during periods of economic downturn. E. Phelps and M. Friedman proposed a hypothesis of the existence of natural unemployment. O.U. Phillips tried to describe the relationship between inflation and unemployment, which is now called the Phillips curve [2]. A.M. Okun in his law reflected the empirical relationship between the GDP growth rate and the unemployment rate, suggesting that a decrease in the GDP growth rate by 2% leads to an increase in the unemployment rate by 1% [4].

Among the factors leading to unemployment are economic, social and structural changes. Some of the main reasons include:

- Economic recession, because during this period, the demand for labor decreases, which leads to an increase in the number of unemployed;
- Technological changes, because the introduction of new technologies and automation may lead to an obsolete workforce and job losses;
- Demographic changes, such as population growth or changes in population structure, may have an impact on the unemployment rate;
- Lack of qualifications, because inappropriate skills and education can create barriers to finding work;
- Structural changes in the economy, such as contractions of important industries or changes in demand for products, can affect the unemployment rate.

Increased unemployment can also lead to lower consumption and investment, which has a negative impact on economic growth. Unemployed individuals face financial hardships such as loss of income and inability to provide for themselves and their families, leading to an increase in poverty levels among the population. Subsequently, unemployment can provoke social tension, increased crime and other social problems in society.

In this regard, the issue of social protection of the unemployed, which plays a key role in ensuring the stability and well-being of society, becomes important. This is an important part of social policy, which is aimed at supporting people during periods of temporary or long-term job loss. In light of many factors, including economic fluctuations, technological changes and global crises, this form of social protection is becoming increasingly relevant and necessary for society.

The state can pursue both active and passive policies in the field of providing employment and reducing the consequences of unemployment (Figure 1).

An active employment and unemployment policy is a government intervention strategy aimed at supporting the labor market, reducing unemployment and improving the employment of citizens. In contrast to passive policies, which are limited to the payment of unemployment benefits, active policies focus on measures to stimulate employment and support employment.

The goal of an active policy in the field of employment and unemployment is not only to provide temporary support for the unemployed, but also to create conditions for their integration into the labor market, improving their professional training and ensuring stable and decent earnings. Ultimately, these policies aim to improve the economic well-being of society as a whole.

Passive employment and unemployment policies include measures aimed at providing financial support to people who have lost their jobs, without actively engaging in their employment or supporting their search for work.

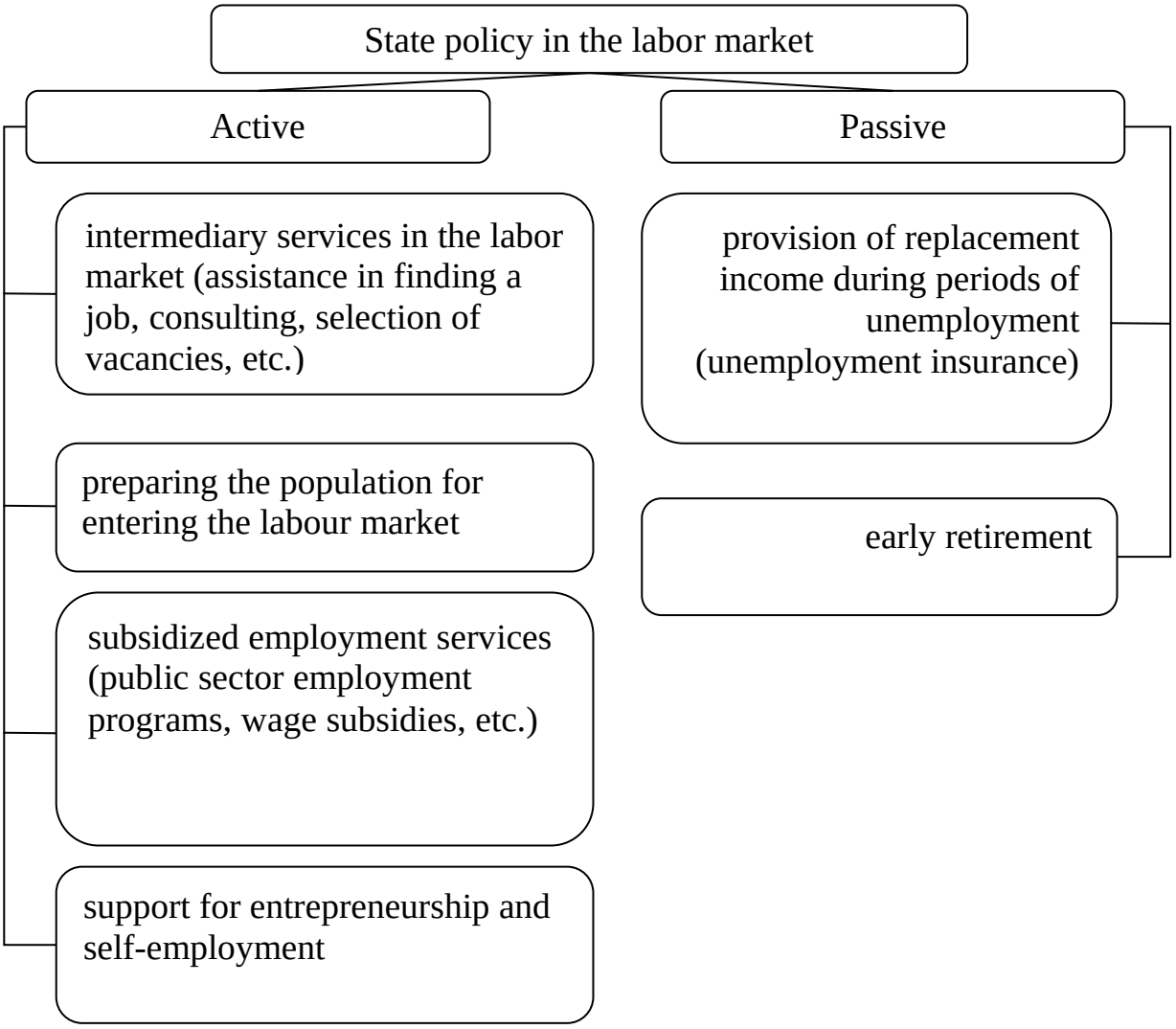



**Figure 1**. **Types of state employment and unemployment policies** [8]

The main instrument of passive policy is unemployment benefits, which are provided to unemployed persons in the form of financial compensation for loss of income while looking for a new job.

The purpose of passive employment and unemployment policies is to provide temporary financial support to unemployed persons while they are looking for a new job. However, this policy has its limitations, such as the potential to create benefit dependency and the lack of incentive for active employment. In this regard, striving for a balance between passive and active policies in the field of employment and unemployment is an important aspect to ensure effective support for the unemployed and stimulate economic growth.

To understand the unemployment situation and make effective decisions, it is necessary to conduct a statistical analysis of the unemployment rate.

In the Republic of Uzbekistan, in recent years there has been a decrease in the unemployment rate, which is a positive trend (Figure 2).

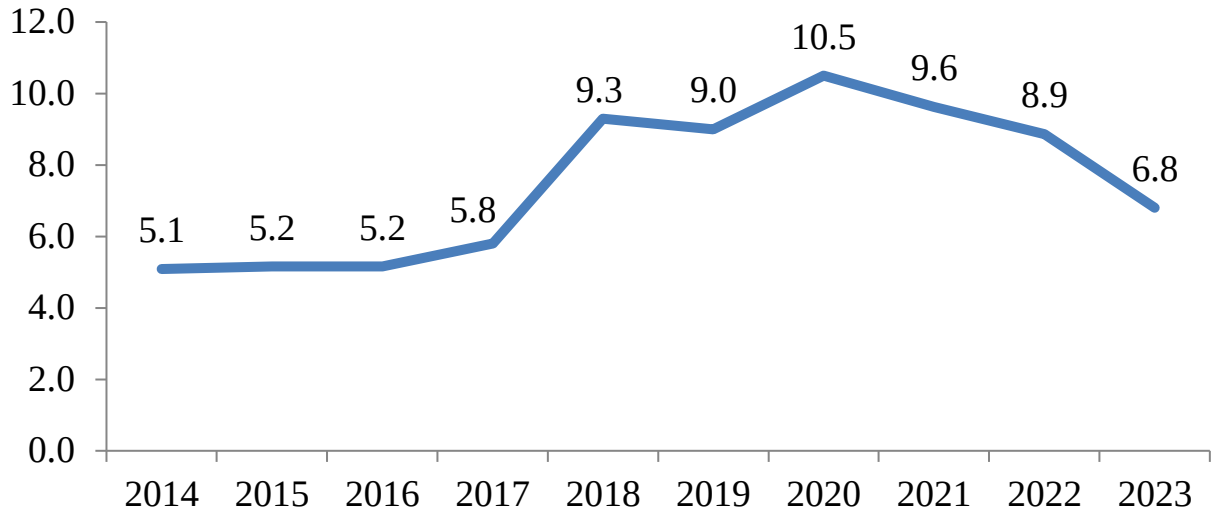



**Figure 2**. **Unemployment rate in the Republic of Uzbekistan, percentage** [9]

The unemployment rate in the Republic of Uzbekistan was stable in 2014-2017. and rose sharply in 2018 to 9.3%. The peak of unemployment was observed in 2020 and amounted to 10.5%, which may be associated with the COVID -19 pandemic . Since 2021, there has been a gradual decline in the unemployment rate to 6.8%.

It is interesting to analyze the factors that influence unemployment, and vice versa, those influenced by unemployment. These include the following:

- Economic growth indicators such as GDP can be examined in relation to unemployment rates. Correlation analysis can reveal how changes in economic growth affect unemployment;
- The level of inflation can have an impact on unemployment. Higher inflation can lead to higher unemployment. Correlation analysis can help determine whether there is a relationship between inflation and unemployment;
- The graduation of specialists from higher educational institutions, secondary special, and vocational educational institutions can also affect the unemployment rate, increasing it due to the fact that graduates need time to find a job, and decreasing it due to the fact that qualified graduates are in demand in the labor market specialists;
- Structure of the labor market.

To substantiate the policy of social protection of the unemployed, a correlation and regression analysis should be carried out, which allows one to study the relationships between the unemployment rate and other variables. The necessary data for statistical analysis are presented in Table 1.

**Table 1**

**Some indicators of socio-economic development of the Republic of Uzbekistan** [9]

| | **Unemployment rate, %** | **Level of economic activity of the population, %** | **Graduates, thousand people** | **Inflation, %** | **GDP in constant prices, billion soums .** |
|---|---|---|---|---|---|
| 2014 | 5.1 | 71.3 | 602.1 | 6.1 | 186829.5 |
| 2015 | 5.2 | 71.9 | 584.5 | 5.6 | 200281.2 |
| 2016 | 5.2 | 72.5 | 577.5 | 5.7 | 255421.9 |
| 2017 | 5.8 | 73.5 | 557.5 | 14.4 | 266660.5 |
| 2018 | 9.3 | 74.3 | 556.8 | 14.3 | 426641.0 |
| 2019 | 9.0 | 75.0 | 586.1 | 15.2 | 452239.5 |
| 2020 | 10.5 | 73.8 | 278.5 | 11.1 | 605514.9 |
| 2021 | 9.6 | 74.1 | 127.8 | 10.0 | 650323.0 |
| 2022 | 8.9 | 73.7 | 256.4 | 12.3 | 896617.9 |
| 2023* | 6.8 | 72.9 | 320.2 | 8.8 | 950415 |

**) Preliminary data*

Correlation and regression analysis was carried out using the Stata program , which is a powerful statistical package that has many advantages when conducting correlation and regression analysis [5].

**Table 2**
**Results of correlation analysis of the relationship between the unemployment rate and other variables** [9]

| | Unemployment rate | Level of economic activity of the population | Graduates | Inflation | GDP at constant prices |
|---|---|---|---|---|---|
| Unemployment rate | 1.0000 | | | | |
| Level of economic activity of the population | 0.8198 | 1.0000 | | | |
| Graduates | -0.6230 | -0.3295 | 1.0000 | | |
| Inflation | 0.6275 | 0.8716 | -0.0922 | 1.0000 | |
| GDP at constant prices | 0.5756 | 0.4150 | -0.8047 | 0.2694 | 1.0000 |

The results of the correlation analysis between five variables: the unemployment rate, the level of economic activity of the population, graduation from higher educational institutions, secondary specialized, professional educational institutions of specialists, inflation and GDP in constant prices are presented in Table 2 and can be interpreted as follows.

The correlation coefficient between unemployment rate and labor force participation is 0.8198, indicating a strong positive correlation between these variables.

The unemployment rate has a moderate positive correlation with inflation (0.6275) and GDP (0.5756).

The number of graduates has a moderate negative correlation with the unemployment rate (-0.6230), which may indicate that an increase in the number of graduates is associated with a decrease in the unemployment rate.

The labor force participation rate also has a moderate positive correlation with inflation (0.8716) and a moderate negative correlation with graduation rates (-0.3295).

Inflation has a moderate negative correlation with graduation rates (-0.0922) and a moderate positive correlation with GDP (0.2694).
The results of multiple regression between the above variables are shown in Figure 3.

| Source | SS | df | MS | Number of obs | = | 10 |
|---|---|---|---|---|---|---|
| | | | | F(4, 5) | = | 5.49 |
| Model | 33.0373861 | 4 | 8.25934652 | Prob > F | = | 0.0450 |
| Residual | 7.52661644 | 5 | 1.50532329 | R-squared | = | 0.8145 |
| | | | | Adj R-squared | = | 0.6660 |
| Total | 40.5640025 | 9 | 4.50711139 | Root MSE | = | 1.2269 |

| Unemployme~e | Coefficient | Std. err. | t | P>\|t\| | [95% conf. | interval] |
|---|---|---|---|---|---|---|
| LF_rate | 1.354709 | .8513312 | 1.59 | 0.172 | -.8337077 | 3.543126 |
| Graduates | -.0053941 | .0042643 | -1.26 | 0.262 | -.0163558 | .0055677 |
| Inflation | -.0153044 | .2531412 | -0.06 | 0.954 | -.6660247 | .6354159 |
| GDP | -6.40e-07 | 2.62e-06 | -0.24 | 0.817 | -7.37e-06 | 6.09e-06 |
| _cons | -88.88998 | 60.93548 | -1.46 | 0.204 | -245.5296 | 67.74966 |

**Figure 3**. **Results of regression analysis carried out in the Stata program between the unemployment rate and other variables** [9]

The overall model analysis shows statistical significance ( Prob > F = 0.0450), indicating that at least one of the predictors has a significant effect on the dependent variable (unemployment rate).

The coefficient of determination (R- squared ) is 0.8145, which means that 81.45% of the variation in the unemployment rate is explained by the predictors used.

The coefficient for the labor force participation rate ( LF_rate ) is positive (1.354709), which may indicate that an increase in the labor force participation rate is associated with an increase in the unemployment rate, but its statistical significance is not reached (P>|t| = 0.172) .

The coefficient for graduates of universities and secondary special, vocational educational institutions ( Graduates ) is negative (-0.0053941), but also not statistically significant (P>|t| = 0.262).

The coefficients for inflation ( Inflation ) and GDP (GDP) are also not statistically significant (P>|t| = 0.954 and 0.817, respectively).

The constant ( intercept ) is -88.88998 and is not statistically significant (P>|t| = 0.204).

The adjusted coefficient of determination ( Adj R-squared ) is 0.6660, given the number of predictors used and the number of observations.

These results indicate that the model could be improved, perhaps by including additional variables or changing the specification of the model.

Thus, as a result of statistical analysis, a direct connection was revealed between the level of unemployment and the level of economic activity of the population, which is understandable from the point of view of the fact that the higher the number of employed and unemployed people, the higher the level of economic activity of the population. An average positive linear relationship between inflation and the unemployment rate was also revealed, which indicates a tendency for the unemployment rate to increase with increasing inflation.

On the positive side, the Pearson correlation coefficient between the unemployment rate and the graduation rate indicates an average negative linear relationship between the two variables. This means that with an increase in the number of graduates of higher educational institutions, secondary specialized, and vocational educational institutions, the tendency to reduce the unemployment rate also increases. In this regard, it is necessary to encourage the population to receive vocational education. This can be achieved by investing in education, vocational education and training

In addition, it is necessary to support economic growth and the creation of new jobs, which are important steps in the fight against unemployment.

Thus, the fight against unemployment requires an integrated approach and the use of various strategies. Social protection of the unemployed is an integral part of the social policy of many countries. It provides protection and support to those who are temporarily or permanently unemployed, helping them overcome difficulties and become active members of society again. It is important to continue to develop and improve programs to support the unemployed and stimulate employment so that they can effectively respond to changing socio-economic conditions and the needs of citizens.

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