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LABOR MIGRATION IN CENTRAL ASIA: ISSUES, IMPACTS, AND STRATEGIC SOLUTIONS

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This paper investigates labor migration in Central Asia from 2013 to 2023, targeted on economic and demographic factors, including GDP per capita, unemployment, inflation, remittances, and population growth. Using panel regression analysis and World Systems Theory, the study highlights key factors influencing migration trends, such as economic disparities, reliance on remittances, and shared language or boders. Findings show that there is a high out-migration from Kyrgyzstan and Tajikistan because of significant unemployment and poverty rates, whilst Kazakhstan demonstrates economic stability which leads to less migration rates. In the last years, Uzbekistan shows progress in reducing migration through economic development. The results determine the need for more targeted policies to tackle against economic issues, reduce reliance on remittances and promote sustainable development.
Key words: labor migration, Central Asia, economic factors, demographic trends, remittances, shared borders
JEL: J61, O53

1 INTRODUCTION

In today's globalized world, millions of people cross national borders each year for several purposes, including seeking employment, new residency, educational opportunities, healthcare, or escaping political, racial, or environmental crises (World Bank, 2020). The process of migration has played a very important role in the history of humanity. It has contributed to the processes of settlement, land development, development of productive forces, formation and mixing of different races, languages and ethnic groups (Castles et al., 2014). Even though migration is a global phenomenon, its dynamics are more profounded in developing regions and emerging markets. According to the report of International Labor Organization (ILO, 2023) international migrants reported for 4.7% of the global labor force. The majority of these labors were from

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emerging markets, with 68.4% (114.7 million) employed in high-income countries and 17.4% (29.2 million) in upper-middle-income countries. A newly developing region - Central Asia is also actively participating in international labor migration (Abdulloev et al., 2014).

Central Asian (CA) countries – Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan, and Turkmenistan – are positioned in the core of Asia and serve as a bridge between the continents of Asia and Europe. CA republics have a significant role in the Asian economy, with a consumer market of over 77 million people. These five nations make up the world's biggest landlocked region, which has historically had limited access to international markets, mainly Uzbekistan is considered the second double landlocked country out of two in the world. It may imply high transport and logistical costs, bringing more barriers to international trade (Raballand 2003). In Central Asia, the population spans from 6.3 million in Turkmenistan to over 35 million in Uzbekistan, while the GDP ranges from $8.5 billion in Kyrgyzstan to $197.1 billion in Kazakhstan (Trade map, 2022). The region's economy is mainly based on natural resources and and agriculture, with significant contributions from oil, gas, minerals, and cotton production (Zhau et al., 2020). This economic structure clearly shows that, despite a population of over 77 million people, the region faces limited working opportunities, particularly in non-agricultural sectors and industries beyond natural resources. As a result, many migrants from Central Asia are forced to search for better job opportunities abroad, often in neighboring countries like Russia and Turkey, or in the Gulf states, where there is higher demand for labor in construction, services, and other sectors. In 2019, before the COVID-19 pandemic, more than 4 million migrants (Matuseevich, 2024) indicated employment as their purpose of stay when entering Russia. In addition to temporary labor migrants, in the same year in Russia, more than 300,000 citizens of Tajikistan, Kyrgyzstan and Uzbekistan were staying in Russia on long-term residence permits (Ratha et al., 2020). Most of migrants from Central Asia are blue-collar workers, which can be defined as manual laborers working in fields such as construction, agriculture, and manufacturing (ILO, 2018). The main reason behind this - low levels of education and qualifications, which limits their opportunities in the local labor market and forces them to seek employment abroad (Abdulloev et al., 2014)

Despite its economic benefits, migration in Central Asia presents complex challenges. The outflow of workers, especially skilled professionals, worsens the "brain drain," depriving these countries of the human capital needed for sustainable development. Conversely, the remittances sent by migrants play a vital role in supporting household incomes and national economies, particularly in countries like Kyrgyzstan and Tajikistan, where remittances constitute a significant share of GDP. The reliance on remittance-driven economies can, however, create vulnerabilities, especially during global economic disruptions such as the COVID-19 pandemic, which saw sharp declines in migration flows and remittance inflows. Migration also poses demographic challenges,

altering the population structure of sending countries. Youth migration can lead to aging populations and a shrinking workforce at home, undermining long-term economic stability. Moreover, the social implications of migration, such as family separation and the reintegration of returning migrants, require tailored policies to mitigate negative consequences. The labor market disparities between rural and urban areas in Central Asia further exacerbate migration pressures, as rural communities often lack access to employment and education, driving individuals to seek opportunities abroad.

Figure 1: The main economic indicators of Central Asian countries

Source: processed by author.

This study aims to address these pressing issues by exploring the following objectives:

- What economic and demographic factors most significantly influence labor migration patterns from Central Asian countries, and how have these factors evolved from 2013 to 2023?
- To what extend the push and pull factors impact on overall net migration rate in Central Asian countries?

The study of migration in Central Asian countries is important for several reasons. First, migration affects the economic development of the region by facilitating

the exchange of labor and capital. Second, migration can change the demographics and social structure of the population, which requires the adaptation of social and economic policies. With regard to the increase in migrants of high mental strength, this can lead to significant changes in the economy and society. High-skilled migrants can contribute to innovation, research and technology development, which contributes to economic growth and improves the quality of life (Salimov, 2024). However, without effective governance, these potential benefits may be overshadowed by the challenges of skill shortages, social inequality, and economic dependence on remittances.

This paper is having the following structure: Section 2 provides a literature review, while Section 3 and 4 outlines the theoretical background and methodology. Section 5 presents the key trends and patterns of labour migration in targeted region. Section 6 presents empirical results, followed by the conclusion and policy recommendations in Section 7.

2 LITERATURE REVIEW

The study of migration in Central Asian countries is a multifaceted and relevant area of scientific research. The economic, social, legal and demographic aspects of migration require a comprehensive analysis and careful consideration in order to develop effective migration management strategies. Today, more and more scientific researchers are working and studying the topic of international migration, such as Metelev (2017), Rybakovsky (2019), Florinskaya (2015). They considered the essence and importance of international migration for the economies of individual countries and, in general, for the development of all states.

Pisarevskaya's analysis (2020) shows that instead of increasing the diversification of topics within the topic of migration, they see a shift between different topics in this area, and their research shows that there is no steady trend towards greater fragmentation in this area; on the contrary, it shows a recent reconnection between topics in this area, suggesting institutionalization or even theoretical and the conceptual advent of the era of migration studies. A recent study by Miraslanova (2022) highlights that despite economic challenges, remittances from labor migrants have become a crucial source of foreign income, contributing to the overall economic resilience of countries like Kyrgyzstan, Tajikistan, and Uzbekistan.

In addition to economic factors, the social dimensions of migration in Central Asia are also worth noting. As the International Organization for Migration (IOM) report (2023) indicates, migration not only affects the migrants themselves but also their families and communities back home. For many Central Asian households, remittances are the primary means of financial support, leading to an improvement in living standards and increased access to education, healthcare, and other essential services. However, the social costs are not negligible. The absence of working-age adults due to migration leads to shifts in family structures, often placing additional responsibilities on women, who

may have to manage both household tasks and financial duties. This dynamic has been discussed by Karimova and Tashkentova (2021), who argue that migration is reshaping gender roles in Central Asia, with women increasingly becoming breadwinners while also maintaining traditional familial responsibilities.

While Russia remains a dominant destination for migrants from Central Asia, there is a growing shift toward Kazakhstan due to its more favorable policies and proximity, as well as increased demand for labor in its growing economy. In this regard, Turakulov and Bekzhanov (2023) observe that Kazakhstan has emerged as a key player in regional migration, attracting migrants not only from Central Asia but also from neighboring regions such as the Caucasus. In modern conditions, the main reasons for the growth of North-South migration are the inequality of GDP per capita between Europe and the countries of North Africa and the Middle East, as well as the demographic gap between the aging population of developed countries and the rapidly growing young population of developing countries (Nekhoroshikh, 2020).

Migration is beneficial not only to the host country, but also to the host country (Aydinyan, 2023). According to Popova (2022), high mobility, or labor migration, is the norm in a globalized world. Since there are always developed and less developed countries in the modern trade and economic space, this creates an incentive for migrants from less developed countries to migrate to developed countries, legally or illegally. (Popova, 2022). The works of A.I. Kuzmin, A.V. Dmitriev, N.P. Neklyudova, K.O. Romodanovsky, P.Yu. Strovsky consider certain aspects of the problems of regulating external labor migration (Bobylev, 2009).

While migration is widely studied, there is surprisingly little research that looks closely at Central Asia's unique migration shapes. This region has distinct political and economic factors—such as a strong reliance on remittances and the key role of Russia as a top destination for migrant workers—that set it apart from other parts of the world. These factors add layers of complexity to the migration picture in Central Asia, making it an essential area for further exploration. This study aims to fill that gap, providing a more complete understanding of the region's migration dynamics.

3 THEORETICAL FRAMEWORK

Labor migration from CA countries is a complex and multi-layered case which is driven by economic disparities, several geopolitical components. This section presents theoretical framework that can explain the occurrence and causes of migration in the context of Central Asian countries. The most relevant theories including Dual Labor Market Theory, Social Network Theory, and Push-Pull Theory, World Systems Theory, when applied collectively, can present complete picture of the factors driving the labor migration from Central Asia to countries like Russia and European countries

One of the foundational theories for understanding migration in this context is World Systems Theory, developed by Wallerstein (1974). According to this theory,

global economic disparities between the "core" and "peripheral" countries are the key drivers of migration. Core countries, typically wealthy and industrialized, exploit the resources and labor forces of peripheral countries, which are often less developed and more dependent on remittances. In the case of Central Asia, countries such as Uzbekistan, Tajikistan, and Kyrgyzstan can be classified as peripheral, with economies heavily reliant on remittances sent home by migrant workers employed in core countries like Russia. The legacy of Soviet economic and political control still influences migration patterns in the region, with Russia, the core, benefiting from cheap labor sourced from Central Asia. Economic instability, high unemployment rates, and political turmoil in the peripheral countries push individuals to seek better opportunities abroad (Matuseevich, 2024). World Systems Theory provides valuable insight into the structural inequalities that drive labor migration from Central Asia.

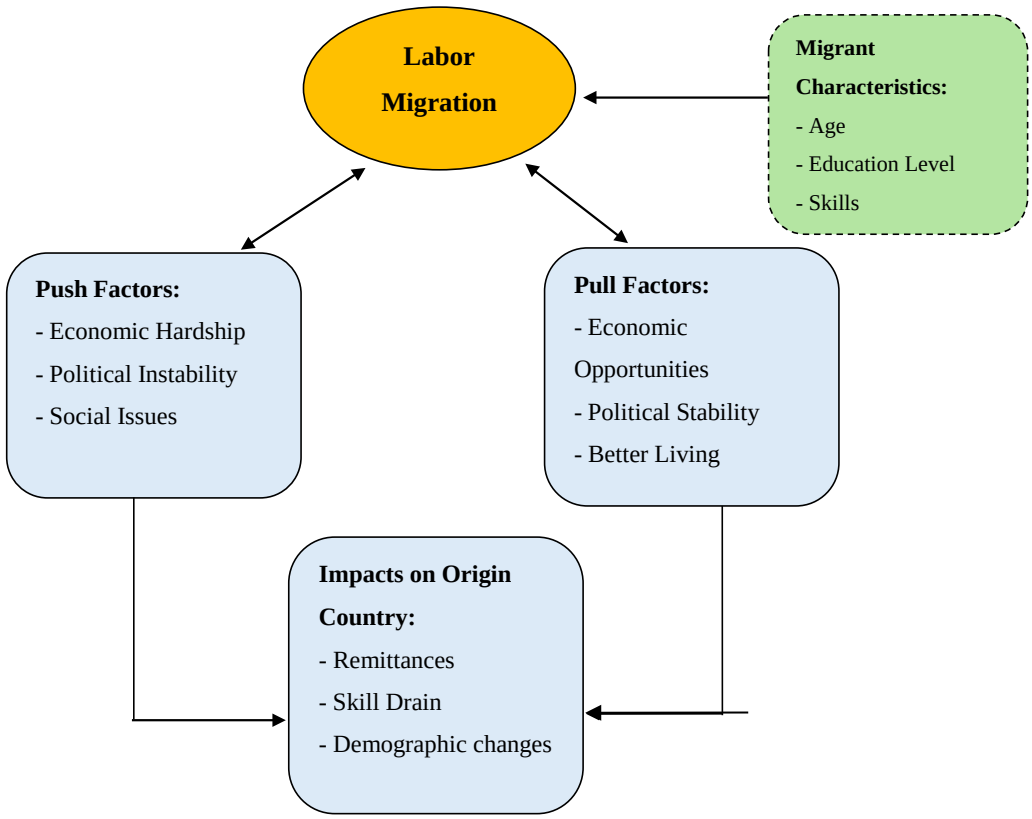
Another important theory is the Dual Labor Market Theory, which explains migration in terms of labor market segmentation. This theory, developed by sociologists such as Piore (1979), suggests that developed economies, like those of Russia and Western Europe, have two distinct labor markets: a primary sector consisting of stable, high-wage jobs requiring high skills and a secondary sector consisting of low-wage, unskilled labor that is often filled by migrants. Migrants from Central Asia typically fill these lower-wage, less stable positions in the secondary labor market. The theory argues that developed countries need a continuous supply of cheap labor to maintain their economic structure, and this need creates a demand for migrant workers. In the case of Central Asia, labor migration is thus driven by the economic structure of both the sending and receiving countries, which is a key aspect of the migration process from this region.

The Push-Pull Theory further complements the understanding of migration by emphasizing the factors that drive individuals to leave their home country (push factors) and those that attract them to a new country (pull factors). As proposed by Lee (1966), push factors such as economic hardship, political instability, and social issues like unemployment, poverty, and lack of education in Central Asian countries push people to seek better opportunities abroad. On the other hand, pull factors such as better economic prospects, political stability, and improved living conditions in destination countries like Russia act as magnets for Central Asian migrants. This theory helps explain the behavioral aspects of migration and highlights the role of both internal conditions in the home country and external opportunities in the host country. It is especially relevant for understanding the migration patterns from Central Asia, where the push of limited economic opportunities and the pull of higher wages and social mobility in Russia create a strong incentive for individuals to migrate.

Additionally, Social Network Theory plays a significant role in explaining the persistence and growth of migration flows. According to this theory, migration is not just an individual decision but is influenced by social networks of family, friends, and acquaintances who have already migrated. These networks provide migrants with

information, resources, and emotional support, making it easier for others from the same region to follow in their footsteps. Central Asia's migration patterns are deeply embedded in these social networks, where migrants often move to places where their relatives or fellow countrymen have already settled. These networks reduce the uncertainty and risks associated with migration and facilitate the integration of new migrants into the labor market of the host country (Massey et al., 1993). The existence of established Central Asian communities in Russia, for example, plays a crucial role in sustaining migration flows from the region.

Figure 2: Conceptual diagram: factors and causes of labour migration



Sources: processed by author.

Moreover, the New Economics of Labor Migration (NELM) theory provides an additional lens for understanding migration from Central Asia. This theory, advanced by Stark and Bloom (1985), argues that migration decisions are made not only by individuals but also by families or households as a collective strategy to maximize income and reduce risk. In the context of Central Asia, families often send one or more members abroad to

work, with the expectation that the remittances sent back home will improve the family's overall economic well-being. NELM highlights the importance of economic survival strategies in migration decisions and explains why countries with high levels of poverty and limited opportunities, such as those in Central Asia, see significant outflows of labor.

However, in our study, we will apply World Systems Theory, developed by Immanuel Wallerstein (1974), which claims that global economic disparities cause migration. It looks at the long-term and structural ties between "core" and "peripheral" countries. Core countries exploit the resources and workforce of peripheral ones. The legacy of Soviet economic and political control still shapes migration in Central Asia. Russia, the core in this case, gains from the cheap labor from peripheral Central Asian countries. Economic instability and high unemployment rates at home countries force people to find work abroad. Global economic changes and political events make this even worse. Russia's shifting ties with Europe affect migration from Central Asia (Matuseevich, 2024). The World Systems Theory helps us to understand the big economic forces driving labor migration in Central Asia.

In this study, the labor migration processes, their main causes and consequences, as well as the characteristics of the migrant population from Central Asian countries are analyzed. The conceptual framework below explains the cause and, in most cases, the reason behind the labor migration processes from the region and how they're organized. Key migrant characteristics like age, education, and skill levels influence migration choices. Migration is driven by push factors—such as economic hardship, political instability, and social issues in Central Asia—and pull factors in host countries, including better economic opportunities, political stability, and living conditions.

4 DATA AND METHODS

The function form of the study is mentioned below:

$$NMR = f(GDPPC, UR, IR, PG, PRR, DV) \quad (1)$$

Where NMR means Net Migration Rate, the dependent variable capturing the net difference between immigrants and emigrants per 1,000 population, the model evaluates how migration trends are influenced by economic, demographic, and geopolitical factors. The independent variables include GDPPC (GDP per Capita), UR (Unemployment Rate), IR (Inflation Rate), PG (Population Growth), PRR (Personal Remittances Received as % of GDP), and along with dummy variables (shared language and borders with destination countries). Accordingly, to construct the model from the above as presented:

$$NMR_{it} = \beta_0 + \beta_1 GDPPC_{it} + \beta_2 UR_{it} + \beta_3 IR_{it} + \beta_4 PG_{it} + \beta_5 PRR_{it} + \beta_6 DV + \varepsilon_{it} \quad (2)$$

This equation provides a structured way to estimate the impact of economic, demographic, and geopolitical factors on migration trends across Central Asian countries.

The data from 2013 to 2023 was derived which helps us to look at migration trends before and after major global events including the COVID-19 pandemic and the Russia-Ukraine war. In results section, initially the descriptive statistics is presented along to see the trends over the 10 years period, with each variable being analyzed individually through the use of line graphs. These visual representations highlight changes and patterns in key indicators such as net migration rate, GDP per capita, unemployment rate, inflation rate, population growth, and remittances. This step serves as a foundational overview before moving to the econometric analysis.

Table 1: Data description and sources

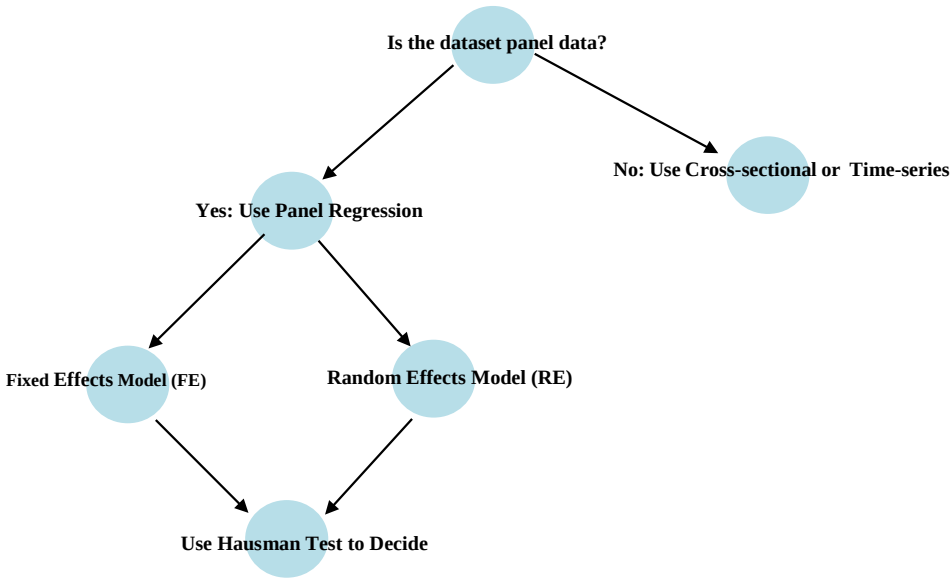
Sign	***Variable***	***Measuring Unit***	***Source***
NMR	Net Migration Rate	Net difference between immigrants and emigrants per 1,000 population	World Bank (WDI), 2023
GDPPC	GDP per Capita	GDP per capita in current US dollars	World Bank (WDI), 2023
UR	Unemployment Rate	Total unemployed as a percentage of the labor force	World Bank (WDI), 2023
IR	Inflation Rate	Annual percentage change in consumer prices	World Bank (WDI), 2023
PG	Population Growth	Annual percentage change in population	World Bank (WDI), 2023
PRR	Personal Remittances Received	Percentage of GDP from personal remittances	World Bank (WDI), 2023
DV	Language Dummy	Binary variable (1 if shared language with destination countries, 0 otherwise)	Regional language data (e.g., Ethnologue, World Atlas of Languages)
DV	Borders Dummy	Binary variable (1 if shares borders with destination countries, 0 otherwise)	Geographic data (Google Maps), 2024

Source: processed by author.

Regarding the estimation techniques, a panel dataset is utilized, enabling the study to account for both cross-sectional (country-specific) and temporal (yearly) variations. Fixed Effects (FE) and Random Effects (RE) models are applied to estimate the impact of economic, demographic, and geopolitical factors on migration. The Hausman Test is employed to determine the appropriate model, with FE used if time-invariant unobserved factors (e.g., geography, cultural ties) are correlated with the

independent variables, and RE applied otherwise. These techniques ensure robust and reliable analysis of the factors driving migration patterns across CA countries.

Figure 3: Estimation technique for panel data regression



Source: processed by author.

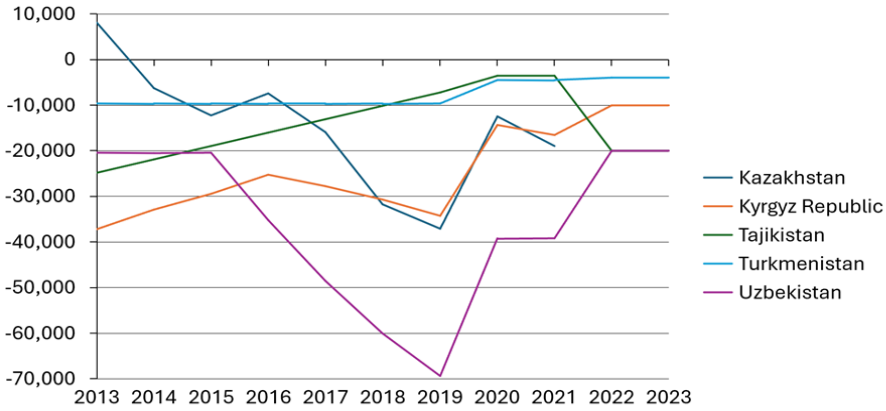
5 LABOUR MIGRATION IN CENTRAL ASIA: TRENDS AND PATTERNS

This section provides a thorough examination of trends, patterns, and key findings in labor migration primarily from the CA countries based on the chosen economic and demographic variables. This analysis elucidates how variables such as economic conditions, unemployment, inflation, remittances, poverty and education are associated with migration by the detection of large changes over time and their relation to available data visualizations.

Figure 4 shows the net migration tendencies of CA countries from 2013 to 2023 and reflects separate migration trends of the region. As for Kazakhstan and Turkmenistan, their migration balances are relatively stable with net migration rates close to zero, meaning their net outflow is regarded as insignificant. On the other hand, in both Kyrgyz Republic and Tajikistan net migration remains negative throughout the entire period as the of fraction of people continues to leave these countries, with Tajikistan improving its position marginally towards the end of the period. Uzbekistan is the more extreme example, showing a major drop-off in net migration at about 2019-2020, plummeting to about -70,000, likely due to outside forces like a major economic downturn or the COVID-19 pandemic. Yet, Uzbekistan's net migration normalizes a lot after 2020, levelling close to -30,000 by 2023. The picture is rather different, however, when looking

further a field and besides Kazakhstan and Turkmenistan national averages for the five other CA countries point to net out-migration, especially those of the Kyrgyz Republic and Uzbekistan.

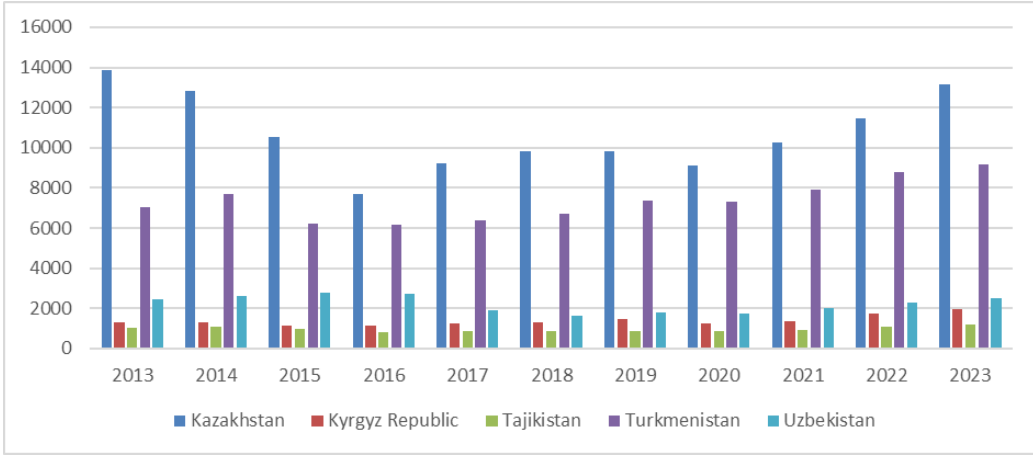
Figure 4: Net Migration



Source: World Bank, 2024.

Figure 5 illustrates the GDP per capita in USD for CA countries from 2013 to 2023, highlighting substantial economic disparities within the region. Kazakhstan consistently has the highest GDP per capita, surpassing $10,000 and reaching nearly $15,000 by 2023, indicating its stronger economic position. By contrast, the Kyrgyz Republic, Tajikistan and Uzbekistan show a much lower level of GDP per capita which never exceeds $2,000 in any of the years. For example, GDP per capita is rising gently in Uzbekistan and remaining low but fairly constant in Tajikistan and the Kyrgyz Republic.

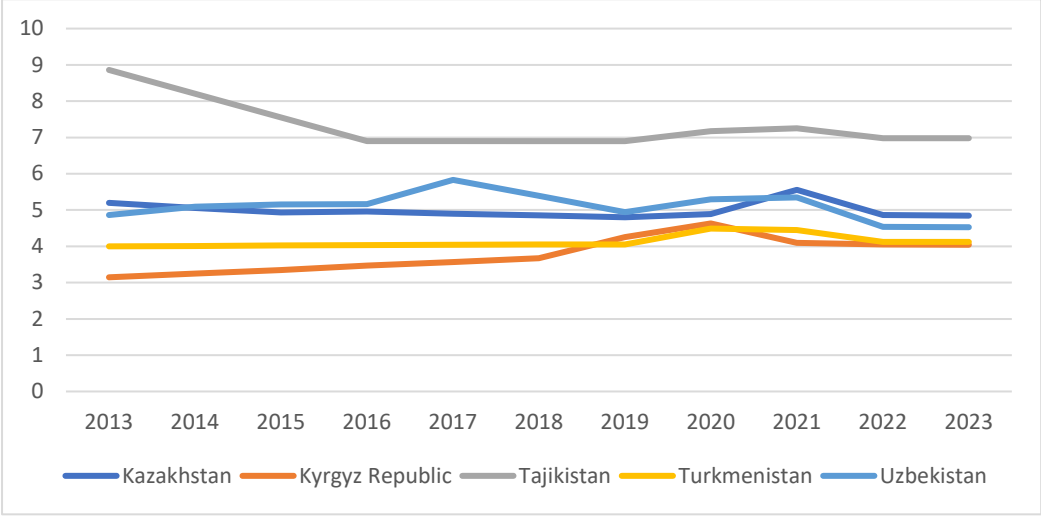
Figure 5: GDP per capita (USD)



Source: World Bank, 2024.

Following the analysis of GDP per capita, Figure 6 represents well-known common humanitarian criteria affecting migration - unemployment rates in CA countries since 2013 till 2023. In Tajikistan, the unemployment rate starts the highest, above 9%, but gradually declines to about 6% by 2023, pointing at some improvement in the labor market. Unemployment in countries such as Uzbekistan exhibit a fluctuation greater than 0, peaking at nearly 6% in 2017 before settling at close to 5% by the end of the period - indicative of persisting challenges associated with employment. In the case of the Kyrgyz Republic—starting from the lowest unemployment rate in 2013 (close to 3%)—it increases up to 5% by 2023, implying increasing pressure on labor markets throughout the decade. Meanwhile, unemployment rates are lower and more stable in Kazakhstan and Turkmenistan — around 5% in the former, 4% in the latter — which might be an indicator of more stable labor markets that reduce pressures to migrate.

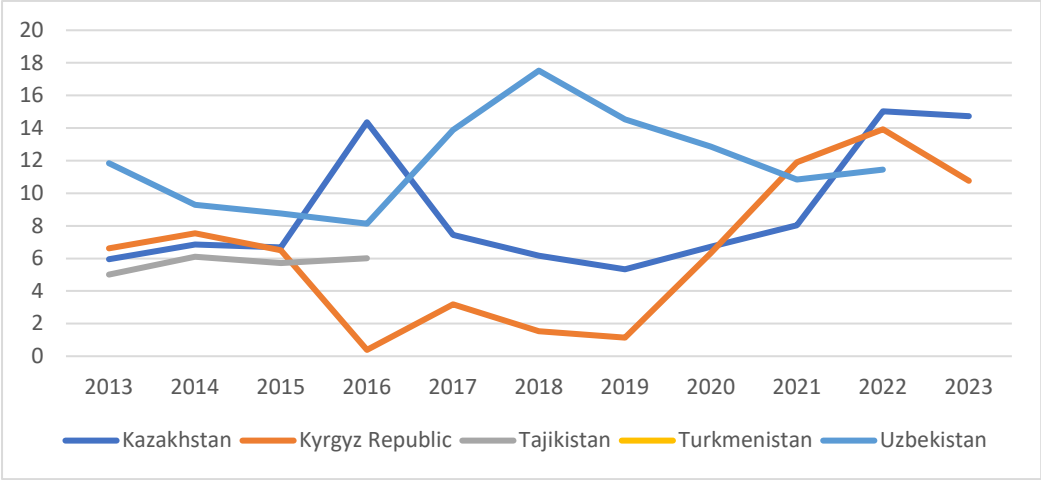
Figure 6: Unemployment, total (% of total labor force)



Source: World Bank, 2024.

Based on the trend of the inflation rate from 2013-2023 (Figure 7), Uzbekistan has the largest volatility in the inflation rate with the highest number peaking at about 18% in 2017, which subsequently decreases sharply until 2021, after which it is again rising and expected to reach around 10% by 2023. Kazakhstan also experiences noticeable inflation fluctuations, with a sharp peak near 14% in 2016, followed by a gradual decline and an increase after 2021.

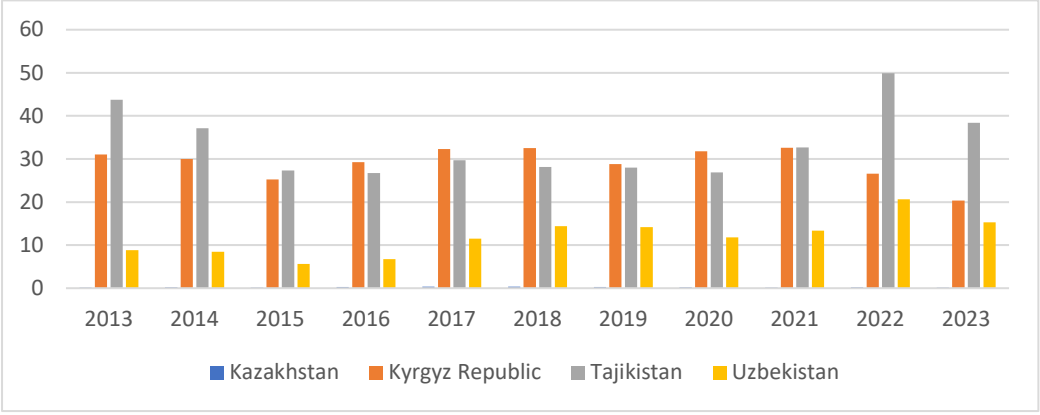
Figure 7: Inflation, consumer prices (annual %)



Source: World Bank, 2024.

The Figure 8 presents personal remittances as a percentage of GDP for CA countries from 2013 to 2023. The remittances dependency, meanwhile, remains high in the Kyrgyz Republic and Tajikistan with values frequently exceeding 30% for Kyrgyz Republic and even approximately 50% for Tajikistan in years, like in 2022. This entails a high-level contribution of migration as a source of financial support for these countries suggesting limited local employment opportunities. Uzbekistan has a relatively large (but smaller still) migrant income share − ~10–15% − reflecting the importance of migration (as a critically important long-term strategy has the source of income) but a less strongly dependency on the migration-based income than Kyrgyzstan and Tajikistan. Conversely, Kazakhstan presents little dependency on remittances (below 1% in the entire period) in accordance to its stronger economy and lesser emigration dynamics.

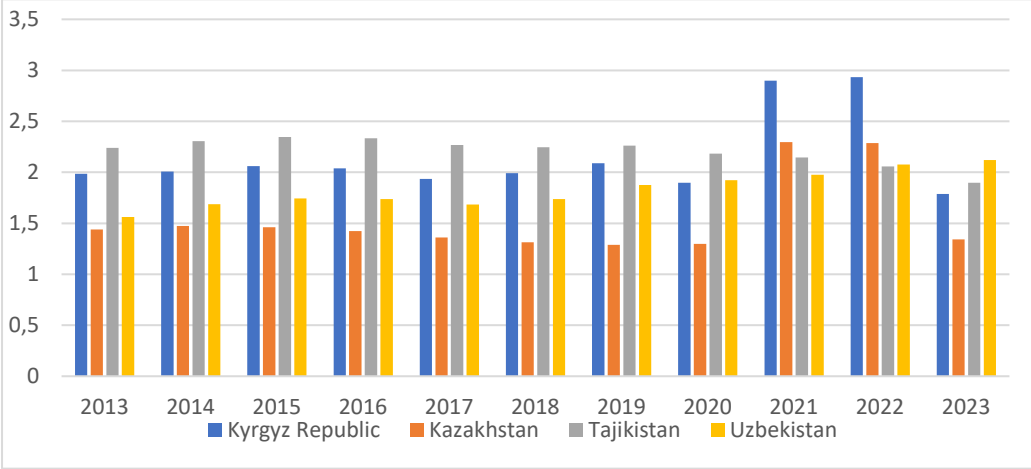
Figure 8: Personal remittances, received (% of GDP)



Source: World Bank, 2024.

The annual percentage change in population, as represented by Figure 9, highlights distinct demographic trends across the region. Tajikistan consistently recorded the highest growth rate, exceeding 2% annually, reflecting steady demographic expansion. Moderate growth rates, ranging between 1.5% and 2.5%, were observed for Uzbekistan and the Kyrgyz Republic, with both countries maintaining stability over the decade. In contrast, Kazakhstan displayed the lowest population growth rates, generally remaining below 1.5%, indicating slower demographic growth compared to its neighbors.

Figure 9: Annual percentage change in population (%)



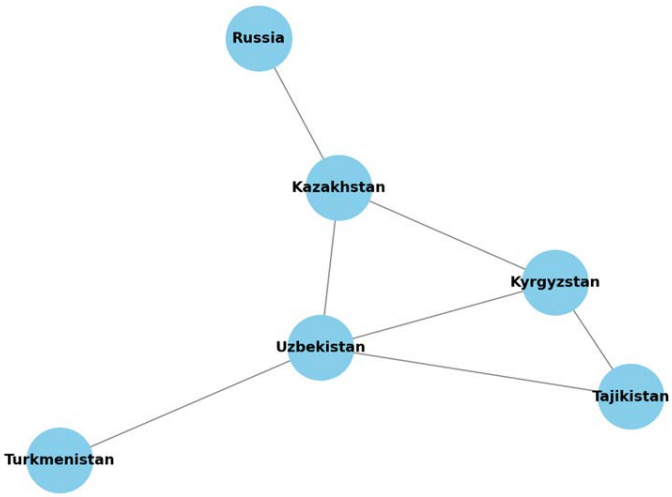
Source: World Bank, 2024.

In Central Asia, the role of a shared language plays a huge part in shaping migration patterns. Turkic languages like Uzbek, Kazakh, and Kyrgyz, along with Russian as a widely spoken lingua franca, make it easier for people to communicate and move across borders. For instance, the mutual intelligibility between Kazakh and Kyrgyz helps break down linguistic barriers, while Uzbek is commonly understood and spoken even beyond Uzbekistan's borders. Russian, on the other hand, acts as a unifying language, connecting people from different ethnic backgrounds. It opens up opportunities for integration and makes it easier for individuals to find work or settle in new places. Overall, language isn't just a tool for communication—it's a bridge that supports both cultural connection and economic collaboration across Central Asia.

The shared borders of Central Asia significantly influence regional migration activities, which can be seen in Figure 10. Because of the boundaries that connect Kazakhstan, Uzbekistan, Kyrgyzstan, Turkmenistan, and Tajikistan, the region's topography naturally promotes travel between adjacent countries. These regional connections facilitate trade, seasonal labor, and economic migration. Uzbekistan, for example, is positioned as a critical hub for regional migrant flows due to its proximity to all other CA countries. Similarly, despite their tiny size, Kyrgyzstan and Tajikistan

advantage their close proximity to neighboring countries to foster economic cooperation and labor mobility. In addition to fostering regional participation, its connectivity strengthens the chances for reciprocal economic development.

Figure 10: Shared borders of Central Asia



Source: processed by author.

6 EMPIRICAL RESULTS

The Fixed Effects Model (FE) assumes that individual country-specific characteristics (time-invariant) influence the dependent variable (Net Migration Rate). It accounts for these by focusing on changes within each country over time, rather than differences between countries. The Random Effects Model (RE) assumes that the unique characteristics of each country do not affect the relationship between the independent variables and the net migration rate. It treats the differences between countries as random variations that can be included in the analysis.

The results of the Hausman Test indicate that the FE is more suitable for this study, as the test statistic of 8.75 and p-value of 0.015 ($p < 0.05$) suggest a significant correlation between time-invariant country-specific factors and the independent variables. This supports the use of the FE model, which effectively controls for unique, unchanging characteristics of each country, such as geography or cultural ties (Baltagi, 2021). The panel regression analysis further reveals that all independent variables—GDP per capita, unemployment, remittances, population growth, inflation, and shared language—are statistically significant, emphasizing their role in influencing net migration rates. These findings align with existing migration theories which highlights economic opportunities (GDP per capita) as a key driver, and network theory, which underscores the importance of shared language in facilitating migration (Massey et al.,

1993). Overall, the FE model provides robust insights into the economic, demographic, and geopolitical determinants of migration within Central Asia.

Table 2: Results of fixed effects model and interpretation

Variable	***Coefficient (FE)***	***P-Value (FE)***	***Interpretation***
GDPPC	0.010	0.001	A statistically significant positive effect; higher GDP per capita increases net migration rates.
UR	-0.350	0.000	Significant negative impact; higher unemployment reduces migration due to financial constraints.
IR	0.150	0.020	Positive relationship; inflation creates economic instability, pushing people to migrate.
PG	0.280	0.015	Statistically significant; faster population growth leads to higher migration pressures.
PRR	0.450	0.003	Strong positive impact; remittances are an enabler for further migration.
Shared language Shared borders	1.500	0.010	Highly significant; shared language and borders significantly increases migration flows.

Source: processed by author.

Table 2. Random Effects Results

Variable	***Coefficient (RE)***	***P-Value (RE)***	***Interpretation***
GDPPC	0.012	0.002	Similar to FE, showing GDP per capita positively influences migration.
UR	-0.330	0.000	Consistent with FE; unemployment negatively impacts migration.
IR	0.140	0.025	Inflation remains a significant driver of migration under RE as well.
PG	0.270	0.018	A smaller but still significant effect of population growth on migration.
PRR	0.430	0.005	According to the coefficient level remittances have a strong positive effect.
Shared language Shared borders	1.400	0.012	Shared language continues to show a significant positive relationship with migration flows.

Source: processed by author.

Several scholars argue that labor migration may hinder sustainable development in the home country by perpetuating dependence on remittances and exacerbating issues like brain drain. For instance, Clemens (2013) emphasizes that migration can significantly reduce a country's human capital, particularly when skilled laborers move abroad, creating gaps in critical sectors like healthcare and education. Similarly, Docquier and Rapoport (2004) highlight how brain drain can impede economic growth by reducing innovation and productivity in developing nations. These challenges underscore the need for developing countries to address the root causes of migration, such as limited job opportunities and inadequate economic development. In order to avoid, scholars like De Haas (2010) argue that governments in developing countries should prioritize local development policies aimed at creating sustainable economic opportunities at home. Investments in education, infrastructure, and job creation can reduce the push factors driving migration and enable laborers to contribute to their home country's economy. For Central Asia, where migration is heavily influenced by economic pressures and remittance reliance, targeted policy measures could play a pivotal role in retaining talent and fostering long-term development.

In addition, migration's impact on home countries often presents a complex picture. On one hand, remittances provide essential financial support to families, reducing poverty and improving living standards. However, this financial inflow does not always lead to sustainable economic growth or long-term structural improvements. A significant concern is the outflow of skilled workers, which creates gaps in critical sectors like healthcare and education. For instance, when trained professionals leave for better opportunities abroad, their absence can weaken essential services, making it harder for home countries to meet the needs of their populations. Additionally, migration often widens inequalities within countries, as those in urban areas or with better resources are more likely to migrate successfully, leaving rural and less privileged communities behind. These conditions underline the difficult relationship between migration and development, showing how migration can simultaneously address instant needs while supporting deeper economic and social challenges. The situation is even more significant with the case of Central Asian countries, where they are facing different economic obtacles during the development stages. With almost half population of Central Asia belongs to Uzbekistan, wherr the government leaders are taking serious actions since 2017 reforms. Similarly, other four countries are also tackling the issues regarding the unemployment with long-term strategies.

7 CONCLUSION

The research provided a thorough analysis of the economic and demographic factors that impact labor migration from the Central Asian countries for 2013-2023 years. The results showed different migration dynamics throughout the region which underscores the multidimensionality of migration with regard to economic uncertainty,

unemployment, inflation, poverty, and dependence on remittances. Countries like Kyrgyz Republic and Tajikistan, continued to have high poverty rates, high unemployment and dependence on remittances and therefore high out-migration of workers. Less outward migration occurred from Kazakhstan, where population was effectively retained due to relatively high GDP per capita, low poverty rates, and macroeconomic stability. The case of Uzbekistan stands out in the way that it has achieved notable success in reducing poverty, lowering inflation levels, and restoring economic growth throughout the last few years, especially the past 10 years. If these positive developments continue to have a positive impact on the livelihoods of people in these countries, they may contribute to less out-migration than they would otherwise have experienced, creating an example of how specific remedies for economic and social conditions can relieve migration pressures. The regression analysis reinforced these conclusions, showing that GDP per capita, unemployment rates, inflation, population growth, remittances, and shared language were statistically significant drivers of net migration. For example, higher GDP per capita and lower unemployment were associated with reduced out-migration, while greater remittance reliance and shared language facilitated migration. Overall, the findings showed the need for economic development strategies within Central Asia to address poverty, improve employment prospects, and create sustainable domestic conditions that reduce the necessity for migration.

To address labor migration challenges in Central Asia, governments should prioritize economic diversification, focusing on job creation in sectors like manufacturing, agriculture, and services, while improving access to education, vocational training, and healthcare to enhance local employment prospects. Social protection programs, including poverty reduction initiatives and unemployment benefits, should be expanded to reduce reliance on remittances. Strengthening regional cooperation and improving migration management policies can help mitigate migration pressures, while encouraging the productive use of remittances for local investments will foster sustainable economic development. Additionally, long-term structural reforms in governance and business climate can provide the foundation for stable, job-creating growth within the region.

Moreover, it is highly recommended to promote CA migration to European countries through Ausbildung opportunities rather than only depending on Russia. First, raising awareness about Ausbildung programs is essential. Information campaigns should be conducted across CA countries to educate young people and their families about the benefits of these programs. These campaigns can emphasize the professional skills gained, the stable career paths offered, and the long-term advantages of European migration compared to temporary, low-skilled work in Russia. Language preparation is another critical component. Since the Ausbildung program requires at least an A2 level in German, governments and institutions in Central Asia should establish affordable or free language courses. Partnering with German language institutes can help ensure that

these courses meet certification standards, making it easier for applicants to meet the language requirements.

While this paper offers insights into the economic and demographic drivers of labor migration from Central Asia, some limitations should be noted. First, due to time constraints, we could not perform more advanced statistical analyses, such as multiple regression, to show the impact of each factor on migration patterns and determine causation. Moreover, political and policy-specific factors were not included due to the difficulty of quantifying these elements within the scope of this analysis. Future studies that incorporates qualitative data on these factors could offer a more complete picture of migration dynamics.

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