



Economic Freedom-Growth Nexus in South Asian Countries

Prem Bahadur Budhathoki¹, Janga Bahadur Hamal^{2*}, Murari Karki³

Received 08/03/2026

Accepted : 15/05/2026

Published : 30/06/2026

<https://doi.org/10.52919/arebus.v7i1.126>

ABSTRACT

Previous studies pay less attention to how economic freedom (EFI) affects economic growth, especially in the context of South Asian countries. Therefore, this study primarily examines the effect of EFI on economic growth in the context of five South Asian countries—Bangladesh, India, Nepal, Pakistan, and Sri Lanka— over the period 1995-2024. The multicollinearity issues are checked by Pearson's correlation and VIF. As a pre-estimation analysis, we performed the CD-test, unit root test, and cointegration test. We used Panel-corrected Standard Error (PCSE) for baseline regression results, the Feasible Generalized Least Squares (FGLS), and Random-effect (RE) estimators for the sensitivity analysis. The outcome demonstrated that the EFI stimulates growth in South Asian countries. The results also revealed that Gross Capital Formation (GCF), Labor Force Participation (LFP), Access to Electricity (ATE), and Inflation have a favorable impact on growth. However, the Foreign Direct Investment (FDI) has a negligible impact on growth in South Asian countries. Policymakers can use findings to achieve desired economic growth in this region.

Keywords: Foreign Direct Investment, Gross Capital Formation, Inflation, Labor Force Participation, Panel Data.

JEL codes : C33, O43, O47

How to cite this article

Budhathoki, P. B., Hamal, J. B., & Karki, M. (2026). Economic freedom-growth nexus in South Asian countries. *Advanced Research in Economics and Business Strategy Journal*, 7(1), 142-159. <https://doi.org/10.52919/arebus.v7i1.126>

¹ Associate Professor, Tribhuvan University, Saraswati Multiple Campus, Kathmandu, Nepal, prem.budhathoki@mahmc.tu.edu.np

² * Corresponding author, Assistant Professor, Tribhuvan University, Saraswati Multiple Campus, Kathmandu, Nepal, Janga.hamal@smc.tu.edu.np

³ Assistant Professor, Tribhuvan University, Saraswati Multiple Campus, Kathmandu, Nepal, murari.karki@smc.tu.edu.np

This work is an open access article, licensed under a [CC BY 4.0](https://creativecommons.org/licenses/by/4.0/)

1. INTRODUCTION

The urgency of rising standard of living through increasing employment opportunities and reducing income disparity has become a fundamental goal of developing countries. This goal has certainly been achieved by increasing economic growth (hereafter, growth) (Thuy, 2022). The "Exogenous Growth Model" states that the main factor of production, capital and labor, primarily drives growth. Moreover, the "Endogenous Growth Theory" explains that long-term growth is driven by internal factors such as human capital development and innovation.

The economic freedom (EFI) offers rights to individuals and firms to make better economic decisions about production, consumption, and investment, without government interference. The "Endogenous Growth Theory" states that the EFI stimulates incentives for empowering human capital and innovation. The Heritage Foundation presents the twelve components of EFI. This states that the EFI stimulates growth by protecting property rights (right to buy, hold, and sell assets), reducing tax burden, increasing government spending, and maintaining better fiscal health. Also, the government integrity (honesty and fairness, transparency, accountability, and anti-corruption safeguards), judicial effectiveness (independence, fairness, efficiency in handling disputes, and enforcement of contracts), and accessibility create an environment for the operation of business effectively, which ultimately increases growth (Hung et al., 2024; Campomanes, 2023). The business, labor, monetary, trade, investment, and financial freedom can also impact growth. These factors motivate entrepreneurs to use their scarce resources in an efficient way to produce more outputs (Pavlik et al., 2023). The democratic, market-driven economy with competition, a better institutional and policy environment, can lay the ground for economic prosperity. Some empirical studies also support the fact that the EFI could attract more FDI and increase growth (Azman-Saini et al., 2010; De Haan & Sturm, 2000). Most of the previous studies reveal that the EFI favorably impacts growth. For instance, Islam (1996), Roux and Gorlach (2011), Kouton (2019), Cervelló-Royo et al. (2023), and Hung et al. (2024) found that the EFI helps to increase growth. However, some studies found that the EFI adversely impacts growth. For instance, Tsitouras and Papapanagos (2025) found an adverse impact of EFI on growth in the medium term.

The past studies reveal that the impact of Gross Capital Formation (GCF) on growth remains inconclusive. The GCF can either positively or negatively affect growth. It can have a favorable effect on growth by increasing productivity through investing in equipment, technology, and innovation. It further increases employment opportunities, which increases the income and spending power of consumers, who demand more products, which ultimately increases growth. However, it can adversely impact growth by overinvestment and misallocation of capital. For instance, Oyebowale and Algarhi (2020) and Mohamed and Abdi (2024) confirmed the positive impact of GCF on growth, while Gold and Tregenna (2024) found an adverse impact on growth. The Labor Force Participation (LFP) either positively or negatively impacts growth. The LFP can increase growth by increasing outputs, supplying a more skilled labor force, raising the purchasing power of women and marginalized groups, and raising tax revenue for governments, which can increase growth. However, some argued that a higher level of LFP decreases productivity by lower investment in modern facilities and decreases the real income of earners. Moreover, most of the studies reveal that the Labor Force Participation (LFP) has a favorable impact on growth (for instance, Imamović et al. (2025);

Mohamed and Abdi (2024)). However, some studies, for instance, Hung et al. (2024), find an inverse impact of the LFP on growth.

The Access to Electricity (ATE) can favorably influence growth by increasing efficiency and productivity, empowering human resources through offering better education and healthcare, improving entrepreneurship and innovation, attracting more FDI, and developing the rural sector, which can increase growth. The majority of previous studies find that Access to Electricity (ATE) has a favorable impact on growth (for instance, Azam et al. (2021); Shodroková et al. (2024); Opoku et al. (2025)). The impact of the Foreign Direct Investment (FDI) on growth is inconclusive. The FDI can favorably impact growth by attracting capital inflows and technology, integrating the global market, and empowering the local workforce with training and development, which jointly increase efficiency and productivity and increase growth. Conversely, the FDI adversely impacts growth, which can increase the dominance of foreign firms and destroy local firms, which can decrease growth. For instance, Le et al. (2024) and Nguyen et al. (2025) found a positive impact of FDI on growth. However, Gold and Tregena (2024) found that FDI adversely impacts growth. The impact of inflation on growth is still inconclusive. For instance, Mignamissi et al. (2023) and Ben Abdallah et al. (2024) found that inflation increases growth below a certain threshold value, and it turns into negative growth above the threshold value. This indicates that a moderate inflation rate encourages entrepreneurs to invest more because a rise in inflation increases firms' profitability, consumer demand more products due to a rise in nominal income, decreases the real value of debt, which also increases the spending power of borrowers, and increases growth. Some studies, for instance, Hadush et al. (2023) reported an adverse impact of inflation on growth. This indicates that higher inflation erodes the purchasing power of borrowers, curtails savings, and demotivates them to invest in new projects due to a rise in the cost of funds, which can decrease growth.

The previous studies primarily examined the impact of the EFI on growth in developed and emerging economies and paid less attention to developing nations. Therefore, the contributions of the study are as follows. First, the study investigates the impact of EFI on growth in the context of South Asian countries using the more recent dataset and offers additional literature to deepen the understanding of this issue. Second, the study examines the impact of GCF and LFP on growth. Third, the study also analyzed the contribution of infrastructure development to growth in South Asian countries. Fourth, the study examines the FDI inflows and their impact on growth. Finally, the study analyzes the effect of macroeconomic stability on growth in South Asian countries.

The remaining sections of the study are presented as follows. Sections 2 and 3 are devoted to the Literature review and Methodology, respectively—sections 4 and 5 present Results and Discussion, respectively. Finally, Section 6 presents the Conclusion.

2. LITERATURE REVIEW

2.1.1 Economic freedom and GDPPC

Most of the current literature demonstrates a positive impact of EFI on growth. For instance, Kouton (2019) examined the EFI-inclusive growth nexus working with a sample of 30 SSA nations for the period 1996-2016. Employing the GMM estimator, the result of the study confirmed that the EFI has a significant positive impact on inclusive growth.

Additionally, the causality test outcome revealed a unidirectional "causal relationship running from EFI to growth". Tsitouras and Papapanagos (2025) investigated the EFI-growth nexus in the context of Greece for the period 1980-2019. The findings revealed that an increase in EFI adversely impacts growth in the medium term, but it turned positive in the long run.

Additionally, the study confirmed that the improvement in EFI reduces income disparity and stimulates growth in the long run. Hung et al. (2024) investigated the influence of EFI on growth, working with a sample of 54 nations for the period 2008-2022. Utilizing the "Bayesian linear regression", the findings showed that the EFI favorably affects growth in 54 sample countries.

Additionally, the study confirmed that the EFI positively affects growth in Viet Nam. Cervelló-Royo et al. (2023) investigated the EFI, growth, and unemployment nexus in the context of the Eurozone for the period 2015-2019. Utilizing the PMG estimator, the findings depicted that the EFI stimulates growth and reduces the unemployment rate. More specifically, the "business freedom, labor freedom, and government integrity" boost growth and reduce the unemployment rate. Thuy (2022) also investigated the influence of EFI on growth, working with a sample of 65 countries for the period, and found that the EFI has a favorable impact on growth. Notably, this study also analyzed the impact of sub-indices of EFI on growth and found that out of the nine indices, five indices positively impact growth, and two adversely impact growth. The study set the first research hypothesis based on the current literature mentioned above.

H₁: EFI favorably impacts growth in South Asian countries.

2.1.2 Gross capital formation and GDPPC

Most of the current literature reveals a positive influence of GCF on growth. For instance, Oyebowale and Algarhi (2020) investigated the determinants of growth in 21 African nations covering the period from 1986 to 2015, and found that gross capital formation favorably impacts growth in the long run using the PMG estimator. Uneze (2013) analyzed the GCF-growth nexus in SSA for the period 1985-2007. Utilizing the Granger causality estimator, the outcome confirmed that capital formation stimulates growth in SSA nations. In a similar vein, the outcome confirmed that growth also increases capital formation in SSA countries. Utilizing the VCEM estimator, Mohamed and Abdi (2024) found that the GCF favorably affects the growth in the long run in Somalia. However, its impact is negligible in the short run. Gold and Tregenna (2024) also examined the GCF-growth nexus, taking as a control variable in Nigeria for the period 1988-2022. Utilizing the ARDL estimator, the results depicted that GCF adversely impacts growth in the long run; however, its impact was negligible in the short run. The robustness check result using the DOLS also confirmed that GCF adversely impacts growth in Nigeria. Mohamed and Abdi (2024) analyzed the impact of total labor force on growth and found that total labor force has a minimal impact on growth in Nigeria in both the short and long run. The study set the second research hypothesis based on the current literature mentioned above.

H₂: GCF favorably impacts growth in South Asian countries.

2.1.3 Labor force participation and GDPPC

Most of the current literature reveals a positive influence of LFP on growth. For instance, Akinwande et al. (2026) investigated the LFP-growth nexus in Nigeria for the period 1990-2020. Deploying the quantile estimator, the results demonstrated that female LFP has a negative impact on growth in the lower quantile, and it turned into positive in the upper quantile. Male LFP has a negative impact on growth in lower and upper quantiles, and it turned into positive in the middle quantile. This indicates that the gender disparity in education has a different impact on growth. Imamović et al. (2025) analyzed the determinants of growth in Bosnia and Herzegovina for the period 1996-2023. Utilizing the ARDL estimator, the findings revealed that the LFP has a positive impact on growth. Mohamed and Abdi (2024) analyzed the impact of unemployment and growth nexus in Somalia for the period 1991-2021, and utilizing the VCEM estimator, the study found that unemployment adversely affects the growth in Somalia. Hung et al. (2024) analyzed the influence of the labor force as a control variable on growth using the sample of 54 countries and found that the LFP adversely impacts growth. This result supports the arguments that using a larger labor force instead of using modern technology reduces both efficiency and productivity and diminishes growth. The study set the third research hypothesis based on the current literature mentioned above.

H₃: LFP favorably impacts growth in South Asian countries.

2.1.4 Access to electricity (ATE) and GDPPC

It is expected that the ATE stimulates growth by saving household time using electronic appliances and uses the saved time for more productive activities. The corporate houses and government can also increase their productivity using modern facilities (Burke et al., 2018). The ATE can positively influence economic participation and education. Better education and rising income through more time spent on productive work can reduce poverty (Asaleye et al., 2025), which helps to achieve inclusive growth. The earlier studies also supported these facts. For instance, Shodroková et al. (2024) analyzed the impact of ATE and CO₂ emissions on growth in BRICS for the period 2000-2021. By employing the fixed-effect model, the result demonstrated that the ATE positively affects growth in BRICS nations. This finding was supported by the arguments that the increase in ATE enhances industrial productivity, improves education, health, and the standard of living, and stimulates growth. Opoku et al. (2025) examined the effect of the ATE on inclusive growth, working with a sample of 154 countries for the period 2000-2020. The outcome demonstrated that the ATE increases inclusive growth. Acheampong et al. (2021) investigated the influence of ATE on income inequality, working with a sample of 166 countries for the period 1990-2017. The result confirmed that ATE negatively impacts income inequality. This study argued that the ATE adversely impacts income inequality through the channel of "employment, economic growth, education, gender empowerment, industrialization, and health". Azam et al. (2021) analyzed the effect of electricity generation on growth, working with a sample of 25 developing countries for the period 1990-2017, and found that electricity generation boosts growth in developing nations. We propose the following fourth hypothesis:

H₄: ATE positively affects growth.

2.1.5 Foreign direct investment (FDI) and GDPPC

It is usually expected that the FDI positively impacts growth because the FDI inflows not only bring capital, but also transfer technology and foster innovation, which increase efficiency and productivity and increase growth. Most of the current literature also revealed that the FDI favorably impacts growth. For instance, Le et al. (2024) analyzed the effect of FDI and total factor productivity on growth, working with a sample of 90 middle-income nations for the period 1990-2020. The study found that a rise in FDI stimulates growth in middle-income nations using the GMM estimator. The quality of the labor force and innovations also increase in growth in middle-income nations. Nguyen et al. (2025) investigated the effect of CO₂ and FDI on growth, working with 42 Asian countries for the period 2000-2022, and found that FDI stimulates growth using fixed-effect and 2SLS estimators. Interestingly, this study noted that the role of FDI on growth would be stronger in relatively less developed economies. Okwu et al. (2025) examined the influence of FDI on growth, working with a sample of 29 SAS nations for the period 1996-2022, and found that FDI favorably impacts growth using the GMM estimator. This impact could further increase if institutional quality is better. Conversely, Gold and Tregena (2024) also examined the FDI-growth nexus in the context of Nigeria for the period 1988-2022, and found that the FDI adversely affects growth both in the short and long run using ARDL and DOLS estimators. Hadush et al. (2023) also found the same conclusion of the adverse impact of FDI on growth. Imamović et al. (2025) analyzed the determinants of growth in Bosnia and Herzegovina for the period 1996-2023. Utilizing the ARDL estimator, the findings revealed that the FDI has a negligible impact on growth. We propose the following fifth hypothesis:

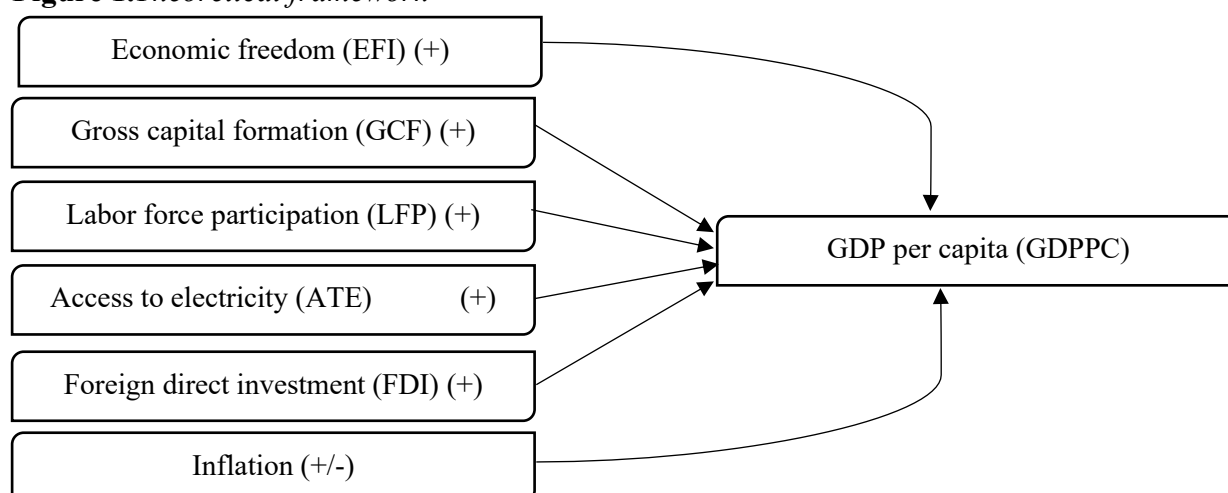
H₅: FDI positively affects growth.

2.1.6 Inflation and GDPPC

It is expected that inflation can favorably/unfavorably affect growth. The earlier studies revealed an inconclusive outcome on the nexus between inflation and growth. For instance, Mignamissi et al. (2023) investigated the inflation-growth nexus in SSA for the period 2002-2015, and found that inflation favorably impacts growth below the threshold inflation rate 12.23%, and adversely impacts growth above this threshold value. Ben Abdallah et al. (2024) also investigated the inflation-growth nexus in Mauritania for the period 1970-2018. The outcome demonstrated that the inflation positively affects growth below the threshold value 5.53%, and above this threshold value it turned into negative. Hasan et al. (2025) examined the macroeconomic stability-growth nexus in the context of Bangladesh for the period 1972-2021. The finding revealed that inflation adversely influences growth in Bangladesh using the ARDL estimator. Hadush et al. (2023) investigated the factors of growth in "East African countries" for the period 2000-2018. Utilizing the GMM estimator, the outcome depicted that the inflation (consumer price index) adversely impacts growth in "East African countries". The study set the sixth research hypothesis based on the current literature mentioned above.

H₆: Inflation positively/negatively affects growth.

The study developed the following research framework on the basis of reviewing empirical literature.

Figure 1. *Theoretical framework*

3. METHODOLOGY

The study analyzed the impact of economic freedom on growth by utilizing the sample of five South Asian countries, which are members of SAARC. However, the study excluded three member countries—Afghanistan, Bhutan, and the Maldives—due to the unavailability of data, and covers the period from 1995 to 2024. Interestingly, all fall into the category of lower-middle-income (LMI) countries. The details of the sample countries, regions, economic conditions, and period have been presented in Table 1.

Table 1. *Sample descriptions*

Countries	Region	Economies	Period
Bangladesh	South Asia	LMI	1995-2024
India	South Asia	LMI	1995-2024
Nepal	South Asia	LMI	1995-2024
Pakistan	South Asia	LMI	1995-2024
Sri Lanka	South Asia	LMI	1995-2024

Note: LMI represents lower-middle-income economies.

Table 2 displays the description of variables, their sources, and expected signs. The response variable is GDPPC, which is measured in US dollars. A higher value of this measure indicates higher growth and vice versa. This measure was used in the earlier studies of Azman-Saini et al. (2010), Roux and Gorlach (2011), and Tsitouras and Papapanagos (2025). The main predictor variable is economic freedom, which is a composite index of "property rights, government integrity, judicial effectiveness, tax burden, government spending, fiscal health, business freedom, labor freedom, monetary freedom, trade freedom, investment freedom, and financial freedom" (The Heritage Foundation, 2025). This measure was used in the previous studies of Kouton (2019), Cervelló-Royo et al. (2023), and Tsitouras and Papapanagos (2025). This study employed "Gross Capital formation" as a first control variable, which is measured as gross capital formation divided by GDP. This measure was used in the previous studies of Oyebowale and Algarhi (2020) and Gold and Tregenna (2024).

This study employed "Labor Force Participation Rate" as a second control variable. The higher value of this measure indicates that a larger labor force participating in the production of goods and services can help to stimulate growth. This measure was used in the previous

studies of Hung et al. (2024) and Imamović et al. (2025). Furthermore, the study deployed "Access to Electricity" as a third control variable. This variable measures the infrastructure development stage of a country. Higher values of these indicators can positively impact growth in South Asian countries. This measure was used in the previous studies of Acheampong et al. (2021) and Opoku et al. (2025). The fourth control variable is FDI, and is measured as FDI (net inflows) divided by GDP. This measure was used in the earlier studies of Le et al. (2024) and Okwu et al. (2025). The final control variable is the inflation rate, which primarily measures the macroeconomic stability of a particular country. This measure was used in the previous studies of Ben Abdallah et al. (2024) and Hasan et al. (2025).

Table 2. *Variable details*

Variables	Details	Sources	Expected signs
GDPPC	"GDP per capita (constant 2015 US\$)"	World Bank (2025)	—
EFI	Economic Freedom Index	The Heritage Foundation (2025)	+
GCF	"Gross capital formation (% of GDP)"	World Bank (2025)	+
LFP	"Labor force participation rate, total (% of total population ages 15-64)"	World Bank (2025)	+
ATE	"Access to electricity (% of population)."	World Bank (2025)	+
FDI	"Foreign direct investment, net inflows (% of GDP)."	World Bank (2025)	+
Inflation	"Inflation, consumer prices (annual %)."	World Bank (2025)	+/-

Note: GDPPC denotes GDP per capita. EFI refers economic freedom index. GCF denotes gross capital formation. LFP represents the labor force participation rate. ATE denotes access to electricity. FDI represents foreign direct investment.

We check the multicollinearity issue within predictor variables using the correlation matrix and the variance inflation factor (VIF). As a rule of thumb, we do not include both predictor variables in the same regression model if the correlation coefficient is more than 0.8 (Field, 2024) and the VIF is greater than 5 (Kunter et al., 2005). We further check the cross-sectional dependence test (Pesaran, 2021) to avoid biased results. Additionally, we performed a second-generation unit root test suggested by Pesaran (2007), which includes "Cross-sectional Augmented Dicky-Fuller (CADF) and Cross-sectional Augmented Im, Pesaran, and Shin (CIPS)" tests. Finally, we deploy the Westerlund (2007) cointegration test to check the possibility of a long-run cointegrating nexus between the variables.

Model Specification

We primarily examine the effect of EFI on GDPPC in five South Asian countries. However, the study also explores the effect of GCF, LFP, ATE, FDI, and Inflation on GDP per capita in five South Asian countries. Hence, we express this nexus in a functional form as:

$$GDPPC = f(EFI, GCF, LFP, ATE, FDI, Inflation)$$

We propose the following empirical model to examine the abovementioned nexus between EFI and GDPPC.

$$\ln GDPPC_{it} = a + \beta_1 EFI_{it} + \gamma_1 GCF_{it} + \gamma_2 LFP_{it} + \gamma_3 ATE_{it} + \gamma_4 FDI_{it} + \gamma_5 Inflation_{it} + \epsilon_{it} \dots \quad (1)$$

Where $\ln GDPPC$ represents the natural logarithm of GDP per capita, i and t denote country and year, respectively, and a denotes a constant. β_1 denotes the coefficient of the

predictor variable. $\gamma_1, \dots, \gamma_5$ denote the coefficients of control variables. EFI refers economic freedom index. GCF denotes gross capital formation, and LFP denotes labor force participation. ATE represents access to electricity. FDI denotes foreign direct investment. Inflation represents the consumer price index. ϵ_{it} represents the error term.

4. RESULTS

Figure 2 displayed the general trend of the response variable (GDPPC) and predictor variable (economic freedom). As expected, the GDPPC of all five countries has been increasing over the study period. The figure clearly shows that the GDPPC of Sri Lanka has been increasing rapidly compared to Bangladesh, India, Pakistan, and Nepal. This figure is lowest in Nepal relative to other South Asian countries. However, the predictor variable, economic freedom, is more stable in this region over the study period.

Figure 2. *GDPPC and economic freedom of the sample countries*

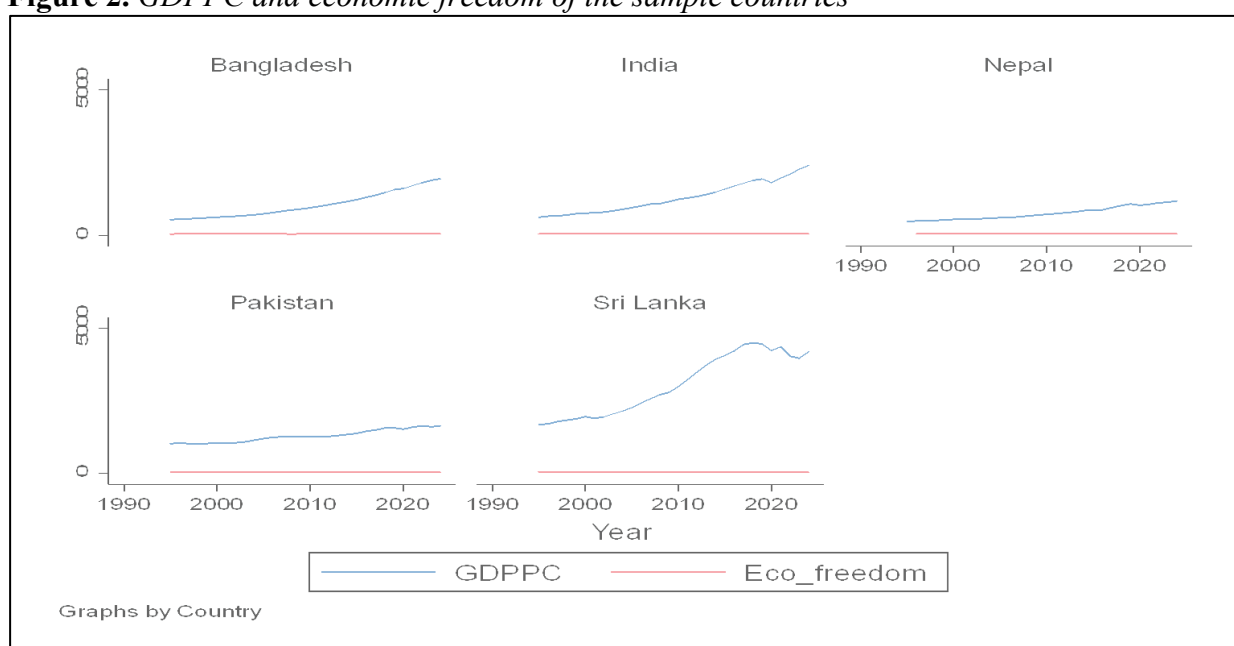


Table 3 displayed the results of descriptive statistics of both response, predictor, and control variables. The outcome demonstrated that the spread of the response variable—GDPPC—was \$4015.295, with an average score of 1485.933. The spread of predictor variable—EFI—was 25.1, with a mean and SD of 54.062 and 4.099, respectively. This indicates that the EFI is almost equal in five South Asian countries over the study period. The spread of the first control variable—GCF—was 28.784, with a mean and SD of 26.663 and 7.199, respectively. This indicates the spread of GCF is relatively higher compared to EFI in five South Asian countries. The spread of the second control variable—LFP—was 22.825, with a mean and SD of 54.160 and 6.559, respectively. Notably, the average LFR is comparatively lower in five sample countries. The spread of the third control variable—ATE—was 82.1, with a mean and SD of 72.702 and 22.738, respectively. This indicates the infrastructure development in five South Asian countries has been expanding rapidly, which can help to stimulate growth in this region. The spread of the fourth control variable—FDI—was 3.719, with a mean and SD of 0.897 and 0.679, respectively. The spread of the final control variable—inflation—was

50.15, with a mean and SD of 7.729 and 49.721, respectively. This indicates that the inflation is relatively high in five South Asian countries.

Table 3. *Descriptive statistics*

Variables	Obs.	Mean	Std. Dev.	Min	Max
GDPPC	150	1487.933	986.073	477.741	4493.036
EFI	150	54.062	4.099	40.9	66
GCF	150	26.663	7.199	13.1667	41.951
LFP	150	54.160	6.559	41.753	64.576
ATE	150	72.702	22.738	17.9	100
FDI	150	0.897	0.679	-0.098	3.621
Inflation	150	7.729	5.403	-0.429	49.721

Note: GDPPC denotes GDP per capita. EFI refers economic freedom index. GCF denotes gross capital formation. LFP represents the labor force participation rate. ATE denotes access to electricity. FDI represents foreign direct investment.

Table 4 displays the results of both correlation and VIF. These two measures are especially computed to check the multicollinearity issues in predictor variables. The results demonstrated that the correlation between predictor variables is lower than the threshold value of 0.8 (Field, 2024), which indicates no multicollinearity was found within predictor variables. In a similar vein, the VIF of all predictor variables is less than 5 (Kunter et al., 2005), which further supports no multicollinearity issues found within the predictor variable and no problem found for additional statistical analysis. Moreover, the correlation matrix also analyzes the nexus between predictor and response variables. The outcomes revealed a positive nexus between the main predictor variable, EFI, and GDPPC. Similarly, the results also showed that the nexus between control variables, GCF, LFP, ATE, FDI, and inflation with GDPPC was positive and significant.

Table 4. *Correlation matrix*

	GDPPC	EFI	GCF	LFP	ATE	FDI	Inflation
GDPPC	1						
EFI	0.588*** (0.000)	1					
GCF	0.171** (0.037)	0.027 (0.740)	1				
LFP	0.351*** (0.000)	0.136* (0.097)	0.066 (0.425)	1			
ATE	0.744*** (0.000)	0.464*** (0.000)	0.125 (0.126)	0.174** (0.033)	1		
FDI	0.382*** (0.000)	0.382 (0.000)	0.169** (0.039)	0.370*** (0.000)	0.349*** (0.000)	1	
Inflation	0.172** (0.036)	0.029 (0.717)	-0.173** (0.035)	0.035 (0.672)	0.148* (0.071)	0.166** (0.042)	1
VIF		1.39	1.09	1.16	1.38	1.45	1.10

Note: GDPPC denotes GDP per capita. EFI refers economic freedom index. GCF denotes gross capital formation. LFP represents the labor force participation rate. ATE denotes access to electricity. FDI represents foreign direct investment.

The results of CD-tests, unit root tests, and cointegration tests have been presented in Table 5. The computed values of CD-tests showed that all the study variables are cross-sectionally dependent. As a result, we use "second-generation unit root tests such as the CADF and CIPS tests" (Monyela & Saba, 2024; Adeleye et al., 2023). The results of both CADF and CIPS tests confirmed that dependent, independent, and control variables are stationary at the first difference. The result of the "second-generation Westerlund cointegration test" (Adeleye et al., 2023) confirmed that the variables under study are cointegrated and opened the door for further statistical analysis to measure the long-term relationship.

Table 5. Outcome of CD-test, unit root test, and cointegration test

Variables	CD-test	CADF-test		CIPS-test	
		Level	1 st diff.	Level	1 st diff.
GDPPC	16.945***	-1.657	-2.555**	-2.467**	-3.400***
EFI	2.945***	-1.399	-4.008***	-1.987	-5.741***
GCF	2.923***	-1.873	-3.674***	-2.566**	-5.651***
LFP	-2.479**	-1.978	-2.709**	-1.653	-2.992***
ATE	13.848***	-2.948***	-3.216***	-2.945***	-5.422***
FDI	2.663***	-2.816***	-4.512***	-3.114***	-5.405***
Inflation	5.759***	-3.125***	-5.566***	-4.536***	-6.056***
Westerlund cointegration test					
Variance ratio	1.828**				

Note: GDPPC denotes GDP per capita. EFI refers economic freedom index. GCF denotes gross capital formation. LFP represents the labor force participation rate. ATE denotes access to electricity. FDI represents foreign direct investment.

We used the panel-corrected standard error (PCSE) estimator as baseline regression analysis, which is reported in Table 6. The result demonstrated that the EFI positively affects growth in five South Asian countries, and the results are consistent across all three regression models. The first control variable, GCF, also favorably affects the growth, and the outcomes are the same in all three models. The second control variable, LFP, also positively affects growth, and the outcomes are the same in all three models. In a similar vein, the proxy for infrastructure development, ATE, also has a positive impact on growth in the five South Asian countries, and results are consistent across three models. The fourth control variable, FDI, has a negligible impact on growth. Moreover, the inflation has a positive impact on growth and supports these facts by two out of three models.

Table 6. *Baseline regression analysis*

Variables	Dependent variables = lnGDPPC		
	(1)	(2)	(3)
EFI	2.362*** (0.000)	2.361*** (0.000)	2.363*** (0.000)
GCF	0.206*** (0.000)	0.206** (0.03)	0.206** (0.036)
LFP	0.976*** (0.000)	0.976*** (0.000)	0.975*** (0.000)
ATE	0.741*** (0.000)	0.741*** (0.000)	0.741*** (0.000)
FDI	-0.038 (0.377)	-0.037 (0.413)	-0.038 (0.426)
Inflation	0.010 (0.137)	0.010** (0.038)	0.010** (0.045)
Constant	-10.023*** (0.000)	-10.022*** (0.000)	-10.023*** (0.000)
Observations	150	150	150
Countries	5	5	5
R-squared	0.687	0.687	0.687
Wald-statistics	279.53*** (0.000)	329.70*** (0.000)	312.80*** (0.000)

Note: GDPPC denotes GDP per capita. EFI refers economic freedom index. GCF denotes gross capital formation. LFP represents the labor force participation rate. ATE denotes access to electricity. FDI represents foreign direct investment.

We employed Feasible Generalized Least Squares (FGLS) and Random-effect (RE) estimators for the sensitivity analysis. We also compare these findings with the baseline regression outcomes. We found that the EFI favorably impacts growth in five South Asian countries, and the results are consistent in both models and baseline results. We also confirmed that the GCF and LFP have a favorable impact on growth, which is consistent in both robustness check models. Similarly, the ATE has a positive effect on growth, and results are consistent across two robustness check models. Conversely, the FDI has an adverse impact on growth. Moreover, inflation has a favorable impact on growth in five South Asian countries, and the results are consistent across two models.

Table 7. Robustness check

Variables	Dependent variables = lnGDPPC	
	FGLS	Random-effect
EFI	2.362*** (0.000)	2.362*** (0.000)
GCF	0.206** (0.030)	0.206** (0.034)
LFP	0.975*** (0.000)	0.976*** (0.000)
ATE	0.742*** (0.000)	0.741*** (0.000)
FDI	-0.380 (0.414)	-0.038 (0.424)
Inflation	0.010** (0.038)	0.010** (0.043)
Constant	-10.023*** (0.000)	-10.023*** (0.000)
Observations	150	150
Countries	5	5
R-squared		0.687
Wald-statistics	329.70*** (0.000)	314.31*** (0.000)
Hausman test		95.88*** (0.000)

Note: GDPPC denotes GDP per capita. EFI refers economic freedom index. GCF denotes gross capital formation. LFP represents the labor force participation rate. ATE denotes access to electricity. FDI represents foreign direct investment.

5. DISCUSSION

The results demonstrated that the EFI favorably affects growth in South Asian countries. This indicates that an increase in EFI stimulates growth in this region. This finding matches the current studies of Kouton (2019), Thuy (2022), Cervelló-Royo et al. (2023), and Hung et al. (2024), and does not match the recent study by Tsitouras and Papapanagos (2025), especially in the medium term. This suggests that the EFI usually accelerates growth in developing countries by increasing investment, innovation, and efficient resource allocation. The stronger property rights encourage entrepreneurs to invest in risky projects and innovation; effective judicial system with stronger legal frameworks reduces corruption and handle disputes; lower tax burden can offer more investment opportunities for firms; higher government spending in infrastructure and good fiscal health increase productivity; business and trade freedom open the door for global market; labor freedom helps to hire skilled workforce from elsewhere; investment, and financial freedom improves access to credit to SMEs and channels saving into investment, which can helps to increases growth in developing countries.

The results depicted that the GCF positively influences the growth in South Asian countries. This indicates that an increase in GFP helps to boost growth in the region. This result matches the most recent studies conducted by Oyebowale and Algarhi (2020) and Mohamed and Abdi (2024), and does not match the recent studies by Gold and Tregenna (2024). This suggests that the investment in physical capital (for instance, plant and machinery, technology)

increases efficiency and productivity, which increases growth in developing countries. It further increases employment opportunities that increase household income; as a result, it increases demand for goods and services in the domestic market, which increases growth in developing countries. The results showed that the LFP favorably affects growth in South Asian countries. This indicates that an increase in LFP helps to boost growth in the region. This result matches the most recent studies conducted by Imamović et al. (2025) and Mohamed and Abdi (2024), and does not match the recent study by Hung et al. (2024). This indicates that a higher level of LFP increases household income, reduces poverty, and fosters inclusive growth where women and marginalized groups are engaged in production. The outcome also revealed that the ATE positively impacts growth in South Asian countries. This indicates that a rise in ATE can help boost growth in the region. This outcome matches the recent study done by Azam et al. (2021), Shodroková et al. (2024), and Opoku et al. (2025). This suggests that reliable ATE increases both efficiency and productivity, expands manufacturing capacity, modernizes agriculture sectors, empowers human resources through education and training, and boosts the digital economy, which increases growth in developing countries.

The outcome demonstrated that the FDI has a negligible impact on growth. This indicates that an increase in FDI does not help to boost growth in the region. This outcome matches the recent study done by Le et al. (2024), Nguyen et al. (2025), and Okwu et al. (2025), and does not match the recent studies by Hadush et al. (2023), Gold and Tregena (2024), and Imamović et al. (2025). This suggests that though the FDI can bring capital and technology, its impact may be negligible due to the poor institutional quality (for instance, corruption) and infrastructure. Furthermore, it can weaken domestic firms because they do not reap the benefit of technology transfer or market access, which can decrease growth. The benefit of FDI to growth can be offset by the loss of local firms to growth. The results depicted that inflation favorably impacts growth in South Asian countries. This indicates that a moderate rise in inflation can help to increase growth in the region. This outcome matches (especially for below the threshold level) the recent study done by Mignamissi et al. (2023) and Ben Abdallah et al. (2024), and does not match with the recent studies by Hadush et al. (2023) and Hasan et al. (2025). This suggests that moderate inflation helps to increase business revenues by raising the price of goods and services and decreasing the real value of borrowings. It further offers positive signals about expanding economic activity. This jointly motivates entrepreneurs to invest more in projects that directly increase job opportunities, which increases the spending power of consumers. The rise in income level demands more goods and services and increases growth in developing countries.

6. CONCLUSION

The earlier studies pay less attention to how the EFI affects growth in the underdeveloped world, especially in the South Asian context. Hence, we examine the influence of EFI on growth by focusing on South Asian countries— Bangladesh, India, Nepal, Pakistan, and Sri Lanka— as a sample covering the period from 1995 to 2024. The explanatory design is employed to examine the abovementioned nexus between EFI and growth. The descriptive statistics are used to describe the fundamental characteristics of both response and predictor variables. The correlation environment and VIF are used to check whether multicollinearity issues prevail within the predictor variables.

Additionally, we performed the CD-test, unit root test, and cointegration test as a pre-estimation test to check for further statistical analysis. We deploy the PCSE estimator for baseline regression results, and the FGLS and RE estimators for sensitivity analysis. The study concludes that the EFI stimulates growth in South Asian countries. We also confirm that the GCF, LFP, ATE, and inflation boost growth in the region. However, we do not confirm whether inflation influences growth or not. In order to stimulate growth, we offer some policy implications. First, policymaker/s must focus on improving EFI, which directly improves growth. Second, policymaker/s must increase GCF, LFP, and ATE to increase growth. Finally, policymakers especially make an effort to maintain the target inflation rate to stimulate growth in the region.

This study has some limitations. First, the study considers static models, which do not consider endogeneity issues. Second, this study does not take into account the sub-components of the EFI, which can either positively or negatively affect growth. Third, this study includes six predictor variables and excludes some important determinants that can affect growth, for instance, remittance inflows, unemployment, education, age dependency ratio, gross domestic savings, and others. Therefore, the future study can be performed by the use of sub-components of EFI to check the impact individually, the use of a dynamic panel model to address endogeneity issues, and the use of other predictor variables in South Asian countries.

REFERENCES

- Acheampong, A. O., Dzator, J., & Shahbaz, M. (2021). Empowering the powerless: Does access to energy improve income inequality?. *Energy Economics*, 99, 105288. <https://doi.org/10.1016/j.eneco.2021.105288>
- Adeleye, B. N., Akam, D., Inuwa, N., James, H. T., & Basila, D. (2023). Does globalization and energy usage influence carbon emissions in South Asia? An empirical revisit of the debate. *Environmental Science and Pollution Research*, 30(13), 36190-36207. <https://doi.org/10.1007/s11356-022-24457-9>
- Akinwande, T. S., Somoye, O. A., Mar'I, M., & Ozdeser, H. (2026). The interaction between gender inequality in education, female labor force participation, male labor force participation, and economic growth in Nigeria: a quantile-on-quantile analysis. *SN Business & Economics*, 6(2), 51. <https://doi.org/10.1007/s43546-026-01061-4>
- Asaleye, A. J., Garidzirai, R., & Ncanywa, T. (2025). Electricity availability and access for economic opportunities: A disaggregated analysis of gender gaps and implications for pro-poor growth. *Energy Strategy Reviews*, 59, 101723. <https://doi.org/10.1016/j.esr.2025.101723>
- Azam, A., Rafiq, M., Shafique, M., & Yuan, J. (2021). Renewable electricity generation and economic growth nexus in developing countries: An ARDL approach. *Economic Research-Ekonomska Istraživanja*, 34(1), 2423-2446. <https://doi.org/10.1080/1331677X.2020.1865180>
- Azman-Saini, W. N. W., Baharumshah, A. Z., & Law, S. H. (2010). Foreign direct investment, economic freedom, and economic growth: International evidence. *Economic Modelling*, 27(5), 1079-1089. <https://doi.org/10.1016/j.econmod.2010.04.001>
- Ben Abdallah, A., Guidara, S., Aloulou, R., Kalai, M., & Helali, K. (2024). Investigating the relationship between inflation and economic growth in Mauritania: an empirical analysis

- using the regime change model. *SN Business & Economics*, 4(2), 1-25. <https://doi.org/10.1007/s43546-023-00599-x>
- Burke, P. J., Stern, D. I., & Bruns, S. B. (2018). The impact of electricity on economic development: A macroeconomic perspective. *International Review of Environmental and Resource Economics*, 12(1), 85-127. <https://doi.org/10.1561/101.00000101>
- Campomanes, I. P. (2023). Dimensions of freedom and economic performance. In D. Negrea, B. Lips, K. Mauren, *The Freedom and Prosperity Equation (pp. 121-135)*. Atlantic Council. <https://shorturl.at/YClmp>
- Cervelló-Royo, R., Devece, C., & Blanco-González Tejero, C. (2023). Economic freedom influences economic growth and unemployment: an analysis of the Eurozone. *Economic Research-Ekonomska Istraživanja*, 36(2). <https://doi.org/10.1080/1331677X.2023.2175007>
- De Haan, J., & Sturm, J. E. (2000). On the relationship between economic freedom and economic growth. *European Journal of Political Economy*, 16(2), 215-241. [https://doi.org/10.1016/S0176-2680\(99\)00065-8](https://doi.org/10.1016/S0176-2680(99)00065-8)
- Field, A. (2024). *Discovering statistics using IBM SPSS Statistics (6th ed.)*. Sage Publications Limited.
- Gold, K. L., & Tregenna, F. (2024). Trade openness, hydroelectric power production, foreign direct investment, and economic growth nexus in Nigeria. *Cogent Economics & Finance*, 12(1), 2426538. <https://doi.org/10.1080/23322039.2024.2426538>
- Hasan, M., Haque, M. O., Hossain, M. S., Habib, M. A., Amin, M. B., Rahaman, M. A., & Oláh, J. (2025). Revealing major macroeconomic growth factors for an emerging economy: evidence from a half-century of economic resilience. *Discover Sustainability*, 6(1), 589. <https://doi.org/10.1007/s43621-025-01422-3>
- Hadush, M., Gebregziabher, K., & Biruk, S. (2023). Determinants of economic growth in East African countries: A dynamic panel model approach. *Cogent Economics & Finance*, 11(2), 2239629. <https://doi.org/10.1080/23322039.2023.2239629>
- Hung, N. T., Oanh, T. T. K., & Trang, C. T. T. (2024). The impact of economic freedom on economic growth in countries with high and low regulatory quality—lessons for Viet Nam. *Humanities and Social Sciences Communications*, 11(1), 1-15. <https://doi.org/10.1057/s41599-024-03741-8>
- Imamović, J., Šehanović, L., Čustović, N. M., & Omerdić, A. (2025). Analyzing the drivers of economic growth in B&H: trade, investment, energy, and labor force dynamics. In I. Karabegović, A. Kovačević, S. Mandžuka (Eds.), *New Technologies, Development and Applications* (pp. 30-40). Springer Nature. https://doi.org/10.1007/978-3-031-95200-5_4
- Islam, S. (1996). Economic freedom, per capita income, and economic growth. *Applied Economics Letters*, 3(9), 595–597. <https://doi.org/10.1080/135048596356032>
- Kouton, J. (2019). Relationship between economic freedom and inclusive growth: a dynamic panel analysis for sub-Saharan African countries. *Journal of Social and Economic Development*, 21(1), 143-165. <https://doi.org/10.1007/s40847-019-00076-y>
- Kutner, M. H., Nachtsheim, C. J., Neter, J., & Li, W. (2005). *Applied linear statistical models (5th ed.)*. McGraw-Hill.

- Le, H. T. P., Pham, H., Do, N. T. T., & Duong, K. D. (2024). Foreign direct investment, total factor productivity, and economic growth: evidence in middle-income countries. *Humanities and Social Sciences Communications*, 11(1), 1-11. <https://doi.org/10.1057/s41599-024-03462-y>
- Mignamissi, D., Minkoé Bikoula, S. B., & Thioune, T. (2023). Inflation and economic growth in Sub-Saharan Africa: The role of institutions. *Journal of Quantitative Economics*, 21(4), 847-871. <https://doi.org/10.1007/s40953-023-00366-7>
- Mohamed, A. A., & Abdi, A. H. (2024). Exploring the dynamics of inflation, unemployment, and economic growth in Somalia: a VECM analysis. *Cogent Economics & Finance*, 12(1), 2385644. <https://doi.org/10.1080/23322039.2024.2385644>
- Monyela, M. N., & Saba, C. S. (2024). Trade openness, economic growth, and economic development nexus in South Africa: A pre-and post-BRICS analysis. *Humanities and Social Sciences Communications*, 11(1), 1-18. <https://doi.org/10.1057/s41599-024-03604-2>
- Nguyen, Q. K., Tran, D. L., Tran, X. H., Pham, N. T. N., & Nguyen, N. P. L. (2025). The complex relationship between carbon dioxide emissions, foreign direct investment, and economic growth in Asian countries. *Discover Sustainability*, 6(1), 831. <https://doi.org/10.1007/s43621-025-01730-8>
- Oyebowale, A. Y., & Algarhi, A. S. (2020). Macroeconomic determinants of economic growth in Africa. *International Review of Applied Economics*, 34(6), 839-857. <https://doi.org/10.1080/02692171.2020.1792422>
- Okwu, A. T., Adelowokan, O. A., & Osisanwo, B. G. (2025). Foreign direct investments, institutional structure, and economic growth in Sub-Saharan Africa. *Discover Sustainability*, 6(1), 1145. <https://doi.org/10.1007/s43621-025-01761-1>
- Opoku, E. E. O., Acheampong, A. O., & Salim, R. (2025). Does energy access matter for achieving inclusive growth? Insight from a global perspective. *Applied Economics*, 1-18. <https://doi.org/10.1080/00036846.2025.2503490>
- Pesaran, M. H. (2007). A simple panel unit root test in the presence of cross-section dependence. *Journal of Applied Econometrics*, 22(2), 265-312. <https://doi.org/10.1002/jae.951>
- Pesaran, M. H. (2021). General diagnostic tests for cross-sectional dependence in panels. *Empirical Economics*, 60(1), 13-50. <https://doi.org/10.1007/s00181-020-01875-7>
- Povlik, J. B., Powell, B., & Young, A. (2023). The causal relationship between economic freedom and prosperity. In D. Negrea, B. Lips, K. Mauren, *The Freedom and Prosperity Equation* (pp. 121-135). Atlantic Council. <https://shorturl.at/YCImp>
- Roux, P. le, & Gorchach, V. (2011). An econometric analysis of the impact of economic freedom on economic growth in the SADC. *Studies in Economics and Econometrics*, 35(2), 1-14. <https://doi.org/10.1080/10800379.2011.12097222>
- Shodrokov, X., Yulianita, A., & Bashir, A. (2024). The relationship between access to electricity, CO 2 emissions, and economic growth in BRICS. *Theoretical & Applied Economics*, 31(3). <https://tinyurl.com/5395ywn6>
- The Heritage Foundation. (2025). *Index of economic freedom*. <https://economicfreedom.heritage.org/>

- Thuy, D. T. B. (2022). Impacts of economic freedom on economic growth in developing countries. In A. T. Nguyen, L. Hens (Eds.), *Global Changes and Sustainable Development in Asian Emerging Market Economies Vol. 1: Proceedings of EDESUS 2019* (pp. 35-44). Springer Nature. https://doi.org/10.1007/978-3-030-81435-9_3
- Tsitouras, A., & Papapanagos, H. (2025). The relationships between economic freedom, income inequality, and economic growth: empirical evidence from an asymmetric analysis in the case of Greece. *Portuguese Economic Journal*, 24(3), 419-454. <https://doi.org/10.1007/s10258-025-00269-w>
- Uneze, E. (2013). The relation between capital formation and economic growth: evidence from sub-Saharan African countries. *Journal of Economic Policy Reform*, 16(3), 272–286. <https://doi.org/10.1080/17487870.2013.799916>
- Westerlund, J. (2007). Testing for error correction in panel data. *Oxford Bulletin of Economics and Statistics*, 69(6), 709-748. <https://doi.org/10.1111/j.1468-0084.2007.00477.x>
- World Bank. (2025). World Development Indicators. <https://databank.worldbank.org/source/world-development-indicators>