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Youth Unemployment and Economic Growth in South Asia: Policy Implications for Stability and Sustainable Development

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ABSTRACT

Youth unemployment poses significant challenges to economic growth and social stability in South Asia, particularly in Pakistan, India, and Bangladesh. This study uses System Generalized Method of Moments and Dynamic Panel Threshold Models to examine how youth unemployment impacts GDP growth and reveals key threshold effects. Results show that a 1% rise in YU reduces GDP per capita growth by 0.20% on average across the region, with declines reaching 0.30% when unemployment exceeds a 17% threshold. Education are positively correlated with GDP growth 0.16%, while GD in employment contribute to a 0.13% GDP decline for each 1% increase in disparity. Inflation and FDI further influence growth, with inflation reducing GDP by 0.09% and FDI increasing it by 0.11%. Comparative analysis shows that despite India's relatively higher educational attainment, labor market mismatches persist, leading to high rates of educated youth unemployment. In Bangladesh, remittances offer economic stability amid limited domestic job opportunities Unlike previous study that finds teenage unemployment distinctly, our investigation shows a precarious joblessness threshold of 17%, at which economic instability accelerates. Using Threshold Models System and GMM, we build a non-linear association among YU and GDP growth, providing empirical evidence in favour of specific policy regulations. Findings highlight the importance of targeted labor market reforms, educational alignment with job market demands, and policies to reduce gender disparity in employment to maximize the region's youth potential.

1. INTRODUCTION

Unemployment is a critical measure of a country's economic health, reflecting both its economic stability and capacity to provide opportunities for its workforce. The issue of youth unemployment is particularly pressing in South Asia, a region experiencing a demographic shift with one of the world's largest and youngest populations. High youth unemployment in South Asian countries like Pakistan, India, and Bangladesh is a multifaceted problem, affecting individual livelihoods, limiting economic growth, and increasing social pressures. Tackling youth unemployment is essential for ensuring that this rapidly growing young population can contribute positively to economic development and social stability [1, 2].

Globally, youth unemployment has far-reaching effects. While unemployment impacts individuals of all ages, young people are often disproportionately affected due to a combination of insufficient work experience, skill mismatches, and limited employment opportunities. The ILO defines unemployed youth as individuals of working age who are actively seeking but unable to find employment. Many South Asian countries face high youth unemployment rates, reflecting significant skill mismatches and gaps in education and training. This is evident in South Asia, where educational outcomes often fail to align with job market requirements, resulting in an "education-employment gap" [3]. Data from the ILO highlights the disparity in unemployment rates, with global youth unemployment at 13.3% compared to just 3.9% among adults in 2023 [4].

In Figure 1, India had the highest youth unemployment, which increased significantly from 2000 and peaked around 2020-2022. Bangladesh maintained a relatively low and steady youth unemployment rate, with a gradual increase over time. Pakistan had the lowest youth unemployment among the three, showing minimal fluctuations.

The economic effects of youth unemployment are profound. In Pakistan, high youth unemployment reduces workforce productivity, suppresses economic growth, and increases government spending on social welfare. Additionally, youth

unemployment limits government savings, creating a feedback loop that undermines public investment in essential infrastructure and services [5]. The "brain drain" phenomenon exacerbates this issue, as skilled young workers often migrate to other countries in search of better opportunities, further straining the domestic labor market [6].

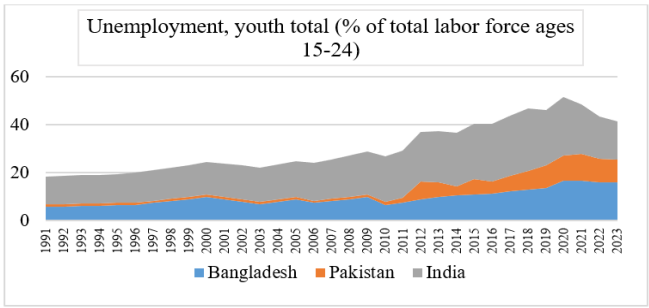

Figure 1. Comparison of youth unemployment rate among selected South Asian countries
Source: World Bank (2024)

Political uncertainty, social conflict, and surge in corruption have all been associated to youth unemployment. Kassem et al. [7] contend that young unemployment that doesn't go away fuels crime rate in Pakistan. Likewise, Zahid et al. [8] pointed out that societal marginalization and amplified crime rates are associated with unemployment in Pakistan. So, addressing youth unemployment is an approach for stabilizing long-term societal stability in addition to economic need. High youth unemployment is also linked to negative social impacts, including increased political instability, social unrest, and even mental health issues among young people. Unemployed youth may face increased rates of anxiety, depression, and social exclusion, often perpetuating cycles of poverty across generations [9, 10]. Moreover, as youth unemployment rises the crime rate in the economy also increases [7].

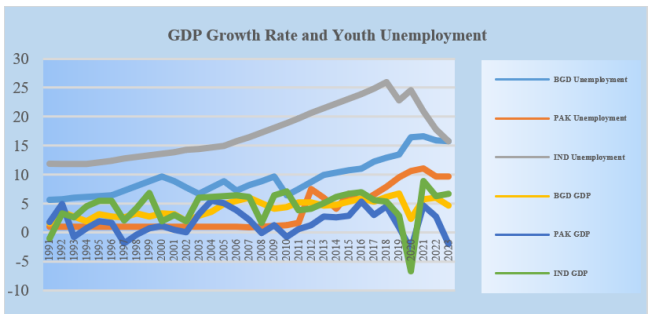

Figure 2. GDP growth rate and youth unemployment
Source: World Bank (2024)

Figure 2 shows that India, despite periods of strong GDP growth, faces significant challenges with youth unemployment, suggesting issues with job creation. Bangladesh's consistent economic growth is reflected in relatively stable youth employment. Pakistan, although having lower youth unemployment, exhibits volatile GDP growth, indicating potential instability in its economic structure.

Although India's GDP has full-fledged, high youth unemployment recommends weak labor interest. Bangladesh's steady unemployment rate aligns with economic stability, while Pakistan's variations show susceptibility to external shocks. The lag consequence among GDP development and unemployment is obvious, as economic perfections take time to convert into job formation Imran et al. [11].

This study aims to comprehensively analyze the impact of youth unemployment on economic growth and social stability in Pakistan, India, and Bangladesh. This study addresses a critical gap in understanding the economic and social impacts of youth unemployment in South Asia, where existing research often overlooks threshold effects and country-specific differences. By applying System GMM and Dynamic Panel Threshold Models, the study identifies a critical unemployment threshold that intensifies its negative impact on GDP growth. The findings provide targeted insights for policymakers on the need for tailored labor market reforms, educational realignment, and gender-inclusive policies, offering actionable guidance for effectively leveraging South Asia's youth demographic for sustainable development.

2. LITERATURE REVIEW

2.1 Youth unemployment and economic impact

Youth unemployment significantly affects economic growth, particularly in South Asia, where unemployment among young people reduces workforce productivity and limits economic potential. Alvi and Fatima [5] argued that youth unemployment shrinks the productive labor force, decreases tax contributions, declines government savings and welfare spending. Gulzar et al. [12] noted that youth unemployment in Pakistan is due to mismatch in demands of the employer and the skills and knowledge of the student, which he/she learn during their education. In an analysis of economic growth limitations. Sato [13] highlighted that youth unemployment constrains countries' productive capacities, as fewer young people are actively contributing to the formal economy. The remaining young population migrates to urban areas in search of jobs. While the education system also contributes in this problem by not offering the marketable skill. The authors emphasize that Bangladesh face challenges due to rapid population growth coupled with the scarcity of matching job opportunities for educated youth. Khan et al. [14] explained that government expenditures, private investment and foreign direct investment declines the unemployment and crucial for job creation.

A study by Shah et al. [15] reinforces these findings by showing that youth unemployment in Pakistan is directly linked to lower gross domestic product (GDP) growth, as unemployed youth lack the means to contribute to productivity. Similarly, Shabbir et al. [16] conducted a comparative analysis of South Asian countries, finding that population growth increases youth unemployment rates that rises dependency ratios, which burdens national budgets due to heightened reliance on social services and fewer contributors to the workforce.

Negera [17] examined South Asian economies and conclude that youth unemployment directly impedes economic growth by limiting household consumption, reducing entrepreneurial initiatives, and driving dependence on the informal sector. Alper [18] similarly note that in developing economies youth unemployment is associated with reduced savings, lower national output, and a decline in foreign investment, all of which compound the region's economic challenges.

Parisi [19] examined the long-term impacts of youth

unemployment, particularly its "scarring" effect, in which youth who experience prolonged unemployment are likely to face reduced earnings throughout their working life. This phenomenon is particularly critical in South Asian economies, where extended youth unemployment correlates with decreased national productivity and limits economic growth. Youth unemployment also leads to lower savings rates and reduced investment, further compounding economic limitations in South Asia [18].

2.2 Youth unemployment and social instability

Youth unemployment in South Asia is associated with social instability, with high rates of joblessness linked to increased crime, political unrest, and social exclusion. Kassem et al. [7] argued that unemployed youth are often more susceptible to radicalization and participation in social unrest, as frustration over limited social mobility can lead to social grievances. This dynamic is particularly relevant in countries such as Pakistan, India, and Bangladesh, where a significant portion of the youth population remains unemployed or underemployed.

In an urban-focused study, Zahid et. al [8] found that youth unemployment contributes to increased crime rates and political protests in Pakistan's major cities. The authors observed that prolonged joblessness among youth often leads to frustration and disenfranchisement, which manifest in various forms of social discontent. In a comparative cross-country analysis, Fung and Nga [20] discovered a strong correlation between youth unemployment and instances of social violence, particularly in ASEAN. The study suggests that as youth unemployment rises, so does the likelihood of social instability, with unemployed young people engaging in demonstrations and other forms of protest to voice their dissatisfaction with the lack of opportunities.

Zahid et al. [21] examined the psychological impact of youth unemployment on Pakistani youth, highlighting an increase in mental health issues, including anxiety, depression, and social exclusion. This emotional toll further impacts social cohesion, as affected youth experience marginalization and disengagement from social structures. Similarly, Talukder and Tanvir [22] explored the role of social exclusion in youth unemployment, noting that unemployed youth in Bangladesh are at greater risk of turning to extremist groups as a means of asserting identity and purpose.

Murshid et al. [23] added that youth unemployment often exacerbates social inequalities, as unemployed youth lack access to resources like education and healthcare, leading to cycles of marginalization and limited upward mobility. Furthermore, Srivastava [24] found a strong link between youth unemployment and crime rates in Indian urban areas, attributing the rise in crime to the frustration and economic desperation experienced by jobless youth. Imtiaz et al. [25] reported that high youth unemployment in Pakistan significantly contributes to political instability, as distrust in institutions grows among the unemployed. Urdal [26] similarly suggested that persistent youth unemployment can undermine social cohesion, increasing the risk of inter-group conflicts and civil unrest.

The majority of prior examination, including Shabbir et al. [16], typically used conservative panel regression models, which are incapable to account for likely non-linear effects. This study increases on Hansen's [27] method for defining unemployment thresholds by exploiting the Dynamic Panel Threshold Model. Additionally, System GMM is used in the waken of Blundell and Bond [28] to address endogeneity concerns, which were a drawback of earlier studies.

3. DATA AND METHODOLOGY

3.1 Data sources

This study analyzes youth unemployment and its economic and social impacts in Pakistan, India, and Bangladesh using data collected from 2000 to 2022. Key data sources include the World Bank, the International Labor Organization (ILO), and national statistical bureaus, which provide a range of economic and social indicators.

Table 1 shows the primary dependent variable is GDP per capita growth, serving as a measure of economic performance. Independent variables include youth unemployment rates, secondary education attainment rates, and gender disparity in employment. Control variables comprise inflation rates, foreign direct investment (FDI), and remittance inflows, selected for their roles in economic stability and growth. These variables are essential for capturing both the direct and indirect effects of youth unemployment on economic growth and social stability.

Table 1. Description of the variables

Variables	Symbols	Units of Measurement	Description
GDP per capita growth	GDP	(%) change in GDP per capita	Annual growth rate of GDP per capita, indicating overall economic growth adjusted per individual
Youth Unemployment	YU	Percentage (%)	Percentage of the labor force aged 15–24 years that is unemployed
Secondary Education Attainment	SE	Percentage (%)	Proportion of the population aged 15+ with at least a secondary education level
Gender Disparity in Employment	GD	Percentage (%) difference	Difference in labor force participation rates between males and females
Govt. Expenditure	GE	Percentage (%) of GDP	Total government spending as a share of GDP, often used to gauge public sector contribution
Inflation Rate	INF	Percentage (%)	Year-on-year change in consumer price index, measuring the rate of price level changes
Foreign Direct Investment	FDI	Percentage (%) of GDP	Net inflows of foreign direct investment as a share of GDP, indicating economic openness
Remittance Inflows	RI	Percentage (%) of GDP	Remittances received from abroad as a percentage of GDP, indicating reliance on migrant incomes

3.2 Proposed econometric model

This study employs two advanced econometric models: The System Generalized Method of Moments (GMM) Model and the Dynamic Panel Threshold Model. These models are chosen to address endogeneity and to capture the threshold effects of youth unemployment on economic growth.

3.2.1 System Generalized Method of Moments (GMM) model

The System GMM model is applied to handle potential endogeneity among variables by using lagged differences as instruments for each variable. This model is well-suited for panel data analysis, as it addresses issues of unobserved heterogeneity and endogenous regressors, both of which are common in studies on youth unemployment's impact on economic growth [28, 29].

As suggested by Roodman [30], the System GMM method is chosen because it can handle probable endogeneity issues by using lagged instruments. Using bootstrap methods, the Dynamic Panel Threshold Model's resilience is confirmed, assuring true threshold level approximation [31]. The empirical model is specified as:

$$\mathrm{GDP}_{it} = \beta_0 + \beta_1 YU + \beta_2 EDU_{it} + \beta_3 GD_{it} + \beta_5 INF_{it} + \beta_6 FDI_{it} + \beta_7 RI_{it} + \mu$$

where, *GDP* is gross domestic product per capita growth for country *i* at time *t*, and *YU* represents the youth unemployment rate, *EDU* is secondary education attainment. Control variables include inflation (INF), foreign direct investment (FDI) and Remittance Inflows (RI). The model uses lagged levels of independent variables, such as ($YU_{i,\,t-1}$, $EDU_{i,\,t-1}$) to instrument for current levels, effectively addressing endogeneity.

3.2.2 Dynamic Panel Threshold Model

To capture potential threshold effects of youth unemployment on GDP growth, the Dynamic Panel Threshold Model is employed, allowing the analysis of non-linear relationships. This model is beneficial for identifying critical points—thresholds—at which the impact of youth unemployment intensifies. Studies by Hansen [27], Kremer et al. [32], Seo et al. [31] supported the utility of this model in identifying non-linear effects.

The threshold model is specified as:

$$\begin{aligned}\mathrm{GDP}_{it} = \beta_0 &+ \beta_1 YU_{it} \times I(YU_{it} \le \emptyset) \\ &+ \beta_2 YU_{it} \times I(YU_{it} > \emptyset) + \beta_3 EDU_{it} \\ &+ \beta_4 GD_{it} + \beta_5 INF_{it} + \beta_6 FDI_{it} + \beta_7 RI_{it} \\ &+ \mu\end{aligned}$$

where,

$I(YU_{it} \le \emptyset)$: Indicator function that equals 1 when youth unemployment YU_{it} is below or equal to the threshold θ, and 0 otherwise. $I(YU_{it} > \emptyset)$: Indicator function that equals 1 when youth unemployment YU_{it} is above to the threshold θ, and 0 otherwise.

In this model:

Below the threshold: When youth unemployment $YU_{it} \le \theta$, the effect on GDP per capita growth is given by β_1.

Above the threshold: When youth unemployment $YU_{it} > \theta$, the effect on GDP per capita growth is given by β_2. The other variables and symbols remain the same as defined in the GMM model.

4. RESULTS AND DISCUSSION

4.1 Descriptive statistics

The descriptive statistics provide an overview of the key variables used in this study. These include GDP per capita growth, youth unemployment rate, secondary education attainment, gender disparity in employment, government expenditure, inflation rate, foreign direct investment (FDI), and remittance inflows.

Table 2. Descriptive statistics

Variable	Mean	Std. Dev.	Minimum	Maximum
GDP	4.20	2.10	-1.80	7.50
YU	17.30	5.00	10.20	26.70
SE	45.50	12.50	28.00	72.00
GD	32.50	8.40	21.10	41.70
GE	3.80	1.20	2.40	6.10
INF	6.50	3.20	1.80	12.00
FDI	1.80	1.10	0.30	4.10
RI	5.20	3.00	0.70	10.90

Based on the findings presented in Table 2 the youth unemployment rate across the study countries averages 17.3%, indicating a substantial unemployment burden among young individuals, with rates reaching as high as 26.7% in certain periods. Gender disparity in employment shows a mean of 32.5%, reflecting significant inequality in labor force participation across genders in the region. These statistics underscore the challenges in integrating the youth population into productive economic roles, with implications for both economic growth and social stability.

4.2 System Generalized Method of Moments (GMM) results

The results from the System GMM model in Table 3 indicate a significant negative relationship between youth unemployment and GDP per capita growth. Specifically, a 1% increase in youth unemployment correlates with a 0.20% decrease in GDP growth (p = 0.004), supporting findings by Vyas [33], who observed similar productivity declines due to high youth unemployment in India's informal sector.

Table 3. System GMM results

Variable	Coefficient	Standard Error	P-Value
YU	-0.20***	0.07	0.004
EDU	0.16**	0.05	0.015
GD	-0.13**	0.04	0.009
INF	-0.09**	0.03	0.030
FDI	0.11**	0.04	0.024
RI	0.08**	0.03	0.022

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

Secondary education attainment is positively associated with GDP growth, with a coefficient of 0.16 (p = 0.015), suggesting that higher education levels enhance productivity, consistent with Sato [34].

The significant negative coefficient for gender disparity in employment (-0.13, p = 0.009) implies that increasing gender inequality in employment reduces GDP growth. This aligns with Yeung [35], who found that limitations on female labor force participation exacerbate economic costs associated with

youth unemployment. Additionally, inflation has a negative impact on GDP per capita growth (-0.09, p = 0.030), which supports Kremer et al. [32], indicating that high inflation erodes real incomes and deters investment.

Both FDI and remittance inflows are positively correlated with GDP growth, with coefficients of 0.11 (p = 0.024) and 0.08 (p = 0.022), respectively.

4.3 Dynamic Panel Threshold Model

Table 4 shows Dynamic Panel Threshold Model identifies 17% as the critical threshold for youth unemployment. Below this level, a 1% increase in youth unemployment results in a modest 0.12% reduction in GDP growth, indicating that economies may absorb low-to-moderate levels of youth unemployment without severe growth repercussions. This finding aligns partially with Wickramasinghe and Liyanahetti [36], who observed that moderate youth unemployment in Sri Lanka did not significantly impact GDP.

Table 4. Dynamic Panel Threshold Model results

Threshold Level	Below Threshold Coefficient	Above Threshold Coefficient	P-Value (Above Threshold)
Youth Unemployment (17%)	-0.12	-0.30	0.002***

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

When youth unemployment exceeds the 17% threshold, the adverse effect on GDP growth intensifies. At this level, a 1% increase in unemployment correlates with a 0.30% decrease in GDP growth (p = 0.002), highlighting the economic risk posed by high unemployment rates. The results suggest that when youth unemployment surpasses a manageable level, the economy becomes less resilient to its negative impacts, resulting in significant productivity losses.

Sayed et al. [6] suggested to overcome the issue of brain drain the management need quick actions to provide suitable and attractive job opportunities to youth. Gulzar et al. [12] highlighted the requirement of employers and the skills student learn from education. Additionally, Khan et al. [14] emphasize how microfinance programs can stimulate employment and government ensure that FDI has spillover effect on economy.

4.4 Comparative analysis of youth unemployment impacts on GDP growth and social factors in South Asia

The impact of youth unemployment on economic growth in Bangladesh, India, and Pakistan is contrasted in Table 5. In Pakistan, youth unemployment has the largest negative impact on GDP growth; in India and Bangladesh, it has a moderate effect and a smaller one. Economic slowdowns become apparent when youth unemployment reaches a critical 17 percent in all three countries. While Pakistan and India have significant gender gaps that limit workforce participation, Bangladesh has made progress in this area. Bangladesh has the highest remittance dependency, Pakistan has a moderate one, and India has the lowest, indicating differing levels of economic reliance on foreign income. The small domestic job market in Bangladesh, the underemployment and skills mismatch in India, and the political unrest and job shortages in Pakistan are significant barriers. For the area to witness sustainable.

Table 5. Comparative analysis of youth unemployment impacts on GDP growth and social factors in South Asia

Country	YU Coefficient	GDP Growth Impact	Critical YU Threshold	Gender Disparity	Dependency on Remittances	Key Economic Challenges
Pakistan	-0.30	Significant decrease	17%	High	Moderate	Limited job creation, high dependency ratios, and political instability due to youth frustration
India	-0.20	Moderate decrease	17%	High	Low	High educational mismatch, underemployment, and large informal sector
Bangladesh	-0.15	Mild decrease	17%	Lower	High	Strong reliance on remittances for economic stability, limited domestic job market opportunities

5. CONCLUSION AND POLICY IMPLICATION

5.1 Conclusion

This study provides an in-depth analysis of the effects of youth unemployment on economic growth and social stability in South Asia, focusing on Pakistan, India, and Bangladesh. Using System GMM and Dynamic Panel Threshold Models, the findings show that youth unemployment has a notably negative impact on GDP growth, particularly when it surpasses a 17% threshold.

Youth unemployment decreases economic efficiency, upsurges dependence ratios, and generates barriers to sustainable development. Key conclusions designate that high levels of unemployment between young people impede economic growth, with the impact growing above the identified threshold, which has dangerous suggestions for policymakers in South Asia.

Additionally, secondary education accomplishment was found to have encouraging influence on GDP development, signifying that didactic investment can alleviate some adverse effects of youth unemployment. Though, gender disparity in employment, inflation, and low FDI levels all act as limits on financial growth.

The comparative examination across Pakistan, India, and Bangladesh also present the essential for country-specific methods due to exclusive socio-economic environments, but overall recommends that the youth unemployment crisis needs crucial and targeted involvement.

5.2 Policy implications

5.2.1 Targeted employment programs

Government policies should focus on job creation in sectors with high potential for youth engagement, such as technology, manufacturing, and services, to reduce informal sector reliance and increase formal employment.

5.2.2 Educational realignment and vocational training

Educational programs should be realigned to match market needs, with a particular emphasis on vocational and technical training that can provide youth with employable skills. Bangladesh, in particular, could benefit from expanded vocational training programs.

5.2.3 Gender-inclusive employment policies

Addressing gender disparity in employment would increase the productive potential of the youth workforce. Targeted incentives for female workforce participation could be especially beneficial in Pakistan and India.

5.2.4 Promoting FDI and managing inflation

Policies that attract foreign investment can create jobs for the youth population and reduce dependency on remittances. Inflation control remains essential to maintain the stability required for sustainable economic growth.

Microfinance initiatives similar Grameen Bank have successfully reintegrated young persons into the labor force in Bangladesh [23]. An instance of the success of focused vocational training is India's "Skill India" effort [18]. Recent internship initiatives in Pakistan have established a modest level of accomplishment in dropping youth unemployment [25]. This research contributes to the literature by highlighting the threshold effects of youth unemployment on economic growth and the compounding effect of gender disparity on labor productivity. The comparative insights offered here emphasize the need for tailored policies in Pakistan, India, and Bangladesh to mitigate the economic and social costs of high youth unemployment and harness the potential of the youth demographic for sustainable growth.

5.3 Limitations

Although this study provides appreciated insights into the association among economic development and adolescent unemployment, it has few boundaries. First of all, the study only examines a small number of demographic and socioeconomic factors; however, there may be additional external factors at play. Second, the study does not include robustness evaluations for the Dynamic Panel Threshold Model, which could additional validate the stated threshold effects. Thirdly, even though the System GMM method is used to address endogeneity issues, additional remarks regarding its assumptions and applicability could increase the methodological penetration. Finally, extra variables that might be employed to widen the analysis in subsequent studies were not examined.

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