

FACTORS EFFECTING UNEMPLOYMENT IN PAKISTAN: A TIME SERIES ANALYSIS

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ABSTRACT

Macroeconomic indicators are considered as the most crucial factors affecting the economic conditions as well as other important sectors of a country. Similarly policy framework plays a pivotal role in shaping the impact of these macroeconomic indicators on economic activities of a country. Proactive policies that encourage and protect these indicators can maximize the positive outcomes. Additionally, macroeconomic stability is essential, as stable economic environment attracts further investments, fostering a cycle of sustained job growth. The study aimed to identify the factors influencing unemployment (UNMP) in Pakistan. For this reason, variables including, Foreign Direct Investment (FDI), Foreign Remittances (RR), Gross Domestic Product (GDP), Trade (TR), Exchange Rate (EXCH), Inflation rate (INFL) were taken as independent variables to analyzed the impact of these variables on UNMP. Secondary data from 1971-2020 is taken from World Development Indicators (WDI) and regression model is analyzed. The results indicate that FDI, GDP, TR and RR have a significant impact on UNMP. More precisely, INFL is found negatively associated with UNMP and a positive but insignificant association of EXCH is revealed.

INTRODUCTION

In the global economic landscape, Pakistan stands as a dynamic player facing a multitude of challenges and opportunities. Unemployment, a critical socio-economic concern, has garnered increasing attention as policymakers and scholars strive to comprehend its intricate determinants and formulate effective mitigation strategies. As Pakistan navigates through a landscape of evolving global economic dynamics (Bibi et al., 2019), understanding the impact of these variables on unemployment becomes imperative for informed policy formulation and sustainable economic development. Furthermore, globalization engendered a framework of mutual interdependence among nations world-wide, rendering none entirely self-reliant in the production of all goods and services (Astuti et al., 2021). Consequently, countries have forged interconnections through free trade to fulfill their respective needs (Raza et al., 2021; Raza et al., 2020). This interconnectedness, facilitated by globalization and the accessibility of

foreign capital, has bestowed numerous advantages and developmental opportunities upon developing nations. Foremost among these advantages is the influx of capital in the form of FDI (Arain et al., 2021).

Furthermore, FDI plays a crucial role in enhancing the efficiency of resources, enhancing the quality of products, and increasing the exports of the host country by enabling the transfer of advanced and sophisticated technology from developed to developing nations (Farooq et al., 2021). This, thus, acts as a stimulant for economic expansion (Raza et al., 2023; Degong et al., 2023). The inflow of FDI also plays a role in the modernization of different sectors in developing nations, promoting improved management practices and technical progress, therefore increasing levels of employment (Raza et al., 2021; Ramzan, 2021). Similar to many other developing nations, attracting FDI has consistently ranked as a top priority for Pakistan. However, the

country has faced challenges in attracting a substantial volume of FDI due to incompatible policies, a judiciary system perceived as lacking, political instability, and macroeconomic discrepancies (Naeem, 2021; Aziz et al., 2023). The increasing global economic requirements have underscored the significance of FDI as a developmental catalyst for foreign capital flows. Despite earnest efforts, Pakistan has struggled to establish itself as a secure and appealing destination for foreign investors. Consequently, there has been a fluctuating trend in FDI inflows to Pakistan over the study's sample period.

Conversely, foreign remittances constitute a significant mechanism for channeling international assets and resources from developed to developing countries (Mazher et al., 2020). While the theoretical impact of remittances may be subject to debate, their tangible effects on economic development are notably positive (Liu et al., 2020). Overall, the influx of foreign remittances contributes to heightened economic development and poverty reduction by bolstering the national income of the recipient country. This is achieved through the alleviation of credit constraints, expansion of investment and employment opportunities, and enhancement of human capital via improvements in education and healthcare facilities (Mazher et al., 2020; Raza et al., 2021). In the broader context, the significance of foreign remittances for developing nations cannot be overlooked, as they have evolved into the second-largest source of foreign financing after FDI in these economies (Pal et al., 2022).

On the contrary, the influx of remittances has shown a consistent upward trajectory over the past three decades. However, the proportion of remittance income relative to GDP has exhibited fluctuating patterns over the last four decades. On top of that, Unemployment is a serious problem of developing as well as developed economies (Ahmed, 2020). Presently, Pakistan grapples with various challenges, and unemployment stands out as a prominent issue (Khan et al., 2022). Despite the talent, intelligence, and skills possessed by many Pakistani graduates, employment opportunities remain elusive (Mazher et al., 2020). The unemployment concern, which was less severe during the 1970s and 1980s, has become alarming since the 1990s, even with the adoption of liberal and open policies.

There is still need of comprehensive analysis by adding all six crucial macro-economic factors such

as FDI, GDP, TR, RR, EXCH and INFL that effect the UNMP within the context of Pakistan. This research seeks to contribute to the existing body of knowledge by providing a comprehensive analysis of the multifaceted connections between FDI, GDP, EXCH, TR, RR and unemployment, thereby offering valuable insights for policymakers, researchers, and practitioners alike. An extensive review of the existing literature reveals a significant gap in research focused on investigating the comparative significance of FDI and remittances in influencing unemployment dynamics within the framework of Pakistan. Consequently, this study marks the pioneering initiative in addressing this gap. Furthermore, a notable contribution of this research lies in the incorporation of exports into the analysis, a facet hitherto overlooked in prior literature addressing the matter of unemployment in Pakistan.

Literature Review

Foreign Direct Investment

The substantial rise in unemployment levels poses a significant challenge for developing nations. While extensive literature exists on the analysis of the association between FDI and employment, there is a notable scarcity of research examining the impact of foreign investment on unemployment (Ahmed, 2020; Khan et al., 2022; Mazher et al., 2020). FDI has the potential to significantly influence unemployment dynamics in Pakistan (Shabnum & Malik, 2023). One of the primary mechanisms through which FDI impacts unemployment is job creation (Shabnum & Malik, 2023; Siddiqa, 2021). As foreign investors establish or expand their operations, particularly in sectors like manufacturing, services, and technology, there is a direct surge in demand for both skilled and unskilled labor (Liu et al., 2020). The infusion of FDI can also lead to the transfer of advanced technology and managerial expertise, contributing to the creation of employment opportunities that require a diverse set of skills (Ramzan, 2021).

Furthermore, the positive impact of FDI on unemployment extends beyond the immediate sectors receiving foreign investment. Spillover effects play a crucial role as FDI fosters the development of local supply chains and supports related industries (Ramzan, 2021). This ripple effect can generate additional jobs in supporting sectors, amplifying the overall employment impact. The enhancement of skills among the local workforce is another indirect benefit, making the labor force more

competitive and adaptable to evolving market demands (Safdar et al., 2021).

However, it is crucial to consider potential downsides and challenges associated with FDI (Shafiq et al., 2021). Dependence on foreign investment may expose the economy to external shocks, and economic downturns or changes in global economic conditions could undermine the stability of jobs created through FDI (Katircioglu, 2009; Raza et al., 2021). The distribution of FDI across different sectors is also a critical factor, as concentration in capital-intensive industries may limit the positive impact on job creation compared to sectors with a higher labor-intensive nature (Ramzan, 2021).

Foreign Remittances

Remittances can serve as a catalyst for entrepreneurship and small business development. Families receiving remittances may channel these funds into starting new ventures or expanding existing businesses (Liu et al., 2020). This entrepreneurial activity at the grassroots level has the potential to create job opportunities within local communities, contributing to a reduction in unemployment (Mazher et al., 2020; Raza et al., 2020). The impact of remittances on employment extends beyond individual households to the broader economy. Increased consumer spending, fueled by remittance inflows, can stimulate economic activity. As demand rises, businesses may respond by expanding operations and hiring additional workers, further influencing unemployment rates positively (Arain et al., 2021). Remittances also play a role in skill enhancement and education. Families may allocate a portion of the funds towards educational pursuits and vocational training for their members. As individuals gain new skills and qualifications, they become more competitive in the job market, potentially reducing unemployment rates, particularly in sectors requiring specialized skills (Bird & Choi, 2020).

Likewise, foreign remittances play a crucial role in shaping the employment landscape in Pakistan. As a steady influx of funds from expatriate workers, remittances serve as a critical source of income for recipient households. This financial support, often consistent and reliable, acts as a buffer against economic uncertainties, potentially reducing the pressure on family members to actively seek

immediate employment, especially in lower-skilled or informal sectors (Raza et al., 2023).

At the national level, the cumulative effect of remittances is noteworthy. The foreign exchange earnings from remittances contribute significantly to the country's reserves (GITHAIGA, 2020; Waheed et al., 2023). A robust reserve position not only ensures stability in the external sector but can also enhance the country's attractiveness to foreign investors, potentially leading to additional job creation. In this way, the impact of foreign remittances on unemployment in Pakistan is multifaceted, influencing both household-level decisions and broader economic dynamics.

Inflation Rate

Inflation serves as a measure of economic uncertainty, as defined in the world development indicator by the World Bank in 2014. It is calculated using the consumer price index, which reflects the annual percentage change in the average cost for consumers to acquire a basket of goods and services over a specific period of time (Ahmed, 2020). In Pakistan, inflation has been a persistent economic challenge, characterized by fluctuations influenced by various factors (Ali et al., 2020). Over the past years, the country has grappled with a complex interplay of supply and demand dynamics, monetary policy decisions, energy price volatility, and global economic conditions (Khan et al., 2022). Factors such as changes in oil prices, which impact production costs, coupled with the sensitivity of the economy to global commodity price movements, contribute significantly to inflationary pressures (Shabnum & Malik, 2023). Addressing inflationary challenges requires a comprehensive approach that considers both domestic and global economic factors, ensuring stability and resilience in Pakistan's economic framework.

Exchange Rate

The exchange rate is the value of one currency expressed in terms of another currency (Ullah et al., 2021). Exchange rates are commonly provided for all major currencies, although sometimes a significant currency, such as the dollar, is used as a benchmark for expressing and comparing rates (Degong et al., 2023; Waheed et al., 2023). The exchange rate in Pakistan has been subject to fluctuations influenced by a range of economic factors (Naeem, 2021). We believe high exchange

rates would add to the rate of UNMP. Because a country which is dependent on imports, or international trade would highly be impacted by the fluctuations in exchange rates. Higher fluctuations in EXCH rate affect the industry which leads to UNMP.

Gross Domestic Product

GDP is considered as one of the indicators for economic measurement (Khan et al., 2022; Ashraf et al., 2023). It presents the total value of whatever produced and offered within the boundaries of Pakistan (Wang et al., 2022). The country has experienced periods of economic growth, driven by sectors such as agriculture, services, and remittances, but has also faced setbacks due to factors like energy shortages, political instability, and security concerns (Aziz et al., 2023; Abbasi et al., 2021; Islam et al., 2007). The link between GDP and unemployment in Pakistan is significant, as economic growth is a key determinant of job creation. When GDP expands, businesses tend to thrive, leading to increased demand for labor and subsequently reducing unemployment.

Trade

Trade is a pivotal economic factor influencing unemployment in Pakistan through various channels (Amin et al., 2020). A surge in exports tends to stimulate economic growth and create job opportunities in export-oriented industries, contributing positively to employment rates (Safdar et al., 2021). Conversely, heightened import competition may pose challenges to domestic industries, potentially leading to job losses if local businesses struggle to compete with cheaper imported goods (Samsor, 2021; Azam and Raza, 2022). The impact extends beyond primary industries, affecting supporting sectors like transportation and logistics. Moreover, global economic conditions, particularly during downturns, can influence the demand for exports and consequently impact industries reliant on international markets.

Empirical Evidence

Empirical evidence also shows that FDI and Foreign Remittances have a significant role in reducing unemployment. For example, the study done by León-Ledesma and Piracha, (2001) employed annual time series data for eleven Central and East European nations to examine the impact of remittances on

employment during the period of 1990 to 1999. The study's findings provide solid evidence of a positive correlation between remittances and employment. In the context of Pakistan, Habib and Sarwar (2013) conducted an investigation into the influence of FDI and other macroeconomic variables, including exchange rate and GDP per capita, on employment. Employing the Johansen cointegration technique and utilizing data spanning from 1970 to 2011, the study revealed a positive impact of both FDI and GDP per capita on employment, while the exchange rate exhibited a negative correlation with employment. Maqbool et al. (2013) investigated the correlation between unemployment, FDI, GDP, population, inflation, and external debt in Pakistan. They analyzed annual time series data from 1976 to 2012. The analysis found a negative correlation between inflation, GDP, FDI, external debt, and unemployment, as well as a positive correlation between population growth and unemployment. Conversely, Shaari et al. (2014) focused on estimating the impact of FDI on unemployment and economic growth in Malaysia spanning the years 1980 to 2007, employing the Ordinary Least Squares (OLS) technique. Their study reports a statistically significant negative relationship between FDI and unemployment, along with a positive and significant association between FDI and GDP. The conclusion drawn is that the presence of foreign companies in a specific country can generate more employment opportunities, leading to a reduction in the overall number of unemployed individuals. Additional studies, such as those conducted by Bayar and Özel, (2014) and Stamatiou and Dritsakis, (2014) both observe a direct correlation between FDI and unemployment rates in Turkey and Greece, respectively.

Zeb et al. (2014) explored the interplay between FDI, corruption, population size, inflation, and unemployment, covering the period from 1995 to 2011. Their estimation technique, utilizing OLS, revealed that FDI negatively influences unemployment. Additionally, the study found a significant negative relationship between inflation and unemployment, while corruption and population growth were positively associated with unemployment. Urama et al. (2017) employed propensity score matching and a log-linear regression model to investigate the correlation between international migrant remittances and labor supply in Nigeria. Their research indicated that the

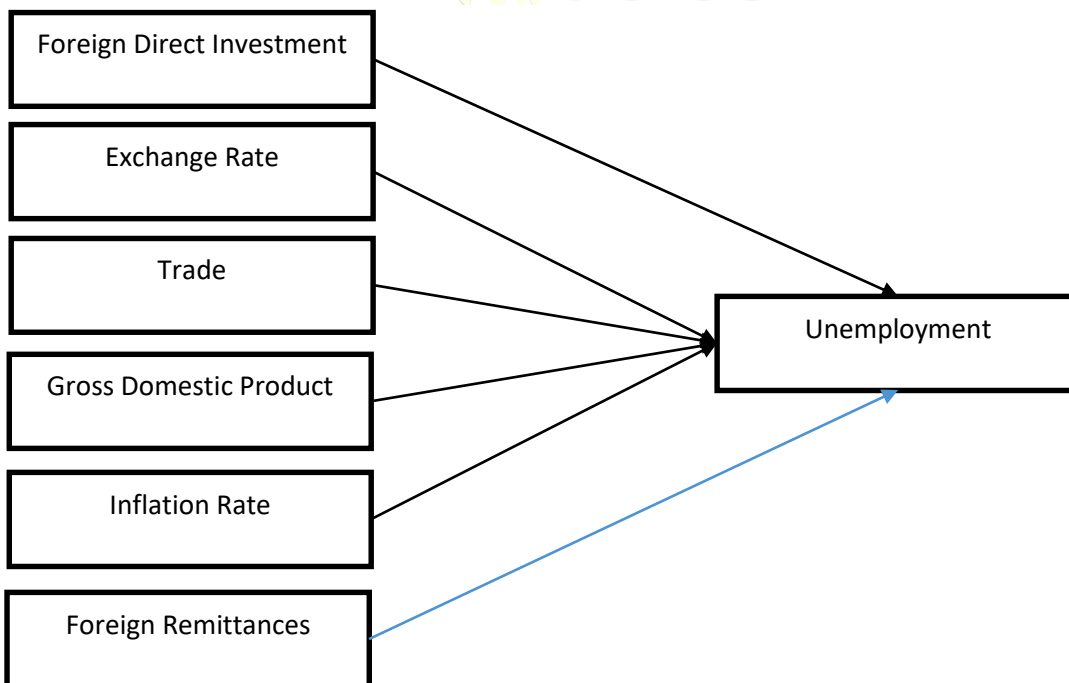
receipt of remittances adversely affects individuals who are self-employed in agriculture, teenagers, and the elderly. In a similar timeframe from 1981 to 2010, Kamran et al. (2014) investigated the sources of unemployment in Pakistan, employing the Ordinary Least Squares (OLS) technique, and reported a positive relationship between FDI and unemployment.

From a theoretical perspective on FDI, there is a prevalent belief that Greenfield investment holds the capacity to create the highest number of employment opportunities within an economy, as highlighted by Hisarciklilar et al. (2014). In contrast, Stark (1991) observes the absence of a comprehensive theory of remittances in the existing literature. Nevertheless, the theory of the new economics of labor migration sheds light on the influence of remittances on the economy, suggesting that remittances can positively affect the macroeconomic development of the home country, as articulated by Taylor (1999). Additionally, according to the search-matching model of the labor market developed by Drinkwater et al. (2006), foreign remittances may have two opposing effects on the unemployment rate. Firstly, for risk-averse workers, remittances may increase

search utility, and their impact on the unemployment rate can be both positive and negative. Secondly, remittances may alleviate credit constraints faced by firms, leading to an increase in the capital stock towards its optimal level and a subsequent reduction in the unemployment rate. However, it is emphasized that when remittance income reaches a sufficiently high level, the optimal capital stock is attained, and any further increase primarily influences the search effect.

Okeke, (2021) conducted a study in Nigeria to examine the influence of overseas remittances on private investment. Utilizing Ordinary Least Squares analysis on time series data from World Development Indicators, the findings revealed that remittances have a positive impact on private investment in Nigeria. Additionally, it was observed that previous investment has a significant role in determining present investment levels. Utilizing annual data spanning from 1983 to 2010, Khan et al. (2023) conducted an examination into the determinants of unemployment in Pakistan. The study's findings suggest that FDI and population growth exert a negative impact on unemployment.

Framework



Methodology

The current study intended to check the Factors effecting unemployment in Pakistan which is based on quantitative and explanatory research by using deductive approach. In order to describe the characteristics of variables the descriptive study is used based on past literature which is also applied in nature. Data has been collected from the period of 1971–2020 as a secondary source based on time series data. World development indicators has been used for data collection and data was managed by excel sheet in log form for analysis. Eviews software is used to get the results of the study as an analytical tool by applying different tests and models to make it more reliable and accurate results e.g. descriptive statistics, correlation matrix, unit root test, diagnostic tests (Heteroskedasticity Test: Breusch-Pagan-

Godfrey, Breusch-Godfrey Serial Correlation LM Test) and regression analysis.

Model Specification

$$UNEP_i = \beta_0 + \beta_1GDP_i + \beta_2FDI_i + \beta_3TR_i + \beta_4INFL_i + \beta_5RR_i + \beta_6EXCH + \varepsilon_i$$

Where:

- UNEP = Unemployment Rate
- B₀= Refers to each entity's unidentified intercept
- GDP = Gross Domestic Product
- FDI = Foreign Direct Investment Inflow
- TR = Trade
- INFL = Inflation
- REMI = Remittance Rate
- EXCH = Exchange Rate
- ε = Error Term

Table: 1 Measurement of Variables

Variables	Description	Unit	Source
Dependent Variable			
Unemployment	UNEMP	Unemployment (% of labor force)	WDI, 2023
Independent Variables			
GDP Per Capita	GDP	GDP growth (annual %)	WDI, 2023
Inflation	INFL	Growth Rate of Consumer Price Index (CPI)	WDI, 2023
Exchange Rate	EXCH		WDI, 2023
Remittance Received	RR	Foreign Remittances (% of GDP)	WDI, 2023
Trade	TR	imports plus exports in US Dollars	WDI, 2023
Foreign Direct Investment Inflow	FDI	FDI, net inflows (% of GDP)	WDI, 2023

Results of the Study

Descriptive statistics give the basic summaries of the data of the variables under consideration. These statistics are used to describe the characteristics of data. Table 2 shows the results of the descriptive statistic in detail. Table 2 represents the detailed investigation of the variables, which includes 50 observations from 1971 to 2020. It can be seen that the mean value of unemployment is 0.76 with a standard deviation (SD) of 2.70 and maximum and minimum values of 2.05 and -0.92 respectively. The calculated statistics of Jarque–Bera and corresponding p-values are used for testing the normality assumption. It demonstrates that the residuals of all variables (FDI, INFL, TR, RR, GDP and Unemployment) are not normally distributed. The null hypothesis of the normality test is that residuals are normally distributed, while the probability value is more than 5%. Subsequently, we acknowledge the alternative hypothesis that residuals are not normally

distributed, and still, we can accept the model. The mean value of the FDI is -0.74 with an SD of 1.11 and maximum as well as minimum values of 1.2 and -4.6 respectively and the rest of variables figures are mentioned below.

It also demonstrates disparities in skewness and kurtosis suggesting deviations from normal distributions for multiple variables. The presence of negative skewness and high kurtosis in the INFL indicates a distribution that is skewed to the left, with heavy tails and an evident it's highest. The distribution of FDI exhibits negative skewness and high kurtosis, suggesting a distribution that is skewed to the left with large tails. The EXCH displays a distribution that is fairly balanced and has a moderate level of kurtosis. The variables of UNMP and TR exhibit negative skewness and strong kurtosis, indicating that their distributions are left-skewed with heavy tails.

Table 2: Descriptive Statistic

	GDP	FDI	EXCH	INFL	RR	TR	UNMP
Mean	9.6499	0.7435	3.4782	2.0702	21.7698	3.4372	1.0841
Median	9.6704	0.5466	3.5201	2.1611	21.4762	3.4844	1.3712
Maximum	12.1448	1.2997	5.0865	3.6509	23.9851	3.6506	2.0563
Minimum	6.7455	0.6696	1.5606	-0.9157	19.8359	2.7613	-0.9291
Std. Dev.	1.6175	1.1168	0.9458	0.6955	1.2064	0.1669	0.7661
Skewness	-0.0748	-1.0362	-0.0932	-1.3402	0.2424	-2.0036	-1.1823
Kurtosis	1.8232	4.9536	1.7322	8.4392	2.2031	8.3968	3.5608
Jarque-Bera	2.9314	16.899	3.4192	76.606	1.8128	93.9945	11.097
Probability	0.2309	0.0002	0.1809	0.0000	0.4039	0.0000	0.0095
Sum	482.4974	37.1788	173.9123	103.5106	1088.492	171.8624	54.2089
Sum Sq. Dev	128.2123	61.1227	43.8322	23.7079	71.3248	1.3514	28.9812
Observations	50	50	50	50	50	50	50

Table 3: Correlation Matrix

	GDP	FDI	EXCH	INFL	RR	TR	UNMP
GDP	1.0000						
FDI	0.7253	1.0000					
EXCH	0.9832	0.7228	1.0000				
INFL	-0.2617	-0.1067	-0.2247	1.0000			
RR	0.8812	0.5664	0.8327	-0.3823	1.0000		
TR	0.1332	0.4484	0.0998	0.2319	0.1094	1.0000	
UNMP	-0.0574	-0.1085	-0.0337	-0.2594	-0.1277	-0.0527	1.0000

The correlation matrix shows the correlations between seven economic variables as depicted by table 3: GDP, FDI, EXCH, INFL, RR, TR and UNMP. The numbers span from -1 to 1, with -1 being a sound negative correlation, 1 representing a flawless positive correlation and 0 representing no connection. Significantly, GDP demonstrates a robust positive connection with FDI (0.7253) and RR (0.8888), indicating that when GDP rises, FDI and RR also grow. The EXCH variable exhibits a significantly positive correlation with GDP (0.9880), suggesting a robust association between the

exchange rate and gross domestic product. The variable INFL exhibits a negative correlation of -0.2613 with GDP, indicating a possible inverse association between the INFL and GDP. Furthermore, the minimal correlations observed between TR and the other variables suggest a less strong association with TR. Understanding these correlations is vital for policymakers and analysts to appreciate the interdependencies among key economic indicators, aiding in more informed decision-making and economic forecasting.

Unit Root Test

Table 3: Unit Root Test

Variables	ADF				PP			
	Level	1 st difference			Level	1 st difference		
	T	P-value	T	P-value	T	P-value	T	P-value
GDP	-2.0159	0.279	-6.2488	0.000	-2.1883	0.213	-6.2625	0.000
FDI	-4.0837	0.004	-11.1583	0.000	-4.0779	0.024	-11.1578	0.000
EXCH	-1.2587	0.614	-9.1723	0.000	-1.2586	0.644	-8.6823	0.000
INFL	-4.6148	0.005	-10.0963	0.000	-4.6408	0.004	-11.6832	0.000
RR	-0.2987	0.174	-5.2912	0.001	-0.5016	0.881	-5.28545	0.000
TR	-3.1468	0.002	-6.9603	0.000	-1.4068	0.001	-5.8632	0.000
UNMP	-2.8306	0.001	-8.1358	0.000	-1.7709	0.002	-4.5178	0.000

The above table presents the results of the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests for four economic variables (GDP, FDI, EXCH, INFL) at both the original level and after analyzing the first difference. The tests evaluate the stationarity of the variables, which is essential for doing time series analysis. Significantly, GDP, EXCH, and RR display non-stationarity at the level, indicating the existence of unit roots, but FDI and INFL are stationary. However, by taking the difference of the series, the non-stationarity is resolved for all variables,

indicating that the first differences exhibit stationarity. The findings suggest that GDP, EXCH, and RR may have unit roots in their initial values, highlighting the need to use differenced data for these variables in time series modeling. The fact that FDI and INFL are stationary implies that it is unnecessary to apply differencing while conducting stationary analysis on these variables.

Diagnostic Test

In order to assess the robustness of the model that was selected, this study applies essential diagnostic tests, which are outlined below.

Table 4: Autocorrelation (Breusch-Godfrey Serial Correlation LM)

F-statistic	2.724877	Prob. F(1,37)	0.1073
Obs*R-squared	3.361092	Prob. Chi-Square (1)	0.0668
Note(s): Null hypothesis: There is no serial correlation			

The above Table 4 shows Breusch-Godfrey Serial Correlation LM Test; which was conducted to assess the presence of serial correlation in the residuals of a regression model. The test generated the value of F-statistic of 2.724877 and a corresponding p-value of 0.1073. This implies that there is insufficient evidence against the null hypothesis, which assumes that there is no serial correlation in the variables. In addition, the Obs*R-squared statistic produced a value of 3.361092 along with a p-value of 0.0668. This further reinforces the belief that the data contradicting the null hypothesis is not conclusively

significant. While the data does not definitively establish the presence of serial correlation.

Table 5: Heteroscedasticity Test

Test	Chi-square	P
Heteroscedasticity test	0.01	0.9382
Note(s): Null hypothesis: homoscedasticity		

The results of the heteroscedasticity test indicate that the null hypothesis, which assumes constant variance of residuals across different levels of the independent variable, can be evaluated based on the chi-square statistic of 0.01 and a p-value of 0.9382. The p-value

is higher than the common significance level of 0.05, indicating that there is not enough evidence to reject the null hypothesis. Based on this test, it can be concluded that there is no major deviation from homoscedasticity in the residuals of the regression

model. It implies that the assumption of constant variance remains valid and the model's standard errors can be trusted to generate accurate statistical inferences.

Table 6: Regression Analysis

Number of obs = 50 F(6, 38) = 1426.92 Prob > F = 0.0000 R-squared = 0.7526 Adj R-squared = 0.7361 Root MSE = 1.6303						
Variables	Coef.	SE	Z	P> z	[95% Conf. Interval]	
GDP	0.074582	0.0006461	3.15	0.002	-0.0002053	.0000562
INFL	-0.053077	0.0454075	-1.66	0.105	-.1672305	.016615
EXCH	0.0156731	0.03784371	1.06	0.074	.0390637	.1922826
TR	0.0254667	0.0051863	4.47	0.004	-.2979173	.046984
RR	0.031058	0.0037109	9.32	0.003	-7.8910	5.7510
FDI	0.063796	0.0040328	2.96	0.005	-2.010053	-.37754
Cons	7.776936	2.82075	2.76	0.009	2.066626	13.48725

The regression study analyzes the relationship between UNMP and six independent variables: GDP, INFL, EXCH, TR, RR and FDI. Table 6, shows that model exhibits strong statistical significance, as evidenced by the high F-statistic of 1426.92 and a significantly low p-value. The R-squared value of 0.7526 indicates that the model explains 75.26% (R²) of the variation in Unemployment. Among the coefficients, GDP, RR, EXCH, TR and FDI show a statistically significant influence on Unemployment. The TR, GDP, RR and FDI have a favorable impact, while EXCH is unfavorable coefficient. The INFL shows a negative but statistically insignificant at the 0.05 level. The constant term (Cons) is estimated to have a positive and significant impact, representing the intercept value when all independent variables are set to zero. The Root Mean Squared Error (Root MSE) is a metric that provides an estimate of the average difference between observed and expected values. This analysis provides a comprehensive understanding of the dynamics within the economic framework under consideration.

The primary aim of the study in hand was to analyze the impact of various macroeconomic

factors such as, FDI, EXCH, TR, RR and INFL on UNMP. For such a reason, secondary data was taken into account from 1971-2020 with a total of 50 observations from WDI. The data was verified through various tests and regression model was performed. The result indicates that RR, TR and FDI have a significant impact in reducing UNMP and these results are in-line with the results of the studies of (Raza et al., 2020; Raza et al., 2021; Aziz et al., 2023). The findings suggest that high fluctuations in TR would add up to UNMP, where the inflow of FDI has a positive impact on UNMP. Obviously, high exchange rate in a Country like Pakistan has a severe complication for UNMP due to high dependency on foreign trade. On the contrary, the findings conclude that increase in FDI inflow will reduce the UNMP in Pakistan. Similarly RR to inland country will also add up in the reduction of unemployment and will further increase GDP. Trade is considered as backbone and this study suggests increase in trade will add more economic activities in Pakistan. FDI in Pakistan stimulates economic growth, leading to increased business activities and job creation, thereby reducing unemployment rates. FDI often brings in new

technologies and capital, fostering the expansion of industries and employment opportunities. The data shows no significant association of EXCH and INFL with UNMP.

Limitation and Future Research Recommendation

Just like other studies, this study is not free from limitations. This study focuses on factors examining the variation in UNMP. However, UNMP may also be affected by other factors so future research may also consider as macro or micro economic, social and political factors. This study is limited to the data pertinent to one year, a more diverse data i.e. monthly, bi-monthly or quarterly may be taken to provide more insight results. Lastly, it's crucial to acknowledge a temporal limitation in this study, as the results are based on a dataset spanning from 1971 to 2020. The chosen timeframe may influence the generalizability of the findings, considering the dynamic nature of economic variables and the evolution of socio-economic conditions over time.

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