Foreign Direct Investment and Natural Resource Rent Are the Drivers of Shaping Economic Growth in South Asian Economies: A Panel Data Approach

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Abstract

This study investigates the influence of FDI inflows and natural resource rents on the economic growth of selected South Asian countries, including Pakistan, Bangladesh, Nepal, India, Sri Lanka, and Iran. Using panel data from the World Development Indicators (WDI) covering the period from 1990 to 2022, various statistical tests were employed, such as the Unit Root Test, Co-integration Test, and Panel Causality Tests. The findings reveal that FDI inflows positively impact economic growth, while natural resource rents negatively correlate with growth. However, the results are statistically significant only in the fixed and random effects models. A key limitation of the study is the variability of outcomes across different methodologies (Fixed Effects, Random Effects, FMOLS, and DOLS), which may be influenced by data quality and underlying assumptions. Future research could expand the analysis to include data from other regions to enhance the generalizability of these findings.

Keywords: Economic Growth, Foreign Direct Investment, Natural Resource Rent, Panel Data.

Introduction

Foreign Direct Investment (FDI) refers to the investment by a local entity in one economy to acquire a lasting interest in a business in another economy. FDI plays a critical role in fostering economic development. In developing countries, FDI inflows can significantly enhance export production and trade when export volumes exceed import volumes (Stevens & Dietsche, 2008). Natural resource rent, which represents the profit derived from extracting natural resources like oil, minerals, and gas beyond the production cost, is a key factor in economic growth. The relationship between natural resource rents and growth has been extensively studied, with scholars emphasizing its importance in driving development, particularly in resource-rich nations.

FDI's impact on economic growth in developing countries remains a subject of considerable debate. The new growth theory suggests that FDI promotes growth by facilitating technology transfer (Borensztein et al., 1998). In contrast, the neoclassical growth model posits that while FDI inflows may increase capital remuneration, they have no long-term effect on growth (Neusser, 1991). Hsiao (2006) found that FDI inflows have a one-way impact on growth, while exports show

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a bidirectional relationship with growth. The endogenous growth theory, developed in the 1980s, highlights that technical advancements and FDI spur growth in host countries through technology transfer and spillover effects (Fan, 2003). Furthermore, FDI contributes to long-term GDP growth by sharing technology and capital, particularly under open trade conditions. Additionally, FDI inflows foster economic and market development through multinational corporations (MNCs), which prefer to be based in rapidly growing nations (Lim, 2001).

Several studies have explored the connection between FDI inflows and economic development. GDP is commonly used to gauge a country's development and living standards, while the balance of trade indicates growth. A negative trade balance, where imports surpass exports, can lead to resource imbalances in developing nations (Rahman, 2015). Regression analysis and Granger's bivariate causality tests (1988) are often employed to investigate the relationship between these variables across various countries. Tiwari and Mutascu (2011) found that in Thailand, FDI has a unidirectional effect on growth and a bidirectional effect on export growth.

Similarly, Rahman (2015) identified a long-run equilibrium relationship and unidirectional influence between FDI inflows and Bangladesh's growth rate. While most studies suggest that FDI stimulates growth, others remain uncertain about its effectiveness. Natural resource rents also play a significant role in boosting growth. By increasing exports and facilitating additional capital investments, resource rents contribute to economic development. However, some studies argue that resource-rich countries often experience slower growth, known as the "resource curse" (Boschini et al., 2013). Gelb et al. (2003), Gylfason (2011), and Sachs & Warner (2001) has demonstrated a negative relationship between the share of natural resources in an economy and its GDP growth.

This research aims to fill a gap in the literature by providing a detailed analysis of the effects of FDI inflows and natural resource rents on the economic growth of South Asian countries. Previous studies have primarily overlooked this region. By investigating the relation between FDI and natural resource rents, this study offers new insights into how these factors contribute to growth in developing nations, particularly in South Asia. The findings are expected to help policymakers in Pakistan, Bangladesh, Nepal, India, Sri Lanka, and Iran develop strategies to maximize the benefits of FDI and natural resource utilization for sustainable economic growth. This research will also contribute to academic discourse by addressing the specific dynamics of South Asia and advancing policy development related to FDI, natural resources, and economic growth.

The structure of the study is as follows: Section 2 reviews the literature on the relationship between FDI, natural resources, and economic growth; Section 3 outlines the data and methodology used to assess the impact of FDI and natural resource rents on growth in South Asia; Section 4 presents the analysis of the findings; and Section 5 concludes the study, discussing its limitations and providing recommendations for future research.

Literature Review

Foreign Direct Investment and Economic Growth

The relationship between FDI and economic growth has been extensively studied across various regions. Owusu-Nantwi and Erickson (2019) highlighted that FDI positively impacts growth in South American countries, with a long-run co-integration observed between the variables. Similarly, Sokang (2018) examined the Cambodian economy, finding that FDI positively affects growth, as endorsed by local authorities. Mohammad and Alam (2023) further confirmed this positive relationship, asserting that FDI significantly influences growth by ensuring the co-integration of all variables. Joo et al. (2022) explored FDI's role in the BRICS countries, revealing

that FDI does not significantly impact economic growth in this context. In Sub-Saharan Africa, Nulambe and Cinar (2018) established that FDI and trade openness promote growth, while inflation inhibits it. Gligorić et al. (2018) in nine CIS countries demonstrated a strong, positive link between FDI and growth, with ARDL models showing significance at the 1% level. On the other hand, Shetewy et al. (2019) found no meaningful impact of FDI on the growth of six North African countries.

Elheddad et al. (2021) applied the resource curse theory to study the impact of FDI in GCC economies, finding that resource-based FDI hinders growth. Non-resource FDI did not correlate with growth. Similarly, Bilas (2020), in a study on European Union countries, found a long-run link between FDI and growth, with a significant positive impact of FDI on growth. Faisal et al. (2021) confirmed that FDI, tourism, and oil prices positively influence growth in the long run. However, Agbloyor et al. (2016) revealed that FDI does not stimulate growth in Sub-Saharan Africa, though a positive relationship exists in countries with significant natural resources. Malik (2015) examined Pakistan's growth, showing that FDI, trade openness, and domestic capital positively affect growth. Sabah Noori Al (2019) found a similar positive relationship between FDI and Jordan's economy.

Koojaroenprasit (2012) and Mahavidyalaya (2012) both found a positive impact of FDI on the economic growth of South Korea and India, respectively. In Ghana, Samuel et al. (2013) concluded that factors like GDP, trade, and GNI are crucial for attracting FDI and fostering growth. Awolusi and Adeyeye (2016) suggested that FDI does not significantly influence growth in selected African nations. Rahman (2015) found a negative relationship between FDI and growth in Bangladesh. Cung (2020) examined Vietnam's growth and FDI, revealing a positive relationship between the two. In Nigeria, M. et al. (2014) found that FDI significantly drives growth, while Khder Aga (2014) observed a positive long-term effect of domestic investment on GDP growth.

Natural Resources and Economic Growth

The role of natural resources in economic growth has also been extensively debated. Erum and Hussain (2019) found that natural resources reduce growth in countries with low ICT diffusion. Topcu et al. (2020) identified a positive relationship between energy consumption, natural resources, and economic growth. Huang et al. (2020) further explored how FDI and natural resource utilization contribute to economic growth, finding that resource rents, particularly from forests, minerals, and oil, play a significant role in developing economies. Ben-Salha et al. (2021) examined the long-term impact of resource rents on growth, confirming a positive effect in the long run, though no such effect was observed in the short term. Erdoğan et al. (2020) studied oil exports in Next-11 countries and concluded that financial deepening amplifies the positive effects of oil exports on growth. Atif et al. (2020) revealed that while natural resources and minerals contribute to economic growth, their deterioration hinders progress.

Usman et al. (2022) explored the impact of natural resources and financial development on emissions and growth in Arctic countries, finding that resource wealth correlates with better economic performance. Atif et al. (2020) examined the relationship between natural resources and financial development in Pakistan, concluding that natural resources and oil prices positively impact financial development, while economic globalization has a negative influence. Ampofo et al. (2020) analyzed the effects of natural resource rents on growth in mineral-exporting nations, finding that while countries like Brazil and Canada benefit from resource rents, nations like Australia and the Democratic Republic of Congo experience adverse effects, supporting the resource curse theory. Yasmeen et al. (2021) confirmed the negative impact of natural resources

on growth, in line with the resource curse hypothesis. Tabash et al. (2022) examined 24 African countries and revealed that natural resource rents negatively impact growth but positively affect economic complexity. Zhang et al. (2023) found that higher natural resource rents contribute to better economic performance in most countries, particularly in the higher percentiles. Moshiri and Hayati (2017) found that resource endowments positively influence their constructed growth model.

Natural Resources and Foreign Direct Investment

Anarfo et al. (2017) explored the impact of infrastructure development and natural resources on Ghana's FDI inflows, highlighting both factors' positive influence. Feulefack and Ngassam (2020) studied the effects of weak institutions in resource-rich African countries on FDI inflows, concluding that resource-rich countries attract extractive FDI but must improve institutional quality to attract non-extractive FDI. Acheampong and Osei (2014) found that infrastructure and legislative stability positively impact FDI, although the long-term effect of natural resources on FDI is negative. Lu et al. (2020) examined the relationship between natural resources, economic freedom, and FDI in CIS countries, showing that natural resources and economic freedom are essential for attracting FDI. Jumanne and Keong (2018) identified a significant positive relationship between institutions, natural resources, and FDI inflows in Sub-Saharan Africa. Ezeoha and Cattaneo (2012) showed that FDI is more advanced in countries with fewer resources, contradicting the typical assumption that resource-rich countries attract FDI.

Bokpin et al. (2015) found that natural resources significantly impact FDI, but the effects vary depending on the resource type and regional trade blocks. Shan et al. (2018) revealed that natural resources do not significantly influence Chinese FDI in Africa. Kang (2018) explored how institutional features and natural resource endowment affect the geographic choices of Chinese MNEs, finding that natural resources attract Chinese MNEs, especially when legislative risk is high. Dinda (2014) studied Nigerian FDI, concluding that FDI is resource-seeking, with trade relations playing a crucial role. Elheddad et al. (2020) observed that oil rents negatively impact total FDI inflows, particularly in non-resource industries, while increasing oil prices raises non-resource FDI while decreasing resource-related FDI.

This body of literature highlights the complex interplay between FDI, natural resources, and economic growth, with varying impacts across regions and countries. The findings suggest that while FDI generally promotes growth, the role of natural resources is more nuanced, with both positive and negative effects depending on institutional frameworks, economic conditions, and resource types.

Theoretical Framework Hypothesis

The theoretical framework below has been drawn from the literature review. Based on the above theoretical frame, the following hypothesis has been developed.

H_1: FDI inflows positively impact economic growth in South Asia.

H_2: Natural resource rent positively impacts economic growth in South Asia.

H_3: FDI inflows significantly affect natural resource rent in South Asia.

Data and Methodology

To explore whether FDI inflows and natural resources would enhance growth in South Asia, there are 6 Asian countries and the time expanding from 1990 to 2022. The data was collected from the World Bank's World Development Indicators database. We use Descriptive Statistics, Residual

Cross Section Dependence Test, Slope Heterogeneity Test, Unit Root Test, Kao Residual Co-integration Test, Pairwise Dumitrescu-Hurlin Panel Causality Tests and Models' Estimation to inspect the relationship between GDP growth, FDI inflows and natural resources rent in case of South Asia. In our study, we select software E-Views to run the analysis and interpret the results to arrive at the actual conclusion of all the variables. Table 1 demonstrates the variables and their measurement as collected for the data analysis to complete the study and conduct hypothesis testing where growth is a dependent variable. However, FDI inflow and natural resources are two independent factors.

Table 1: Data Description

Variables	Description	Source
NET INFLOWS	FDI is the net inflow of investment in the described economies from overseas investors divided by GDP.	https://databank.worldbank.org/source/world-development-indicators
NR Rent	Total natural resources rents combine natural gas rents, oil rents, coal rents, forest rents, and mineral rents.	
GDPGR	The annual % growth rate of growth at market prices depends on unchanging factors native currency demonstrated in U.S. $.	

In this section, Descriptive Statistics is utilized to summarize the values of the researched data. Descriptive statistics present the summary of data.

Table 2: Descriptive Statistics

Country	Mean	Max	Min	SD	Skewness	Kurtosis
FDI (Net Inflows % of GDP)						
Bangladesh	0.60	1.74	0.00	0.50	0.57	2.34
Iran	0.55	2.74	-0.40	0.64	1.37	5.72
India	1.27	3.62	0.03	0.84	0.58	3.16
Nepal	0.23	0.68	-0.10	0.21	0.35	2.06
Pakistan	0.94	3.04	0.31	0.67	2.00	6.25
Sri Lanka	1.19	2.85	0.43	0.49	1.11	5.26
All	0.80	3.62	-0.40	0.69	1.18	4.68
Natural Resources Rent (% of GDP)						
Bangladesh	0.92	1.62	0.51	0.35	0.57	1.93
Iran	23.73	34.78	6.90	7.16	-0.44	2.80
India	2.96	7.11	1.75	1.17	1.64	6.16
Nepal	1.07	1.89	0.32	0.38	-0.07	2.68
Pakistan	1.72	2.89	0.97	0.58	0.39	1.76
Sri Lanka	0.21	0.54	0.06	0.13	1.24	3.45
All	5.10	34.78	0.06	8.90	2.09	5.94
GDP Growth						
Bangladesh	5.64	7.88	3.45	1.17	-0.12	2.14
Iran	5.99	9.69	-5.78	2.86	-2.25	9.84
India	3.42	13.59	-3.75	4.20	0.47	2.97
Nepal	4.46	8.98	-2.37	2.20	-0.79	4.92
Pakistan	4.13	7.83	-1.27	2.00	-0.28	3.28
Sri Lanka	4.50	8.67	-7.35	3.47	-1.88	6.56
All	4.69	13.59	-7.35	2.93	-0.99	5.61

The descriptive statistics for six South Asian nations—Pakistan, Bangladesh, Iran, Nepal, India, and Sri Lanka—reveal key patterns in FDI inflows, natural resource dependence, and economic growth. FDI inflows average 0.80% of GDP, indicating low levels of foreign investment. However, the distribution is positively skewed (skewness of 1.18), with some countries receiving higher FDI, as seen in the maximum value of 3.62%. The minimum FDI rate is -0.40%, with a standard deviation of 0.69% and a high kurtosis of 4.68, signalling a distribution with outliers. Natural resource rents average 5.10% of GDP, but Iran's high reliance on resources heavily influences this. The distribution is right-skewed (skewness of 2.09), with Iran showing exceptional dependence, as reflected in the maximum value of 34.78%. The minimum is 0.06%, with a standard deviation of 8.90% and kurtosis of 5.94, indicating a concentration of high and low values across countries. The region's growth averages 4.69%, with a left-skewed distribution (skewness of -0.99), suggesting more frequent economic downturns. Growth rates range from -7.35% to 13.59%, with a standard deviation of 2.93% and kurtosis of 5.61, pointing to significant volatility in economic performance.

Methodology

$Y_{it} = \alpha + \beta_1 FDI_{it} + \beta_1 NRR_{it} + \varepsilon_{it}$

Where;

Y_{it} = Economic Growth (Real GDP)

FDI_{it} -= Foreign Direct Investment (FDI)

NRR_{it} = Natural resource rent

β_1, β_2 = Coefficients of the independent variables

α = Intercept

ε = error term

Results and Discussion

This section displays the results of the three tests, Breusch-Pagan LM, Pesaran scaled LM, and Pesaran CD, which aim to test the cross-section dependence (correlation) of variables of a panel data model. These tests examine if the so-called residuals drawn from the panel data model are independent across sections in the present case over time. The null hypothesis for every test is that there is no cross-section dependence, which means that the residual is cross-section independent of all other cross-sections.

Table 3: Residual Cross-Section Dependence Test

Test	Statistic	Prob.
Breusch-Pagan LM	35.6***	0.002
Pesaran scaled LM	03.76***	0.000
Pesaran CD	04.34***	0.000

Notes: *** represents a rejection of the null hypothesis at a 1% level of significance; variables partialled out: constant; periods included: 33; cross-sections included: 6; total panel observations: 198 (degrees of freedom: 15); null hypothesis: no cross-section dependence (correlation) in residuals.

Table 3 rejects the null hypothesis of no cross-section dependence at the 1% level. The result indicates that correlation is relatively high in the data from the six countries, as presented in the analysis. In practical terms, cross-section dependence implies that the residuals of the panel data

model are auto-correlated across the cross-sections, suggesting that economic shocks or other unobserved variables may be familiar to the countries under analysis.

Table 4: Testing for Slope Heterogeneity

Delta	p-value
4.18***	0.000
4.46***	0.000

Notes: H0 - slope coefficients are homogenous;
*** represents a rejection of the null hypothesis at a 1% significance level; variables partialled out: constant.
Sources: Author's calculations; Pesaran and Yamagata (2008).

Table 4 describes the results of slope heterogeneity, as described by Pesaran and Yamagata (2008 Journal of Econometrics). This test questions that the slope coefficients of the model are the same for all the cross-sections (countries) under consideration. Since the test is conducted separately within each cross-section, the null hypothesis of these tests is one of homoscedasticity, or in other words, the slope equalities are consistent with FDI inflows and NNR for the country's GDP. The tests fail to retain the null hypotheses of equality of slope coefficients at a 0.1% significance level. Therefore, this indicates that the influence of FDI inflows and natural resources on growth is not homogeneous to the six South Asian countries under analysis. However, the slope coefficients are heterogeneous, which means that various countries present diverse and somewhat different relationships between FDI inflows, natural resources and growth.

Table 5: Unit Root

	Level			
Method	**Statistic**	**Prob.[1]**	**N**	**Order**
Series: GDP growth				
Im, Pesaran and Shin W-stat	-6.7***	0.000	189	I(0)
ADF - Fisher Chi-square	70.8***	0.000	189	
PP - Fisher Chi-square	100.1***	0.000	192	
Series: Natural Resources Rent				
Im, Pesaran and Shin W-stat	-2.1**	0.018	188	I(0)
ADF - Fisher Chi-square	25.7**	0.012	188	
PP - Fisher Chi-square	23.6**	0.023	192	
Series: Foreign Direct Investment				
Im, Pesaran and Shin W-stat	-3.95***	0.000	191	I(0)
ADF - Fisher Chi-square	38.7***	0.000	191	
PP - Fisher Chi-square	36.7***	0.000	192	

Notes: 1. Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution; all other tests assume asymptotic normality; *** & ** represent a rejection of null hypothesis at 1% & 5% level of significance; null: unit root (assumes individual unit root process).

Table 5 presents the results of the unit root tests to check the stationarity of three variables: Gross Domestic Product Growth, Natural Resource Rents and Net Inflows of FDI. In these tests, a null hypothesis proposes that the series covers a unit root. This can be done by comparing the partial residuals and rejecting the null hypothesis, thus implying stationarity in the data. These tests include Im, Pesaran and Shin W-stat (W), ADF-Fisher chi-square, and PP-Fisher chi-square. The

unit root tests indicate that all three variables, GDP Growth, Natural Resources Rent, and FDI (Net Inflows), are stationary at level, i.e. I (0).

Table 6: Kao Residual Co-integration Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Augmented Dickey-Fuller Test Equation				
RESID(-1)	-0.83***	0.07	-11.47	0.000
Newey-West Automatic Bandwidth Selection and Bartlett Kernel				
ADF			-5.1***	0.000
Residual variance			11.7**	
HAC variance			3.13**	
R-squared	0.41	Mean dependent var		-0.11
Adjusted R-squared	0.41	S.D. dependent var		3.45
S.E. of regression	2.65	Akaike info criterion		4.80
Sum squared resid	1345.80	Schwarz criterion		4.81
Log-likelihood	-459.37	Hannan-Quinn criteria		4.80
Durbin-Watson stat	1.98			

Notes: Null hypothesis - no co-integration; trend assumption - no deterministic trend; *** represents a rejection of the null hypothesis at a 1% significance level.

In Table 6, the Kao Residual Co-integration Test offers a straightforward way of considering the presence of a long-run relation between variables such as FDI inflows, natural resources rent, and growth. The first hypothesis of this test suggests that the tested series are not co-integrated, so this specifies that the variables do not have conformity in the long-run perspective. The Kao Residual Co-integration Test provides strong evidence of a co-integrating relationship among FDI inflows, natural resources rent, and growth, as evidenced by the significant p-values and the stationary nature of the residuals.

Table 7: Pairwise Dumitrescu-Hurlin Panel Causality Tests

Null Hypothesis	W-Stat	Zbar-Stat	Prob.
NETINFLOWS does not homogeneously cause GDPGR	2.14	-0.03	0.979
GDPGR does not homogeneously cause NETINFLOWS	4.33**	2.25	0.024
NRR does not homogeneously cause GDPGR	2.31	0.15	0.884
GDPGR does not homogeneously cause NRR	1.79	-0.39	0.693
NRR does not homogeneously cause NETINFLOWS	5.63***	3.60	0.000
NETINFLOWS does not homogeneously cause NRR	3.87*	1.77	0.077

Note: ***, **, & * represent a rejection of the Null Hypothesis at a 1%, 5%, and 10% significance level.

Table 7 presents the outcomes of the Pairwise Dumitrescu-Hurlin Panel Causality Tests, which inspect the fundamental relationships b/w three variables: To measure the growth, we have Gross Domestic Product Growth Rate (GDPGR), FDI inflows (NETINFLOWS) and Natural Resources Rent (NRR). The null hypothesis for these tests is that one variable does not evenly affect another across the panel of cross-sections. Hypothesis rejection suggests the existence of causality, while failure to do thus suggests the non-existence of causality. Finally, in analyzing the results of the

Dumitrescu-Hurlin Panel Causality Tests, one can observe that GDP growth has a significant causal relation with FDI inflows, and a significant causal relation exists b/w natural resources and FDI inflows. Nevertheless, little cross-sectional correlation is identified between natural resources and GDP growth or between the growth of GDP and natural resource rent.

Table 8: Models' estimations

Variables	Fixed Effects Model	Random Effects Model	FMOLS Model	DOLS Model
Net FDI Inflows	0.664	0.44	0.80	0.48
	(0.091) *	(-0.181)	(0.03)**	(-0.215)
Natural Resources Rent	-0.16	-0.077	-0.06	-0.12
	(0.02)**	(0.046)**	-0.43	(-0.123)
Constant	4.99	4.735	-	-
	(0.00)***	(0.011)**	-	-
R squared	*0.37*	*0.03*	*0.13*	*0.11*
Adjusted R sq.	*0.217*	*0.019*	*0.10*	*0.077*
F-statistics	*2.398*	*2.858*	-	-
Prob. (F-statistics)	*0.000*	*0.060*	-	-
Durbin-Watson stat	*1.449*	*1.517*	-	-

Note: ***, **, & * represent 1%, 5%, and 10% level of significance

Table 8 shows the result of four econometric models, namely Fixed Effects, Random Effects, FMOLS, and DOLS, that depict growth performance, net FDI inflows, and natural resources rent of six South Asian countries. Therefore, the study established that net FDI inflows have a positive and robust correlation with growth, with the FMOLS model exerting the highest influence. Conversely, natural resource rent negatively correlates with growth in most models but is statistically significant only in the fixed and random effects models. The overall fitness of the models is reasonably good but still modest to low, which implies there may be other variables impacting the growth of these South Asian nations as well. Further, Durbin-Watson statistics values indicate problems of autocorrelation, particularly in fixed and random effects models.

Conclusion

This study examines the impact of FDI inflows and natural resource rents on the economic growth of South Asia, focusing on Bangladesh, Iran, India, Nepal, Pakistan, and Sri Lanka from 1990-2022. Using various analytical methods, including Descriptive Statistics, Cross-Section Dependence Test, Slope Heterogeneity Test, Unit Root Test, Kao Residual Co-integration Test, and Dumitrescu-Hurlin Panel Causality Tests, the study finds that growth is influenced by FDI inflows and natural resources as independent variables. The results show high cross-sectional dependence among the variables, indicating a strong interrelation across the countries studied. The Slope Heterogeneity Test confirms that diverse relationships exist between FDI, natural resource rents, and growth across the countries. The Unit Root Tests indicate that all variables are stationary at levels, ensuring the reliability of the regression analysis. The Kao Residual Co-integration Test reveals a significant long-run relationship among the variables. Furthermore, the Dumitrescu-Hurlin Panel Causality Tests suggest a causal link between growth and FDI inflows, as well as

between FDI inflows and natural resource rents. However, no strong correlation was found between natural resources and growth.

The findings suggest that FDI inflows positively correlate with growth, with the FMOLS model showing the most substantial relationship. In contrast, natural resource rents harm growth in most models, although this effect is only statistically significant in the fixed and random effects models. The model fit is adequate, though there are indications of autocorrelation, particularly in the fixed and random effects models. This study highlights the importance of fostering a conducive environment for foreign investment and effectively managing natural resources to promote sustainable growth. The findings can inform future research and policymaking, particularly in refining strategies for attracting FDI and optimizing resource management in South Asia. Future research could further explore these relationships by breaking down data by country or sector, allowing for more targeted policy interventions.

References

- Acheampong, P., & Osei, V. (2014). Foreign Direct Investment (FDI) Inflows into Ghana: Should the Focus Be on Infrastructure or Natural Resources? Short-Run and Long -Run Analyses. *International Journal of Financial Research*, *5*(1). https://doi.org/10.5430/ijfr.v5n1p42
- Agbloyor, E. K., Gyeke-Dako, A., Kuipo, R., & Abor, J. Y. (2016). Foreign Direct Investment and Economic Growth in SSA: The Role of Institutions. *Thunderbird International Business Review*, *58*(5), 479–497. https://doi.org/10.1002/tie.21791
- Ampofo, G. K. M., Cheng, J., Asante, D. A., & Bosah, P. (2020). Total natural resource rents, trade openness and economic growth in the top mineral-rich countries: New evidence from nonlinear and asymmetric analysis. *Resources Policy*, *68*. https://doi.org/10.1016/j.resourpol.2020.101710
- Anarfo, E. B., Agoba, A. M., & Abebreseh, R. (2017). Foreign Direct Investment in Ghana: The Role of Infrastructural Development and Natural Resources. *African Development Review*, *29*(4), 575–588. https://doi.org/10.1111/1467-8268.12297
- Atil, A., Nawaz, K., Lahiani, A., & Roubaud, D. (2020). Are natural resources a blessing or a curse for financial development in Pakistan? The importance of oil prices, economic growth and economic globalisation. *Resources Policy*, *67*. https://doi.org/10.1016/j.resourpol.2020.101683
- Awolusi, O. D., & Adeyeye, O. P. (2016). *Problems and Perspectives in Management*. *14*(2), 289–297. https://doi.org/10.21511/ppm
- Ben-Salha, O., Dachraoui, H., & Sebri, M. (2021). Natural resource rents and economic growth in the top resource-abundant countries: A PMG estimation. *Resources Policy*, *74*. https://doi.org/10.1016/j.resourpol.2018.07.005
- Bilas, V. (2020). FDI and economic growth in eu13 countries: Cointegration and causality tests. *Journal of Competitiveness*, *12*(3), 47–63. https://doi.org/10.7441/joc.2020.03.03
- Bokpin, G. A., Mensah, Lord, & Asamoah, M. E. (2015). Foreign direct investment and natural resources in Africa. *Journal of Economic Studies*, *42*(4), 608–621. https://doi.org/10.1108/JES-01-2014-0023
- Borensztein, E., De Gregorio, J., Lee, J.-W., Barro, R., Helpman, E., Jovanovic, B., Khan, M., Kim, S.-J., Mathieson, D., Rebelo, S., Sachs, J., & Wickham, P. (1998). How does foreign direct investment affect economic 1 growth? We are grateful for comments from. In *Journal of International Economics*, *45*.
- Boschini, A., Pettersson, J., & Roine, J. (2013). The resource curse and its potential reversal. *World Development*, *43*, 19-41.
- Cung, N. H. (2020). Impact of Foreign Direct Investment on Economic Growth in Vietnam. In *Advances in Management & Applied Economics*, *10*(6). Online. Scientific Press International Limited. https://www.researchgate.net/publication/337831022

- Dinda, S. (2014). Natural Resources Determining FDI in Nigeria: An Empirical Investigation. In *International Journal of Research in Business and Social Science IJRBS*, *3*(1). www.ssbfnet.com
- Elheddad, M., Bassim, M., & Ahmed, R. (2021). Fdi and economic growth in the GCC: Does the oil sector matter? *Economics and Business Letters*, *10*(3), 178–190. https://doi.org/10.17811/ebl.10.3.2021.178-190
- Elheddad, M., Thapa-Parajuli, R., & Alharthi, M. (2020). Foreign Direct Investment (FDI) and Natural Resources: Blessing or Curse? Empirical Evidence from the Gulf Cooperation Council (GCC). In *Journal of Reviews on Global Economics*, *9*.
- Erdoğan, S., Yıldırım, D. Ç., & Gedikli, A. (2020). Natural resource abundance, financial development and economic growth: An investigation on Next-11 countries. *Resources Policy*, *65*. https://doi.org/10.1016/j.resourpol.2019.101559
- Erum, N., & Hussain, S. (2019). Corruption, natural resources and economic growth: Evidence from OIC countries. *Resources Policy*, *63*. https://doi.org/10.1016/j.resourpol.2019.101429
- Ezeoha, A. E., & Cattaneo, N. (2012). FDI flows to sub-saharan Africa: The impact of finance, institutions, and natural resource endowment. *Comparative Economic Studies*, *54*(3), 597–632. https://doi.org/10.1057/ces.2012.18
- Fan, E. X. (2003). Technological spillovers from foreign direct investment—A survey. *Asian Development Review*, *20*(01), 34-56.
- Feulefack, L. K., & Ngassam, B. S. (2020). *Volume 40, Issue 1 Natural resources, quality of institutions and foreign direct investment in Africa*.
- Gelb, A., Grasmann, S., & Gelb Sina Grasmann Alan, A. (2003). *How Should Oil Exporters Spend Their Rents? How Should Oil Exporters Spend Their Rents? Center for Global Development 1800 Massachusetts Ave*.
- Gligorić, D., Borović, Z., & Vujanić, V. (2018). Impact of foreign direct investment on the economic growth: the case of commonwealth of independent states. *зборник радова економског факултета у источном сарајеву*, *1*(15), 23. https://doi.org/10.7251/zrefis1715023g
- Gylfason, T. (2011). *Natural Resource Endowment: A Mixed Blessing?*
- Hsiao, F. S., & Hsiao, M. C. W. (2006). FDI, exports, and GDP in East and Southeast Asia—Panel data versus time-series causality analyses. *Journal of Asian Economics*, *17*(6), 1082-1106.
- Huang, Y., Raza, S. M. F., Hanif, I., Alharthi, M., Abbas, Q., & Zain-ul-Abidin, S. (2020). The role of forest resources, mineral resources, and oil extraction in economic progress of developing Asian economies. *Resources Policy*, *69*. https://doi.org/10.1016/j.resourpol.2020.101878
- Joo, B. A., Shawl, S., & Makina, D. (2022). The interaction between FDI, host country characteristics and economic growth? A new panel evidence from BRICS. *Journal of Economics and Development*, *24*(3), 247–261. https://doi.org/10.1108/jed-03-2021-0035
- Jumanne, B. B., & Keong, C. C. (2018). Issue I. In *African Journal of Economic Review: Vol. VI*.
- Kang, Y. (2018). Regulatory institutions, natural resource endowment and location choice of emerging-market FDI: A dynamic panel data analysis. *Journal of Multinational Financial Management*, *45*, 1–14. https://doi.org/10.1016/j.mulfin.2018.04.003
- Khder Aga, A. A. (2014). The Impact of Foreign Direct Investment on Economic Growth: A Case Study of Turkey 1980–2012. *International Journal of Economics and Finance*, *6*(7). https://doi.org/10.5539/ijef.v6n7p71
- Koojaroenprasit, S. (2012). The Impact of Foreign Direct Investment on Economic Growth: A Case Study of South Korea *. In *International Journal of Business and Social Science* (Vol. 3, Issue 21). www.ijbssnet.com
- Lim, J. S. (2009). Global integration or local responsiveness?: Multinational corporations' public relations strategies and cases. In *International media communication in a global age* (pp. 307-326). Routledge.

- Lu, W., Kasimov, I., Karimov, I., & Abdullaev, Y. (2020). Foreign direct investment, natural resources, economic freedom, and sea-access: Evidence from the commonwealth of independent states. *Sustainability (Switzerland)*, *12*(8). https://doi.org/10.3390/SU12083135
- M., A. K., S.O., O., & Oluwafolakemi, F. O. (2014). Impact of Foreign Direct Investment on Nigeria Economic Growth. *International Journal of Academic Research in Business and Social Sciences*, *4*(8). https://doi.org/10.6007/ijarbss/v4-i8/1092
- Mahavidyalaya, S. S. (2012). *Impact of Foreign Direct Investment on Economic Growth in India: A Co integration Analysis Sarbapriya Ray*. *2*(1), 187. www.worldsciencepublisher.org
- Malik, K. (2015). Impact of Foreign Direct Investment on Economic Growth of Pakistan. *American Journal of Business and Management*, *4*(4). https://doi.org/10.11634/216796061504624
- Mohammad, S., & Alam, D. (2023). Revisiting FDI Led Economic Growth Hypothesis in India an Autoregressive Distributed Lag Approach. *Saudi Journal of Economics and Finance*, *7*(03), 126–134. https://doi.org/10.36348/sjef.2023.v07i03.002
- Moshiri, S., & Hayati, S. (2017). Natural Resources, Institutions Quality, and Economic Growth; A Cross-Country Analysis. In *Econ. Rev* (Vol. 21, Issue 3).
- Neusser, K. (1991). Testing the long-run implications of the neoclassical growth model*. In *Journal of Monetary Economics* (Vol. 27).
- Nulambe, N. A. h, & Cinar, M. (2018). Foreign Direct Investment, Trade Openness and Economic Growth: A Panel Data Analysis for Sub-Saharan Africa. *Business and Economics Research Journal*, *9*(4), 749–760. https://doi.org/10.20409/berj.2018.136
- Owusu-Nantwi, V., & Erickson, C. (2019). Foreign direct investment and economic growth in South America. *Journal of Economic Studies*, *46*(2), 383–398. https://doi.org/10.1108/JES-11-2017-0323
- Sabah, d., & Noori, A. M. (2019). *Impact of Foreign Direct Investment on Economic Growth in Jordan*. https://doi.org/10.31272/JAE.42.2019.119.6
- Sachs, J. D., & Warner, A. M. (n.d.). *The curse of natural resources*.
- Shetewy, N., Li, *, & Jiang, J. (2019). The Impact of Chinese FDI on Economic Growth in North Africa. *An International Peer-Reviewed Journal*, *48*. https://doi.org/10.7176/JPID
- Sokang, K. (2018). The Impact of Foreign Direct Investment on the Economic Growth in Cambodia: Empirical Evidence. *International Journal of innovation and economic development*, *4*(5), 31–38. https://doi.org/10.18775/ijied.1849-7551-7020.2015.45.2003
- Stevens, P., & Dietsche, E. (2008). Resource curse: An analysis of causes, experiences and possible ways forward. *Energy Policy*, *36*(1), 56–65. https://doi.org/10.1016/j.enpol.2007.10.003
- Tabash, M. I., Mesagan, E. P., & Farooq, U. (2022). Dynamic linkage between natural resources, economic complexity, and economic growth: African empirical evidence. *Resources Policy*, *78*. https://doi.org/10.1016/j.resourpol.2022.102865
- Tiwari, A. K., & Mutascu, M. (2011). Economic Growth and FDI in Asia: A Panel-Data Approach. *Economic Analysis and Policy*, *41*(2), 173–187. https://doi.org/10.1016/S0313-5926(11)50018-9
- Usman, M., Jahanger, A., Makhdum, M. S. A., Balsalobre-Lorente, D., & Bashir, A. (2022). How do financial development, energy consumption, natural resources, and globalisation affect Arctic countries' economic growth and environmental quality? An advanced panel data simulation. *Energy*, *241*. https://doi.org/10.1016/j.energy.2021.122515
- Yasmeen, H., Tan, Q., Zameer, H., Vo, X. V., & Shahbaz, M. (2021). Discovering the relationship between natural resources, energy consumption, gross capital formation with economic growth: Can lower financial openness change the curse into blessing. *Resources Policy*, *71*. https://doi.org/10.1016/j.resourpol.2021.102013
- Zhang, D., Narbaev, T., Cheng, J., & Mushravan, A. A. (2023). How natural resources collaboration affects the pollutants level and economic growth: Novel evidence from China. *Resources Policy*, *85*. https://doi.org/10.1016/j.resourpol.2023.103801