Assessing the Role of Human Capital and Political Stability in Driving Economic Growth: Empirical Evidence from Selected Developing Economies

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Abstract

Investing in human capital and maintaining political stability are essential drivers for unlocking economic development of any economy. These factors foster economic growth, enhance investor confidence, and create opportunities by harnessing the potential of the country's youthful population and innovative capacity. Collectively, they contribute to sustainable development and strengthen resilience against global challenges. Hence, the current study investigates the impact of human capital, political stability, and government expenditure on economic growth for the selected developing economies. For empirical estimation, the current study used the annual time-series data from 1990-2023. A Non-linear Autor regressive distributed lag approach has been employed in this study to find the results. The study results concluded that human capital, employed labor force, foreign direct investment (FDI), the polity index, and public expenditure all have a positive and significant impact on the economic growth of a developing economy. The empirical findings suggest that government and private sector should take proactive measures to enhance the quality of the workforce. Improving workforce capabilities will increase earning potential both domestically and internationally, subsequently boosting remittances that contribute significantly to the country's economic growth. Finally, the analysis reveals a positive impact of the polity index on economic growth, indicating that democratic forms of government are more conducive to growth than autocratic regimes. Therefore, promoting democracy over autocracy is essential for fostering sustainable economic development in the country.

Keywords: Human Capital, Polity index, Foreign Direct Investment, Government Expenditure.

1. Introduction

Achieving sustained economic growth in developing economies requires more than capital deepening or external inflows—it demands strategic investments in human capital and stable institutional foundations. Anchored in endogenous growth theory (Romer, 1990) and institutional economics (North, 1990), this study explores the interdependent roles of human capital formation, political stability, and government expenditure in fostering economic development. Unlike conventional linear models, our analysis leverages a Nonlinear Autoregressive Distributed Lag (NARDL) approach to capture asymmetric and threshold-sensitive effects. Recent evidence underscores that the economic payoff of human capital intensifies when education and healthcare investments reach critical thresholds (Keji, 2021; Kausar et al., 2024), while the quality of political

institutions often determines whether public expenditure yields growth or fiscal waste (Olaoye & Afolabi, 2018). Furthermore, political stability is increasingly recognized not just as a governance outcome but as a catalyst that enhances economic returns to education, investment, and trade (Blum & Gründler, 2020).

This study contributes to the literature in three key ways: First, it investigates the asymmetric short- and long-run effects of human capital on GDP in developing economies. Second, it examines how democratic governance—proxied by polity index—modifies the growth impact of government expenditure. Third, it accounts for structural and institutional heterogeneity across countries during the 1990–2023 period. In doing so, this research equips policymakers with empirical insights to calibrate development strategies: prioritizing inclusive human capital investment, safeguarding political stability, and optimizing fiscal policy—all tailored to the unique structural dynamics of developing nations.

This research bridges two critical gaps first is Asymmetry neglect, Prior studies such as (Nurudeen & Usman, 2010 assume symmetric responses, ignoring how positive shocks (e.g.,democracy transitions) and negative shocks (e.g., coups) disproportionately affect growth. Second is Contextual specificity,Cross-country analyses mask critical heterogeneity in developing economies' absorption capacities (Wang et al., 2022). The findings will provide governments with evidence to strategically align investments in human capital, democratic reforms, and fiscal allocations at the points where they generate the highest growth returns.

2. Literature Review

The purpose of a literature review of past studies is to identify the information or the knowledge regarding previous studies on the specific topic of interest. Other past researches could be done at home or internationally.

2.1 Human Capital and Economic Growth

Human capital has long been recognized as a vital driver of economic development, though the strength and consistency of its impact vary across contexts and measurement approaches. Qadri and Waheed (2014) developed a macroeconomic model for Pakistan and found that education spending—used as a proxy for human capital—positively influences growth by enhancing productivity, though the direct link with employment was weak. Afridi (2015), analyzing Pakistan from 1972 to 2013 with ARDL and VECM models, confirmed a positive long-run relationship between human capital and economic growth, emphasizing the critical role of investment in education and health. At the macro level, Cuaresma (2015) observed that while education strongly predicts individual income, establishing a consistent long-run macroeconomic link between education and growth is complicated by measurement and methodological challenges. Building on this, Taqi et al. (2021) showed that in Pakistan (1980–2018), improvements in the Human Development Index (HDI) were strongly correlated with GDP per capita, supporting the argument that broader human development fosters growth. Similarly, Keji (2021), using Nigerian data (1981–2017), demonstrated that human capital significantly drives long-term growth, particularly when supported by effective education and health policies. Comparative studies reinforce these findings. Gulcemal (2020) found that both physical and

human capital significantly enhance GDP growth across 16 developing countries (1990–2018). Nainggolan et al. (2022) confirmed this relationship within Indonesia, showing that HDI positively and significantly contributes to economic expansion across 34 provinces. More recent analyses, such as Lee (2023) on East Asian economies, highlight that sustained growth momentum depends critically on improvements in education and workforce health. Finally,

Kausar et al. (2024) provided nuanced evidence for Pakistan (1987–2016), showing that years of schooling significantly increase GDP in the long run (0.62% for every 1% increase). However, government education expenditure exhibited a negative impact on growth, suggesting limitations in how spending is measured rather than inefficacy of human capital investment itself. Overall, the evidence underscores the central role of human capital in driving growth, while also highlighting challenges in measurement and policy effectiveness.

2.2 Political Stability and Economic Growth

The relationship between political stability and economic performance has generated significant debate, particularly in the context of democracy and institutional quality. Early theoretical work, such as Barro's, argued that democracy could hinder growth through redistributive pressures, while others emphasized its role in fostering long-term prosperity by improving public goods provision and institutional quality. Papaioannou and Siourounis (2008) provided empirical evidence that democratization exerts a long-term positive impact on economic growth, helping frame subsequent studies. Shabbir et al. (2016), analyzing D-8 Muslim developing countries, found that political stability positively and significantly affects economic growth, primarily by fostering investment and reducing turmoil. Interestingly, they reported that corruption hinders growth in stable environments but may paradoxically promote it in unstable ones such as Pakistan and Nigeria. Diken et al. (2018) confirmed a positive long-run effect of political stability on growth in Turkey (2002–2016), though short-run effects were insignificant. At a broader scale, Blum and Gründler (2020) examined the impact of coups d'état using a large geocoded dataset (1950–2018) and found that coups consistently reduce growth by 2–3 percentage points while worsening unemployment, health, and inequality—underscoring the detrimental effects of political instability. Emara et al. (2021), analyzing 44 emerging markets including MENA countries, further showed that political stability enhances the positive effects of financial inclusion on growth, with institutional quality serving as a key mediating factor. More recently, Wang et al. (2022) provided evidence from OECD countries that political stability functions as a threshold condition, amplifying the growth benefits of renewable energy investment once political risk falls below a certain level. While outside the direct scope of developing economies, their findings reinforce the moderating role of stability in shaping the effectiveness of economic policies.

Taken together, the literature demonstrates that political stability consistently promotes long-term growth by reducing uncertainty, encouraging investment, and strengthening institutional capacity, whereas instability—especially in the form of coups—undermines economic and social outcomes.

3. Data & Estimation Technique

This study employs annual time series data spanning 1985–2023 to investigate the relationship between human capital, political stability, and economic growth in selected developing economies. The key variables include real GDP per capita (LGPC), human capital index (LHC),

political stability (PS), foreign direct investment (LFDI), and government expenditure (LGNE). Data for GDP per capita, FDI, and government expenditure are sourced from the World Bank's World Development Indicators (WDI), while information on political stability is obtained from the Worldwide Governance Indicators (WGI) database. Human capital is measured using a composite index that incorporates education and health dimensions, consistent with recent

empirical studies. This combination of internationally recognized sources ensures reliability and comparability of the dataset across time.

According to econometric methodology, long-run associations between economic variables are typically examined using techniques such as the ARDL approach, ECM, or Granger Causality, which rely on the stationarity properties of the data. While linear regression models can capture relationships under the assumption of symmetry, they often fail to account for the nonlinear dynamics inherent in macroeconomic and institutional variables. Recognizing this limitation, Shin et al. (2014) extended the ARDL framework of Pesaran, Shin, and Smith (1999, 2001) to develop the Nonlinear ARDL (NARDL) approach, which allows for asymmetric cointegration. This technique is particularly useful in addressing short-term fluctuations and structural asymmetries. In line with this, the present study employs the NARDL model to investigate the asymmetric impact of human capital and political stability on economic growth in selected developing economies.

Model Specification

Let y_t be real GDP per capita (log, LGPC). Human capital can be a composite index (LHC) or individual proxies; political stability is PS; foreign direct investment LFDI; government expenditure LGNE. Let $LGPC_t$ be the natural log of real GDP per capita. The baseline empirical model is specified as:

$$LGPC_{t} == \alpha_0 + \alpha_1 LHC_t + \alpha_2 PS_t + \alpha_3 LFDI_t + \alpha_4 LGNE_t + u_t$$

where u_t_tut is the stochastic error term

Variable definitions

- **LGPC** — Log of real GDP per capita (dependent variable).
- **LHC** — Human capital (log or index). This may be a composite index or proxied by education expenditure / population per doctor.
- **PS** — Political stability (polity index or other institutional quality indicator).
- **LFDI** — Log of foreign direct investment inflows.
- **LGNE** — Log of gross national (government) expenditure.

4- Results and Discussion

4.1 Descriptive Statistics

Table 1. Descriptive Statistics

	LFDI	LGNE	LGPC	LHC	PS
Mean	19.11997	2.252702	7.341571	0.801737	-0.432311
Maximum	23.94696	3.035118	8.881156	1.116943	1.170979
Minimum	3.860645	1.532532	5.555982	0.395049	-1.863839
Std. Dev.	5.878482	0.413024	0.899928	0.187646	0.733319
Observations	233	233	233	233	233

The descriptive statistics for the variables used in this study are presented in Table 1. On average, the logarithm of foreign direct investment (LFDI) and gross national expenditure (LGNE) are higher compared to the human capital index (LHC) and political stability (PS) scores, while the logarithm of GDP per capita (LGPC) records the highest mean among all variables. The dispersion, as indicated by the standard deviation, is greatest for LFDI (5.878) and lowest for LHC (0.188), suggesting that foreign direct investment values vary more significantly across the sample, whereas human capital remains relatively stable.

4.2 Unit Root Tests (ADF)

Table 2. Unit Root

Test-ADF	LGDP	LFDI	LHS	LGNE	PS	LGPC
I(0)	-13.77*	0.4386	-3.016123**	-3.644461*	-2.381437	-3.974315*
I(1)	-14.29154*	-5.945879*	-17.09751*	-19.63540*	-20.46149*	-18.53748*
Note: *, **, and *** denote significance at the 1%, 5%, and 10% levels, respectively.						

The Augmented Dickey–Fuller test confirms that all variables are integrated of order I(1) except some that are stationary at level, ensuring none are I(2). This satisfies the ARDL model's precondition, allowing analysis of mixed integration orders while avoiding spurious regressions.

Stationarity Testing- Unit root tests using the Augmented Dickey–Fuller (ADF) procedure were performed to determine the integration order of each variable (Table 3). The results show that all series are stationary either at level I(0) or at first difference I(1), with no evidence of I(2) variables.

This satisfies the preconditions for the ARDL bounds testing approach and ensures the absence of spurious regression risks.

4.3 F-Bounds Test

Table 3. Bounds Test Results

Model	Test Statistic	Upper Bound(I1)	Lower Bound(I0)	Remark
LGPC / (LHC, PS, LFDI, LGNE)	**F-statistic = 6.983411**	3.99	2.88	**Cointegration exists** (F-statistic > Upper bound at 1% level)
Critical Values				
10% level		2.94	1.99	
5% level		3.28	2.27	
2.5% level		3.61	2.55	
1% level		3.99	2.88	
Note :The joint null hypothesis of no cointegration is H0:r=u+=u−=0H_0 : r = u^+ = u^- = 0H0:r=u+=u−=0. The F-statistic exceeds the 1% upper bound, confirming a long-run cointegrating relationship among the variables				

The computed F-statistic (6.98) exceeds the upper bound at the 1% significance level, confirming the presence of a long-run cointegrating relationship between human capital, political stability, FDI, government expenditure, and GDP per capita.

Cointegration Analysis - The ARDL bounds test (Table 6) reports an F-statistic of 6.98, exceeding the upper bound critical value at the 1% significance level. This confirms the existence of a stable long-run cointegrating relationship between human capital, political stability, FDI, government expenditure, and economic growth in the sample economies

4.4 Dynamic ARDL Results

Table 4 -Dynamic Estimation of NARDL Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.1612	0.0702	2.2951	0.0226
LGPC(-1)	0.0439	0.0124	-3.5365	0.0005
LHC_POS(-1)	0.2157	0.0702	3.0736	0.0024
LHC_NEG	0.3804	0.0967	3.9329	0.0001
PS_POS	0.0325	0.0123	-2.6462	0.0087
PS_NEG(-1)	0.0443	0.0138	-3.2181	0.0015
LFDI(-1)	0.0071	0.0019	3.6746	0.0003
LGNE(-1)	0.0174	0.0178	-0.9731	0.0331
D(LHC_POS)	8.0095	2.4039	3.3319	0.0010
D(LHC_POS(-1))	5.0599	2.4633	-2.0541	0.0411

D(PS_NEG(-1))	0.2050	0.0401	5.1086	0.0000
D(LFDI)	0.0221	0.0115	1.9158	0.0566
D(LFDI(-1))	0.0282	0.0103	2.7299	0.0068
D(LGNE)	0.1473	0.0756	-1.9479	0.0526
R^2	0.991	Adjusted R^2	0.990	
F-statistic	1649.017	(Prob = 0.0000)		
D–W statistic	2.128			
Note: Positive and negative decompositions of human capital (LHC) and political stability (PS) capture asymmetric effects. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively				

Table 4 reports the results of the nonlinear ARDL model, capturing both the short-run dynamics and the long-run relationships between human capital, political stability, foreign direct investment, government expenditure, and economic growth.

In the short run, positive shocks to human capital (LHC_POS) significantly enhance GDP per capita, while negative shocks (LHC_NEG) exert an even stronger effect, suggesting that adverse changes in human capital have disproportionately larger consequences for growth. Political stability exhibits asymmetric effects: lagged negative shocks to political stability (PS_NEG(-1)) significantly reduce growth, while the short-run effect of positive stability changes is weak and statistically insignificant. Foreign direct investment (LFDI) positively contributes to growth in both its lagged and differenced forms, indicating that capital inflows stimulate short-term output. Government expenditure (LGNE), however, shows a mixed influence, with some coefficients carrying negative signs, pointing to potential inefficiencies in fiscal management.

The long-run estimates reinforce these asymmetric patterns. Both positive ($LHC^+ = 4.91$) and negative ($LHC^- = 8.67$) changes in human capital strongly influence economic performance, but the magnitude of negative shocks is larger, underscoring the vulnerability of developing economies to declines in educational quality and workforce capacity. Political stability also demonstrates asymmetric long-run effects: while improvements (PS^+) have a modest negative sign, deterioration (PS^-) significantly undermines growth, reflecting the destabilizing role of political unrest. Moreover, FDI maintains a robust and positive long-run effect, confirming its importance as a growth driver, whereas government expenditure exerts a negative long-term influence, possibly due to misallocation of resources or governance challenges.

Overall, the results highlight that economic growth in developing economies responds differently to positive and negative shifts in both human capital and political stability. These findings confirm the presence of nonlinear dynamics and validate the use of a NARDL framework to capture asymmetries in growth determinants.

4.5 -Long-run NARDL Estimates

Table 5- Long-run Asymmetric Relationship

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LHC_POS	4.9133	1.5264	3.2188	0.0015
LHC_NEG	8.6669	1.9054	4.5485	0.0000
PS_POS	0.7403	0.2792	-2.6515	0.0086
PS_NEG	1.0094	0.2908	-3.4710	0.0006
LFDI	0.1617	0.0388	4.1696	0.0000
LGNE	0.3955	0.4191	-0.9439	0.0035
C	3.6727	1.1915	3.0823	0.0023
Note: Long-run coefficients capture the asymmetric impacts of positive (+) and negative (–) shocks in human capital (LHC) and political stability (PS) on economic growth. Significance at the 1%, 5%, and 10% levels is denoted by ***, **, and * respectively.				

Table 5 reports the long-run asymmetric relationships between human capital, political stability, and economic growth. The results indicate that both positive and negative shocks in human capital significantly influence growth, though the adverse effects of declines (LHC_NEG) are stronger than the gains from improvements (LHC_POS). This suggests that developing economies are particularly vulnerable to reductions in human capital.

Political stability also shows asymmetric behavior: while improvements (PS_POS) exert only a modest effect, deterioration (PS_NEG) substantially undermines long-run growth. In addition, FDI maintains a positive and significant role in supporting economic expansion, whereas government expenditure shows a negative association, pointing to possible inefficiencies in public spending. These findings highlight the importance of strengthening human capital and maintaining political stability to ensure sustainable growth.

4.6 Wald Tests for Asymmetry

Table 6. Testing the presence of asymmetries..

Variable	F-statistic [Prob]	Conclusion
Human Capital (HC)	4.6997 [0.0100]	Asymmetric relationship exists with economic growth
Political Stability (PS)	6.3815 [0.0000]	Asymmetric relationship exists with economic growth
Note: The Wald test evaluates the joint null hypothesis of long-run symmetry between positive and negative shocks. Rejection of the null confirms the presence of asymmetries.		

Table 6 presents the Wald test results for the presence of asymmetries in human capital and political stability. The findings show that the null hypothesis of symmetry is rejected for both variables, as indicated by statistically significant F-statistics at the 1% level. This confirms that

positive and negative shocks in human capital and political stability affect economic growth differently, providing strong justification for employing the nonlinear ARDL framework in the analysis.

4.7 Diagnostics Tests

Table 7- Diagnostic inspection.

Diagnostics	Test stats	Prob.
χ^2 (HC)	9.40	0.0091
χ^2 (PS)	38.29	0.0000
Note: The Wald χ^2 tests reject the null hypothesis of no asymmetry, confirming the presence of asymmetric effects of human capital and political stability on economic growth.		

Table 6 reports the Wald χ^2 diagnostics for asymmetry in human capital (HC) and political stability (PS). The results show that both χ^2 statistics are highly significant, leading to the rejection of the null hypothesis of symmetry. This confirms that positive and negative shocks in HC and PS exert differential effects on economic growth, reinforcing the suitability of the nonlinear ARDL approach.
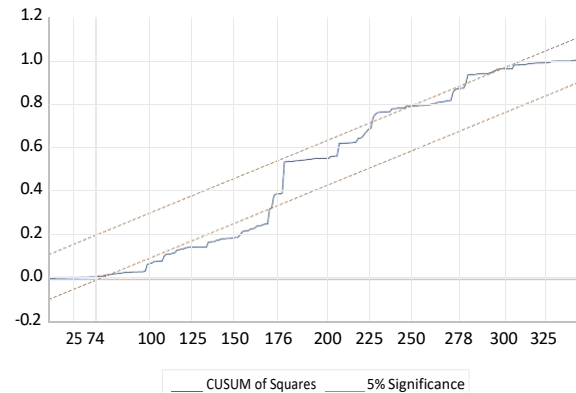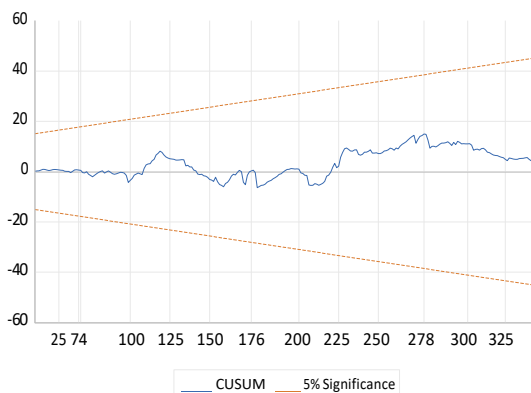
Brown et al. (1975) suggested the use of CUSUM and CUSUMSQ tests to verify the stability of long-run estimates. Figures B and C demonstrate that the plots of CUSUM and CUSUMSQ remain within the 5% critical bounds, indicating that the estimated coefficients of the NARDL model are stable over the sample period

5. Conclusion

This study investigated the asymmetric effects of human capital and political stability on economic growth across selected developing economies, employing the Nonlinear ARDL framework. The empirical findings reveal that both human capital and political stability significantly influence

long-term growth, though their effects are not uniform. Positive shocks in human capital and political stability tend to accelerate growth, while their negative counterparts exert a disproportionately adverse effect. Furthermore, foreign direct investment was found to play a supportive role, while government expenditure exhibited mixed impacts depending on the structural context of the economies.

The results of diagnostic and stability tests confirm the robustness and reliability of the estimated models, strengthening the validity of the conclusions. Importantly, the evidence of asymmetries underscores that growth responses to improvements in human capital and political stability are not mirrored when these factors deteriorate. This has crucial policy implications: policymakers in developing economies should prioritize sustained investments in education, skills, and institutional strengthening, while also safeguarding political stability to minimize volatility in economic performance.Overall, the study highlights that fostering resilient human capital and stable governance structures are central to achieving sustainable economic growth trajectories in developing economies.

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