



Impact of FDI on Sustainable Growth in Belt and Road Economies

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ABSTRACT

This paper investigates the relationship between foreign direct investment and economic growth in Belt and Road countries during 1990–2020. Our findings suggest that a 10% increase in FDI relative to GDP is associated with only a 0.9 percentage-point increase in GDP growth. The results hold after including control variables. The results can be explained by the factors that encourage investors and companies to invest their money in foreign projects, including relatively lower deployment costs, access to resources, a favorable financial environment, and developed financial markets. These elements collectively shape the impact of FDI on economic growth in Belt and Road countries. Future research on the FDI–growth nexus in Belt and Road countries should concentrate on causal links and potential indirect pathways by which FDI can influence economic growth.

Keywords: Foreign Direct Investment ▪ Economic Sustainability ▪ Belt and Road Initiative

1. INTRODUCTION

The impact of foreign direct investment on host-country economic growth has received a great deal of attention. According to the neoclassical growth model [1], FDI increases investment volumes and their efficiency, thereby encouraging economic growth. The endogenous growth model states [2] that FDI brings technological advances from developed countries to the host country, which increases economic growth. FDI improves economic development by adding to the existing knowledge stock of the recipient country through human-capital development, improved managerial skills and organizational structure, as well as innovation. Thus, there is a widespread belief that FDI positively affects growth, yet the empirical evidence is ambiguous. While some studies confirm the positive effect of FDI [3], supporting the neoclassical and endogenous growth theories, Hobbs et al. [4] challenge the general view by arguing that FDI does not always result in increased economic growth. Some studies observe no

causal relationship between sustainable economic growth and FDI [5]. This highlights the need for a more comprehensive analysis that takes into account the various contextual aspects and complexities of each host country's economic landscape. Moreover, studies that support the positive effect of FDI argue that growth in host economies is promoted either directly or under certain conditions. For example, Wu and Chen [6] find that FDI plays a more significant role in the growth of export-promoting economies than in import-promoting economies. According to their research, FDI has a greater impact on promoting economic growth when it is directed toward countries that actively support and implement export-oriented programs. For FDI to positively affect economic growth, the receiving nation's workforce must meet specific educational, skill, and knowledge requirements. This suggests that human capital is crucial to maximizing the benefits of foreign direct investment. Su and Liu [7] argue that FDI can encourage economic growth only if the economy has reached a certain level of human capital. UNCTAD [8] states

that FDI may affect economic growth differently depending on factors including initial per-capita GDP, education, the domestic investment ratio, political instability, trade, the black-market premium, and financial development. In addition, a country's degree of participation in trade, investment, and other economic activities with the global economy is referred to in this context as its openness. The empirical results of Forte and Moura [9] indicate that openness contributes to the efficiency of FDI in encouraging economic growth. Alfaro et al. [10] state that, beyond the impact of FDI on growth, financial-market development strengthens the gains retained from FDI. In essence, while FDI alone might benefit a host country's economic growth, well-developed financial markets increase and strengthen these benefits.

Against this background, the Belt and Road Initiative (BRI), the largest project of the twenty-first century, has gained significant attention as a means of promoting sustainable economic growth [11]. The BRI encompasses a vast network of infrastructure projects, trade agreements, and economic collaborations involving multiple regions and economies [12]. The initiative is fundamentally connected to the discussion of how FDI affects economic progress. According to a World Economic Forum report [13], investments under the BRI have surpassed US\$1 trillion—an enormous sum for any present-day mission. The program empowers numerous countries, particularly developing countries, through infrastructure projects that connect economic corridors, seaports, roadways, and railway networks, allowing them to participate in global trade dynamics and advance sustainable growth. In a recent study, Ahmed and Lambert [14] underscore the BRI as a pivotal effort for fostering regional integration within the current geopolitical landscape. However, Kamal et al. [15] highlight that achieving sustained growth with investments from the BRI is largely dependent on institutional quality. Acknowledging the critical role of institutional quality, the authors underline the need for strong controls to guarantee that investments are made through appropriate channels, thereby optimizing their beneficial effects on sustainable development. Similarly, Taqi et al. [16] argue that long-term economic success relies on a variety of factors other than investment alone.

The current state of sustainable economic growth research is varied, with numerous studies suggesting different agendas. Within this context, the BRI stands out as a massive project involving significant investments in multiple countries. However, the influence of FDI on economic growth in Belt and Road countries remains understudied. This information gap emphasizes the importance of further study, especially given the BRI's decade-long existence, making it timely to examine its development among participating countries. This paper fills a significant gap by investigating the relationship between FDI and economic growth using data from 62 Belt and Road countries covering the years 1990 to 2020. Our main hypothesis is that FDI is positively related to economic growth in Belt and Road countries. The following sections provide a review of related literature, an empirical methodology, a discussion of the findings, and concluding observations. Through this investigation, we seek to provide useful insights into the dynamics of FDI and its impact on the economic-growth trajectory of Belt and Road countries.

2. LITERATURE REVIEW

The literature review investigates the complex relationship between FDI and sustainable development. It seeks to identify the many scholarly findings, theoretical viewpoints, and empirical results that contribute to our understanding of how FDI affects and connects with the achievement of sustainable-development goals. Numerous scholars have investigated this relationship. For instance, Borensztein et al. [17] examined the effect of FDI from OECD countries on the economic development of 69 developing countries during 1970–1989. The results showed that FDI from industrial countries can positively affect the economic development of host countries if the host countries' human-capital levels have reached a certain threshold. Zhang [18] found that, in 12 Asian economies over the period 1987–1997, FDI in manufacturing had a stronger association with the economic development of investment-receiving countries. The results also show that FDI inflows to non-manufacturing sectors are not crucial to economic development.

Agrawal and Khan [19] explore the relationship between FDI and growth in China and India during 1992–2009. The study relies on a conventional growth model and controls for key growth factors. Using an OLS regression model, the study finds that a 10% rise in foreign investment leads to a 0.7% rise in the GDP growth of China and a 0.2% rise in the GDP growth of India. Adhikary [20] investigates the relationship between FDI and the economic growth of Bangladesh. The study relies on World Bank data covering 1986–2008 and uses a vector error-correction model (VECM) and vector autoregression (VAR) framework. The results suggest a strong, long-run positive effect of FDI on economic growth in Bangladesh. Ruxanda and Muraru [21] investigate the relationship between FDI and Romania's economic growth. Using a simultaneous growth model and quarterly data from 2000 to 2009, the study documents a bidirectional link between foreign-capital inflows and economic growth. FDI inflows cause higher GDP growth, while increased GDP further attracts FDI to Romania.

Zekarias [22] conducted a detailed analysis emphasizing the beneficial association between foreign investment and economic growth. The findings reveal that FDI not only promotes capital formation but also serves as a channel for technology transfer and knowledge spillovers, increasing overall economic production. Building on this, Hayat [23] examined the role of institutional quality in facilitating the FDI–economic-growth link. The findings reveal that robust institutional frameworks are critical to optimizing the positive impact of FDI and creating a climate conducive to long-term economic growth. Varamini and Kalash [24] present opposing viewpoints, recognizing the favorable impact of FDI on economic growth but warning against ignoring potential negative externalities. Their study emphasizes the importance of smart policy measures to prevent negative consequences, as well as the need for a balanced approach to maximizing the benefits of FDI. Gupta et al. [25] conduct a comprehensive analysis of the FDI–growth nexus in developing countries. Turning to regional dynamics, Hecock and Jepsen [26] explore the effect of FDI on economic growth in Latin American countries. Their findings emphasize the importance of sectoral composition and the sector-specific distribution of FDI in

determining its impact on growth.

Despite the considerable attention paid to the impact of FDI on economic growth, there is a significant research gap concerning the specific dynamics of FDI and its influence on long-term economic growth in Belt and Road countries. While various studies have examined the broader relationship between FDI and economic growth, few have focused on how FDI helps achieve sustainable-development goals across the different Belt and Road economies. The lack of specialized study in this area underscores the need for a thorough investigation that accounts for the region's particular challenges and opportunities. This study addresses that gap by examining the relationship between FDI and economic growth in 62 Belt and Road nations from 1990 to 2020. The hypothesis tests whether FDI has a favorable impact on economic growth in the selected countries.

3. METHODOLOGY

3.1 Dependent Variable

The dependent variable is the annual percentage growth rate of GDP at market prices based on constant local currency. The data come from the World Bank. Within the sample of Belt and Road countries, the variable ranges from -64% to 88.9% , and its average value over the period is 4.7% .

3.2 Foreign Direct Investment

Foreign direct investment is measured by net inflows as a percentage of GDP. These data also come from the World Bank. According to our data, FDI net inflows range from -46% to 58% of GDP in Belt and Road countries. Figure 1 plots the leading FDI receivers among BRI countries (red line) and non-BRI countries (blue line) in 2020. According to the report, Hong Kong ranked first, with nearly 24% of GDP.



Figure 1. FDI receivers among BRI and non-BRI countries, 2020.

3.3 Control Variables

We also include a set of conventional control variables used in empirical growth models. First, we include a lagged log of GDP per capita adjusted by purchasing-power parity (PPP) to capture the convergence effect among Belt and Road countries. Second, we include investment rates measured by gross fixed-capital formation as a percentage of GDP to capture the link between investment and GDP growth. Next, we in-

clude the Human Development Index (HDI) to account for the role of human capital in economic growth. The impact of institutions on economic growth is addressed by including the World Bank's rule-of-law index in our model. Finally, we include trade openness as a percentage of GDP. The data for these variables come from the World Bank.

3.4 Model Construction

To assess the role of FDI in economic growth among Belt and Road countries, we estimate the following econometric model:

$$growth = \alpha + \beta FDI + \gamma X + \varepsilon, \quad (1)$$

where *growth* is the GDP growth rate, *FDI* is FDI as a percentage of GDP, *X* is a set of controls, and ε is an error term satisfying the normality assumptions. We estimate Equation (1) using a fixed-effects regression estimator for panel data. This method allows us to account for time-invariant unobserved factors that are not included in the model but may affect growth.

Table 1. Descriptive statistics.

Variable	Description	Mean	SD	Min	Max
GDP growth	GDP growth, % World Bank	4.3	7.1	-64.0	89.0
FDI	FDI net inflows, % of GDP World Bank	4.1	6.2	-46.1	58.5
GDP per capita	Lagged log of GDP per capita World Bank	9.2	1.1	6.6	11.7
Rule of Law	Rule-of-law index Worldwide Governance Indicators	-0.2	0.8	-2.1	1.9
Trade	Trade as % of GDP World Bank	95.7	59.9	0.0	442.6
HDI	Human Development Index UN	0.7	0.1	0.4	0.9
Investment	Investment rate, % of GDP World Bank	24.1	7.5	2.0	68.0

Source: Author's calculations.

4. RESULTS AND DISCUSSION

The main results are reported in Table 2. Column I presents the simple regression between GDP growth and FDI in Belt and Road countries. The coefficient is positive and significant at the 1% level. It suggests that a 10% increase in FDI relative to GDP is associated with a 1.9 percentage-point increase in GDP growth. However, this coefficient captures both direct and indirect effects. Therefore, Column II includes the remaining controls. A 10% increase in FDI relative to GDP is now associated with only a 0.9 percentage-point increase in GDP growth. The control variables show that:

- GDP per capita is negative and significant, suggesting a convergence effect among Belt and Road countries in their levels of economic development.
- The rule of law and trade openness are insignificant in our model.
- Countries with higher Human Development Index values are associated with higher GDP growth rates. Thus, investment in human capital again appears important for Belt and Road countries.
- The investment rate is positive and significant, confirming the assumptions of the Solow growth model.

Table 2. Main results.

Variable	I	II
FDI as % of GDP	0.192 (6.73)***	0.093 (3.56)***
GDP per capita, lag		−8.536 (8.00)***
Rule of Law		0.382 (0.55)
Trade as % of GDP		0.009 (1.32)
HDI		39.249 (5.70)***
Investment rates		0.055 (2.00)**
Constant	3.616 (20.39)***	52.943 (8.73)***
R^2	0.03	0.08
N	1,768	1,310

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

The results reported in Table 2 shed light on the relationship between FDI and GDP growth in Belt and Road countries. Similar studies have found a positive relationship between FDI and economic growth, supporting our findings. For example, Shahriar et al. [27] identify a substantial positive association in their study of the impact of FDI on GDP growth in a variety of nations. Our results in Column I are consistent with their findings, validating the view that FDI tends to contribute favorably to GDP growth. However, when we move to Column II and incorporate additional control factors, the observed coefficient for FDI falls to 0.9 percentage points, which is consistent with the findings of Mehic et al. [28]. Their study, which included control variables, also found a reduced but still favorable impact of FDI on GDP growth.

The inclusion of control variables enables us to address the complexity of the relationship. This is consistent with the findings of Gui-Diby [29], who emphasizes the importance of considering variables such as starting per-capita GDP, education, the domestic investment ratio, political stability, trade dynamics, and financial development when analyzing how FDI affects economic growth. The robustness of our findings is reinforced by these consistent trends across different studies [30, 31, 32, 33]. They also highlight the need for a thorough approach to understanding the complex relationship between FDI and GDP development in the context of Belt and Road countries. As we work through the nuances of these findings, it is clear that a wide range of factors influence the relationship between FDI and sustainable economic development, consistent with the broader body of research in this area.

5. CONCLUSION

This paper contributes to ongoing global research concerning the relationship between FDI and economic growth. While previous studies have examined regions and settings such as China, transitional markets, and developing regions [34, 35, 36], the role of FDI in the GDP growth of Belt and Road nations remains underexplored. Addressing this gap, this research investigates the impact of FDI on eco-

nomie growth in BRI countries. We use data from 62 nations on the list of Belt and Road countries for the period 1990–2018. The findings reveal that a 10% increase in FDI relative to GDP corresponds to only a 0.9 percentage-point increase in GDP growth. These results remain consistent even when conventional controls are included.

The results can be explained by the factors that encourage investors and companies to invest their money in foreign projects. These include relatively lower deployment costs, access to resources, a favorable financial environment, and developed financial markets. However, the current analysis does not explain the specific mechanism through which FDI affects economic performance, creating a notable limitation of the work. Future investigations of the FDI–growth nexus should focus on the nature of the relationships between the observed variables and possible channels through which FDI can affect economic growth.

These results have several policy implications. First, to boost GDP growth in the next decade, Belt and Road countries need to attract higher volumes of FDI relative to GDP. This could be achieved through greater tax benefits for investors, improvements in the business climate, and other incentives that attract investors to emerging markets. Second, our results show that the effect of FDI on growth should be accompanied by greater investment in human capital, as HDI is positive and significant in our model. Future studies should explore the drivers of FDI to Belt and Road nations and the role that FDI may play in reducing income inequality in these countries. At the same time, improving the socioeconomic indicators discussed above would benefit domestic as well as foreign investors. Effective cooperation between foreign and domestic capital and its successful accumulation can have a multiplicative effect on economic growth. FDI development is closely related to technology transfer. An investment-friendly environment encourages foreign producers to deploy production lines in other countries. From the perspective of foreign investors, a reliable investment environment, strong institutional development, and a powerful legal system will significantly increase trust and interest in investment projects in a particular country.

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