

Article

Analysis of the Position of Migrants in the Labor Market and Their Impact on The Formation of the Country's Gross Domestic Product

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Abstract: The impact of migration on GDP can be positive or negative, depending on various factors, such as the skill level of migrants, the types of jobs they hold, and the immigration policies of the host country. In general, skilled migrants have a positive impact on the economy, as they can fill labor shortages and contribute to innovation and productivity growth. This article analyzes the impact of migration indicators on the size of a country's GDP.

Keywords: GDP, Labor migration, Labor force, Migration, Employment, Investment, Permanent population, Labor market

1. Introduction

Well-organized and well-managed labour migration holds great potential for governments. In countries facing labour shortages, orderly and well-managed labour migration can alleviate labour shortages, facilitate mobility and add to the human capital stock. Well-designed labour migration policies, legislation and effective strategies are needed to protect labour migrants and optimize the benefits of labour migration for countries of origin and destination, as well as for the migrants themselves.

Facilitating circular migration can meet short-term labour needs while maximizing the impact of migration on countries of origin and communities. Governments and private sector actors are seeking more support from the ILO to implement transparent and fair recruitment schemes that ensure decent working conditions for migrant workers, particularly under bilateral agreements. For more information on the ILO's work on the recruitment of foreign workers and the ILO Position on the Recruitment of Foreign Workers, contact the Labour and Facilitation Migration Department at ILO Headquarters in Geneva.

Rising migration rates shape the economic life of both nations people leave and nations people move to. When people migrate between countries for job opportunities better education and life chances these movements affect the economy and job market directly. Migration employment patterns now shape national economies through their ability to fill worker shortages in nations dealing with aging resident populations and workforce shortages. Through greater efficiency and new ideas migrants enhance both labor markets and economies across varied sectors. This research dives into all important ways labor migration impacts Uzbekistan's GDP enhancements. Our research looks at how migration impacts Uzbekistan's economy by measuring both the size of migration flows and key economic elements like investment levels and workforce numbers.

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2. Materials and Methods

The following methodologies were used to carry out the analysis: 1. Data collection: Our research team received production data from Uzbekistan's Statistical Agency for each regional economy. 2. Comparison method: Our evaluation examined how much GDP each region generated to understand regional features and growth drivers. 4. Visualization through diagrams and maps: Econometric data analysis used visual diagrams plus picture and table displays during the modeling phase. This way of working provides better ways to understand how GDP and migration data affect each other.

Our research uses econometric methods to check how migration influences Uzbekistan's economic growth. The following steps are part of the methodology: Data Collection: The Uzbek Statistical Agency provided this study with essential data from 2010 to 2021 about GDP performance along with investment totals and worker numbers including emigration patterns. Econometric Modeling: A logarithmic linear regression model tested how GDP reacts to four key economic factors: investments, active workers, available labor power increases, and emigration volumes. Data Transformation: We applied logarithmic transformations to the data to prepare it for modeling.

3. Results

While rising conflicts have resulted in massive refugee flows that mostly affect emerging market and developing economies, the proportion of immigrants in affluent nations has expanded dramatically in recent years. The causes of migration, its recent developments, potential future shifts, and its economic effects on host nations are all covered in this section. Based on the identification of areas for managing factors impacting the volume of the Republic of Uzbekistan's gross domestic product, the developed model will assist in determining target forecast indicators for the medium and long term and identify the necessary steps to ensure these indicators

Having determined the volume of the gross domestic product of the Republic of Uzbekistan as a resulting factor, the following indicators were selected as indicators of the influencing factor:

X1 - investment volume

X2 - number of employees in the economy

X3 - additional growth of labor resources

X4 - emigration volume

The influencing factors have a close relationship to the model in the form of a production model based on the indicators of the factors affecting the volume of the Republic of Uzbekistan's gross domestic product if the essence of the endogenous factor and the exogenous factor indicators affecting it are observed.

Table 1. Factor indicators expressing the impact of migration indicators on the GDP of the Republic of Uzbekistan

Years	GDP of the Republic of Uzbekistan (billion soums) (Y)	Investment volume (billion soums) (X1)	Number of employees in the economy (persons) (X2)	Additional increase in labor resources (person) (X3)	Emigration volume (person) (X4)
2010	78 936,6	16463,7	12286,6	560,4	44 420
2011	103 232,6	19500,0	12541,5	277,9	50 816
2012	127 590,2	24455,3	12850,1	249,8	45 447
2013	153 311,3	30490,1	13163,0	233,9	38 589
2014	186 829,5	37646,2	13505,4	228,1	42 228
2015	221 350,9	44810,4	13767,7	212,8	31 765
2016	255 421,9	51232,0	14022,4	177,4	28 069

2017	317 476,4	72155,2	14357,3	163,3	20 772
2018	426 641,0	124231,3	14641,7	119,4	17 579
2019	532 712,5	195927,3	14876,4	209,2	13 229
2020	605 514,9	210195,1	14797,4	176,7	13 648
2021	738 425,2	239552,6	14980,7	118,4	20 40

Since the units of measurement of the resulting and influencing factor indicators extracted in the table above are not the same, that is, the factor indicators are not homogeneous, we can determine the main trend model in the form of a linear logarithmic relationship. To do this, all factor indicators are converted to natural logarithmic indicators.

Table 2. Logarithmic values of resulting and influencing factor indicators

t	Y	X ₁	X ₂	X ₃	X ₄
2010	11,3	9,7	9,4	6,3	11
2011	11,5	9,9	9,4	5,6	11
2012	11,8	10,1	9,5	5,5	11
2013	11,9	10,3	9,5	5,5	11
2014	12,1	10,5	9,5	5,4	11
2015	12,3	10,7	9,5	5,4	10
2016	12,5	10,8	9,5	5,2	10
2017	12,7	11,2	9,6	5,1	10
2018	13,0	11,7	9,6	4,8	10
2019	13,2	12,2	9,6	5,3	9
2020	13,3	12,3	9,6	5,2	10
2021	13,5	12,4	9,6	4,8	10

Using Excel 2016, a logarithmic model of the following form was determined.
 $\text{Ln}Y=0.555*\text{Ln}X_1+3.878*\text{Ln}X_2-0.084*\text{Ln}X_3-.213*\text{Ln}X_4-32.373$

If the identified model is exponentiated, a nonlinear econometric model of factor indicators expressing the impact of migration indicators on the GDP of the Republic of Uzbekistan is obtained.

$$Y = \frac{X_1^{0,555} \cdot X_2^{3,878} \cdot X_4^{0,213}}{X_3^{0,084} \cdot e^{32,373}}$$

Based on trend models identified using Excel 2016, we create indicators that reflect the impact of migration indicators on the GDP of the Republic of Uzbekistan and the most suitable models for them.

Table 3. Trend models that represent the impact of migration indicators on GDP

Name of indicators	Model	Years		
		2022	2023	2024
GDP of the Republic of Uzbekistan (billion soums) (Y)	$Y = \frac{X_1^{0,555} \cdot X_2^{3,878} \cdot X_4^{0,213}}{X_3^{0,084} \cdot e^{32,373}}$	753 938,7	770 414,8	641 609,9
Investment volume (billion soums) (X ₁)	$X_1 = 20801,373 \cdot t - 46320,65$	224097,2	244898,6	265699,9

Number of employees in the economy (persons) (X2)	$X_2 = 259,881 \cdot t + 12126,618$	15505,1	15765,0	16024,8
Additional increase in labor resources (person) (X3)	$X_3 = -23,983 \cdot t + 383,168$	71,4	47,4	23,4
Emigration volume (person) (X4)	$X_4 = -3497.314 \cdot t + 53291.045$	7 826	4 329	831

The accuracy of the results was ensured by evaluating the constructed model's appropriateness and reliability using a number of criteria. The aforementioned regression equation was determined to be appropriate and dependable since the autocorrelation in the identified trend was low and satisfied other criteria

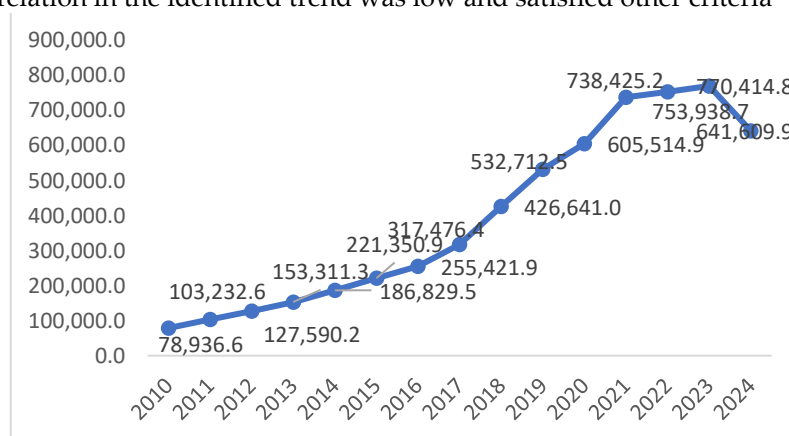


Figure 1. Graphical representation of changes in the GDP of the Republic of Uzbekistan between 2010 and 2024

Using a multifactor econometric model, the actual and forecasted values of the change in factor indicators representing the impact of migration indicators on the GDP of the Republic of Uzbekistan in 2010-2024 were graphically represented.

According to the trend model, the growth of GDP in our country is directly influenced by investments attracted to the economy. Since part of these investments is repatriated by migrants, the GDP volume increases due to increased investments. Therefore, it is advisable to increase the volume of attracted investments.

4. Discussion

The findings of this study highlight the significant role of investment volume in driving the GDP growth of Uzbekistan. The econometric model demonstrates that investment (X1) has the highest positive impact on GDP, suggesting that economic expansion in Uzbekistan is heavily reliant on capital inflows. This aligns with the understanding that foreign direct investment and domestic capital formation contribute directly to production capacity, employment, and technological advancements. However, while investment boosts GDP, it is also crucial to consider the sustainability and efficiency of these investments, particularly in sectors that generate long-term economic stability. Additionally, as migration plays a role in shaping investment flows—both in terms of remittances from emigrants and capital repatriation—policymakers should explore strategies to maximize the positive effects of migration-driven investment.

The labor force also plays a crucial role in GDP expansion, as evidenced by the strong positive relationship between the number of employees (X2) and GDP. This underscores the importance of human capital development, education, and workforce participation in economic growth. However, the additional increase in labor resources (X3) shows a

negative correlation with GDP, which may indicate inefficiencies in labor market absorption. A declining additional labor force could be a result of demographic shifts or migration trends, and it suggests that while employment remains a key driver of growth, optimizing workforce utilization is essential. Policies aimed at improving labor productivity, enhancing skills development, and creating more job opportunities could ensure that labor market dynamics contribute positively to GDP growth.

Emigration (X4), while negatively associated with GDP, has a relatively smaller impact in comparison to other factors. This suggests that while migration results in a loss of skilled and unskilled labor, the economic repercussions are mitigated by other factors such as investment and workforce stability. However, the declining trend in emigration over the years may have long-term implications for economic growth, particularly in terms of labor availability and skill retention. Policymakers should balance migration management strategies to retain talent while also leveraging remittances and returning migrants' investments for economic development. Overall, this study reinforces the importance of a multi-faceted approach to economic planning, integrating investment policies, labor market strategies, and migration management to sustain long-term GDP growth in Uzbekistan.

5. Conclusion

Due to the investments attracted, the number of jobs in the economy also increases, and this factor is also directly related to the increase in GDP. Therefore, by increasing the number of new jobs, it is possible to increase the volume of new value created.

The additional increase in labor resources is inversely related to GDP, and an increase in this indicator has led to a decrease in GDP. The only way to maintain this ratio in a stable state is to steadily increase the number of jobs by increasing investment. Since the volume of external migration, which is a component of emigration, is directly related to GDP, which is the resulting factor in the model, it is advisable to increase the indicator of this factor. However, an increase in the number of labor migrants in the volume of emigration leads to an intensive increase in the volume of money flows from abroad. Since the total impact of other factors in the model, in addition to the three specified influencing factors, is inversely related to the resulting factor, this indicator does not reflect the indicators of specific factors, it is possible to ensure stable GDP growth by controlling three specific factors.

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