Determinants of Unemployment: The Role of Education, Political Stability, Economic Growth, and Inflation

Muhammad Zulqarnain Qasim
zulqarnainqasim219@gmail.com
Scholar, Lahore School of Accountancy and Finance, University of Lahore

Syed Noor Ul Hassan Naqvi

nn4475891@gmail.com
Scholar, Lahore School of Accountancy and Finance, University of Lahore

Moeez Akhtar
moeezkhan9904@gmail.com
Scholar, Lahore School of Accountancy and Finance, University of Lahore

Muhammad Wahaj Tagala
wahajrajpoot12@gmail.com
Scholar, Lahore School of Accountancy and Finance, University of Lahore

Corresponding Author: * Moeez Akhtar moeezkhan9904@gmail.com

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ABSTRACT

The study examined the effects of economic growth, education, political stability, and inflation on unemployment using data from BRICS countries (2004–2023). The evidence indicates that economic growth tends to decrease unemployment in the short run through education and political stability. One main reason is the "qualification mismatch," in which well-educated workers cannot secure jobs suitable for their level of education. Political stability promotes investment and reforms but can cause short-term unemployment during economic adjustments. Inflation has conflicting impacts: moderate inflation stimulates employment generation, whereas excessive inflation is detrimental to economic stability. The study recommends that education be aligned with labor market demand to reduce skill mismatches and enhance employment opportunities. A stable political environment can also foster economic growth and employment. Policies must also balance inflation rates to provide conducive conditions for employment generation. By addressing these issues, governments can formulate measures to minimize unemployment and promote sustainable economic growth.

Keywords: Gross Domestic Product, Inflation, Political Stability, Unemployment

INTRODUCTION

Young people are the backbone of a country's development. Their creativity and energy help to develop the economy and introduce values into society. However, if this energy is misdirected, it can lead to social unrest and economic instability. Unemployment remains a significant concern across BRICS nations, with many individuals facing difficulties in securing stable employment. The International Labor Organization (ILO) defines unemployment as the state in which people actively seeking work are unable to find jobs, a definition also supported by the World Bank. In BRICS countries, various economic and structural challenges contribute to this issue, including market fluctuations, political uncertainty, and labor inefficiencies.

In Brazil, the unemployment rate stood at approximately 7.8% in 2023, with youth unemployment exceeding 15%, reflecting economic instability and a slow labor market recovery. Russia has maintained a relatively low unemployment rate of around 3.3%, but wage stagnation and regional disparities remain concerns. India, with its expanding labor force, recorded an 8.1% unemployment rate in 2023, with urban youth facing difficulties due to skill mismatches and automation. China, despite its economic strength,

experienced a surge in youth unemployment, exceeding 21% in mid-2023, pointing to job market saturation and industrial shifts. South Africa faces the highest unemployment rate in the BRICS bloc, exceeding 32% in 2023, while youth unemployment remains alarmingly high at 60%, largely due to economic constraints and policy shortcomings.

These trends highlight the broader employment challenges in BRICS nations, where demographic shifts, economic transitions, and policy frameworks continue to shape labor market conditions. Tackling these issues requires strategic reforms, including investments in education, vocational training, and economic diversification to foster sustainable employment opportunities. Gallup data from 2017 reported that global unemployment levels stood at about 8%, with regional variations as high as 18% in sub-Saharan Africa. Such trends highlight the profound problems that exist in labor markets worldwide, as seen in Pakistan's case with its persistent unemployment issues. Economic instability and unemployment are also linked to social issues such as crime. Research has shown that higher unemployment rates have a direct correlation with an increase in crime, as economic pressure and a lack of opportunities push people toward criminal activities (UNODC, 2017). Solutions to these problems, such as offering targeted employment opportunities and productive engagement of youth, can bring the required stability to the economy.

LITERATURE REVIEWS

The relationship between economic growth and unemployment has been extensively studied, with mixed findings. On one hand, several studies suggest that economic growth negatively impacts unemployment. For instance, Quy (2016) found that public investment, a driver of economic growth, positively contributes to economic growth while unemployment exerts a negative influence. Similarly, Karunarathna et al. (2021) observed that unemployment and economic growth are inversely related in Sri Lanka, indicating that as the economy grows, unemployment tends to decrease. This is further supported by Kukaj (2018), who found a negative and statistically significant impact of unemployment on economic growth in the Western Balkans. Additionally, Njoku and Ihugba (2011) noted that unemployment positively affects economic growth in Nigeria, suggesting that economic expansion can mitigate unemployment.

On the other hand, some studies present a contrasting view. Xuen et al. (2017) found that GDP growth and population expansion can lead to higher unemployment rates in China, indicating that economic growth does not always translate to reduced unemployment. Similarly, Afifah et al. (2023) found a positive relationship between unemployment and economic growth in Palembang, suggesting that economic growth alone may not be sufficient to address unemployment. These divergent findings highlight the complexity of the relationship between economic growth and unemployment, which may be influenced by contextual factors such as regional economic structures and labor market dynamics.

Education is widely regarded as a critical factor in reducing unemployment, yet the evidence is not entirely consistent. Several studies support the notion that education negatively impacts unemployment. For example, Syahputra and Nasution (2024) found that education hurts poverty, which is often closely linked to unemployment. This implies that higher education levels can lead to better employment opportunities and lower unemployment rates. Similarly, Triatmanto and Bawono (2023) found a significant relationship between human capital (which includes education) and unemployment in Indonesia, suggesting that investments in education can reduce unemployment.

However, some studies suggest that the relationship between education and unemployment may not be straightforward. For instance, Saddiqa (2020) found that literacy rates, a proxy for education, have a positive relationship with terrorism, which can be indirectly linked to unemployment in conflict-prone regions. This indicates that while education generally reduces unemployment, its impact may be mitigated by other factors such as political instability and economic conditions. These findings suggest that the effectiveness of education in reducing unemployment may depend on the broader socio-economic and political context.

Political stability is often considered a prerequisite for economic development and low unemployment, but the evidence is mixed. On one hand, several studies highlight the positive impact of political stability on reducing unemployment. For example, Bagchi and Paul (2017) found that political stability, along with

regulatory quality, negatively impacts domestic terrorism, which is often associated with high unemployment in conflict-affected regions. Similarly, Evans and Kelikume (2019) identified political instability as a significant factor contributing to unemployment and violent conflicts in Nigeria, suggesting that political stability is crucial for reducing unemployment.

On the other hand, some studies suggest that political stability alone may not be sufficient to address unemployment. For instance, Imtiaz et al. (2020) found that political instability, lack of investment, and backwardness in the agricultural sector are significant determinants of youth unemployment in Pakistan. This indicates that while political stability is important, other factors such as economic policies and sectoral development also play a critical role in determining unemployment levels. These findings suggest that the relationship between political stability and unemployment is complex and may be influenced by a range of economic and social factors.

The relationship between inflation and unemployment, often referred to as the Phillips curve, has been a subject of extensive research with varying results. Several studies support the traditional view that inflation and unemployment are inversely related. For example, Shahid (2014) found a negative connection between unemployment and economic growth, with inflation having a positive effect on economic growth in Pakistan. Similarly, Nwaonuma and Ebubechima (2023) found that inflation has a positive impact on economic growth in Nigeria, suggesting that moderate inflation may be associated with lower unemployment.

However, other studies challenge this view. Xuen et al. (2017) found that inflation has a negative relationship with unemployment in China, indicating that higher inflation may lead to lower unemployment. This is consistent with the findings of Jannika et al. (2023), who observed a positive relationship between inflation and economic growth in the Philippines, suggesting that inflation may not always lead to higher unemployment. These divergent findings suggest that the relationship between inflation and unemployment may vary depending on the economic context and the specific policies in place.

The literature reviewed reveals a complex and multifaceted relationship between economic growth, education, political stability, inflation, and unemployment. While there is substantial evidence supporting the negative impact of economic growth and education on unemployment, the findings are not entirely consistent, with some studies suggesting that these relationships may be influenced by contextual factors such as regional economic structures and political conditions. Similarly, the relationship between political stability and unemployment is generally positive, but other factors such as economic policies and sectoral development also play a critical role. Finally, the relationship between inflation and unemployment is complex, with some studies supporting the traditional inverse relationship and others suggesting that this relationship may vary depending on the economic context. These findings highlight the need for further research to better understand the interplay between these factors and their impact on unemployment.

METHODOLOGY

The study is based on panel data composed of a sample from BRICS countries (Brazil, Russia, India, China, and South Africa). The secondary panel data covers a period of twenty years (2004–2023). Data for variables such as unemployment, economic growth, and education were collected from the World Development Indicators (WDI). The World Development Indicators (WDI) served as the source of secondary data for the study, ensuring its reliability and consistency.

Dependent Variable

Unemployment is used as the dependent variable in this study. It is defined as the fraction of the total labor force (as a national estimate) that is without work but available for and actively seeking employment. Data regarding unemployment were collected from a trusted source, the World Bank. This ensures consistent and reliable measurements, as the data were collected using identical methods over five years.

Independent variables

Economic Growth

Economic growth is an independent variable in this study. It is measured by the annual percentage growth rate of Gross Domestic Product (GDP), which is a fundamental variable for understanding unemployment trends. The data were obtained from the World Bank, a world-class database. Economic growth reflects the performance of an economy and its ability to create employment-generating activities. A healthy economy with strong growth has the potential to produce jobs across various sectors.

Education

The percentage of government expenditure on the education sector (including international funding) is used as an independent variable in this study. Data were collected from the World Bank, a trusted source. Government spending on education includes investments in infrastructure, teacher salaries, training, research, curriculum development, and other direct productive inputs. This variable is critical for understanding how investment in education influences unemployment. Increased expenditure on education is assumed to enhance access to quality education, improve skill levels, and support workforce readiness. In the long term, such investments are expected to contribute to a reduction in unemployment.

Political Stability

Political stability is another independent variable in this study. It can be measured using indicators such as government instability. Data on political stability were collected from the World Bank, a reliable source. Political stability is important for economies because it directly affects investor confidence and ensures consistency in government policies. A stable political environment encourages investment and business growth, leading to more job opportunities. Conversely, political instability may discourage investments and disrupt employment-generating sectors, contributing to higher unemployment.

Inflation

This study also includes inflation as an independent variable. It is measured by the annual percentage change in the Consumer Price Index (CPI), with data sourced from the World Bank. Inflation refers to the rate at which the general price level of goods and services increases in an economy. While moderate inflation is typically present in a growing economy, high inflation can erode purchasing power and create uncertainty for businesses, leading to a decrease in job creation. Inflation plays a critical role in determining unemployment trends within a country by influencing wages, consumption, and investment levels.

Statistical Tools

Multicollinearity

The presence of perfect multicollinearity violates one of the basic assumptions of regression analysis, which states that the relationship among the values of all explanatory variables should not be exactly linear. This violation prevents the Ordinary Least Squares (OLS) method from accurately estimating population parameters. To measure multicollinearity, this study uses a correlation matrix and the Variance Inflation Factor (VIF).

Heteroskedasticity

Among the assumptions of (CLRM), the error term in the relationship between the variables is constant across all the values.

$Var(\varepsilon t) = \sigma^2$

Violation of this assumption causes a severe problem called heteroscedasticity, which means that error terms are not constant across all the independent variables and makes the OLS invalid.

Model Specification test (Hausman's test)

For the model selection through Hausman's, the null hypothesis presents that both estimators are consistent but the estimator β0 is inefficient while the alternative hypothesis states that β0 is consistent and efficient but the estimator β1 is inconsistent. In short, this test looks at, if there is a correlation between a unique error and the regressors in the model.

$H = (\beta^{FE} - \beta^{RE})\,[V(\beta^{FE}) - Var(\beta^{RE})]^{-1}\,(\beta^{FE} - \beta^{RE}) \sim x^2$

Fixed Effect Model

It is also called the least squares dummy variables (LSDV) estimator in which the group means are fixed, opposite to the random effect. Here Constant is treated as group-specific.

$Y_{it} = \sigma_{it} + \beta 1 X 1_{it} + \beta 2 X 2_{it} + - - - - - - - - - - - - - - - - - + \beta k X k_{it} + \varepsilon_{it}$

Y_{it} is treated as a dependent variable for individual i which is observed at time t, X_{it} is the regressor, alpha (σ_{it}) is the effect of an individual which is unobserved time-invariant and ε_{it} is the error term. The following regression model is to be tested

$TuNN_{it} = \alpha_0 + \beta_1 IGO_{it} + \beta_2 FCEO_{it} + \beta_3 BI_{it} + \beta_4 FSIZE_{it} + \varepsilon$

Table 1: Results of the Descriptive test

Variable	Obs	Mean	Min	Max	Std. Dev
EG	100	4.3006	-7.7999	14.2308	4.0540
Unmp	100	9.4618	0	34.007	9.1630
Edu	100	11.4960	0	20.2936	5.4223
PS	100	-0.5746	-1.5145	0.2153	0.3911
Inf	100	5.4298	-0.7281	15.5344	3.1389

Table (1) presents an average value of economic growth (4.3006) having a standard deviation of (4.0540) also carrying a minimum (-7.7999) and a maximum value (14.2308). Unemployment carries an average value of (9.4618) having a minimum value of (0) and a maximum value of (34.007), the standard deviation of the said variable is (9.1630). The average value of education is (11.4960), having the minimum value (0) and maximum value (20.2936), while the standard deviation is (5.4223). The average value of political stability (-0.5746), has a minimum value (-1.5145) and maximum value (-0.2153), while the standard deviation is (0.3911). The mean value of inflation is (5.4298), with a minimum value of (-0.7281) and a maximum value of (0.7281), while the standard deviation is (3.1389).

Table 2: Result of the Correlation Matrix

	EG	Unmp	Edu	PS	Inf
EG	1.0000				

Unmp	-0.4195	1.0000			
Edu	-0.0924	0.4328	1.0000		
PS	-0.1920	0.5204	0.3067	1.0000	
Inf	-0.1703	-0.0111	-0.0802	-0.3509	1.0000

Table 2 shows that there is a clear linear relationship among all the variables. None of the values are above 90%, Which means that there is no perfect multicollinearity. Therefore, all the variable meets basic assumptions.

Table 3: Results of the Ordinary Least Squares

Unemployment	Coef.	Std. Err.	T	P>|t|	[95% Conf. Interval]	
EG	-0.6680	0.1794	-3.72	0.000***	-1.0243	-0.3117
Edu	0.4857	0.1337	3.63	0.000***	0.2202	0.7511
PS	9.6740	2.0391	4.74	0.000***	5.6257	13.7223
Inf	0.3111	0.2428	1.28	0.203	-0.1711	0.7933
_cons	10.6209	2.5305	4.20	0.000***	5.5972	15.6446
F-Statistics				20.40		
Probability				0.0000		
R-squared	0.4621					
Adj R-squared				0.4395		
Root MSE				6.8603		

*Note: ***, **, *, represent significance at 1%, 5%, and 10%*

The ordinary least squares regression model finds that economic growth effectively lowers unemployment, with a downward coefficient (-0.668), and statistically significant (0.000), revealing that when economic growth increases, unemployment falls. Education, however, contributes to higher unemployment (0.486), and is statistically significant (0.000), pointing to possible differences between educational outcomes and labor market demands. Government stability shows a substantial upward correlation (9.674), and is statistically significant (0.000). Which may represent basic structure factors affecting employment in well-governed environments. Inflation shows a positive relation (0.311), and is statistically significant (0.203).

Table 4: Result of the Model Specification test (Hausman test)

Test: Ho: difference in coefficients not systematic

chi2(4)	43.87
Prob>chi2	0.0000

It shows that the probability value (0.0000) is less than the significance value (0.05).

Thereby emphasizing that the null hypothesis of the study can be rejected, which presents that the random effect model is appropriate, while accepting the alternative hypothesis that the fixed effect model is more appropriate and advantageous.

Table 5: Result of the Fixed effect test

Unemployment	Coef.	Std. Err.	T	P>|t|	[95% Conf. Interval]	
EG	1.0640	0.1583	6.72	0.000	0.7486	1.3793

Education	7.6302	1.9767	3.86	0.000	3.6932	11.5672
PS	0.4219	0.2686	1.57	0.120	-.1132	0.9571
Inflation	-1.1481	0.2282	-5.03	0.000	-1.6027	-0.6935
_cons	4.2613	2.8373	1.50	0.137	-1.3898	9.9124
F-Statistics			36.16			
Probability			0.0000			
F test that all u_i=0:	F (19, 76) =	2.40	Prob > F = 0.0038			

The fixed effect model finds that economic growth positively affects unemployment, with an upward coefficient (1.0640), and statistically significant (0.000), revealing that when economic growth rises, unemployment also rises. Education, however, contributes to higher unemployment (7.6302), and is statistically significant (0.000), pointing to possible differences between educational outcomes and labor market demands. Political stability shows a substantial upward correlation (0.4219), and is statistically significant (0.120). Which may represent basic structure factors affecting employment in well-governed environments. Inflation shows a negative relation (-1.1481), and is statistically significant (0.000).

DISCUSSIONS

The positive connection between economic growth and unemployment can be attributed to the temporary dynamics of growing economies. An industrial expansion is often delayed in matching the workforce skills with new market demands, leading to temporary unemployment. The era of rapid technological advancement during economic growth can reduce some jobs, creating structural unemployment until the labor force adapts to new technology. This observation aligns with findings from recent research, with reference by Dauth et al., (2021), Andrews et al., (2019), and Autor and Salomons (2018) highlight the short-term labor market challenges of economic growth. Similarly, research by Aiyar et al., (2020), Rodrik and Stantcheva (2021), and Gal (2019) highlights the complexities of labor market adjustments. However, opposing perspectives suggest that economic growth can create jobs faster than workforce adaptation is required, as indicated by research from Adalet McGowan and Andrews (2018), Olley and Pakes (2020), and Charles et al., (2022).

Education positively correlated with unemployment in some cases, due to a phenomenon known as "qualification mismatch". As the workforce becomes more educated, the demand for jobs requiring specific qualifications may not increase at the same rate, resulting in higher unemployment among highly educated individuals. Additionally, increased education often raises job seekers' expectations, causing some individuals to remain unemployed longer while seeking positions that align with their qualifications and salary expectations. These findings are supported by Sanchez et al., (2020), Brunello and Wruuck (2021), Mavromaras et al., (2019), and supported further by a recent analysis from McGuinness and Pouliakas (2022), Okamoto and Wilkins (2020), and Ortiz and Jayaram (2021). On the other hand, some scholars argue that higher education generally reduces unemployment by enhancing skills and productivity as evidenced by Li et al., (2019), Blundell et al., (2020), and Hanushek et al., (2021).

Political stability raises economic confidence and investment but can also temporarily increase unemployment as reforms and restructuring measures are applied. Stable environments often encourage regulatory changes that disturb the labor market before stabilizing them. Political stability may attract foreign direct investment, which is beneficial in the long term, and can lead to short-term movement of workers in sectors undergoing shifts towards global competitiveness. The findings are supported by Aisen and Veiga (2013), Campos and Nugent (2020), and Acemoglu et al., (2023), which underline the important relationship between political stability and labor market dynamics. Further support comes from Ahmad and Gani (2022), Estevao and Severo (2019), and Desbordes and Vauday (2020), who discuss the role of political reforms in economic shifts. Conversely, studies by Younas and Sandler (2020), Fidrmuc et al., (2019), and Collier (2018) suggest that political stability often reduces unemployment directly through improved investment and job creation.

The study identified a negative association between inflation and unemployment. Moderate inflation often stimulates economic activity by minimizing real wages, encouraging employers to hire more workers. Additionally, inflation can reduce debt burdens on firms and households, increasing disposable income and stimulating demand for goods and services. However, this relationship may not hold during periods of hyperinflation. The findings are supported by Coibion et al., (2020), Ball and Mazumder (2021), and Blanchared and Summers (2019), this relationship as analyzed by Nakamura et al., (2021), Gali et al., (2020), and Debelle and Galati (2018). However, opponents of this view argue that the relationship is not stable over time as highlighted by analysis from Gordon (2019), McLeay and Tenreyro (2021), and Leduc and Liu (2022) who point out where the relationship has weakened.

CONCLUSION

The study aimed to determine how economic growth, education, political stability, and inflation affect unemployment, using a fixed-effects model for analysis. The findings reveal that economic growth, higher levels of education, and political stability positively influence the unemployment rate, while inflation hurts unemployment. These results suggest that while economic and social changes are essential for progress, they often create short-term challenges in the job market. To minimize unemployment, it is crucial to address skill mismatches, enhance the productivity of skilled workers, and manage labor market dynamics during periods of economic transition. Additionally, employment growth can be supported by maintaining moderate inflation levels. Policymakers should consider these insights, supported by robust model results when designing strategies for economic growth and job creation. Specifically, policies should focus on bridging the gap between the skills of the labor force and the demands of the market to ensure smoother transitions during economic changes. Investments in education and training programs should align with the evolving needs of industries, reducing qualification mismatches and minimizing unemployment among highly educated individuals. Furthermore, stable policies during politically calm periods can significantly reduce labor market disruptions. By carefully managing inflation and leveraging its potential in tandem with employment growth, governments can better balance growth-oriented policies. Guided by the findings of the fixed-effects model, these strategies can promote sustainable economic growth and improve social employment outcomes.

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