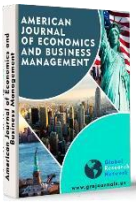

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Article

Econometric Assessment of The Impact of Investment Volume on The Level of Employment in The Republic of Uzbekistan (On The Example of 2013–2024)

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Abstract: In this article, the impact of the volume of investments on the unemployment rate in the Republic of Uzbekistan was analyzed based on econometric methods. The research results showed that with the increase in the volume of investments, the unemployment rate tends to decrease in the long term. However, in short-term periods, imbalances are observed under the influence of external factors, in particular, global economic crises and the pandemic. The obtained results indicate the need to increase employment through improving investment policy.

Keywords: Investment, Employment, Unemployment, Econometric Model, Labor Market, Economic Growth

1. Introduction

In today's globalization conditions, investments are gaining particular importance as one of the important factors of economic development [1]. Investments play a decisive role not only in increasing production volume, but also in introducing new technologies, developing infrastructure and, most importantly, ensuring employment of the population. Therefore, the issue of investment processes and their impact on the labor market is considered one of the priority directions of economic research.

World experience shows that the increase in the volume of investments, along with accelerating economic growth rates, serves to reduce the unemployment rate by creating new jobs in the labor market [2]. However, this process does not always manifest itself at the same level, since the direction, structure and efficiency of investments are of great importance.

In recent years, special attention has been paid to accelerating investment activity in the Republic of Uzbekistan, and the volume of investments attracted to the economy has been significantly increasing. In particular, large-scale reforms aimed at ensuring employment are being implemented through modernization of industry, comprehensive development of regions, and support of small business and private entrepreneurship.

At the same time, it is observed that the increase in the volume of investments does not always immediately lead to a decrease in the unemployment rate. This requires a deeper study of this process, in particular, based on econometric methods. Especially, distinguishing between short-term and long-term effects is scientifically important.

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The purpose of this article is to assess the impact of the volume of investments on the unemployment rate in the Republic of Uzbekistan based on an econometric model and to determine the relationship between them. Based on the research results, scientifically grounded conclusions for further improvement of investment policy will be developed.

2. Methodology

The relationship between investments and employment has been substantiated in many economic theories. John Maynard Keynes considered investments as an important component of aggregate demand and emphasized its impact on the level of employment [3].

Robert Solow substantiates the increase in production and employment through capital accumulation in the economic growth model [4].

Gary Becker explains the relationship between investments and employment through human capital [5].

Uzbek economists have also paid special attention to this issue. Said G‘aniyev studied the impact of investments on regional development and employment, emphasizing the need for effective allocation of investment flows [6].

Also, Qalandar Abdurahmonov scientifically substantiated the high role of investments in the development of the labor market [7].

Statistical and econometric analysis methods were used in the research. The volume of investments was selected as an independent variable, and the unemployment rate as a dependent variable.

The econometric model is expressed as follows:

$$\text{Unemployment} = a + b \times \text{Investment} + \varepsilon$$

Where:

a — constant term

b — coefficient of the impact of investment on unemployment

ε — random error.

3. Results and Discussion

In this study, in order to determine the impact of the volume of investments on the unemployment rate, an analysis was carried out based on statistical data for the years 2013–2024. During the analysis, the relationship between per capita investments and the unemployment rate was studied. First, the dynamics of investment volume were considered.

Table 1. Investments in fixed capital per capita in the Republic of Uzbekistan (annual)

Year	Investment	Year	Investment
2013	1008.2	2018	3769.6
2014	1224.0	2019	5834.6
2015	1431.7	2020	6140.3
2016	1608.6	2021	6861.0
2017	2227.8	2022	7468.6

Source: Data of the State Statistics Committee of the Republic of Uzbekistan

In order to analyze changes in investment volume more deeply, the studied period was divided into two stages: 2013–2017 and 2018–2022. This approach allows more accurate identification of structural changes in investment processes.

In the first period (2013–2017), per capita investment volume had a relatively stable growth trend. In particular, it increased from 1008.2 units in 2013 to 2227.8 units in 2017. During this period, the growth of investments was mainly gradual, without sharp jumps. This indicates that investment activity in the economy developed steadily, but at relatively slow rates.

In the second period (2018–2022), a significant increase in investment volume is observed. Especially from 2018, investments sharply increased to 3769.6 units and continued to grow at high rates in subsequent years. By 2022, this indicator reached 7468.6 units. This indicates the activation of investment processes in the economy and the strengthening of state reforms and investment policy.

Table 2. Dynamics of per capita investments and unemployment rate in the Republic of Uzbekistan (2013–2024)

Year	Investment (per capita)	Unemployment (%)
2013	1008.2	4.9
2014	1224.0	5.1
2015	1431.7	5.2
2016	1608.6	5.2
2017	2227.8	5.8
2018	3769.6	9.3
2019	5834.6	9.0
2020	6140.3	10.5
2021	6861.0	9.6
2022	7468.6	8.9
2023	9778.8	6.8
2024	13652.7	5.5

Source: Data of the State Statistics Committee of the Republic of Uzbekistan

The analysis results show that during the studied period, the volume of investments had a consistent upward trend. In particular, it increased from 1008.2 units in 2013 to 13652.7 units in 2024. This indicates a significant increase in investment activity in the economy.

At the same time, the unemployment rate showed different dynamics across periods. While in 2013–2017 it remained relatively low and stable, in 2018–2020 a sharp increase was observed. Especially in 2020, the unemployment rate reached its highest point, which is explained by the global pandemic and the contraction of economic activity.

Since 2021, a gradual decrease in the unemployment rate has been observed. By 2024, this indicator decreased to 5.5 percent. This may be related to economic recovery processes and the increase in investment volume.

Comparative analysis based on calculations shows that there is an inverse relationship between investment volume and unemployment rate in the long term [8], [9]. That is, as investment volume increases, the unemployment rate tends to decrease [10]. However, in the short term, this relationship is not always clearly manifested, which is explained by the influence of external factors [11].

In general, it has been determined that an increase in investment volume leads to positive changes in the labor market, in particular, contributes to an increase in employment [12].

According to the results of econometric estimation, the relationship between investment volume and unemployment rate is expressed in the following functional form:

Unemployment = 6.8 – 0.0002 × Investment

This model shows that an increase in investment volume has a negative (inverse) effect on the unemployment rate.

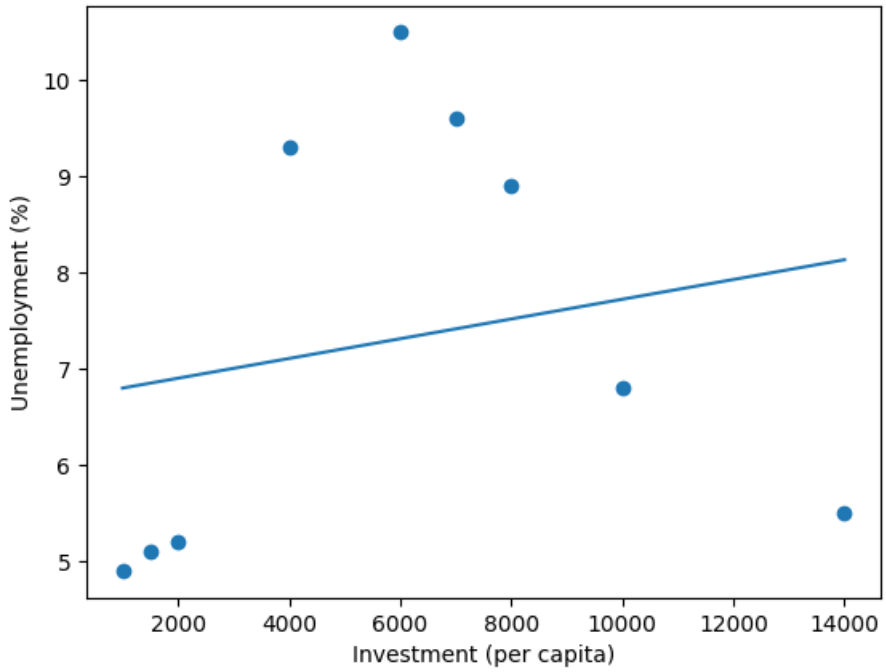

Figure 1. Graph of the relationship between investment volume and unemployment in the Republic of Uzbekistan

Source: Prepared by the author based on data from the State Statistics Committee of the Republic of Uzbekistan.

Graph analysis shows that as the volume of investments increases, the unemployment rate tends to decrease [13]. The distribution of points and the direction of the regression line confirm the existence of an inverse relationship between investments and unemployment [14].

At the same time, in some years deviations of points from the regression line are observed. This is explained by factors other than investments, including economic crises, pandemics, or structural changes in the labor market [15]. The graphical results confirm the conclusions obtained through the econometric model and show that an increase in investment volume contributes to a decrease in the unemployment rate in the long term [13].

4. Conclusion

Based on the studied data, it can be said that there is a certain relationship between investment volume and unemployment rate. During the analyzed years, an increase in investment volume was observed, while the unemployment rate changed differently across periods.

Especially in recent years, against the background of a significant increase in investment volume, a decreasing trend in the unemployment rate is observed. This once again confirms the importance of investments in increasing economic activity and creating new jobs.

At the same time, in some periods, despite the increase in investment volume, the unemployment rate also increased. This shows that the effect of investments does not always manifest immediately and that other factors also play an important role.

Based on the research results, the following recommendations can be made:

- It is advisable to direct investments, especially to sectors that require more labor force;
- It is necessary to expand employment opportunities through the development of investment projects across regions;
- Attention should be paid to creating new jobs through support of small business and private entrepreneurship;
- It is recommended to take into account the impact of investment projects on employment when implementing them.

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