census regarding the number of county migrants, covering the period from 2011 to 2016 years. For data analysis, network analysis techniques were employed using softwares such as Excel, ArcGIS, and UCINET. The findings revealed that the highest level of immigration occurred in Osko County, primarily due to population overflow from the city of Tabriz toward the newly established city of Sahand. The immigration connections of this county were also evident with most other counties in the province, though to a lesser extent—particularly with the counties of Ahar, Kaleibar, Herris, and Varzgan. Regarding out-of-province emigration, the highest proportions were directed toward the provinces of Tehran, West Azerbaijan, Ardabil, and Qom, reflecting East Azerbaijan's strong demographic ties with these regions. Among them, Tehran exhibited the highest absorption, largely driven by the emigration from the counties of Tabriz, Sarab, Miyaneh, Maragheh, Shabestar, Bostanabad, and Marand.

Cite this article: Aghayari Hir, M., Valaei, M., & Anjomani Alanagh, F. (2026). An Analysis of Intra and Extra-Provincial Migration Flows Across East Azerbaijan Counties (2011–2016). *Journal of Geography and Planning*, 30(97), 132-149. http//doi.org/10.22034/gp.2026.66906.3405

© The Author(s).
Publisher: University of Tabriz.
DOI: http//doi.org/10.22034/gp.2026.66906.3405

Introduction

Migration as a fundamental aspect of human behavior remains an undeniable and inseparable reality of human life. Population movement and spatial mobility have accompanied humankind since the dawn of civilization and will continue to shape human societies in the future (Sepehrdoust et al., 2017: 143). Factors such as socio-economic status, fear, suffering, hopes, age, gender, occupation, specialization, education level, personal experiences, and learning, influence human perception of the environment and compel individuals to make migration decisions (Aghayari Hir et al., 2018: 46). In Iran, migration increased following the land reforms of the 1960s and their subsequent impacts. For instance, the urbanization rate in Iran was approximately 31.4% in 1956. Three years after the initiation of the land reforms, by 1966, this rate had risen to 40%. After the revolution, the balance between urban and rural populations was completely disrupted. Over the past five decades, East Azerbaijan Province has consistently experienced significant population movements and has been one of Iran's major emmigrant provinces. In the last 40 years, it has ranked first among the provinces in terms of emigration (Beik-Mohammadi & Hatami, 2010: 24). Therefore, this research aims to analyze the intensity of migration and the flow patterns in both origin and destination areas and to present the results through a network analysis, providing insights into the current state of intra-provincial and inter-provincial migrations. The study seeks to answer the following question:

- What is the status of intra and extra provincial migration flows in East Azerbaijan?

Materials and Methods

This study is an applied in terms of its objective and descriptive-analytical in terms of its nature and method. The geographical scope of this research includes the counties of East Azerbaijan Province in interaction with all other provinces across the Iran. Data were collected through documentary method, based on secondary data from the 2016 census regarding the number of migrants in counties, covering the period from 2011 to 2016 years. The data were analyzed using network analysis techniques and softwares such as Excel, ArcGIS, and UCINET.

Results

Regarding immigration analysis, the findings indicated that the highest level of immigration occurred in Osku County, with a significant share of this immigration resulting from the population overflow from Tabriz County. This migration is distributed to the specific parts of Osku County—particularly the new city of Sahand—which is located near Tabriz City, offers relatively low living costs, and has a healthy climate, among other advantages. These factors have made Osku County an attractive destination for migrants, counteracting the population-repellent forces of the Tabriz Metropolis and creating a positive balance for Osku. Furthermore, migration flows from Tabriz County, in addition to Osku, were evident with many other counties in the province, though to a lesser extent—especially with Ahar, Kaleibar, Heris, and Varzgan Counties. Overall, the immigrant to Tabriz exceeded its emigrants, thus generating a positive migration balance. Although Osku and Tabriz absorbed a significant proportion of migrants within the province, other counties also played important roles in the overall migration dynamics. In the southern part of the province, Bonab County, along with Maragheh County, played a major role in attracting population inflows.

As for emigration from East Azerbaijan's counties to other provinces across the country between 2011 and 2016, the findings revealed that Tabriz, the provincial capital, accounted for the highest number of emigrants, comprising over 41% of the total emigration from the province. Following Tabriz, the counties of Miyaneh, Sarab, Maragheh, Marand, and Hashtroud also contributed to the emigration flow, while Osku, Charoymagh, and Khodafarin recorded the lowest emigration. The highest percentages of these emigrants moved to Tehran (39.6%), West Azerbaijan (17.6%), and Alborz (11.1%), while the lowest proportions were directed toward the provinces of Chaharmahal and Bakhtiari, Lorestan, North Khorasan, and South Khorasan.

Conclusion

The results regarding intra-provincial migration flows indicate that all counties in East Azerbaijan Province are interconnected through demographic exchanges, although the intensity of these flows varies considerably. Social and demographic ties, a shared language, social security systems, and a common cultural background have significantly influenced these movements. However, the spatial distribution of inter-county migration has not been uniform, showing sharp variations among counties. Tabriz, Osku, Marand, Ahar, Maragheh, Bonab, Shabestar, and Jolfa have been major destinations for intra-provincial migration. Among these, Tabriz and Osku (particularly the newly developed city of Sahand) have exhibited substantially higher migration absorption rates than the other counties. Moreover, the findings concerning emigration from East Azerbaijan to other provinces across the country reveal that such movements are driven by multiple factors, fostering positive social and

demographic connections. Nevertheless, these inter-provincial flows are far from homogeneous, with considerable regional disparities. Provinces such as Tehran, West Azerbaijan, Ardabil, and Qom have attracted the largest numbers of emigrants, forming strong demographic linkages with the counties of East Azerbaijan.

Keywords: Immigration, Emigration, Network Analysis, UCINET, Iran.

جغرافیا و برنامه ریزی
شاپا چاپی: ۲۰۰۸-۸۰۷۸ شاپا الکترونیکی: ۲۷۱۷-۳۵۳۴
Homepage: https://geoplanning.tabrizu.ac.ir

An Analysis of Intra and Extra-Provincial Migration Flows Across East Azerbaijan Counties (2011–2016)

Mohsen Aghayari Hir[1]✉, **Mohammad Valaei**[2], **Fatemeh Anjomani Alanagh**[3]

1. Corresponding Author, Associate Professor, Department of Geography and Rural Planning, University of Tabriz, Tabriz, Iran. E-mail: mohammad.valaei@tabrizu.ac.ir
2. Assistant Professor, Department of Geography and Rural Planning, University of Tabriz, Tabriz, Iran. E-mail: mohammad.valaei@tabrizu.ac.ir
3. Master's student in Urban Planning, Faculty of Planning and Environmental Sciences, University of Tabriz, Tabriz, Iran. E-mail: fatemeh.anjomni1402@ms.tabrize.ac.ir

Article Info

Article type:
Research Article

Article history:
Received: 13 May 2025
Revised: 12 January 2026
Accepted: 27 January 2026
Published: 29 July 2026

Keywords:
Immigration,
Emigration,
Network Analysis,
UCINET,
Iran.

ABSTRACT

Migration plays a crucial role in demographic studies because, alongside fertility and mortality rates, it influences the size, structure, and characteristics of the population and has a decisive impact on population distribution and labor force growth. Accordingly, the present study designed to analyze intra and extra provincial migration flows of East Azerbaijan Province. The research is applied and descriptive-analytical. The geographical scope of the study encompasses the counties of East Azerbaijan and their interactions with all other provinces across the country. Data were collected through documentary method, fundamentally based on secondary data from the 2016 census regarding the number of county migrants, covering the period from 2011 to 2016 years. For data analysis, network analysis techniques were employed. The findings revealed that the highest level of immigration occurred in Osko County, primarily due to population overflow from the city of Tabriz toward the newly established city of Sahand. The immigration connections of this county were also evident with most other counties in the province, though to a lesser extent—particularly with the counties of Ahar, Kaleibar, Herris, and Varzgan. Regarding out-of-province emigration, the highest proportions were directed toward the provinces of Tehran, West Azerbaijan, Ardabil, and Qom, reflecting East Azerbaijan's strong demographic ties with these regions. Among them, Tehran exhibited the highest absorption, largely driven by the emigration from the counties of Tabriz, Sarab, Miyaneh, Maragheh, Shabestar, Bostanabad, and Marand.

Cite this article: Aghayari Hir, M., Valaei, M., & Anjomani Alanagh, F. (2026). An Analysis of Intra and Extra-Provincial Migration Flows Across East Azerbaijan Counties (2011–2016). *Journal of Geography and Planning*, 30(97), 132-149. http//doi.org/10.22034/gp.2026.66906.3405

© The Author(s).
Publisher: University of Tabriz.
DOI: http//doi.org/10.22034/gp.2026.66906.3405

Introduction

Human movement and relocation from one settlement to another is a phenomenon as old as human existence itself. Throughout history, people have sought survival and better living conditions, which often compelled them to leave their places of origin and migrate to regions offering more favorable environmental, economic, and social circumstances. In recent centuries, however, human mobility has intensified due to technological progress, improved transportation systems, and the expansion of economic development. These transformations have resulted in a remarkable diversification of migration patterns, classified according to purpose, duration, distance, route, volume, and speed (Afrakhteh et al., 2016: 84). Therefore, migration as a fundamental aspect of human behavior remains an undeniable and inseparable reality of human life. Population movement and spatial mobility have accompanied humankind since the dawn of civilization and will continue to shape human societies in the future (Sepehrdoust et al., 2017: 143). Whether individual or collective, temporary or permanent, migration from one geographic location to another has always been an intrinsic aspect of human history (Aghayari Hir & Hakimi, 2017: 186). Globally, particularly after World War II, migration has emerged as a major demographic phenomenon, sparking extensive scholarly debate across various disciplines regarding its causes and contributing factors (Nobahar et al., 2021: 136).

Historically, migration typically occurred in groups and was often driven by crises such as disease, famine, or war. However, advances in information and communication technologies, along with modern transportation systems, have made relocation more accessible and widespread. Today, migration is largely motivated by aspirations for progress and improved quality of life. Individuals tend to migrate when the anticipated benefits—at least the minimum expected—outweigh potential costs (Aghayari Hir & Hakimi, 2017: 186). A range of factors, including socioeconomic status, fear, hardship, hope, age, gender, occupation, specialization, education level, personal experience, and perception of opportunity, influence the decision to migration (Aghayari Hir et al., 2018: 46). In many countries, people migrate from less-developed to more-developed regions that offer better infrastructure, active economic sectors, higher wages, and greater employment opportunities. While such migration can increase population concentration and economic dynamism, it also intensifies demand for housing and transportation, thereby raising associated costs (Kii et al., 2025: 1238). Consequently, migration can serve as an adaptive strategy for mitigating income instability and diversifying livelihood options, particularly among poor and marginalized households (Sugden et al., 2021: 1102). Understanding the spatial dynamics of migration—along with its underlying drivers and contextual factors—is thus essential for effective human development planning. In Iran, migration intensified following the land reforms of the 1960s, known as the White Revolution. For instance, the country’s urbanization rate was approximately 31.4% in 1956. Three years after the initiation of the reforms, in 1966, this figure rose to 40%, and by the eve of the Islamic Revolution in 1979, it had reached 48%. After the Islamic Revolution, the demographic balance between urban and rural populations was completely transformed: by 1979, urban and rural populations were roughly equal, and by 2012, the urban population had grown to 71.5%. According to recent data from the Statistical Center of Iran and relevant UN agencies, approximately 75% of the country’s population now resides in urban areas (Abadian, 2018: 5).

The primary driver of these demographic shifts from 1962 to 2016 has been internal migration. Census data for the 2011–2016 period indicate that approximately 941,430 individuals migrated within the country’s borders each year (Statistical Center of Iran, 2016). One of the key factors behind the intensification of migration trends in Iran, has been uneven development and regional disparities, which have produced imbalanced growth across provinces. Among Iran’s provinces, East Azerbaijan has experienced particularly intense population movements due to its geographic characteristics and economic and social conditions. Over the past four decades, it has been one of the main provinces affected by migration, ranking first in emigration rates (Beik-Mohammadi & Hatami, 2010: 24). As illustrated in Figure 1, it has been Iran's leading province for emigration (negative net migration) over the past four decades. Accordingly, this study investigates inter-county migrant flows to elucidate the destinations of emigrants departing the province.

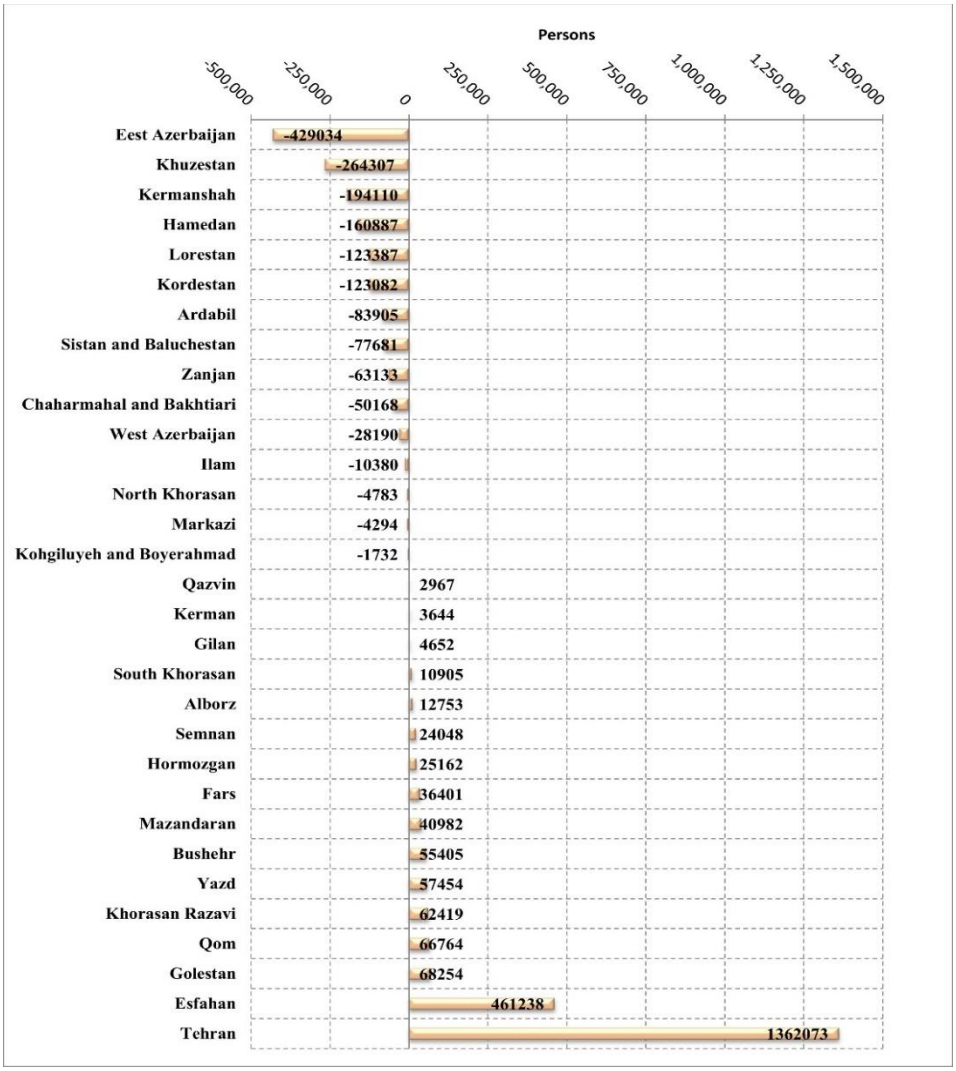

Figure 1. Net Migrants in provinces of Iran (period: 1976-2016)

Given the significant internal and external migration trends observed in East Azerbaijan, the present study investigates both intra-provincial and inter-provincial migration flows within and beyond the province. The study aims to evaluate the intensity and direction of migration at its origins, through a migration network analysis that illustrates the current landscape of both internal and external movements. Accordingly, this research seeks to address the following fundamental question:

- What is the status of intra and extra provincial migration flows in East Azerbaijan Provinc?

Literature Review

Migration and displacement are shaping societies and economies worldwide. Although often framed through numbers, migration is far more than a demographic trend; it reflects deeply intertwined factors such as conflict, inequality, political instability, environmental changes, and aspirations for a better life (Severoni et al., 2025: 712). In other words, it is a dynamic process resulting from changing social conditions that can affect not only migrant individuals but also both origin and destination communities. It can lead to imbalanced population growth, disruption of the age and gender structure of populations, and the emergence of economic (shortcomimng in services, unemployment, and poverty), social (social problems), and environmental issues as negative consequences of imbalanced migration (Hosseini et al., 2018: 2). It is important to note that "migration is a process, not an event". Classification of migration is generally based on criteria such as: 1) time of migration (short-term,

medium-term, long-term); 2) distance traveled (short-range, medium-range, long-range); 3) the migrant's intention (voluntary or forced); 4) the number of individuals involved (individual or group); and 5) political territory (internal and international) (Vatankhah-Noghani & Ghasemi, 2019: 422). Broadly speaking, migration is divided into permanent and temporary categories (Rana & Qaim, 2024: 1). Permanent migrants are those who are expected to settle in the host destination and intend to reside there permanently. They may possess higher levels of education, which enables them to integrate more easily into the host economy and gain access to better-paid employment opportunities (Chen, 2023). In contrast, temporary or short-term migration is primarily based on income, often occurring in response to seasonal fluctuations in income (especially in agriculture), poverty, or sometimes climatic shocks (Rana & Qaim, 2024: 1).

The 2023 Global Development Report also indicates that currently, 2.3% of the global population, including 37 million refugees, live outside their home countries, with 43% of migrants residing in low-income countries (Shen et al., 2024: 1). It can, therefore, be said that the reasons for migration are determined by push (repellent) and pull (attractive) factors. Push forces that compel individuals to leave their homeland can be economic, political, cultural, or environmental. Pull factors, on the other hand, act in the opposite manner, attracting individuals to a specific location (Elmi & Pasandi Basaghi, 2024: 99). People generally migrate due to unfavorable conditions or push factors such as poverty, food shortages, war, and so on. On the other hand, pull factors include favorable conditions such as better education, suitable housing, and more freedom in the destination (Ghasemi & Ghorbaniyan, 2010: 200). Therefore, migrations primarily occur due to the lack of job opportunities at the origin and the availability of suitable jobs and the expectation of higher income and benefits at the destination. Based on this perspective, migration is a function of economic factors (Shefer & Steinvortz, 1993: 135). Additionally, migrants, influenced by the conditions prevailing in their home countries, often seek to benefit from the advantages of modernization (and growth), which are typically concentrated in large cities and specific regions. As a result, they migrate to these hubs of services, employment, and individual freedoms (Shamsoddini & Gourjian, 2010: 76).

Just as migration is shaped by a complex set of interrelated factors, it also has significant impacts on various aspects of the economic, social, and cultural life of the origin regions (Valaei, 2013: 46). Moreover, migration has adverse effects on the migrant individuals and their families. Migrants' destination areas (urban settlements) often have surplus labor, meaning they cannot provide equal economic opportunities, such as employment, for all migrants. Due to insufficient job opportunities and uncertain living conditions at the destination, migrants are often forced to accept low-paying, labor-intensive jobs. Their families (especially women and children) face numerous difficulties and become vulnerable. These limitations, particularly the lack of suitable job opportunities and precarious living conditions in urban areas, especially in developed regions, gradually become barriers to fulfilling the migrants' hopes and prevent their households from achieving effective performance (Attah-Out et al., 2025: 1). Furthermore, migration contributes to population decline in rural areas and growth of population in the cities, the shrinkage of villages, brain drain, abandonment of agricultural and residential land, and the aging of populations (Qi et al., 2022: 461). Additionally, it creates numerous economic, cultural, and social challenges for destination cities, increasing municipal service costs, creating poverty ghettos, developing slums, and fostering social deviance (Shakoui, 2009: 294; Naghibi et al., 2025: 349). In this regard, the consequences of migration can be classified and discussed in several categories, as illustrated in Figure 2.

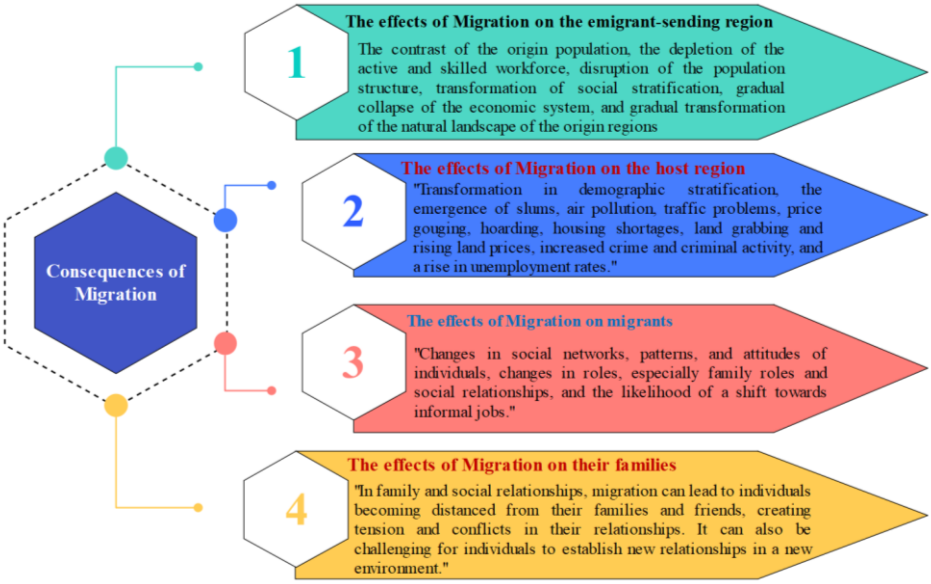

Figure 2. Migration Consequences at the Origin and Destination (Source: Efati, 2004)

Considering the above discussion, it can be stated that migration or relocation has always been one of the ways that has helped humans in their efforts to adapt to their environment and overcome difficulties (Sarwary et al., 2021: 1039). Regarding the mechanisms that govern this movement of human waves, or the motivations behind these individuals, and whether, in general, it is possible to establish specific laws for human movement (migration), social sciences, particularly sociology, have led to the development of various perspectives. Table 1 provides a summary of some of these viewpoints.

Table 1. Theories Related to Migration and Population Mobility in Settlement Spaces

Theory	Description
Gravity Model	Emerging in the late 19th and early 20th centuries, this theory posits that unfavorable economic or physical conditions in one place compel people to leave and move to locations offering better economic, social, and environmental opportunities (Mirza Mostafa & Ghasemi, 2013: 80).
Immigration Gravity Model	This theory interprets migration flows between two regions as the combined effect of "pull factors" in the destination and "push factors" in the origin. Derived from Newton's law of gravitation, it allows for the empirical testing of various migration theories and hypotheses (Shahbazin, 2020:120).
Immigration Network Theory	Introduced in the early 1980s, this theory defines migration networks as a set of social relationships—kinship, friendship, or shared community ties—that connect migrants in destination areas with previous migrants and non-migrants in the origin. Such networks facilitate migration by reducing travel risks and costs and by sharing information about safer or cheaper routes (Raheshkho et al., 2012: 91).
The New Economics of Labor Immigration	This theory views migration as a household strategy for livelihood diversification and risk minimization in the face of limited access to credit, capital, and insurance markets. Environmental factors such as rainfall variability and temperature stress affect livelihood sustainability, particularly in rural areas dependent on agriculture and natural resources (Eakin, 2005: 1932).
Dispersed Expansion Strategy	This modern population and spatial development strategy aims to redistribute population and economic activities from central to peripheral areas. In practice, it promotes investment in multiple secondary centers to create development corridors and strengthen tertiary settlements (Rezvani et al., 2023: 427).
Stouffer's Theory of Mobility	Stouffer's theory of "intervening opportunities," introduced in 1940, suggests that the number of immigrants from an origin to a destination is directly proportional to the number of opportunities at the destination and inversely proportional to the number of intervening opportunities between them (Hassan, 2020: 249).
Ravenstein's Laws of Immigration	As the first formal theory of migration, Ravenstein's model comprises six basic laws. The third law, "migration streams and counter-streams," states that every major migration flow generates a compensating counter-flow, meaning net migration between two points is always less than the total gross movement between them (Aghayari Hir & Hakimi, 2017:91).
Zelinsky's Mobility Transition Model	Zelinsky argued that the same factors driving demographic transition also shape temporal variations in migration patterns. Recognizing the link between stages of development and population mobility, he proposed the "Mobility Transition Model" in 1971, closely tied to the demographic transition model (Hassan, 2020: 252).
Core–Periphery Model	This theory explains the spatial distribution of human activities based on unequal economic, social, and political power relations. At the local level, settlement systems consist of a dominant "core" and a dependent "periphery." This dependency emerges from inequalities in trade, concentration of economic power, innovation, and production activities between the two (Saeedi, 2013: 19) which frequently precipitates net out-migration from peripheral to core regions.

Given the above table, each of these theories approaches the subject from a specific perspective. However, due to the complexity of the migration phenomenon, proposing a theory that can precisely analyze all its dimensions would be quite challenging. As Manglam and Schwarzoller state (Lahsaizadeh, 1989: 31), "A sociological theory on migration, which meets the strict and precise requirements of formal theory, is unlikely to emerge in the near future." This serves as evidence for this claim. Despite researchers having an extensive history of empirical studies, they have only recently begun conceptualizing the migration phenomenon, which is a difficult task, and systematically formulating causal sequences and testing hypotheses—matters that must necessarily occur before presenting a formal theory (Aghayari Hir & Hakimi, 2017: 190). Therefore, the following table (Table 2) presents some of the domestic and international studies conducted on migration.

Table 2. Studies Conducted on the Topic of Migration

Researchers and Year	Title	Findings
Ghasemi-ardahaee & Kazemipour (2013)	Factors Affecting Labor Emigration from East- Azerbaijan Province to Tehran's Province	The study analyzed labor migrations for head-of-household migrants, most of whom are men, working in industry, driving, and service jobs. The study on the likelihood of labor migration shows that demographic variables such as gender and education, along with destination, origin, and the development level of the origin, are significant in the occurrence of labor migration from East Azerbaijan to Tehran Province.
Aghayari Hir & Hakimi (2017)	Analysis of Interprovincial Migration Network in Iran (2006-2011)	The results show several main clusters in inter-provincial migrations, which are formed through different flows and eventually join the main branch (Tehran and Alborz provinces). Additionally, some provinces, such as Alborz, Isfahan, East Azerbaijan, Bushehr, and Khorasan Razavi, have managed to play a significant regional role in attracting migrants from neighboring provinces.
Ghalandarian and Dadashpoor (2018)	Analyze and identify spatial patterns of migration in the territory of Iran	The results show that municipalities located in border areas, which are geographically on the periphery of the country, have high rates of emigration, while the majority of host cities are located in the central regions of the country have high rates of immigration. This area also represents the largest portion of the country (61 percent) and includes 95 cities with high immigration rates.
Aghayari Hir et al. (2018)	Analysis of Factors Affecting the Decision to Migration of the Villagers in the Area of Behavioral Geography Case Study: Sina District, Varzeqan County	"Individual perception of environmental quality" has the greatest impact on the individual as the active decision-maker for migration from the village. Ultimately, covariance matrix analysis of independent variables shows a high level of significance in the estimates of the "path analysis" for the variables studied.
Mahdipour et al. (2019)	Investigating the Intention of Migration from the Village and the Factors Affecting it (Case of Study: Villages of Kalat Section of Abdanan City, Ilam Province)	Among the independent variables, the variables of feeling of belonging to the place and the level of satisfaction with income are the most important categories affecting the intention of rural migration. These variables, in addition to directly affecting the intention to migrate, by influencing other social and economic categories, transmit the indirect effects of these independent variables on the rate of migration intention from the village.
Tanhaa et al. (2021)	Spatial Analysis of the Effect of Internal Migration on Changing the Population Age Structure in Counties of Iran	There is a spatial correlation between the level of development and the age structure changes caused by migration. In fact, migration leads to an increase in the proportion of the youth population in more developed counties and a decrease on it in less developed counties. As a result, internal migration flows can increase regional inequalities in the country by altering the composition of the youth population, which is the key driver of development.
Mohabbi-Mimandi (2023)	Research on trends in internal migration in Iran over the last thirty years (1986-2016)	In the past three decades, an average of about one million people have migrated annually within the country. Migration has primarily occurred from underdeveloped regions to developed ones. In recent decades, the proportion of city-to-city migrants has increased, while the proportion of village-to-village migrants has decreased. Village-to-city migration has also been continuously declining.
Elmi and and Pasandi (2024)	The determinants of Iranian female migration with an emphasis on the miserable index and control of corruption	Given the low female participation rate, which is among the lowest in the Middle East and reflects structural problems in the labor market, it is a warning for policymakers to prioritize improving the labor market for women to retain this human capital, particularly with the increasing literacy levels and self-confidence among women.
Aghayari Hir et al. (2024)	Analysis of the spatial distribution pattern of public and private sector employees in the Iranian Townships	The results of data analysis indicate that the distribution patterns of public and private sector employees in the Iranian Townships is clustered (was not distributed uniformly in the different Townships). Also, according to the analysis of Hot Spots, the distribution of employees in the public and private sectors was observed, with the highest in Tehran and centralized in a radius of approximately 300 km from it (although Tehran itself is confined with a 95% confidence level), and the rest of the Townships have more balanced distributions.
Shen et al. (2024)	Environmental implications of migration: Worldwide insights	The increasing geopolitical risk has led to higher short-term and long-term carbon emissions and environmental footprints. The results indicate a positive impact of international migration, travel services, and urbanization on CO2 emissions.
Gnimassoun (2025)	Immigration and labour productivity: A comparative effect	Immigration to Africa has a significant positive impact on human labor productivity. This effect is greater than the impact of immigration in a global sample and primarily occurs through improvements in total factor productivity and capital efficiency. While immigration leads to a reduction in capital productivity globally, it increases in Africa.

Researchers and Year	Title	Findings
Kii et al. (2025)	City size distribution and utility of living: Exploring intercity migration in Japanese urban systems	The findings revealed: 1) migration from small cities to large cities sharply increases density; 2) the negative effects of overcrowding in large cities outweighed the reduction in overcrowding in small cities, resulting in increased inequality in satisfaction between large and small cities and potentially encouraging further migration to large cities; and 3) immigration increased the income of landowners in large cities but reduced the overall satisfaction of residents in both large and small cities.
Attah-Out et al. (2025)	Implications of migration on health and education: returned migrants and school teachers perspective in India: A qualitative study	The negative impacts of migration as a livelihood strategy on rural communities, particularly in terms of the health and education of household members, are highlighted, calling for immediate government intervention.

Source: Available sources, 2024.

Research Methodology

This research is applied in terms of its purpose and descriptive-analytical in terms of its nature and method. The study area is East Azerbaijan Province, which, according to the 2016 census by the Statistical Center of Iran, has a population of 3,909,652 and is one of the important and populous provinces of Iran. Its area is approximately 45,491 km², and according to the Ministry of the Interior's administrative divisions in 2020, it has 21 counties, 47 districts, and 2,710 inhabited villages (Statistical Center of Iran, 2016). To collect the necessary data and information, documentary research methods were used, including census results, articles, books, journals, and others. The main data used in the study are based on secondary data related to the number of inter-county migrants, according to the 2016 census of the Statistical Center of Iran (most recent census to date), covering the period from 2011 to 2016. Data collection for the study was conducted through the Statistical Center of Iran's website, where migration matrices from the 2016 census were obtained, and additional data were collected through the study and review of articles and previous research (documentary method). The analysis of the data was carried out using network analysis techniques. The steps involved in conducting the network analysis technique are as follows:

1. Problem formulation and identification of network elements (nodes, edges, and flow);
2. Creating the inter-county migration matrix;
3. Inputting the data into the UCINET software environment;
4. Analyzing and drawing the tree branch diagram;
5. Analyzing the tree branch diagram of inter-county migrations;
6. Conducting migration network analysis between counties: in this stage, various analyses are performed, including relationship existence, flow direction analysis, flow multiplicity analysis, flow intensity analysis, and centrality measure analysis;
7. Conducting separate analyses for intra-provincial and inter-provincial migration flows and drawing the locational diagram of the migration network;
8. Using GIS software for flow modeling and creating migration maps for both intra-provincial and inter-provincial migrations.

Study Area

East Azerbaijan Province is one of the important and populous provinces of the Islamic Republic of Iran, located in the northwest corner of the country. Geographically, it lies between 45°5' to 48°22' east longitude and 36°45' to 39°26' north latitude (Figure 3). In terms of its natural position, East Azerbaijan is situated at the intersection of the Alborz and Zagros mountain ranges, specifically in the Alborz and Azerbaijan zones of the Iranian Plateau. From a hydrological perspective, the province is covered by the Aras, Qezel Ozan, and Urmia Lake watersheds, with the majority of the province's area falling within the Urmia Lake watershed. Generally, East Azerbaijan is a mountainous region, with approximately 40% of its area covered by mountains, 28.2% by hills, and 31.8% by flat land

(plains and intermountain valleys). Notable mountainous regions include the volcanic massifs of Sabalan in the east, Sahand in the west and southwest, the Qara Dagh mountain range in the north, the Takht-e-Soleiman and Arbat mountain ranges in the south, the Bozqush Heights in the southeast, and the Qushadagh Mountains in the northeast of the province (University of Tabriz, 2018: 1).

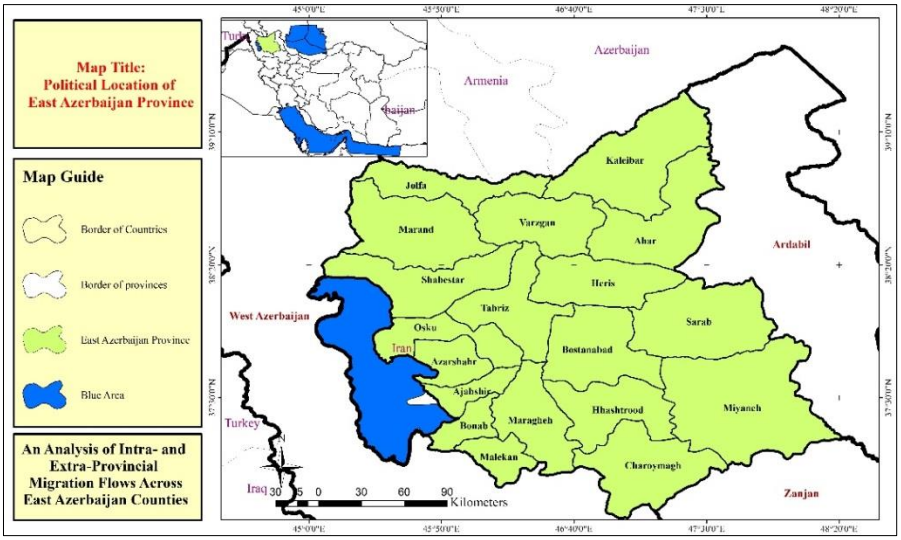

Figure 3. Political Map of East Azerbaijan Province in 2016

Results

To perform the network analysis technique, an inter-county migration matrix for East Azerbaijan Province was first created (Table 3).

Table 3. Inter-county Migration Matrix for East Azerbaijan Province (2011-2016)

Counties	Azarshahr	Osku	Ahar	Bostanabad	Bonab	Tabriz	Jolfa	Charoymagh	Khodafarin	Sarab	Shabestar	Ajabshir	Kaleibar	Maragheh	Marand	Malekan	Miyaneh	Heris	Hashtrood	Varzgan
Azarshahr		113	1	5	41	825	19	1	0	5	10	68	3	92	34	0	22	5	0	4
Osku	58		3	1	19	589	18	0	0	6	70	27	0	30	6	1	15	2	2	2
Ahar	150	78		16	32	3023	74	5	25	32	35	56	84	137	89	9	84	43	4	49
Bostanabad	61	39	4		16	1222	32	1	0	62	32	43	2	45	29	3	88	3	53	2
Bonab	103	44	12	1		566	29	8	10	24	14	191	2	437	39	69	51	3	7	0
Tabriz	567	8822	1081	310	525		617	23	86	467	700	522	110	1282	992	154	593	264	124	245
Jolfa	43	35	19	4	36	621		1	3	15	34	31	0	80	341	8	25	3	4	6
Charoymagh	8	3	1	1	6	57	3		0	1	4	16	0	49	1	2	13	0	70	0
Khodafarin	7	0	48	0	0	101	16	0		1	12	7	13	5	9	0	0	5	1	5
Sarab	67	44	43	42	18	822	36	1	0		25	80	2	135	41	4	53	19	9	12
Shabestar	81	59	13	10	26	781	63	2	0	17		48	1	86	176	6	35	4	1	0
Ajabshir	115	95	26	8	196	553	27	5	9	31	14		4	170	334	6	60	0	8	14
Kaleibar	58	44	211	6	25	1301	25	2	34	15	13	43		45	18	2	28	8	0	18
Maragheh	179	247	64	14	340	1432	78	29	8	94	44	169	2		103	175	190	5	92	16
Marand	152	158	52	19	49	2077	478	1	10	40	334	87	10	150		11	68	6	13	25

Counties	Azarshahr	Osku	Ahar	Bostanabad	Bonab	Tabriz	Jolfa	Charoymagh	Khodafarin	Sarab	Shabestar	Ajabshir	Kaleibar	Maragheh	Marand	Malekan	Miyaneh	Heris	Hashtrood	Varzgan
Malekan	65	68	5	3	249	346	34	6	4	9	7	66	0	286	7		28	1	10	3
Miyaneh	86	46	27	29	47	708	33	5	8	59	24	96	1	249	69	2		5	80	9
Heris	77	21	41	8	8	1105	18	0	8	24	8	39	2	35	4	0	14		6	0
Hashtrood	42	43	8	16	37	532	8	25	0	17	23	39	0	345	35	8	125	4		4
Varzgan	23	14	58	6	1	1084	54	0	6	3	22	25	8	47	40	4	14	2	0	

Source: Iranian Statistics Center, 2016

For analyses, a tree diagram was used (Figure 4). The investigations showed that the highest number of migrants was concentrated among the counties of Osku and Tabriz, with Osku being the dominant county, forming the main branch of inter-county Immigration during this period. This branch was strengthened by the addition of the counties of Ahar, Kaleibar, Heris, Varzaqan, Bostanabad, Sarab, and Khodafarin. This is the primary and most important branch, where the highest volume of migration has occurred between these counties. After this main branch, which strongly influenced the structure of inter-provincial migration, several other significant branches emerged. In terms of importance, the second-ranked branch involves the counties of Jolfa and Marand, which emerged with less intensity compared to the first branch. When the county of Shabestar joined the second branch, and this branch eventually merged with the first one, a robust branch in the inter-county migration tree of the province was formed. The third-ranked branch, in terms of intensity and importance, involves the counties of Bonab, Maragheh, Malkan, Ajabshir, Hashtrood, Miandoab, Azarshahr, and Charoymagh. This branch is distinct from the first two. Generally, if we were to divide the migration flows between the counties of the province into two distinct zones:

Zone 1: The central, eastern, and northwestern counties of East Azerbaijan Province, which have a high volume and intensity of migration.

Zone 2: The counties located in the southern part of the province. It is worth noting that despite Azarshahr's proximity to the major city of Tabriz, it has exchanged more migrants with the southern counties.

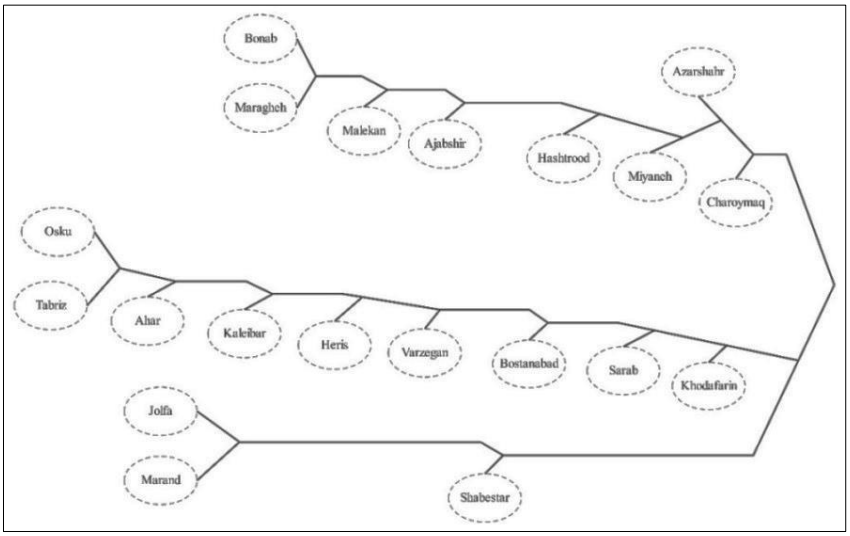

Figure 4. Tree Diagram of Inter-county Migrations in East Azerbaijan Province during the Years 2011-2016

In the following, a more detailed analysis of migration between the counties of East Azerbaijan Province during the period of 2011–2016 was conducted using the UCINET software, in the form of an migration network. As shown in Figure 5., 346 lines were drawn to represent the inter-county links in terms of migrant exchange, illustrating the migration patterns across East Azerbaijan Province. In this figure, the intensity of migration is indicated by the thickness of the lines. The findings revealed that all counties within the province had demographic links with each other in terms of migrants exchange during the studied period. This, irrespective of the positive or negative effects of the migrations, which are not the focus of this study, indicates healthy socio-demographic relations at the provincial level. However, the distribution of inter-county migration was not uniform and exhibited significant fluctuations among the counties under consideration.

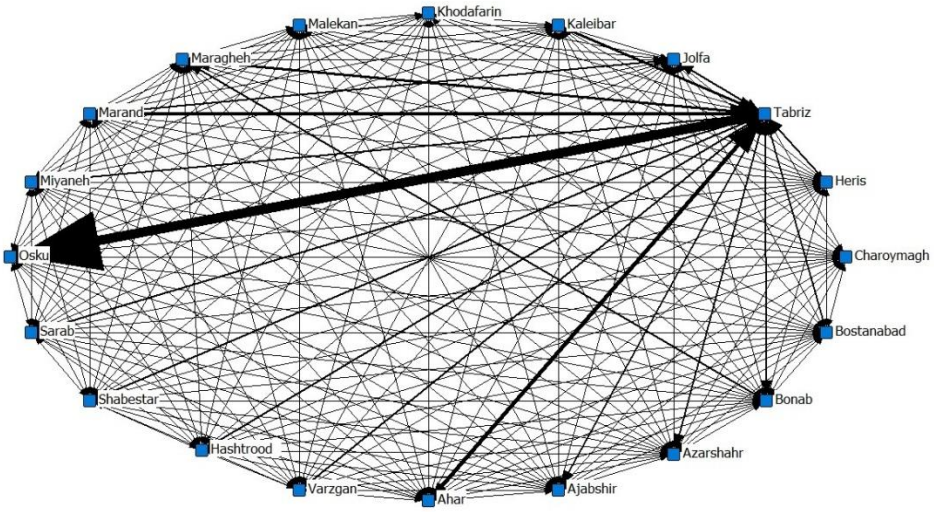

Figure 5. Inter-County Migration Network of East Azerbaijan Province during the Years 2011-2016

The analysis of the counties in East Azerbaijan Province reveals that the highest migration intake occurred in the district of Osku, with a significant portion of it resulting from the population overflow of the city of Tabriz. Currently, Tabriz, due to its population concentration, air pollution, high cost of living, and other factors, has become a repellent force for its residents, which has led to overflow toward surrounding areas, while Osku attracts a substantial portion of the flows from Tabriz. This phenomenon in Osku can be attributed to the specific characteristics of this county, particularly existence of the new city of Sahand, its proximity to Tabriz, relatively low living costs, clean air, and other factors. These elements have effectively enhanced Osku's attractiveness as opposed to the demographic repelling forces in Tabriz, resulting in a positive migration balance for Osku.

Migration links from Tabriz, apart from Osku where the migration intensity is notably high, have formed with most of the counties in the province, though at a relatively lower intensity. Specifically, the counties of Ahar, Kaleibar, Heris, and Varzagan have sent a relatively large number of migrants toward Tabriz. The metropolitan area of Tabriz has become a major immigration hub in the province, primarily due to its industrial and service activities (factories, retail stores, etc.), the presence of public and private institutions, healthcare services, educational facilities, recreational and sports services, and more efficient employment opportunities. In turn, the Immigration intake in Osku is influenced by the unique role of Tabriz as a major hub in northwest Iran. On the other hand, in terms of emigrant, Tabriz primarily sends its migrants, besides Osku, to the counties of Marand, Jolfa, Maragheh, and, to a lesser extent, other counties in the province. In total, the migration intake of Tabriz exceeds its outflow, leading to a positive migration balance. Although Osku and Tabriz have absorbed a substantial share of inter-county migration, other counties have also played significant roles in the Immigration of their surrounding areas. For instance, Marand has played an important role in attracting migrants from Tabriz, Hashtrood, and Ajabshir, due to its relatively more efficient economy compared to other counties. The high productivity of agriculture (such as crops, orchards, and livestock) and the high

employment rate in the county have contributed to this trend. Additionally, a large part of Jolfa County is located in the Aras Free Trade Zone, which has significantly influenced its immigration. Its special geographic location, with borders shared with Azerbaijan and Armenia, and its communication lines with Europe, the Caucasus region, and Turkey, as well as its high growth potential in industrial, mining, agricultural, service, scientific, and educational sectors, have made Jolfa an attractive destination for migrants from other parts of the province. In the southern part of the province, Bonab, alongside Maragheh, has played a prominent role in attracting population. Bonab has attracted migrants from Varzagan, Tabriz, Miyaneh, and Maragheh due to its academic education centers (Bonab University, Islamic Azad University, and Payam-Noor University), metal industries (Bonab Steel Complex), and service jobs (restaurants, particularly kebab shops). Similarly, Maragheh has attracted migrants annually due to its large soap manufacturing and glass industries, flourishing orchards, military centers, pastures (due to the seasonal Immigration of nomads to the heights of Sahand), and other efficient industrial, agricultural, and production activities, as well as academic centers (Figure 6).

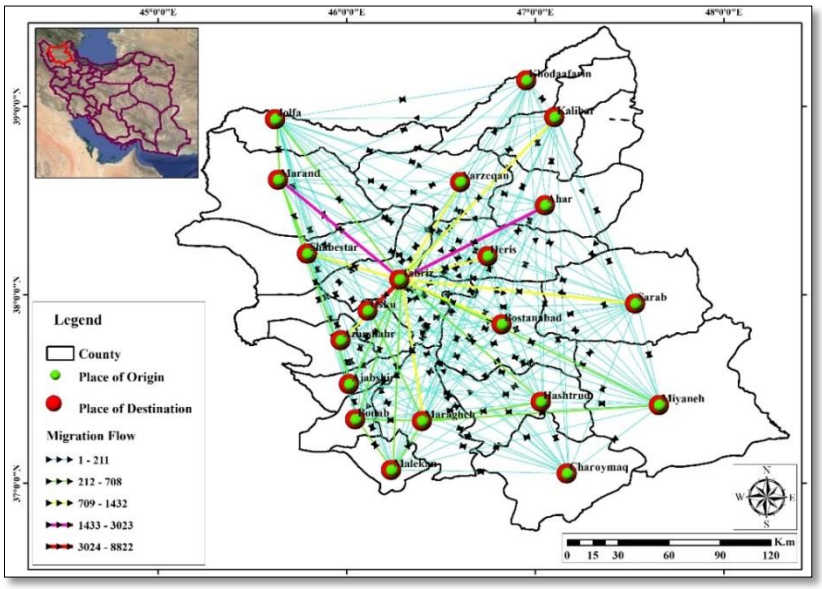

Figure 6. Spatial Flows: Inter-County Migration Network of East Azerbaijan Province during the Years 2011-2016

Emigration of the Province

An analysis of emigration patterns from the counties of East Azerbaijan Province to other provinces of Iran during the years 2011–2016 reveals that the highest number of migrants, accounting for over 41% of the total, originated from the county of Tabriz. The counties of Miyaneh (10.4%), Sarab (6.9%), Maragheh (6.7%), and Marand and Hashtrood (4.7%) rank next in terms of emigration. On the other hand, the lowest levels of emigration are observed in the counties of Osku, Charoymagh, and Khodafarin. The majority of the emigrants from East Azerbaijan Province have moved to Tehran (39.6%), West Azerbaijan (17.6%), and Alborz (11.1%). The least emigration has occurred toward the provinces of Chaharmahal and Bakhtiari, Lorestan, North Khorasan, and South Khorasan (Table 4).

Figure 4. Emigration Matrix from East Azerbaijan Counties to Other Provinces during 2011-2016

Provinces- Counties	Ahar	Tabriz	Sarab	Maragheh	Marand	Miyaneh	Hashtrood	Bonab	Bostanabad	Shabestar	Kaleibar	Heris	Jolfa	Malekan	Azarshahr	Osku	Charoymagh	Varzgan
Gilan	25	689	73	81	47	68	32	39	19	5	2	2	15	11	15	1	0	3
Mazandaran	10	506	33	46	22	51	5	33	5	16	5	1	14	21	18	4	0	7
West Azerbaijan	318	4985	190	1073	991	318	159	655	87	556	71	84	298	573	275	285	23	242
Kermanshah	19	526	13	39	32	42	2	29	7	18	4	2	13	10	19	14	0	4
Khuzestan	5	343	17	31	28	43	3	11	10	17	1	0	4	19	6	10	1	0
Fars	21	419	64	38	52	86	1	44	4	6	7	2	7	16	12	8	4	5
Kerman	7	201	1	16	3	12	3	9	2	7	4	2	8	2	9	3	4	4
Khorasan Razavi	14	695	44	72	67	44	12	48	6	8	0	9	12	7	34	14	1	3
Esfahan	8	373	14	47	21	21	6	15	5	5	2	0	8	0	10	5	0	3
Sistan and Baluchestan	8	199	1	19	5	24	21	6	28	5	1	2	4	4	3	2	0	0
Kordestan	67	944	20	184	70	64	23	143	18	25	12	22	9	39	64	22	2	9
Hamedan	8	289	6	25	11	22	3	30	9	8	3	5	7	6	6	2	0	2
Chaharmahal and Bakhtiari	0	28	0	11	2	2	0	15	1	0	0	0	0	4	2	0	0	0
Lorestan	4	76	10	14	1	11	3	1	4	0	0	0	6	0	1	2	0	1
Ilam	5	105	0	13	10	7	3	3	7	3	0	3	1	3	1	7	1	1
Kohgiluyeh and Boyerahmad	1	28	0	0	0	4	0	1	0	0	0	0	0	0	0	4	0	0
Zanjan	48	538	44	133	88	545	42	49	42	26	14	13	28	11	23	15	12	4
Semnan	14	72	3	5	9	11	6	12	4	1	2	3	6	3	20	7	0	1
Hormozgan	23	634	75	70	49	49	27	23	2	24	4	0	4	67	16	7	2	92
Tehran	1115	9860	2851	1666	1009	3131	1213	488	605	972	1217	302	319	209	261	158	391	18
Ardabil	378	1782	445	165	96	156	32	111	53	41	162	52	50	37	52	36	7	6
Qom	18	774	41	143	112	159	238	223	135	22	5	38	12	8	35	17	189	1
Qazvin	15	442	51	121	56	399	192	50	47	18	5	10	8	13	9	7	56	7
Alborz	148	2239	554	386	294	1615	1040	101	578	139	59	24	57	26	33	27	58	27
Golestan	15	145	40	20	16	14	2	8	1	3	1	0	1	1	9	1	0	0
North Khorasan	0	36	5	10	2	5	0	3	0	0	0	0	0	0	2	3	0	0
South Khorasan	4	86	7	4	3	6	2	2	1	0	4	1	0	3	4	3	1	6
Yazd	7	117	2	17	21	21	0	11	3	1	14	4	1	6	8	7	0	2
Bushehr	33	282	2	35	16	32	58	14	0	10	0	4	7	81	5	13	0	0
Markazi	12	161	16	41	21	25	23	14	6	9	4	6	10	4	10	5	1	1
Total Migrants	2350	27574	4622	4525	3154	6987	3151	2191	1689	1945	1603	591	909	1184	962	694	754	423
Percentage of immigrants	3.5	41	6.9	6.7	4.7	10.4	4.7	3.3	2.5	2.9	2.4	0.9	1.4	1.8	1.4	1	1.1	0.6

Provinces- Counties	Gilan	Mazandaran	West Azerbaijan	Kermanshah	Khuzestan	Fars	Kerman	Khorasan Razavi	Esfahan	Sistan and Baluchestan	Kordestan	Hamedan	Chaharmahal and Bakhtiari	Lorestan	Ilam	Kohgiluyeh and Boyerahmad	Zanjan	Semnan	Hormozgan	Tehran	Ardabil	Qom	Qazvin	Alborz	Golestan	North Khorasan	South Khorasan	Yazd	Bushehr	Markazi	Total Migrants	Percentage of immigrants
Ajabshir	19	9	589	6	12	24	1	8	10	0	104	18	4	6	1	0	39	0	10	200	85	17	9	24	1	3	2	1	8	5	1215	1.8
Khodafarin	7	3	32	0	2	1	2	3	0	1	8	1	0	0	6	0	2	1	12	521	33	1	0	33	0	0	0	1	1	1	672	1
Total	1153	809	11804	799	563	821	300	1101	553	333	1850	461	69	140	180	38	1716	185	1099	26580	3791	2193	1509	7442	278	69	139	244	601	375	67195	100
Total percentage	1.7	1.2	17.6	1.2	0.8	1.2	0.4	1.6	0.8	0.5	2.8	0.7	0.1	0.2	0.3	0.1	2.6	0.3	1.6	39.6	5.6	3.3	2.2	11.1	0.4	0.1	0.2	0.4	0.9	0.6	100	-

Source: Iranian Statistics Center, 2016.

Furthermore, a more detailed analysis of emigration patterns from the counties of East Azerbaijan Province to all provinces of the country during the years 2011–2016 has been conducted. The findings revealed that emigration from all counties occurred to various provinces across the country. This indicates that there are strong social and demographic ties between the counties of the province and other regions of the country. However, the distribution of emigrants toward different provinces is not homogeneous and exhibits significant fluctuations between them. This suggests that some provinces experienced a higher volume of migrants, while others experienced relatively lower levels (Figure 7).

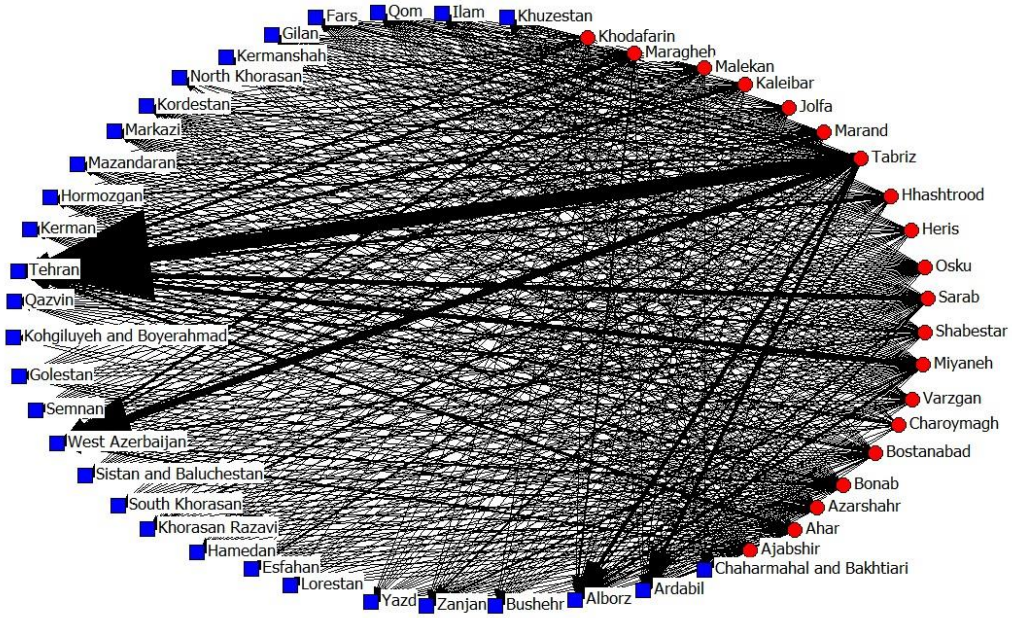

Figure 7. Emigration from the Counties of East Azerbaijan toward Other Provinces of Iran (2011-2016)

The highest percentage of emigration from the studied counties, as shown previously, occurred toward the provinces of Tehran, West Azerbaijan, Ardabil, and Qom. In other words, East Azerbaijan Province has strong demographic ties with these provinces. More specifically, the highest Immigration

influx occurred in Tehran, with a significant portion originating from the counties of Tabriz, Sarab, Miyaneh, Maragheh, Shabestar, Bostanabad, and Marand. The growing emigration from the counties of East Azerbaijan Province to Tehran Province results from a combination of push and pull factors. On the pull side, the concentration of diverse industries, availability of employment opportunities and adequate income, expansion of the service sector, and the presence of the country's leading universities in the capital have attracted individuals seeking better job prospects, higher education, and improved living conditions. Conversely, push factors such as limited educational facilities, widespread poverty and deprivation, recurrent droughts, declining agricultural productivity, unfavorable working environments, and concerns about children's future have encouraged residents to leave their hometowns. Additionally, the existence of linguistically and culturally similar communities in Tehran and other provinces has acted as a social facilitator, easing and motivating emigration to these areas. Environmental crises, including the desiccation of Lake Urmia and increasing water scarcity, have further intensified this migratory trend. The second wave of emigration from East Azerbaijan Province is directed toward the neighboring province of West Azerbaijan. The primary reasons for this emigration include the presence of free trade zones, border markets, investment opportunities in agriculture, and close cultural, linguistic, and social ties, alongside motivations like marriage, employment, and investment. Overall, the main destination for migrants from most counties in East Azerbaijan Province has been Tehran (Figure 8).

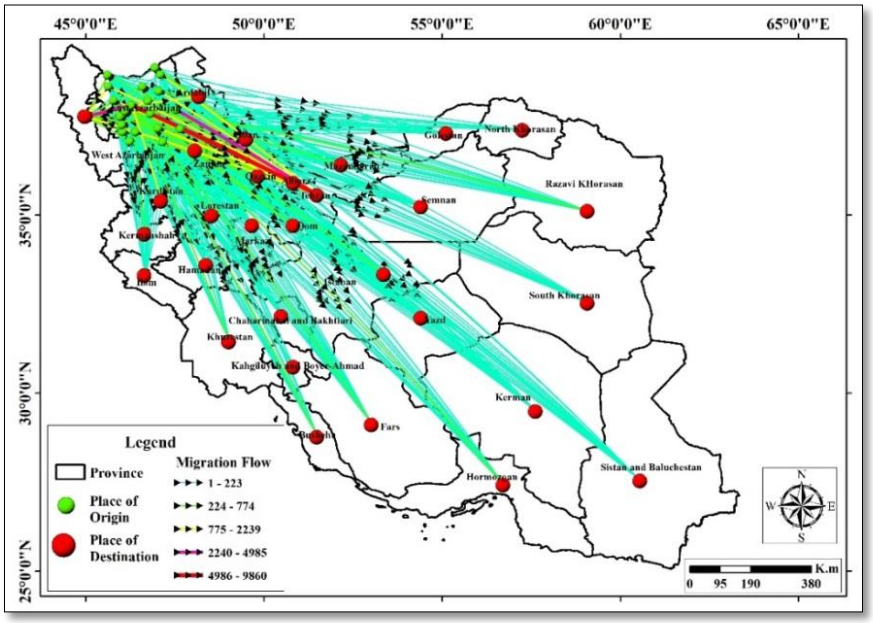

Figure 8. Emigration Spatial Flows from the Counties of East Azerbaijan Toward other Provinces (2011-2016).

Discussion and Conclusion

The present study examined internal and external migration patterns in East Azerbaijan Province, disaggregated by county, during the period 2011–2016. The findings on internal migration (within the province) reveal that all counties in East Azerbaijan are demographically interconnected through varying levels of migration exchange. Socio-demographic ties, shared language, social cohesion, and common cultural characteristics have played a substantial role in shaping these flows. However, the spatial distribution of inter-county migration has been uneven, showing considerable variation among counties. Counties such as Tabriz, Osku, Marand, Ahar, Maragheh, Bonab, Shabestar, and Jolfa have attracted the highest numbers of immigrants. Notably, migration between Tabriz and Osku Counties, particularly associated with the development of the new city of Sahand, has been far more intense than in other counties. Tabriz serves as a major migration hub in the province due to its industrial and service-oriented economy, concentration of governmental and private institutions, advanced healthcare infrastructure, and diverse educational, recreational, and employment opportunities. Similarly, Osku

has become a key immigration area, largely influenced by the metropolitan dominance of Tabriz, whose population overflow has extended into surrounding settlements. The primary catalyst for the increased immigration to Osku is the establishment of Sahand New Town in 2008. Factors such as rapid population growth and housing shortages in Tabriz, the availability of more affordable land and housing, proximity to workplaces, favorable geographic location, educational opportunities, tourism potential, infrastructure expansion, and investment prospects have collectively encouraged population movement from Tabriz to Osku. Therefore, it can be concluded that counties with stronger economic, administrative, service, and educational functions (such as Tabriz) possess a greater capacity to attract migrants. These findings support the Migration Gravity Model, the Core–Periphery Model, and the Attraction Model. Greater access to educational, healthcare, and recreational facilities, along with broader employment opportunities and stable income sources, function as pull factors that stimulate migration (as illustrated by the large-scale influx toward the metropolitan city of Tabriz). Conversely, high living costs, distance from family and home, and environmental pollution act as push factors discouraging continued residence in destination areas (for example, the substantial migration from Tabriz to Osku County).

Furthermore, the findings on interprovincial migration indicate that East Azerbaijan's counties maintain emigration connections with various parts of Iran for multiple reasons, particularly through social and demographic linkages. However, these inter-provincial flows are heterogeneous, showing substantial disparities in magnitude. Some provinces attract significantly more migrants, while others receive comparatively fewer. Provinces such as Tehran, West Azerbaijan, Ardabil, and Qom have drawn the largest shares of migrants and established strong demographic ties with East Azerbaijan. Tehran alone has absorbed about 39.6% of the province's migrants, primarily from Tabriz, Sarab, Maragheh, Shabestar, Bostanabad, and Marand. The main drivers include economic instability, unemployment, aspirations for better job prospects (particularly in the service and industrial sectors), pursuit of higher education in Tehran, military service, government employment, job transfers, marriage, and the concentration of administrative, financial, and employment opportunities in the capital. These results reinforce the Migration Gravity Model, which interprets migration as a function of destination pull factors and origin push factors; the New Economics of Labor Migration, which views migration as a household strategy to diversify livelihoods and reduce risks associated with limited credit and capital; and Zelinsky's Mobility Transition Model, which emphasizes temporal shifts in migration patterns across stages of development. The observed patterns of migration from other counties within the province toward Tabriz County, and subsequently from Tabriz to Tehran Province, align with Ravenstein's (1885) laws of migration, particularly the concept of stepwise or "staircase" progression, wherein migrants typically move progressively through intermediate stages toward major urban centers. Overall, the findings of this study are consistent with previous research, including Ghasemi-ardahaee & Kazemipour (2013); Aghayari Hir & Hakimi (2017); Aghayari Hir et al. (2018); Tanhaa et al. (2021); Elmi & Pasandi Yesaqi (2024); Mohabbi-Mimandi (2023); Gnimassoun (2025); Kii et al. (2025); and Attah-Out et al. (2025), among others. Based on the findings of the study, the following recommendations are proposed: 1) It is recommended that the relevant organizations and responsible authorities, by establishing new industrial zones and developing higher education and healthcare centers in less-developed counties such as Harris, Kaleybar, Charuymaq, Varzeqan, and others, help reduce population concentration in the metropolitan area of Tabriz and the new city of Sahand, thereby balancing intra-provincial migration flows. 2) Providing low-interest financial facilities to local entrepreneurs and supporting production and service cooperatives in the origin counties can play a significant role in reducing the tendency toward migration and promoting local employment sustainability. 3) In order to manage population growth and promote sustainable development in migrant-receiving cities (particularly Tabriz and the new city of Sahand), it is recommended to establish an integrated system for monitoring and evaluating migrant populations, so that demographic trends and service needs in these areas are continuously assessed and effectively managed.

References

Abadian, H. (2018). Land Reform and Social Consequences of Rural Migration to Tehran. *Social History Studies*, 8(2), 1-20. https://doi.org/10.30465/shc.2019.23751.1850.

Afrakhteh, H. , Manafiazar, R. and Valaei, M. (2016). The Spatial-Local Effects of Return Migration in Miyandoab County. *Journal of Research and Rural Planning*, 5(1), 83-98. doi: 10.22067/jrrp.v5i1.43612.

Aghayari Hir, M & Hakimi, H. (2017). Analysis of Interprovincial Migration Network in Iran (2006-2011). *Journal of Applied Researches in Geographical Sciences*, 17(45), 206-185.

Aghayari Hir, M., Karimzadeh, H. and Khaleghi, A. (2018). Analysis of Factors Affecting the Decision to Migration of the Villagers in the Area of Behavioral Geography Case Study: Sina District, Varzeqan County. *Journal of Rural Research*, 9(1), 57-42. 10.22059/jrur.-2017.128431.709.

Aghayari Hir, M., Alirezaei.M, Zarei, A. (2024). Analysis of the Spatial Distribution Pattern of Public and Private Sector Employees in the Iranian Townships. *Journal of Geography and Planning*, 28 (87), 1-21. http//doi.org/10.22034/GP.2022.52492.3026.

Attah-Out, B., Jaiswal, N., Gupta, P., & Sengupta, A. (2025). Implications of migration on health and education: returned migrants and school teachers perspective in India: A qualitative study. *Journal of Migration and Health,*, 11, 100289. https://doi.org/10.1016/-j.jmh.2024.100289.

Beik Mohammadi, H. and Hatami, M. (2010). Geographical analysis of migration trends in East Azerbaijan Province (1986-2005). *Quarterly Journal of Geography Environment Preparation*, 10, 42-23.

Chen, Z. (2023). Economic integration of temporary and permanent migrants: Between migrant and return migrant status. *Habitat International*, 140, 102910. https://doi.org/10.-1016/j.habitatint.2023.102910

Eakin, H. (2005). Institutional change, climate risk, and rural vulnerability: Cases from Central Mexico. *World development*, 33(11), 1923-1938.

Efati, M. (2004). Studying the effects of seasonal migration of men on the activities of rural women. *Quarterly Journal of Rural Development*, 27, 41-84.

Elmi, Z. M., and Pasandi Yassaghi, F. (2024). The determinants of Iranian female migration with an emphasis on the miserable index and control of corruption. *Stable Economy Journal*, 5(2), 121-93. https://doi.org/10.22111/sedj.2024.48200.1453.

Ghalandarian, I. and Dadashpoor, H. (2018). Analyze and identify spatial patterns of migration in the territory of Iran. *Journal of Geography and Planning*, 21(62), 223-246. doi: 3-10.

Ghasemi, V & Ghorbaniyan, M. (2010). Comparative Study on the Effect of Immigration on Religious level and Value Priorities of Boys and Girls. *Women's Strategic Studies*, 12(47), 197-222.

Ghasemi-ardahaee, A. and Kazemipour,S. (2013). Factors Affecting Labor Emigration from East- Azerbaijan Province to Tehran's Province. *Iranian Population Studies*, 1(2), 117-135.

Gnimassoun, B., (2025). Immigration and labour productivity: A comparative effect. *World Development*, 188, 106920. https://doi.org/10.1016/j.worlddev.2025.106920

Hassan, M. I. (2020). *Population geography: A systematic exposition*. Abingdon, Oxon; New York, NY: Routledge.

Hosseini, G., *Sadeghi*, R, Ghasemi-Ardhaei, A., and Rostamalizadeh, V. (2018). Trend Changes and Migration Patterns in the Border Provinces of Iran. *National Studies Journal*, 8(31), 18-1.

Kii, M., Chou, C.C., Kono, T., & Otazawa, T. (2025). City size distribution and utility of living: Exploring intercity migration in Japanese urban systems. *Economic Analysis and Policy*, 85, 1238-1257. https://doi.org/10.1016/j.eap.2025.01.021

Mahdipour, A. , Mahdipour, A. and Ghasemi Ardahaee, A. (2019). Investigating the Intention of Migration from the Village and the Factors Affecting it (Case of Study: Villages of Kalat Section of Abdanan City, Ilam Province). *The Journal of Community Development (Rural-Urban)*, 11(2), 437-458. doi: 10.22059/jrd.2019.76763.

Mirza Mostafi, S. M., Ghasemi, P. (2013). Investigating Factors Affecting Interprovincial Migration by Using Gravity Models. *Quarterly Journal of Financial and Economic Policies*. 1, 3, 96-71.

Mohabbi-Mimandi, M. (2023). Research on trends in internal migration in Iran over the last thirty years (1986-2016). *Monthly Technical Reports of the Parliamentary Research Center*, 31(3), 19003.

Naghibi, H., Hakimi, H., & Babaei Aghdam, F. Asghari Zamani, A (2025). Identifying the key factors affecting the expansion process of informal settlements by structural analysis method (case study: khoy City). *Journal of Geography and Planning*, 28 (90), 345-367. http//doi.org/10.22034/gp.2024.58401.3186.

Nobahar, E., Ghorbani, F & Hadad-Moghadam, M. (2021). Investigating the relationship between unemployment and net Immigration: A spatial econometric approach. *Quarterly Journal of Economic Research and Policy*, 29(98), 135-176. https://doi.org/10.52547/-qjerp.29.98.135.

Qi, W., Deng, Y., & Fu, B. (2022). Rural attraction: The spatial pattern and driving factors of China's rural in-migration. *Journal of Rural Studies*, 93, 461-470. https://doi.org/10.1016/-j.jrurstud.2019.03.008.

Raheshkho, M., Rafiian, M. and Amini, A. (2012). Investigating the role of social and cultural factors on the migration of Iranian students abroad (case study: Pécs University of Medical Sciences, Pécs, Hungary). *Quarterly Journal of Social Research*, 4, 16.

Rana, M. S., and Qaim, M. (2024). Patterns of temporary rural migration: A study in northern Bangladesh. *World Development*, 182, 106718. https://doi.org/10.1016/j.worlddev.2024.-106718.

Rezvani, M.R., Tahmasebi, B. and Jamshidi, F. (2023). Spatial-temporal analysis of reverse migrations (from city to village) in Iran. *Rural Research*, 14, 3, 443-424.

Saeedi, A. (2013). Basic concepts in physical-spatial planning. *Quarterly Journal of Physical-Spatial Planning*, 1, 3, 11-24.

Sarwary, M., Senthilnathan, S., Saravanakumar, V., Arivelarasan, T., & Manivasagam, V.S., (2021). Climate Risks, Farmers Perception and Adaptation Strategies to Climate Variability in Afghanistan. *Journal of Food and Agriculture*, 33(12), 1038-1046. https://doi.org/10.9755/ejfa.2021.v33.i12.2797

Sepehrdoust, H., Sharififakhr, P & Barouti, M. (2017). The Impact of Income Distribution and Agricultural Credit Facilities on Rural-Urban Migration. *Journal of Research and Rural Planning*, 6(19), 150-139.

Severoni, S., Marotta, C., Borghi, J. (2025). Universal health coverage in the context of migration and displacement: a cosmopolitan perspective. *The Lancet Public Health*, 10 (8), 712-715. https://doi.org/10.1016/S2468-2667(25)00117-3.

Shahbazin, S. (2020). Why Do People Move? Modern Gravity Model of Inter-Provincial Migration in Iran 2011-2016. *Urban and Regional Development Planning*, 5, 13, 138-109.

Shakoui, H. (2009). *New Perspectives in Urban Geography*, Samt Publications, Tehran.

Shamsoddini, A & Gourjian, P. (2010). Effective Factors of Villagers' Migration to Cities, with an Emphasis on Network Migration (Case Study: Rostam 2 District). *Journal* of *Geographical* Landscape, 5(11), 75-92.

Shefer D., & Steinvortz L. (1993). Rural-to-urban and urban-to-urban migration patterns in Colombia. *Habitat International*, 17(1), 133-150. https://doi.org/10.1016/0197-3975(93)-90050-M.

Shen, J,. Azam, M., Jin, H., & Imran Hunjra, A. (2024). Environmental implications of migration: Worldwide insights. J*ournal of Environmental Management*, 369, 122270. https://doi.org/10.1016/j.jenvman.2024.122270.

Statistical Center of Iran. (2016). *General Population and Housing Census of East Azerbaijan Province*. Tehran: Statistical Center of Iran.

Sugden, F., Nigussie, L., Debevec, L., & Nijbroek, R. (2021). Migration, environmental change and agrarian transition in upland regions: learning from Ethiopia, Kenya and Nepal. *The Journal of Peasant Studies*, 49(5), 1101–1131. https://doi.org/10.1080/03066150.-2021.1894552.

Tanhaa, F., Mahmoudian, H., Sadeghi, R., Koousheshi, M & Rabiei Dastjerdi, H.R. (2021). Spatial Analysis of the Effect of Internal Migration on Changing the Population Age Structure in Counties of Iran. *Population Studies*, 7(1), 121-154. https://doi.org/10.22034/-jips.2021.136765.2541.

University of Tabriz. (2018). *Comprehensive Territorial Planning Project of East Azerbaijan Province*. Organization for Management and Planning of East Azerbaijan Province.

Valaei, M. (2013). *Diversification of Rural Economy for Achieving Sustainable Rural Development: A Case Study of Marhamatabad Northern District, Miyandoab County*. Master's Thesis. Supervised by Dr. Behrooz Mohammadi-Yeganeh, Department of Geography, University of Zanjan.

Vatankhah-Noghani, A & Ghasemi, M. (2019). Survey of Consequences of Men’s Migration on Situation of Left-behind Women in Rural Areas (Case Study: Mashhad County). *Woman in Development & Politics*, 17(3), 438-413. https://doi.org/10.22059/jwdp.2020.-270913.1007540.