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Combating Unemployment in Pakistan: Empirical Study of Key Macroeconomic Factors

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Abstract

Higher rate of unemployment is associated with social, economic, and political challenges for a country. Therefore, the macroeconomic factors which are linked with unemployment are always a matter of great interest for the researchers and policy makers. The instant study analyzed the relative impact of the internal and external factors of the economy affecting unemployment in Pakistan. The annual data from 1990 to 2023 was analyzed by employing ARDL bound test approach. The analysis showed that, in the long run, the secondary school enrollment, financial development, trade openness, and FDI were negatively associated with the rate of unemployment, whereas the inflation rate was positively linked with the rate of unemployment in Pakistan. In contrast, the short-run results indicated that the secondary school enrollment and financial development increased unemployment, however, the trade openness and unemployment negatively impacted the rate of unemployment in Pakistan. Keeping in view the outcomes, it was concluded that the internal macroeconomic factors such as education and financial development, and the external macroeconomic factors such as trade openness and FDI were crucial in combating unemployment in Pakistan.

Keywords: Education; Trade Openness; Inflation Rate; Financial Development; FDI; ARDL Bound Test.

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1. Introduction

Unemployment is the most critical issue around the globe. High rate of unemployment can aggravate the crime rate, human capital loss, unhappiness, and societal instability (Onifade et al., 2020). There are certain internal and external factors in an economy which influence unemployment. The factors affecting unemployment from within the economy are called internal factors (Maqbool et al., 2013). These factors include financial development, level of education and prevailing rate of inflation, monetary policy, and fiscal policy. External factors usually impact unemployment from outside the economy. These factors may include international trade policy, imports, exports, foreign direct investment, and exchange rates. Therefore, the factors which affect unemployment are always a matter of great importance for policymakers and researchers.

Pakistan has an estimated population of 241.50 million with 93.75 million people living in urban regions whereas 147.74 million in rural areas (GoP, 2024). The rate of unemployment has also risen from 5.5% in 2010 to 6.3% in 2023. This shows that unemployment issue in Pakistan is persistently increasing. In this context, developing countries adopt socioeconomic policies to remove unemployment. In the set of policies, the governments introduce technical education schemes to improve labor skills, provide loan to the youth to start their business, provide incentives to SMEs, relax emigration policies for the exporting workforce, reduce trade restrictions, encouraged FDI, and many other similar interventions. However, the relative impact of these policies is yet to be explored.

This research aims to determine the extent to which domestic economic conditions, such as fiscal policies and labor market dynamics, contribute to fluctuations in rate of unemployment versus global influences, such as international trade and financial fluctuations, by empirically investigating the relative impact of these factors. This research attempts to provide complete knowledge of the complicated interaction between internal and external causes of unemployment by systematically examining empirical evidence, therefore providing significant insights for developing policies and economic stability in Pakistan.

Therefore, the instant study is aimed at (a) investigation of internal factors of the unemployment in Pakistan, and (b) analysis of external factors influencing rate of unemployment in Pakistan. This study would be a significant contribution to the literature by exploring internal and external factors which encouraged or discouraged the rate of unemployment in Pakistan.

2. Literature Review

The unemployment has been defined by the International Labor Organization (ILO) that being unemployed (at the age 16 or older) is to be ready to start work in the next two weeks, or requiring a job and actively looking for one within the last four weeks. The children, retired individuals, full-time students, and those who choose not to work are not included in the unemployed group. According to Keynes (1936), the unemployment was a consequence of an overabundance of labor brought on by a breakdown in the market economy. Different studies explored the factors of the rate of unemployment. This section elaborates the previous studies carried out in this context.

The rate of unemployment in Iran was studied by Amini & Moradzadeh (2015) in its relation with trade liberalization. It was concluded that the trade liberalization had negative impact on rate of unemployment. However, trade liberalization was found to have positive impact towards creation of jobs and the decline in unemployment. Similarly, Oniore et al. (2015) studied macroeconomic factors which influenced unemployment in the context of Nigerian economy. The findings revealed that the growth rates of GDP, inflation, trade, and domestic investment were highly significant factors which influenced that unemployment in Nigeria. A similar study related to Jordan's economy was conducted by Alamro (2017). The results of this study concluded that trade liberalization had significant impact on GDP growth, productivity of the labor, and unemployment in Jordan.

Similarly, Raifu (2017) studied that contribution of trade liberalization and trade balance on Nigeria's rate of unemployment. He analyzed data from 1981 to 2014 and exposed that the trade openness negatively impacted the rate of unemployment both in the long and short run. The study also found that trade balance raised unemployment in the short run whereas it resulted in lowering unemployment in the long run. Bayar & Sasmaz (2017) studied the effects of local investment and FDI on the rate of unemployment in 21 emerging economies. They analyzed data from 1994 to 2014 and used panel data analysis. They concluded that the unemployment, FDI, and domestic investments were cointegrated. Hossain et al. (2018) explored the linkage between rate of unemployment and trade liberalization in Bangladesh. The study especially focused the linkage between rate of unemployment and public education investment. The outcomes revealed a significant relationship between trade liberalization and the rate of unemployment in Bangladesh. Similarly, the role of human capital investment and institutions was confirmed by Kausar & Sherazi (2017) in Pakistan.

The macroeconomic analysis regarding unemployment in the Arab world was done from 2000 to 2016 (Salama & Oláh, 2019). This analysis involved the indicators of unemployment, labor market, educational, macroeconomic stability, economic freedom, and the 2008 financial crisis. The findings confirmed the negative and substantial correlations between economic freedom and the overall rate of unemployment amongst male and female population of the Arab world. The overall rate of unemployment was not assessed be significantly affected by the 2008 financial crisis.

Cahyadin & Ratwianingsih (2020) analyzed the unemployment in ASEAN nations during 1980 and 2017. The results showed that external debt, rate of exchange and unemployment was related in the short run. Furthermore, there was an association among foreign debt, rate of exchange, and the rate of unemployment in a subset of ASEAN countries. Siddiqa (2021) examined the factors contributing to unemployment in developing nations. Data from the World Bank covering 10 specifically chosen developing nations from 2000 to 2019 was used. After utilizing the GMM model, the findings indicated that every variable had statistical significance. Unemployment was positively impacted by population and foreign debt, while GDP, inflation, remittances, currency rates, and spending on education negatively impacted it. Similar conclusion was drawn by Ahmad (2020) while studying the role of small, medium and large organization in Pakistan.

The relationship of energy consumption , FDI , urbanization and inflation with rate of unemployment was examined by in Malaysia (Borhan et al., 2023). The estimates from ARDL indicated that the energy consumption had negative impact in the short run whereas it had positive impact on unemployment in the long run. Tang & Liu (2024) studied how human and physical capital affected unemployment in 15 Asian nations. The estimates from augmented distributed lag model confirm strong and statistically significant long run association with both tangible and intangible capital with unemployment disparities among nations.

The existing studies proved the relationship described by the Okun's law and graphically represented the Phillips curve. The conclusion could be drawn that the rate of prevailing inflation and economic growth were the most important factors of unemployment. Different factors, for example, growth in population, capital formation, government spending, budget deficit, human capital, agriculture sector, labor force, and interest rate were the most significant internal factors of unemployment observed in the literature, while external debt, FDI, remittances, trade openness, exchange rate, and oil prices were the most significant internal factors of unemployment observed in the literature. The instant study examined the relative impact of economy’s internal and

external influencing factors of unemployment in Pakistan which is a significant contribution in the relevant literature.

3. Data and Research Methodology

3.1 Specification of Model

Based on literature review, the education, financial development, and inflation rate were included in the model as internal factors of prevailing unemployment in Pakistan whereas the FDI and trade openness were taken as external factors . The model's econometric form is as follows:

$$UNR_t = \beta_o + \beta_1 EDU_t + \beta_2 FD_t + \beta_3 TR_t + \beta_4 FDI_t + \beta_5 INF_t + u_t$$

Where, UNR = Rate of unemployment; FDI = Foreign Direct Investment; EDU = Education; FD = Financial Development; TR = Trade Openness; INF = Inflation Rate; and u_t = Error Term

3.2 Variables used in study

This study employed the rate of unemployment as dependable variable, while the secondary school enrollment, trade openness, financial development, foreign direct investment, and inflation rate were taken as independent variables. The description of the variables is as follows:

i Rate of unemployment

If someone is willing and capable of undertaking a work but does not have a paid position at present, that person is considered unemployed. The unemployed persons in the country's labor force in specific time is known as the rate of unemployment.

ii Education

The primary goal of attaining education is to provide people with the awareness, information and skills required by the workforce. Having access to top-notch education, particularly in the technical and vocational fields, may empower individuals by giving them employable, hands-on skills. Prioritizing skill development in education can greatly improve a person's employability (Riasat, et al., 2011; Danacica et al., 2023; Hajdari & Fetai, 2022). In this analysis, education is taken as an internal unemployment factor and measured using the secondary school enrolment.

iii Financial Development

Financial development results in better access to credit and lower borrowing rates. As a result, financial development guarantees that businesses may obtain credit, enhance productivity and create employment opportunities (Chen et al., 2021). This suggests that companies may make informed decisions related to investment, brag about their production efficiency, and boost the economy by accessing loans at comparatively low costs (Raifu, 2019). In this analysis, development in the financial sector was taken as an internal factor of unemployment. It was measured by using domestic credit to the private sector as a percent of Gross Domestic Product.

iv Inflation Rate

Inflation occurs when the supply of money in the economy expands at higher rate as compared with new commodities and services created within the economy. By permitting an increase in productivity and handling price excesses above labor cost with a constant markup factor, wage increase or decrease is linked with the fluctuation of the pricing of goods produced and services rendered (Phillips, 1958; Friedman, 1976). In contrast, a rising inflation rate can increase unemployment because it limits the purchasing power of the people and causes less savings; therefore, it aggregates demand and the investment levels in the economy may decline. This results in soaring unemployment in a country. In this analysis, the rate of inflation is taken as an internal unemployment factor and measured using CPI. Considering the preceding discussion, the rate of inflation is assumed to be significantly associated with the rate of unemployment in Pakistan.

v Foreign Direct Investment

The Foreign Direct Investment (FDI) has a significant impact on GDP growth in the economies of emerging nations. FDI has been found to induce technology transfer, job creation, and skills transfer in the host countries (Zeb et al., 2014). Therefore, FDI has been taken as an influencing factor on unemployment. The series of FDI inflows as percent of GDP in Pakistan was used in the instant study.

vi Trade Openness

The literature reveals that the trade opened has been frequently used as an influencing factor in the context of unemployment (Atif, et al., 2010; Felbermayr et al., 2011). The trade liberalization has been found to influence resource allocation, strengthen market competitiveness, and increase productivity which in turn is related with unemployment. Therefore, the trade openness has been measured by trade as percent of GDP in Pakistan for the instant study.

Table 1: Description of Variables

Variables Notations	Variables	Measurement of variables used in the study
A) Dependent Variable		
UNR	Rate of unemployment	Annualized Percentage value of unemployed people to the total labor force
B) Independent Variables		
EDU	Education	Secondary school enrolment
FD	Financial Development	Domestic credit to the private sector calculated as a percentage of GDP
TR	Trade Openness	Trade taken as a percentage of GDP
FDI	Foreign Direct Investment	FDI inflows taken as a percentage of GDP
INF	Inflation Rate	Consumer price index (Annual Percent)

The annual data series from 1990 to 2023 have been used in the instant study, however, the data was derived from the Database of Word Bank i.e. World Development Indicators (WDI).

3.3 Econometric Approaches

The detail of econometric approaches used in the instant study are as following:

3.3.1 Correlation Matrix

The Correlation Coefficient (*r*) describes how strongly the variables are associated with each other in a certain correlation analysis. The value of *r* lies between -1 and 1. Positive and negative perfect correlations are represented by the values 1 and -1, respectively. The value of correlation coefficient near to -1 indicates a weak correlation, whereas its value closer to +1 shows a stronger linear association between the variables. Lastly, the value of *r* equals one indicating a perfect correlation between variables.

3.3.2 Unit Root Analysis

In the econometric analysis of time series data, it is crucial to estimate the integration level of variables. So, Unit root checking is the first and most crucial stage in time series analysis, followed by checking and identifying each model variable's integration sequence. There are many ways to determine the unit root, including the PP, ADF, and DF tests. The current study employed ADF and Philip Peron test to check the variables' stationary. Schwartz Bayesian Criterion (SBC) or by Akaike Information Criterion (AIC) can be consulted for estimation of the lag length of the extra term. To

account for the restrictive nature of error process developed by Phillips and Peron (1988), PP test, a modification of the ADF test, was used.

Based on the ADF and PP unit root tests, the study selected an econometric technique among OLS, cointegration and ARDL. The econometric model selection depends upon the integration order of the variables. Table 2 indicates the integration order and selection econometric technique procedure.

Table 2: Order of Integration and Selection of Technique

Sr. No.	Order of Integration	Selected Technique
1	I (0) if the variables are stationary at level	OLS Model
2	I (0) and I (1) if the variables are at mixed order of integration	ARDL Model
3	I (1) if the variables are stationary at 1st difference	Johansen Co-integration

3.3.3 Cointegration Analysis

The key purpose of the cointegration order is to evaluate the relation between the data series under consideration in the long-run (Johansen & Juselius, 1990). This study applied the ARDL bound test to analyze the long-run cointegration between unemployment, inflation rate, FDI, trade openness, education, and financial development.

3.3.4 ARDL Model

The relationships between variables over the long and short run is evaluated by ARDL model (Pesaran et al., 1999). ARDL model is the extension of the DL model. If the order of integration in all the different variables, is I(0) and I (1), then ARDL will be utilized to evaluate long-run and short-run associations with trade openness, inflation, FDI, financial development and education. The econometric form of the ARDL model along with short-run error correction is given as follows:

$$\Delta UNR = \beta_0 + \sum_{I=1}^{n} \alpha_1 \Delta EDU_{t-j} + \sum_{I=0}^{n} \alpha_2 \Delta FD_{t-j} + \sum_{I=0}^{n} \alpha_3 \Delta TR_{t-j} + \sum_{I=0}^{n} \alpha_4 \Delta FDI_{t-j} + \sum_{I=0}^{n} \alpha_5 \Delta INF_{t-j} + \nu_1 ECM_{t-1} + u_{1t}$$

In the above equation, the α's = short-run parameters whereas ECM = error correction term.

4. Data Analysis

4.1 Descriptive statistics

The descriptive analysis of variables in the form of mean value of data, minimum and maximum value, and standard deviation test are explained. Table 3 elucidates the outcomes. The results showed that the mean value of the rate of unemployment was 1.166 and standard deviation was 0.927.

Table 3: Descriptive Statistics

Variables	Mean	Max.	Min.	S.D.
UNR	1.166	2.058	-0.916	0.927
EDU	3.227	3.737	2.477	0.359
FD	3.022	3.358	2.687	0.222
TR	3.451	3.651	3.207	0.130
FDI	20.817	22.444	19.318	0.883
INF	2.048	3.010	0.928	0.544

4.2 Correlation Analysis

The extent of the link between variables correlation was revealed by the analysis of correlation. Table 4 reports the outcomes of the correlation analysis. It was found that the variable rate of unemployment was negatively correlated to education (-0.277), financial development (-0.218), trade openness (-0.244), and foreign direct investment (-0.593). In contrast, the rate of unemployment was correlated to the inflation rate in the positive way (0.324). This analysis also implied that none of the pairs were highly correlated, so no issue of multicollinearity in the data was observed.

Table 4: Correlation Analysis

Variables	UNR	EDU	FD	TR	FDI	INF
UNR	1.000					
EDU	-0.277	1.000				
FD	-0.218	-0.693	1.000			
TR	-0.244	-0.506	0.632	1.000		
FDI	-0.593	0.653	-0.196	-0.242	1.000	
INF	0.324	0.015	0.232	0.616	0.149	1.000

4.3 Unit Root Test

The outcomes of ADF test given in Table 5 exhibited that the variables of education *(Coefficient = -3.245; Prob. = 0.019)* and inflation rate *(Coefficient = -4.576; Prob. = 0.006)* were integrated at a level while the variables rate of unemployment *(Coefficient = -5.466; Prob. = 0.000)*, financial development *(Coefficient = -4.433; Prob. = 0.001)*, trade openness *(Coefficient = -5.286; Prob. = 0.000)*, and foreign direct investment *(Coefficient = -4.491; Prob. = 0.001)* were integrated at 1st order. Therefore, the mixed integration order confirms that, for the long-run estimation of parameters, the ARDL model was imperative.

Table 5: Unit Root Analysis

Variable	Level		1st Difference		Results
	t-test	Prob.	t-test	Prob.	
UNR	-1.8116	0.3683	-5.466	0.000	I(1)
EDU	-3.245	0.019	-6.1546	0.000	I(0)
FD	-0.6528	0.8445	-4.433	0.001	I(1)
TR	-2.0508	0.2649	-5.286	0.000	I(1)
FDI	-1.9107	0.3234	-4.491	0.001	I(1)
INF	-4.576	0.006	-1.9286	0.3155	I(0)

4.4 Bound Test Analysis

The outcomes of the bound test are provided in the Table 6. It can be seen that the value of F-statistic (11.2514) was much beyond the upper and lower bound values; therefore, it was presumed that long-run cointegration occurred among independent variables of the model.

Table 6: Bound Test Estimates

H_0: No association existed among variables				
Test Statistic	**Value**	**Significance**	**I(0)**	**I(1)**
F-statistic	11.2514	10%	2.08	3.00
k	5	5%	2.39	3.38
		2.5%	2.7	3.73
		1%	3.06	4.15

4.5 ARDL Long-Run Analysis

The long-run estimates of ARDL showed that the variables of secondary school enrolment, FD, trade openness, and FDI were negatively related to the unemployment and this relation was also found to be significant, whereas the inflation rate was evaluated to be associated with the unemployment in a positive way in Pakistan.

Table 7: ARDL Analysis (Long-Run)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EDU	-1.3929	0.5064	-2.7504	0.0132
FD	-2.6379	0.6317	-4.1759	0.0006
TR	-5.6748	1.4063	-4.0351	0.0008
FDI	-0.9281	0.1555	-5.9659	0.0000
INF	1.0451	0.3122	3.3475	0.0036
C	50.5407	5.5182	9.1588	0.0000

Analyzing first the relation between education and rate of unemployment, it was found that education as proxies by secondary school enrollment was observed to be *-1.3929*. The coefficient of education suggested that as it increased by 01 percentage point, the rate of unemployment declined by -1.3929 percent points. It implied that education enhanced the employment opportunities for educated individuals and led to a declining rate of unemployment. These results had already confirmed by Danacica et al., (2023).

Similarly, financial development is imperative to reduce the rate of unemployment. Therefore, it was found that financial development was negatively *(Coefficient = -2.6379)* and significantly associated with unemployment in Pakistan's economy. The value of the coefficient of FD suggested that as it increased by 01 percentage point, the rate of unemployment declined by -2.6379 percentage points. The outcome supported the economic theory, which contended that increased the private sector credit encouraged investment and employment growth in a country. The business community's ability to obtain credit at low rates for financing was essential to its continued existence and growth. It also fostered innovation, particularly for SMEs, which accounted for a significant portion of the region's employment (Mukisa, 2020); this led to improve the country's employment rate. These results were also found to be in line with Raifu et al., (2023).

Trade openness was also essential to increase economic activities and employment rates. It was found that trade openness was inversely related to the rate of unemployment in Pakistan. The value of the coefficient of trade openness suggested that as it increased by 01 percentage point, the rate of unemployment declined by -5.6748 percentage points. The outcome was in line with the Hecksher–Ohlin model, which hold that demand for labor rose when a country became more open, especially in developing countries like Pakistan, where labor was plentiful. These results were analogous to the findings of Anjum & Perviz (2016), Mazher et al., (2020), Awad (2019).

The FDI was essential to promote a country's economic growth and employment opportunities. It was found that FDI was inversely associated with rate of unemployment in Pakistan. The coefficient of FDI suggested that as it increased by 01 percentage point

then, the rate of unemployment declined by -0.9281 percentage points. The association made sense because more FDI inflows, particularly when a foreign business establishes itself in an economy, led to more job possibilities. Additionally, FDI increased human capital, enhanced managerial abilities, and helped businesses grow by giving domestic investors technological know-how. This led to increased commercial activity, creating more economic jobs (Mazher et al., 2020). These outcomes were also confirmed by Ahmad & Khan (2018), Hashmat (2018), Maijama'a et al. (2019).

Lastly, the rate of inflation can directly or indirectly impact the unemployment in a country. However, the outcomes showed that the inflation rate was positively and significantly related to the rate of unemployment in Pakistan. The value of the coefficient of inflation suggested that as it increased by 01 percent point, the rate of unemployment also increased by 1.0451 percentage points. It implied that high inflation reduced people's purchasing power; therefore, aggregate demand declined in the country, which decreased the production process and led to declining employment opportunities. Similarly, higher inflation levels reduced people's savings and led to declining the investment level in a country, which also led to an increase in the unemployment level in a country. Currently, Pakistan's economy is facing both phenomena. These results were also found by Hashmat (2018).

4.6 Error Correction Model

The results of ARDL short-run ECM showed that secondary school enrolment, financial development, and INF increased unemployment in the short-run, while trade openness was inversely related to the UNR in the short-run in Pakistan. However, the ECM was negative *(Coefficient = -0.8389)* and statistically significant *(t-stat. = -10.2476; Prob. = 0.0000)*. It implied that at 83.39 percent, the short-run errors were corrected to move toward long-run.

Table 8: ARDL Analysis (Short-Run)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(EDU)	0.1053	0.3168	0.3324	0.7434
D(FD)	1.7071	0.6920	2.4666	0.0239
D(TR)	-2.7363	0.6604	-4.1429	0.0006
D(INF)	-0.3172	0.1355	-2.3400	0.0310
ECM(-1)	-0.8389	0.0818	-10.2476	0.0000

4.7 Model Diagnostic Analysis

The estimates of the model diagnostic tests are provided in the Table 9. The LM test *(F-test = 1.9813; Prob. = 0.1256)* depicted that there was no issue of autocorrelation in

a model, Breusch-Pagan-Godfrey *(F-test = 0.7018; Prob. =0.7310)* implied that heteroskedasticity *(F-test = 1.0843; Prob. = 0.3123)* was not presented in a model and Ramsey Reset test suggested that the model was specified correctly.

Table 9: Model Diagnostic Analysis

Underling Issue	Diagnostic Test	F-Test	Prob.	Outcome
Autocorrelation	LM Test	1.9813	0.1256	Not Found
Heteroskedasticity	Breusch-Pagan-Godfrey	0.7018	0.7310	Not Found
Misspecification	Ramsey RESET	1.0843	0.3123	Correctly Specified

Figure 1 displays the outcomes of the Jarque-Bera test to analyze residual normality of the model. It was observed that the value of the Jarque-Bera test (1.581681) turns out to be statistically insignificant. It implied that the null hypothesis of residuals was normally distributed and was accepted.

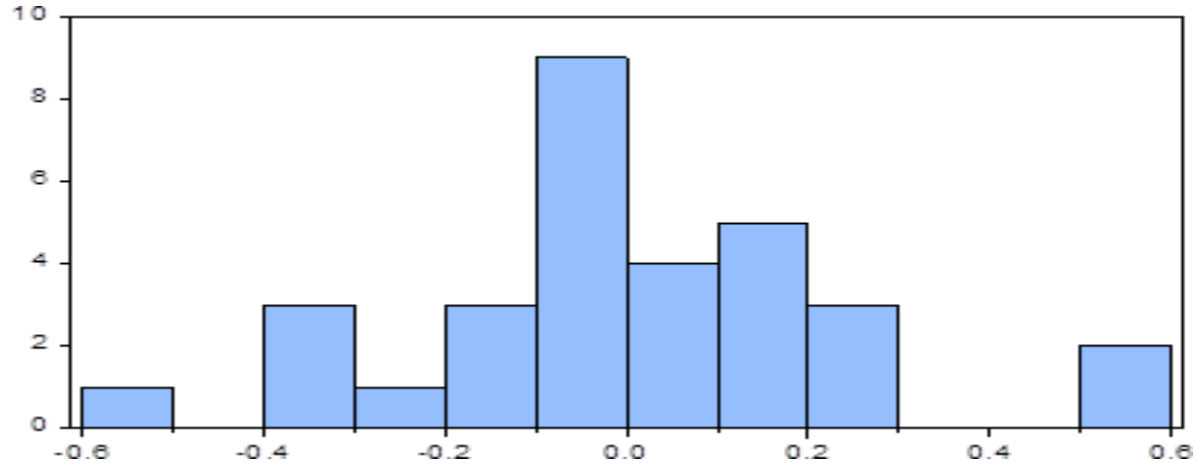

Figure 1 Residuals Normality Test

Lastly, recursive residuals of CUSUM and SUSUM of squares of OLS were utilized to check the dynamic stability of the model. Figure 2 shows that the recursive residuals were within the critical lines at a 5 percent significance level. Therefore, it was concluded that the model was dynamically stable.

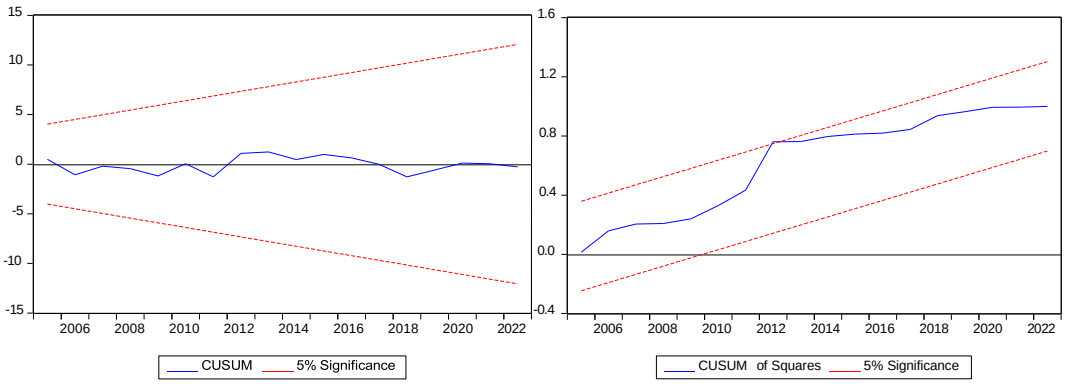

Figure 2 Test of Model Stability

5. Conclusions

This study analyzed the relative internal and external factors of the rate of unemployment in Pakistan. The correlation analysis showed that rate of unemployment was negatively correlated to education, financial development, trade openness, and FDI. In contrast, the rate of unemployment was correlated to the inflation rate in a positive manner. This analysis also implied that none of the pairs were highly correlated, so it was suggested that there was no issue of multicollinearity in the data. The unit root analysis confirms that the variables education and inflation rate were integrated at a level while the variables rate of unemployment, financial development, trade openness, and FDI were integrated at 1st order. Therefore, the mixed integration order confirmed that, for the long-run estimation of variables, the ARDL model was imperative. Bound test analysis confirms that long-run cointegration occurred among independent variables in a model.

The ARDL long-run analysis showed that the variables of secondary school enrolment, financial development, trade openness, and FDI were negatively and significantly related to the rate of unemployment, whereas the inflation rate was positively and significantly related to the rate of unemployment in Pakistan. In contrast, the short-run results showed that secondary school enrollment, financial development, and inflation rate increased unemployment in the short-run, while trade openness was negatively related to the rate of unemployment in Pakistan. The ECM model implied that at 83.39 percent, the short-run errors were corrected to move toward long-run equilibrium. Lastly, different model diagnostic test was applied, such as the LM test shows that there was no problem of autocorrelation in a model, Breusch-Pagan-Godfrey implied that heteroskedasticity was not presented in a model and the Ramsey Reset test suggest that the model was specified correctly. The Jarque-Bera test implied that the residuals were normally distributed and OSL recursive analysis showed that the model was dynamically stable. Considering the findings, it was concluded that internal factors

such as education and financial development were crucial to reducing Pakistan's rate of unemployment. In contrast, the variable inflation rate was increasing the unemployment level in Pakistan. Considering the external factors of unemployment, it was concluded that trade openness and FDI were crucial in declining the rate of unemployment in Pakistan.

6. Policy Recommendations

Keeping in view the outcomes, the following policy recommendations are suggested to decrease the rate of unemployment in Pakistan:

i. The instant study shows that the financial development is declining the rate of unemployment in Pakistan; therefore, it is imperative to increase credit availability to the private sector. This necessitates taking steps to improve loan availability as well as supply. Credit guarantee programs and extending insurance to high-risk industries are critical from a supply perspective.

ii. The results also show that foreign direct investment negatively influences Pakistan's rate of unemployment; therefore, it is suggested that government of Pakistan should encourage foreign direct investment inflows by providing especial incentives to foreign investors. Better provision of infrastructure, maintained tax rates and better law and order situation should be ensured to enhance FDI inflows; in this way, unemployment can be reduced in Pakistan.

iii. The outcomes also show that trade openness negatively influences the rate of unemployment in Pakistan; therefore, it is suggested that trade should be promoted to decline the rate of unemployment in Pakistan.

iv. It is also suggested that the government should promote technical education in a country because the skilled workforce have more employment opportunities.

v. Lastly, the inflation rate in a country should be controlled using monetary measures. A single digit of inflation should be maintained to encourage economic activities and discourage unemployment in a country.

7. Funding/data availability and conflict of interest

The instant research was conducted from authors' own resources and no external funding was sought. All the data was derived from the Database of World Bank i.e. World Development Indicators (WDI). The authors declare that there is not any conflict of interest in the instant research study.

8. Limitations of the study:

Instant study has used the data regarding education, financial development, trade openness, FDI and inflation rate. However, the factors such as geographical differences, ethnic variation, political instability, volatile market condition, and ease of doing business can be considered for more comprehensive analysis of the issue of unemployment in Pakistan. Moreover, the share of informal sector is comparatively large in Pakistan's economy, therefore, official data may not represent the true statistics. This gap could be bridged by incorporating data collected by survey research.

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