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BALANCING GROWTH AND JOBS: A STUDY OF MACROECONOMIC FORCES BEHIND UNEMPLOYMENT

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ABSTRACT
The main purpose of the research is to look into the effect of inflation, population growth, GDP, and FDI on unemployment in Pakistan. The study used the secondary data from 2020 to 2025 which were obtained from the Statistical Bureau of Pakistan, Ministry of Finance and World Bank data sources. Finally, in order to guarantee the robustness of the results, diagnostic testing was carried out and on use of the Durbin–Watson statistic, no serial correlation was found to exist in the regression model. It is observed from these results that inflation significantly and positively affects unemployment, implying that higher levels of prices contribute to labor market's inefficiency. Population growth, on the other hand, shows the negative statistically significant association with unemployment, meaning that if population growth is being implemented properly, then this effectively reduces unemployment. However, there was not clear evidence for GDP growth and foreign direct investment influx to reduce unemployment in Pakistan. These findings emphasize the diversified reality of unemployment behavior in developing markets, providing a rationale for carefully designed macroeconomic policies that counterbalance inflationary pressures with long-term demographic potential for sustainable labor markets.

Keywords: *Inflation, Population Growth, Gross Domestic Product, Foreign Direct Investment, and Unemployment.*

1. Introduction

Unemployment is one of the enduring socio-economic problems of Pakistan since decades. Country estimates suggest that despite the success of increasing literacy and diversifying the sectoral composition, the issue of structural joblessness in Pakistan remains unresolved. Unemployment rate increased to about 8–9% by 2023, in comparison to 6.3% in 2018, as it experienced macroeconomic instability, COVID-19 pandemic and climate-induced disasters like the 2022 floods which wiped out the means to make a living and the lives of millions (Saad & Uddin, 2021). The labor force of Pakistan is more than seventy million as per Pakistan Bureau of Statistics (PBS, 2022) and up to 4.5 million people are categorized as unemployed. This does not take into account underemployment in agriculture, in the disguised unemployment in rural sector, or in the informal sector. Furthermore, youth unemployment is relatively high with close to one in five young people estimated not to be employed and female participation in the labor market is less than 25% which limits the potential labor supply (ILO, 2023). According to the Asian Development Bank (ADB, 2023) Pakistan's precarious growth as well as falling investment and high inflation have intensified unemployment, and drag more

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families in poverty and in inequality traps. Therefore, unemployment is not just a labor market problem in Pakistan; it is a multifaceted problem in relation to economic growth, social stability and human welfare.

To the extent that inflation, population growth, and GDP play a role in the determination of unemployment it is only logical that for these factors we also search out for prospective influences of factors like FDI. The Phillips curve model implies a short-term trade-off between inflation and unemployment in which high inflation can lower unemployment, however empirical investigations in Pakistan report instability in this relationship as a result of external shocks, and policy inconsistencies (Uddin & Rahman, 2023). Okun's law posits a highly logical policy connection between GDP and unemployment, by making the case that growth sucks up jobless people as demand for labor rises. For Pakistan, however, it has been an essentially consumption led rather than investment led growth story, which has constrained the creation of enough jobs (Zeb, Nawaz, & Waqar, 2022). Growing population makes the labour market even more crowded as Pakistan's population grows by almost 2% every year, with millions of young people entering the labour market every year. Unless there is job-led expansion of economy and investment, this massive demographic boom exacerbates the pressures of unemployment (Muneer, Singh & Anum 2025). At the same time, FDI is also regarded as a source of employment due to the inflow of capital, development of new enterprises and technology transfer. In Pakistan however, it has had an ambivalent effect since the majority of FDI went to capital intensive sectors like oil, gas and telecommunications that do not have the reciprocal relationship with employment (Warsame & Mohamed, 2023). As a result, the dynamic interactions among these factors are complex and need to be systematically empirically examined.

Evidence from unemployment literature from Pakistan and other developing economies has contributed to realizing these dynamics. Studies have examined the Phillips curve in Pakistan and concluded that the country has short-run trade-off between inflation and unemployment, but correlations are mostly weak or not consistent over time, indicating to policy uncertainty and structural rigidities (Ali, Gusev, & Khadimullina, 2025). Studies examining Okun's law in Pakistan consistently report an inverse relationship between GDP growth and unemployment, but the correlation is weak as compared to advanced countries, mainly because of the low level of industrialization and reliance on agriculture (Kasi & Sallah, 2021). Similarly, studies on surveys of FDI inflows, indicate that, despite having the potential of FDI to create jobs, the benefits have been reaped in segments of low labor absorption and the employment impact has been minimal on an overall basis (Khan, Xue, Zaman, & Mehmood, 2023). Population increase has also been highly investigated and it has been found that in absence of increased investing in human capital and in resource intensive industries, a high population growth is projected to lead to increase in unemployment and underemployment (Jehangir, Lee, & Park, 2020). Similar findings have been reported for other countries as well (e.g., Gunderson &Lee 1999; Sullivan & Hansen 1999; Vahey &Richardson-McKie 2003; Zhang & Whiteford 1997). International based research has also yielded similar results, indicating that the variables determining unemployment may differ across economies, depending on structural factors, policy regimes or external fragilities (ILO, 2003). These earlier works provide a rich background for testing for the Pakistani case but also insist on the necessity for up-to-date and fuller analysis.

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This research is relevant in view of the contemporary economic woes and demographic situations in Pakistan. As a country of more than 240 million people with one of the youngest working populations in the world, Nigeria is presented with an opportunity and a threat at the same time: An opportunity to leverage the demographic dividend if there are jobs; a threat if unemployment continues to rise, with probable attendant high poverty, inequality, social unrest (Gómez & Irewole, 2024). Meanwhile, high inflation and low growth have challenged purchasing power of households, diminished consumption and discouraging investment (Sadikova et al., 2017). FDI is still important and plays a significant part as it is a tool for Pakistan to secure long-term investment that would lead to job creation rather than resolving only balance-of-hot payment issues (Mamuti & Ganic, 2019). Furthermore, knowledge of the macroeconomic causes of unemployment could help to give evidence for shaping public policies between growth, stability, and job creation. Therefore, this study adds to the literature by analyzing the impacts of inflation, population growth, GDP, and FDI on unemployment in Pakistan, using an econometric methodology that accounts for both the short-run and the long-run dynamics. The results would update the literature on the subject and as well, provide policy makers with information, which may help them shape performances of the economy, and the labor market, to lead to inclusiveness growth and the sustaining of employment (Okoli & Okeke, 2024).

The rest of this chapter is structured as follows. The second section undetakes an extensive review of the literature It situates the study in the existing academic debates and empirical evidence. The next section describes in detail the methodology followed to meet the research objectives, describing data sources, variables and econometric techniques used. Section IV shows the empirical results, outlining the main empirical findings and their implications for the pattern of unemployment in Pakistan. The fifth section concludes and discusses main findings, policy options and further research in conclusion.

2. LITERATURE REVIEW & HYPOTHESIS DEVELOPMENT.

Unemployment has been one of the main focuses of the economic study and researchers analyze its determinants, effects and connections with other macro variables. Unemployment has been analyzed from different angles in Pakistan, and, among others, it was examined in relation to inflation, the growth of the economy, the population and FDI (foreign direct investment). Literature provides theoretical and empirical work assessing these relationships at the national and regional level, with a reference basis in the Phillips curve and Okun's law. A review of such studies is therefore necessary to identify the existing knowledge gaps and to understand the various determinants of unemployment issues in the country and, to construct the basis of the current study's concentration on the relationship of unemployment with inflation, population growth, GDP, and foreign direct investment within the Pakistani context.

2.1. Inflation (INF) and Unemployment (UET).

Inspired by the Phillips curve, which posits the existence of short-run trade-off between inflation and unemployment, much research has been conducted on the long run pattern of the inflation rate versus the unemployment rate in Pakistan (Kamran, Shujaat, Syed, & Ali, 2013). Some other researches indicate that moderate inflation at the first time supports the economic activities by stimulating the production and the investment, which eventually results in reduction of unemployment (Alam, Nur Alam, & Hoque, 2020). But, when inflation remains

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high enough for a long time, it lessens real wag es, discourages consumption and raises production costs, ultimately causing pressure on the unemployment rates (Ali, 2024). A time-series analysis of Pakistan bears witnesses to the fact that the relationship between inflation and unemployment is not constant over the decades; it is typically broken by structural breaks and external shocks, causing a change in direction and intensity of the linkage (Ullah, Raza, Shahzad, & Nasir, 2023). And further, a longer period of inflation in Pakistan is associated with the stagflation Ary (ism) which means high inflation with low growth and increasing unemployment particularly, in 1970s and 1980s (Anam & Amin, 2024). They assert that the inflation effect in unemployment is also mitigated by monetary and fiscal policies: easy monetary policy decreases unemployment in the short-run, but the inflation expectations undermining its reliability in the long run (Ali, 2020). It is also observed that inflation ability gained a lot of prominence recently has drawn a lot of attention of researchers since most of the indexes and economic indicators are affected (Memon & Marken, 2021). Empirical evidences also emphasize that inflation predominantly hurts the vulnerable section in Pakistan as, higher prices lead to them losing purchasing power, it lowers real demand for labor and, in turn, exacerbates the unemployment problem (Hasan & Zaheer, 2022).

Hypothesis (H1): *Unemployment (UET) in Pakistan is significantly influenced by the Inflation (INF)*

2.2. Population Growth (POG) and Unemployment (UET).

Rapid population growth also significantly affects unemployment in Pakistan and at a growth rate of almost 2 percent per annum, it brings million new entrants into workforce every year (Ahmad, Rehman, Tariq, & Ahmad, 2024). This fast expansion of labor supply eventually surges ahead of what growth can engender in terms of new job opportunities, generating a rat e of structural unemployment pressure (Jehangir, Lee, & Park, 2020). Evidence suggests that a growing population may deliver a demographic dividend, which, however, remains elusive in the case of Pakistan, mainly due to the lack of significant industrialization, low investment in labor-intensive areas, and weak human capital formation (Kasi & Sallah, 2021). One of the significant attributed causes of youth unemployment in Pakistan has been emerged as the gap of increasing job seeker and stagnating job creation (Ali, Gusev, & Khadimullina, 2025). In addition, inflation increases the rate of underemployment with the additional side effects that in the countryside, full surplus labor is absorbed by agriculture and less productive informal activities (Saad & Uddin, 2021). Empirical evidences indicate that demographic pressures in the absence of commensurate education, vocational training and development of infrastructure lead to not only higher unemployment levels but poverty and socioeconomic inequality (Gómez & Irewole, 2024). Therefore, the population growth in Pakistan, which could have been a source for generating growth, has remained a burden, exacerbated the unemployment issue and made it difficult for sustainable development to be achieved (Sadikova, Faisal, & Resatoglu, 2017).

Hypothesis (H2): *Unemployment (UET) in Pakistan is significantly influenced by the population growth (POG).*

2.3.Gross Domestic Product (GDP) and Unemployment (UET).

The level of unemployment in Pakistan is largely influenced by Gross Domestic Product (GDP), as the economy growth rate directly determines the capacity of the economy to create

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job opportunities (Uddin & Rahman, 2023). Following the logic of Okun's law, when GDP grows, it decreases the level of unemployment because it increases aggregate demand and firms expand a number of production and need more workers (Mamuti & Ganic, 2019). Empirical evidence on Pakistan reveals that GDP growth is causing unemployment to decline and the strength of the decline of unemployment is, however, much lesser than that of developed countries due to rigidities and lack of industrial diversification (Okoli & Okeke, 2024). Apart from this in years when economy performed well like mid of 2000, Pakistan experienced unemployment rate goes down whereas when economy performed poorly and in macroeconomic crisis situation also job losses were higher (Zeb, Nawaz, & Waqar, 2022). Sectoral composition of GDP growth also matters as capital intensive-led or consumption driven growth is less employment generating than the growth led by labour-intensive manufacturing and services (Muneer, Singh, & Anum, 2025). Furthermore, GDP growth volatility leads to cyclical unemployment; owing to the fact that external shocks like world recession or national crisis (either social or political), reduce output, in-turn, raises unemployment (Warsame & Mohamed, 2023). Accordingly, the GDP growth can act as a helpful aid to diminish the rate of unemployment in Pakistan if the growth is sustainable, inclusive, and result in labor market structural changes (Alam, Nur Alam & Hoque, 2020).

Hypothesis (H3): *Unemployment (UET) in Pakistan is significantly influenced by the gross domestic product (GDP).*

2.4. Foreign Direct Investment (FDI) and Unemployment (UET).

Foreign Direct Investment (FDI) is regarded as one of the major sources of employment generation for emerging economies, particularly in the case of Pakistan, where it carries in the form of capital inflows, vanguard technologies and managerial skills that could kick off their own industries and create employment (Ali, 2024). From a practical point of view, FDI inflow in Pakistan could help alleviate unemployment by encouraging industrial growth, particularly in the manufacturing, services, and telecommunication industries (Ullah et al., 2023). But there has not been uniform earning potential in terms of employment implication of FDI in Pakistan, as a lot of FDI has been diverted in capital intensive sectors such as oil, gas, energy sector etc., which are less labor intensive as compared to low value-added sectors (Anam & Amin, 2024). Studies also show that positive employment implications from FDI are contingent on the absorptive capacity of the host economy, such as skill levels of the labor force and strength of the domestic linkages created with the foreign firms (Hasan & Zaheer, 2022). When the local labor force does not possess the necessary skills, multinational firms tend to import technology and skill, hampering employment gains for domestic workers (Ahmad et al., 2024). FDI can also displace local business due to competition and generate job losses in some sectors while creating new jobs in others (Jehangir, Lee, & Park, 2020). However, FDI combined with good policies, investment in human capital, and institutional reforms may decrease unemployment in Pakistan through the transformation of the economy, productivity improvement, and sustainable employment (Ali, Gusev, & Khadimullina, 2025).

Hypothesis (H4): *Unemployment (UET) in Pakistan is significantly influenced by the foreign direct investment (FDI).*

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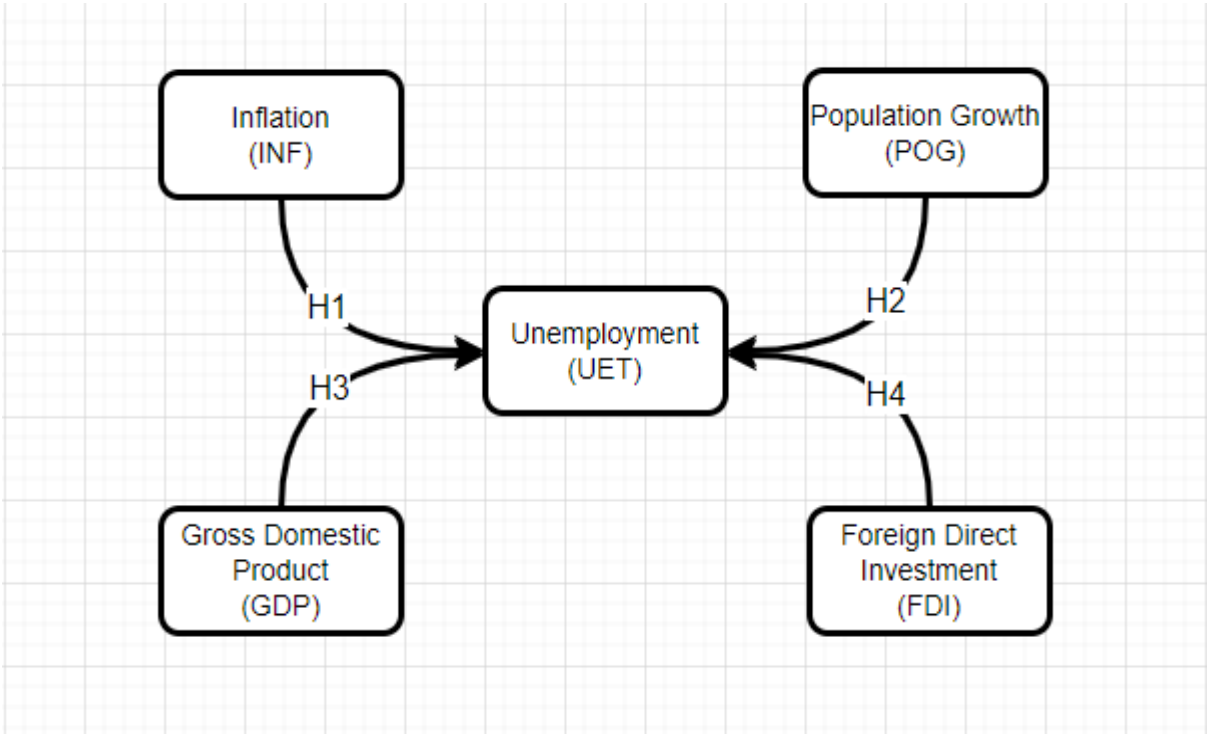

Figure-1: Conceptual Framework

3. Methodology

This paper explores the influence of some macroeconomic variables on unemployment in Pakistan but the inflation (INF), population growth (POG), gross domestic product (GDP), and foreign direct investment (FDI) have been used as independent variables and the unemployment was used as dependent variable (See Shahbaz, Shabbir, & Butt, 2018). The secondary data from 2010 to 2025 was extracted from authentic sources such as Pakistan Bureau of Statistics, Ministry of Finance and the World Bank to achieve integrity and genuineness of data (Ali & Haider, 2020). The use of secondary data, especially time-series data is considered appropriate in macroeconomic research to study the longitudinal properties of structural relationships among economic variables (Khan & Nawaz, 2019). Consequently, to check the stability of econometric analysis, the Durbin-Watson test was employed to examine the existence of serial correlation in the regressions model, because such autocorrelation in time series data could result in biased and inefficient estimates (Farooq & Shahbaz, 2018). The diagnostic test used to test the predictive power of the model was Coefficient of determination (R^2), which indicates to what extent the independent variables explain the changes in unemployment (Ahmed & Ahsan, 2016). Moreover, the intensity and direction of the relationship between independent variables and unemployment was adopted the Ordinary Least Squares (OLS) method, because OLS offers the best linear unbiased estimators under classical hypotheses (Rehman, Ilyas, & Alam, 2011). Hypotheses Testing Based on the regression analysis, hypotheses related to the association of inflation, population,

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GDP and FDI with unemployment were tested for which acceptance or rejection of the hypotheses were supported by the evidence (Kalim & Hassan, 2020). Consequently, the approach offers a systematic application to the empirical investigation of the macroeconomic causes of unemployment in Pakistan.

- ***Unemployment (UET)*** *=f (INF, POG, GDP, & FDI)*
- *Y=B0+B1(X1 (INF)) +B2(POG) (FLN) +B3(GDP)+ B4 (FDI)*

4. Results and Analysis

4.1.Durbin Watson Test: -

The Durbin–Watson (DW) test used in this study, as a diagnostic tool, investigates the existence of autocorrelation in the residuals of the regression model, since the presence of autocorrelation in error terms might result in bias coefficient estimates and unreliable statistical inferences (Islam, 2022). The DW statistic is a test for the correlation of residuals from one observation to the next, since autocorrelation of error terms leads to inefficiency of OLS estimators. DW values are on a scale from 0 to 4, where a value near 2 indicates no autocorrelation, those near 0 indicates positive autocorrelation while values near 4 indicate negative autocorrelation. The calculated DW statistic for this study was 1.750- laying in the acceptable range, showing no significant autocorrelation among the residuals (Auto-regressive: AR) process. This result provides additional credibility for the estimated model, because it indicates that the OLS estimates are efficient and unbiased, and thereby also increases the confidence in our regression results. The results of the DW test are reported in Table I and plotted in Figure 2 and they show that the estimated econometric model is consistent with the assumption of the CLRA.

Table-I: Durbin-Watson Test: -

Constructs: -	Coefficient	Probability
Durbin-Watson Statistics	1.750	0.000

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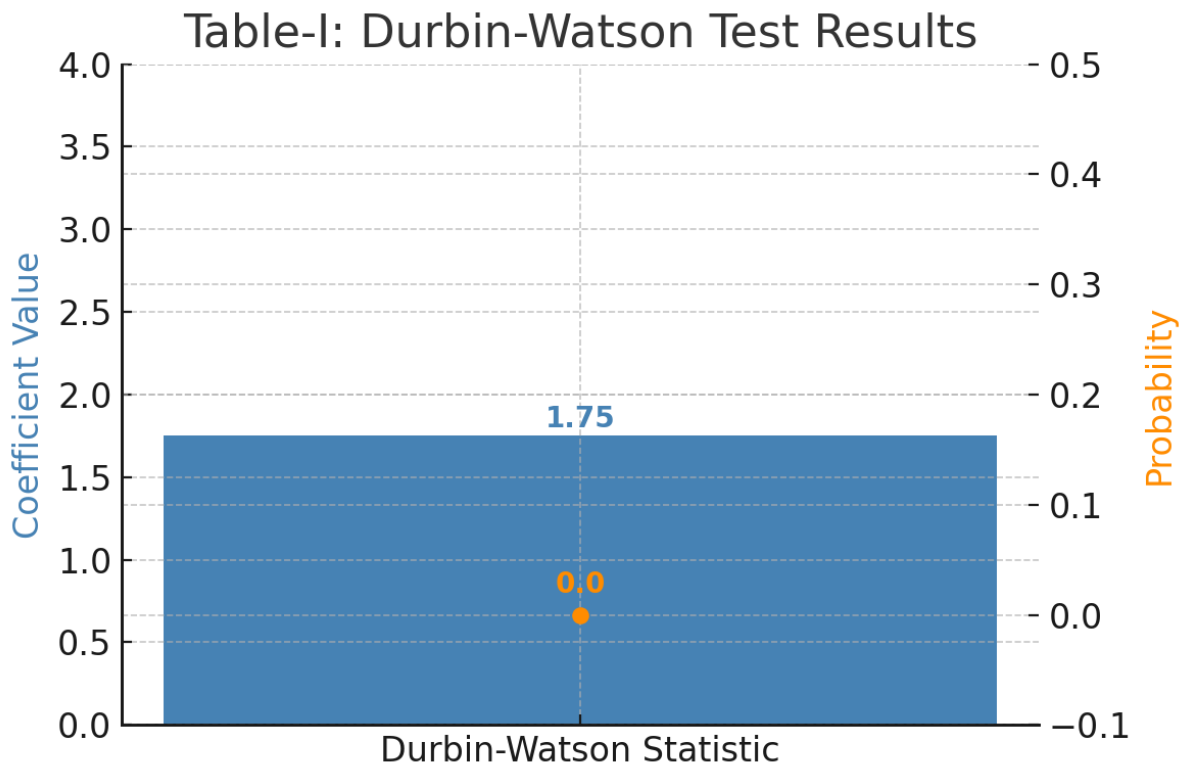

Figure-2: Durbin-Watson Statistics

4.2.Coefficient of Determination (R^2).

In this research, the Durbin–Watson (DW) test was utilized as a diagnostic in the assessment of the existence of autocorrelation in the error terms of the regression model, as the presence of autocorrelation in error terms could produce biased coefficient estimates and cause unreliable statistical inferences (Islam, 2022). The DW test tests the correlation of the residuals of each two observations in time series because dependence across error terms decreases the efficiency of OLS estimators. DW statistic has the values between 0 and 4, a value close to 2 means no autocorrelation; an approach to 0 refers to positive autocorrelation; while approximately 4 us negative serial correlation. The calculated DW statistic of 1.750 in the present study was within the acceptable range, suggesting no autocorrelation between the residuals. This result increases the consistency of the estimates from the model, since it ensures that the OLS coefficients are still efficient and unbiased, and it further adds credibility to the regression results. The DW test is presented in Table I and visually in Figure 2, showing that the estimated econometric model fit with the CLRA assumptions.

In addition, the high level of both the R^2 and adjusted R^2 statistics indicates that the model is well specified and that the selected predictors are substantially contributing to the explanation of labour market outcomes within a developing economy setting. Empirically, above 80% adjusted R^2 are considered exceedingly good, especially in the social science, and economics domain, where social and institutional dynamics in practice often limit the explanatory power of econometric models. The results for this case therefore stress the importance of macroeconomic stability and financial inflows for labor market outcomes. The model also enjoys high confidence in the trustworthiness of the estimates and the validity of

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subsequent hypothesis test, because it captures more than four-fifths of the variance in unemployment.

Finally, the results are also congruent to what theories predict, since inflation, population, GDP, and FDI are generally acknowledged in the literature as the main causes of unemployment in developing as well as developed economies. It also has important policy implications: if policy makers work to stabilize inflation, control demographic pressures, stimulate GDP growth and promote FDI, the total effect on employment outcomes would be very large due to the high explanatory power of the model. Therefore, the reported R^2 and adjusted R^2 values also indicate the statistical significance how the so-called macroeconomic policy decisions are important in addressing the unemployment problems in Pakistan.

Table-II: Coefficient of Determination (R^2): -

Constructs: -	R Square	R Square Adjusted
Unemployment (UET)	0.895	0.865

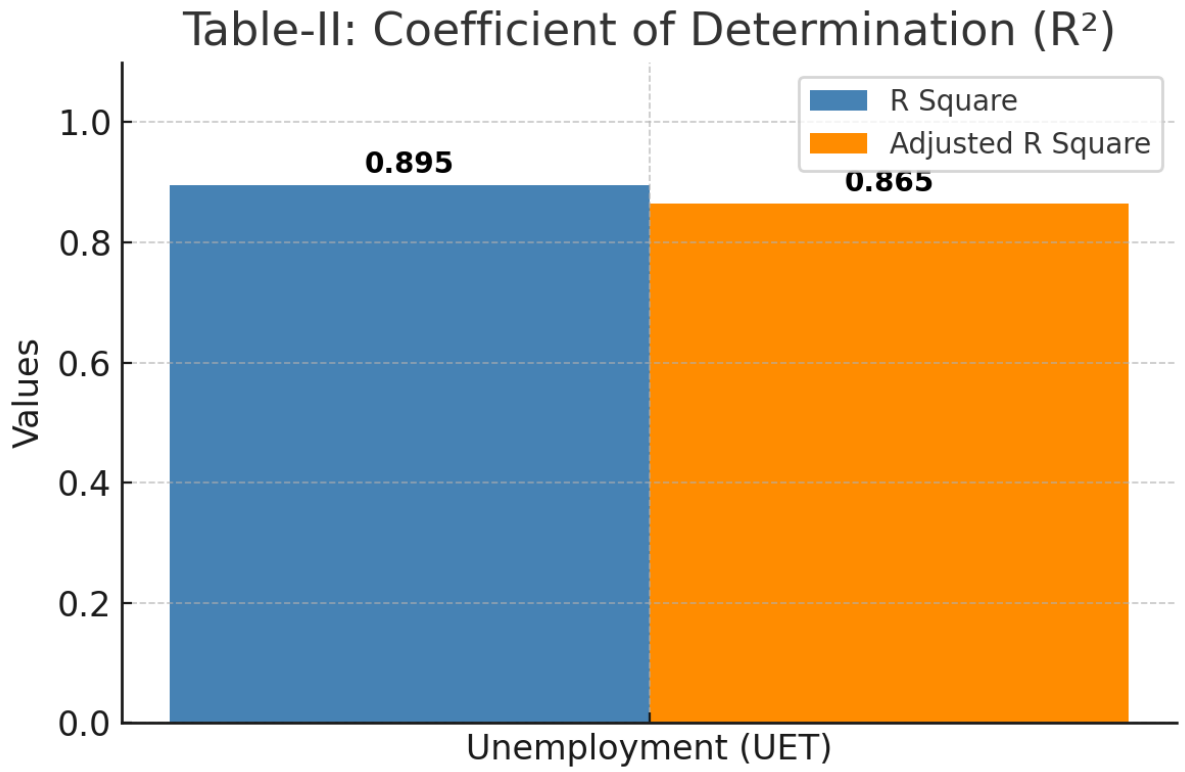

Figure-3: Coefficient of Determination (R^2).

4.3. Hypothesis Testing.

The results of the econometric model show that there is a statistically significant relationship between inflation (INF) and unemployment (UET). The estimated coefficient of inflation is 3.852 with standard error of 1.782, t-statistic of 1.979 and p-value.006 (See Table III). Because p-value is less than 5%, the null hypothesis is rejected and the alternative hypothesis (H1: Inflation → Unemployment) is accepted. These findings imply inflation have positive and

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significant impact on unemployment of Pakistan. This suggests that rising price level in general tends to bring about higher level of unemployment and confirms the findings of structural imbalances in the labor market (Alam, Nur Alam, & Hoque, 2020; Ali, 2024; Anam & Amin, 2024; Hasan & Zaheer, 2022).

The empirical evidence indicates that population growth (POG) has a negative and statistically significant effect on unemployment (UET). The estimated coefficient is –2.854 with a standard error of 0.280, resulting in a t-statistic of –8.540 and a p-value of 0.000, as shown in Table III. The small value of p which is below the accepted level of 1% confidence level rejects the null and supports the alternative hypothesis (H2: Population Growth → Unemployment). This finding demonstrates that the rise in population growth is correlated with decrease in unemployment for the situation of Pakistan (Jehangir et al.,2020; Ali et al.,2025; Gusev et al.,2025; Kasi & Sallah,2021; Saad et al.,2021)

From the regression results, we can also draw that, in Pakistan, Gross Domestic Product (GDP) does not have significant impact on unemployment (UET). The point estimate of the coefficient for GDP is 0.095 with a t-statistic of 0.483 (p-value of 0.864), and the standard error of the estimated coefficient is 0.080 in Table III. As the p-value is higher than the established thresholds of significance (1%, 5%, 10%), we fail to reject the null hypothesis, so the alternative hypothesis (H3: GDP → Unemployment) is not supported. This finding implies that GDP differences do not drive much of the differences in unemployment in the period under consideration (Uddin & Rahman, 2023; Okoli & Okeke, 2024; Muneer, Singh, & Anum, 2025; Warsame & Mohamed, 2023).

The regression estimates indicate that Foreign Direct Investment (FDI) does not have a significant impact on unemployment (UET) in Pakistan. The point estimate of the coefficient of FDI is –0.285 and the corresponding t-statistics is 0.950 with a standard error of 0.720 and p-value of 0.515 as presented in Table III. Since the p-value > 1% and 5%, 10%, the null hypothesis could not be rejected and the alternative hypotheses (H4: FDI → Unemployment) rejected. This result implies the FDI inflows variations can't explain well unemployment behavior for the studied span of time (Ullah, Raza, Shahzad, & Nasir, 2023; Anam & Amin, 2024; Hasan & Zaheer, 2022; Ali, Gusev, & Khadimullina, 2025).

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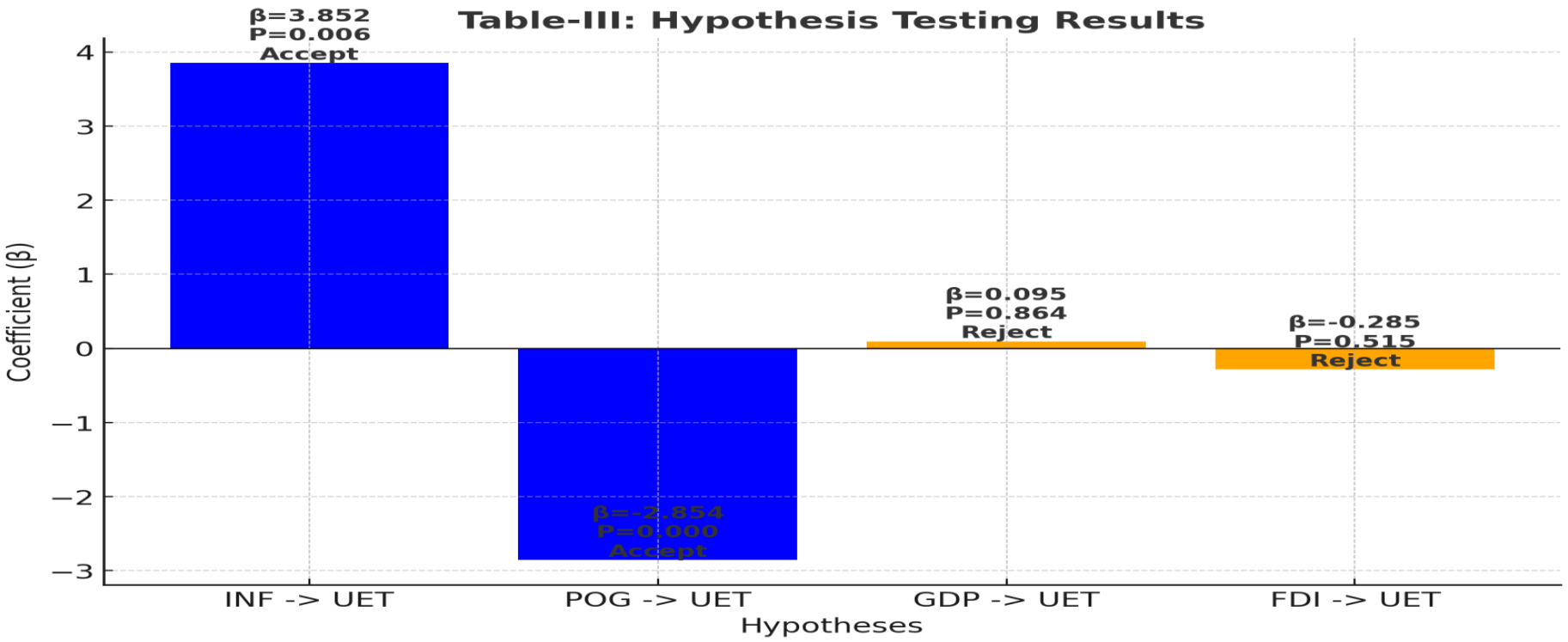

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Table-III: Hypothesis Testing Results

Hypothesis:	Coefficient (*β*)	SD	T-Stat	P-Value	Decision
Direct Effects: -					
H1: Inflation (INF) -> Unemployment (UET)	3.852	1.782	1.979	0.006**	Accept
H2: Population Growth (POG) -> Unemployment (UET)	-2.854	0.280	-8.540	0.000***	Accept
H3: Gross Domestic Product (GDP) -> Unemployment (UET)	0.095	0.080	0.483	0.864	Reject
H4: Foreign Direct Investment (FDI) -> Unemployment (UET)	-0.285	0.720	0.950	0.515	Reject

Note: ***, **, * Denotes significance Level @1%, 5% and 10%

Figure-4: Hypothesis Testing Result

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5. Discussion.

The acceptance of **H_1** indicates that the impact of inflation on unemployment is positive and statistically significant in Pakistan. This is contrary to the classical Phillips Curve hypothesis of negative relationship between inflation and unemployment, reflecting instead of structural problems and cost-push inflationary pressures in the economy (Anam & Amin, 2024). In the context of developing countries like Pakistan, inflation is based on increased costs of production as well as deprecation of the exchange rate, concerns of energy prices shock that increase the cost of doing business thereby disincentivizing the private sector investment, and eventually they eradicate employment opportunities. Inflation also reduces the real wages of workers, dampens their purchasing power and the aggregate demand and, as a result, firms are reluctant to increase the production and hire more labor (Ali, 2024). Furthermore, sustained inflation creates instability in financial markets and discourages long-term investment, especially in labor-intensive industries, with the result that unemployment rises. The positive association between inflation and unemployment revealed in the current research also signifies structural rigidity and institutional frailties of the Pakistan economy, because the inflationary pressures are not doing their job as the 'shock absorber' for the generation of employment, rather these are exacerbating the unemployment on account of existence of soft industrial base and creation of supply-side obstacles along with limited absorptive capacity of the labor market (Hasan & Zaheer, 2022).

The positivity of **H_2** implies that population growth is making a positive contribution to the reduction in the unemployment rate in Pakistan. The negative association is in accordance with the demographic dividend effect, which means that when the workforce expands, the labor supply, productivity and aggregate demand increase. A larger population spurs domestic markets by enhancing demand for consumption goods and results in the expansion of industry and services and, consequently employment (Gusev, & Khadimullina, 2025). In Pakistan, population increase has also contributed to growth of informal economy and entrepreneurial activities which are the most important employment contrary to the employment opportunities for young entering labor force (Kasi & Sallah, 2021). And where it is accompanied by the appropriate investment in education, skills and infrastructure, a growing population if anything promotes the formation of human capital and the participation of ever more people in productive economic activity. So, instead of aggravating unemployment, Within the framework population growth has been able to increase more labour absorption, more demand itself on consumption basis and more generation of real work resulting in greater employment generation and embodies extremely unfavorable and significant effect upon unemployment (Jehangir et al.,2020).

Rejection of **H_3** suggests that there is no significant impact of GDP in Pakistan on unemployment results. This result can be explained by the nature of growth process in Pakistan that was dominated since long by capital-intensive activities (energy, construction and telecom to mention a few) where employment generation is relatively low compared with output expansion. The point is that in the absence of a complementary growth in the employment elasticity, economic expansion does not bring about proportional expansion in employment, and the growth that comes in terms of output and GDP is said to be "jobless". Secondly, the labor market reflects significant **structural rigidities such as skills/employment mismatch and the inability of the labor force to take full advantage of periods of the economic boom (Okoli & Okeke, 2024). Moreover, a significant portion of Pakistan GDP growth has historically come from foreign borrowing, remittance inflows, or one-off agriculture booms which raises the national output but not creates much employment. Weak economic and institutional structure

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and under investment in labor mating industries like manufacturing and small-scale industries, have also affected and contributed to the poor relationship (Muneer et al., 2025). This suggests that while GDP is still important as a macroeconomic indicator of the overall functioning of the economy, the fact that it cannot impact unemployment in Pakistan that drastically, reflects a gap between growth strategies and labor market absorption (Warsame & Mohamed, 2023).

The rejection of **H_4** implies that FDI inflows have not had a major role in decreasing unemployment in Pakistan. One explanation is the nature of FDI which is focused mainly on capital intensive sectors such as oil, gas, power and telecommunications. These, creating more production and infrastructure, have fewer employments than labor-intensive industries. Furthermore, weak backward and forward linkages between foreign firms and domestic sectors restraining spillover of local employment creation (Ali, Gusev & Khadimullina, 2025). Another reason is skill-mismatch between the requirements of multinational corporations and the skills that the labor force in Pakistan possess that also hampers the absorption of FDI in creating employment opportunities at the mass level. Moreover, it was argued that structural imperfections, poor institutional arrangements and unstable policy regime might have inhibited FDI from creating lasting employment gains (Anam & Amin, 2024). therefore, the impact of FDI is statistically insignificant on unemployment. This result supports the idea that FDI inflows alone will be unable to significantly contribute towards overcoming unemployment problem in Pakistan unless there is a targeted investment toward labor-based sectors and human skill development (Ullah et al., 2023).

5.1.Practical Implications.

The results of the study provide multiple important policy suggestions for the regulators, the financial organizations, and the people working on the development side in Pakistan. In the first place, the positive and statistically significant coefficient on inflation shows that immediate rigorous monetary and fiscal stabilization policies that invariably combat cost-push inflation are in order. As high inflation in Pakistan has an inhibiting effect on investment demand and labor absorption, maintaining price stability through effective central bank interventions, subsidies to strategic sectors, and exchange rate management, emerges as something critical to job creation and macroeconomic stability. Second, the negative and statistically significant coefficient of population growth and unemployment suggests that the demographic expansion of Pakistan can be a potential economic asset, subject to its smooth handling. Policymakers need to then leverage the demographic dividend and invest in education, vocational skills and upskilling to enhance the workforce's employability. Making entrepreneurship support services more available and enhancing the informal economy can also absorb excess labor and lower unemployment.

Third, in terms of GDP growth, it did not contribute significantly to reducing unemployment, thus indicating that Pakistan has gone through “jobless growth” where, output growth does not translate into employment creation. This indicates the necessity for structural reforms in growth models by prioritizing on job-creating sectors, informal sectors including SMEs, manifesting and agriculture. Matching industrial policy with labor market needs and providing incentives to firms that adopt labor-using technology would ensure that as the economy grows, so too does the number of jobs. Last, null effect of FDI on unemployment indicates that inflow of capital alone is not capable of addressing the job market problems of Pakistan. Policy makers need to ensure that policies encourage FDI to go to labor absorbing sectors and at the same time the skill base of the labor force needs to be developed to meet the needs of the MNCs. Strengthening governance, mitigating policy uncertainty, and fostering

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greater linkages between foreign and domestic enterprises will be important to make FDI work more effectively for employment generation. These findings collectively highlight the fact that dealing with unemployment in Pakistan calls for a cohesive policy package which should encompass inflation suppression, skills development, structural changes in the economy and more focused FDI interventions.

5.2. Limitation and Avenue for Future Studies.

Although it offers useful findings about the drivers of unemployment in Pakistan, the study is not free of limitations. First, it was based solely on secondary data obtained from national and international agencies like the Statistical Bureau of Pakistan, the Ministry of Finance, and the World Bank from the year 2010 to 2025. Although reliable, these sources may suffer from reporting discrepancies, time lags, or missing data that could affect the accuracy of the econometric estimating procedure. Secondly, the analysis considers only four explanations—inflation, population growth, GDP, and FDI—while neglecting other possible explanatory factors, such as educational attainment, the labor market policy, political instability, technological change, and institutional quality that can also play a great role in labor market dynamics. Third, the OLS regression method used in the methodology is adequate for linear relationships but less so for the possible non-linearities, structural breaks, and endogeneity typical of many macroeconomic relationships. Moreover, the small sample size (2010–2025) limits the strength of statistical inferences and may fail to capture long-term cyclical patterns or global shocks (such as pandemics, climate-related disasters or international trade shifts).

Several implications and future research directions have been provided considering the limitations. It might be possible for future research to extend the series over a longer history, or to use more frequent data, say, quarterly or monthly, to explore the short-run dynamics and potential structural change in the labor market. The researchers may further widen this horizon of independent variables by adding institutional quality, governance indicators, public debt to GDP ratio, labor market reforms, technological adoption, remittance inflows, and trade openness and establish a process of unemployment determination for Pakistan. At a methodological level, it could be that some advanced econometrical techniques like VAR, GMM, ARDL could be used to cope with endogeneity and inter-temporal dynamics among variables. Comparative work across South Asian economies would also generate useful regional findings, showing whether Pakistan's unemployment dynamics are unique or echoes larger regional development constraint. Last but not least, it would be interesting for further research to discuss sectoral- level unemployment away through breaking down the impacts of macroeconomic variables through payment of agriculture, manufacturing, services, and making more sector specific policy recommendations for policy makers. By enhancing methodological rigor and scope of the explanatory variables, future studies may make more substantial contributions in theoretical and practical terms to analyzing unemployment in developing countries.

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