

Two Roads Diverged:
The Impact of Foreign Direct Investment (FDI) on Regional Inequality in
Physical Infrastructure Development in India

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Abstract

Since the turn of the century, foreign direct investment (FDI) has become one of the dominant sources of infrastructure in developing countries. While its impact on income inequality has been well-studied in the literature, regional inequalities in access to infrastructure have not been thoroughly explored. Thus, this paper aims to analyze the impact of FDI on regional inequalities in infrastructure development, particularly in the case of India. Drawing primarily from scholarly evidence, this paper finds that the current status of governmental regulation and involvement as well as the nature of foreign investor interests prefer rich, urban centers over poor, rural areas. In addition, the opportunity cost of attracting FDI has further disadvantaged sparsely concentrated regions. Ultimately, this paper recommends governmental officials re-evaluate foreign investment proposals with special consideration to their spatial distribution. In addition, they should leverage their economic and political power to encourage domestic investments in areas foreign investors are unwilling to pursue. Therefore, greater economic and social equality can be achieved.

Introduction

From roads and ports to electricity grids and transmission lines, infrastructure is vital to the development of any country. According to the World Bank, investments in physical infrastructure improve supply and demand channels that facilitate sustainable economic growth.¹ The United Nations adds that resilient infrastructure is critical to social development, reducing poverty, and standing up against climate change. In fact, “Industry, Innovation, and Infrastructure” is one of 17 Sustainable Development Goals (SDGs) the UN has urged all countries to work toward by the turn of the decade.² At the same time, foreign direct investment (FDI) has emerged as a prominent mechanism for infrastructure development. From private, profit-seeking projects to geopolitically motivated global partnerships like China’s Belt and Road Initiative (BRI) and G-7’s Partnership for Global Infrastructure and Investment (PGII), global FDI inflows reached USD 1.295 trillion in 2022. Of that value, over 70 percent flowed to developing countries, a four percent year-over-year increase, despite ongoing global crises like the War in Ukraine and the recent pandemic.³

However, growing investment activities do not necessarily entail a growing impact on infrastructure access. Indeed, if critical developments are funneled toward urban centers rather than poor, rural areas, countries may not realize the greater economic and social equality they hope for. Therefore, this paper examines the impact of FDI on the regional distribution of infrastructural development, particularly in the case of India. In alignment with the broader dependency or world systems theory, I hypothesize that increased inflows of FDI will exacerbate spatial inequalities in infrastructure. In conducting my analysis, I employ a primarily

¹ “How Does Infrastructure Support Sustainable Growth?”

² “THE 17 GOALS | Sustainable Development.”

³ United Nations Conference on Trade and Development, *World Investment Report 2023*.

qualitative approach that draws from scholarly evidence. I do, however, incorporate some simple quantitative analysis to further examine my case study of India. Ultimately, I find a positive relationship between FDI and regional inequality. In particular, the current status of governmental regulation and involvement, foreign investor interests, and opportunity costs of attracting FDI lead to rich, urban centers in India receiving greater developments in infrastructure than poor, rural regions. Therefore, this paper recommends government officials of developing countries to reorientate their actions toward ones that will lead to a more even distribution of infrastructure development. This includes both reconsidering their own decisions and using their political and economic influence to encourage foreign investors to prioritize areas with weak infrastructure. In doing so, developing countries can improve the distribution of their economic growth and promote the economic and social well-being of all their citizens.

The rest of the paper is organized as follows. First, I will briefly review the ongoing literature on the impact of FDI on income inequality, with a particular focus on inequalities between skill, gender, and region. In the next section, I will outline my hypothesis and the theoretical framework that supports it. I will continue with my analysis section that will have a particular focus on India. Utilizing scholarly evidence and some elementary data analysis and visualization, I will examine how FDI in infrastructure, FDI in general, and the opportunity cost of FDI all affect the regional distribution of infrastructure development. Finally, I will provide policy recommendations and a conclusion of this paper.

Literature Review

FDI and Income Inequality

The ongoing literature on the impact of foreign direct investment on income inequality in developing countries is generally split into two paradigms. What first emerged from development economics and modernization theory was Kuznets' inverted U-curve hypothesis. That is, inflows of capital at first further income inequality, as only a subsection of industries and the population reap the benefits. However, this eventually diminishes as the host country further develops.⁴ Several scholars have found evidence in support of this theory. In a review of over 100 countries, Figini and Börg (2011) observe that in the case of developing countries, there is strong empirical evidence that as FDI inflows increase, inequality first rises but eventually falls.⁵ Huynh (2021) adds, that while FDI intensifies income inequality at first, improvements in institutional quality as a result of FDI, eventually reduce income inequality.⁶

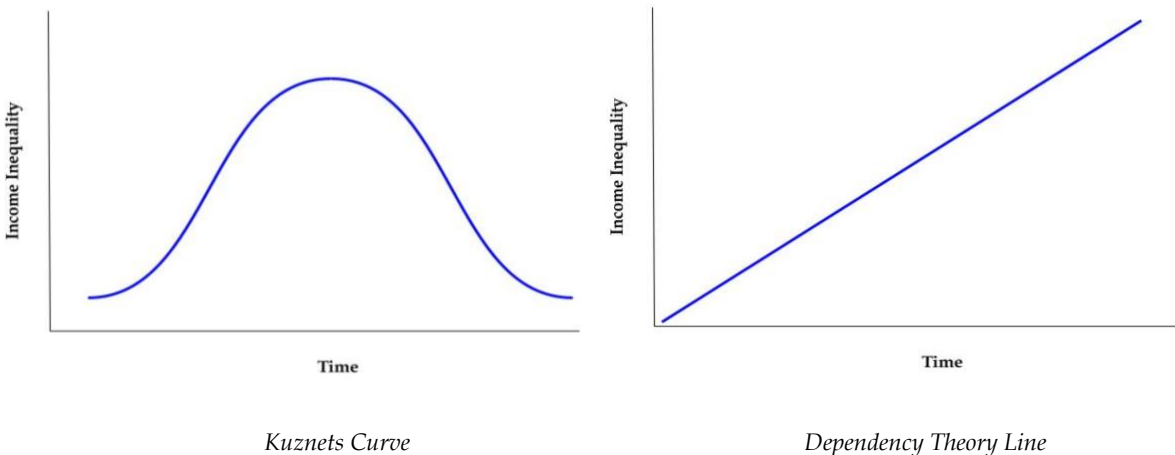


Figure 1: Kuznets Curve and Dependency Line Theories

⁴ Pan-Long, "Foreign Direct Investment and Income Inequality."

⁵ Figini and Görg, "Does Foreign Direct Investment Affect Wage Inequality?"

⁶ Huynh, "Foreign Direct Investment and Income Inequality."

On the other hand, the dependency or world-systems theoretical framework articulates the idea that the world can be categorized into core states and periphery states, with the former possessing the ability to exploit the latter's resources and labor. Within the periphery, there is a dominant class that aligns with and benefits from the core.⁷ Therefore, with inflows of foreign capital from the core into capital-intensive production in the periphery, income inequality rises between the primary and secondary classes. Indeed, in a review of 69 countries, Reuveny and Li (2003) discover an association between FDI and greater income inequality.⁸ Choi (2006) also finds a positive relationship between FDI and income inequality, particularly in poor, slow-growing countries.⁹

Beyond these two dominant paradigms, a subsection of the ongoing literature finds no clear relationship between FDI and income inequality. In an analysis of Turkey, Ucal et al. (2016) find that FDI has no adverse impact on income inequality.¹⁰ Sylwester (2005) observes through a review of 29 Least Developed Countries (LDCs) that FDI has no significant impact on changes in income inequality.¹¹ To further understand the FDI-income inequality nexus, then, the following sections explore how these competing theories explain how income inequalities form between particular groups.

Skill-Based Income Inequality

There has been extensive research on the disparity in income between low-skill and high-skill workers. Feenstra and Hanson (1996) posit that capital inflows from the Global North

⁷ Chase-Dunn, "Dependency and World-Systems Theories."

⁸ Reuveny and Li, "Economic Openness, Democracy, and Income Inequality."

⁹ Choi, "Does Foreign Direct Investment Affect Domestic Income Inequality?"

¹⁰ Ucal, Haug, and Bilgin, "Income Inequality and FDI."

¹¹ Sylwester, "Foreign Direct Investment, Growth and Income Inequality in Less Developed Countries."

to the Global South increase the demand and, therefore, wage of high-skill jobs in both countries.¹² Consequently, inflows of FDI is observed to be positively correlated with increased demand for high skill labor in developing countries. Several studies support this dependency theory line of thinking, including Feenstra and Hanson (1997) in Mexico,¹³ Mah (2002) in South Korea,¹⁴ Lipsey and Sjöholm (2004) in Indonesia,¹⁵ Herzer et al. (2014) in Latin America,¹⁶ and Peluffo (2015) in Uruguay.¹⁷ Te Velde and Morrissey (2002) further add that while FDI increases absolute wages for all, there is a greater improvement among high-skill workers. They find that skill-specific wage bargaining, the idea that higher-skilled workers can better position themselves for higher wages, is a driver of this phenomenon.¹⁸ On the other hand, in alignment with modernization theory, Aghion and Howitt (1998) posit that although FDI first improves wages of high-skilled workers, in the long term, income inequality declines as the spread of skills leads to the “transition to the new technological paradigm.”¹⁹ Franco and Gerussi (2013) add that in the case of transition countries, inflows from developed countries raise the immediate demand for skilled labor but eventually reduces inequality through technological spillovers.²⁰

¹² Feenstra and Hanson, “Globalization, Outsourcing, and Wage Inequality.”

¹³ Feenstra and Hanson, “Foreign Direct Investment and Relative Wages: Evidence from Mexico’s Maquiladoras.”

¹⁴ Mah, “The Impact of Globalization on Income Distribution.”

¹⁵ Lipsey and Sjöholm, “Foreign Direct Investment, Education and Wages in Indonesian Manufacturing.”

¹⁶ Herzer, Hühne, and Nunnenkamp, “FDI and Income Inequality – Evidence from Latin American Economies.”

¹⁷ Peluffo, “Foreign Direct Investment, Productivity, Demand for Skilled Labour and Wage Inequality.”

¹⁸ te Velde and Morrissey, “Foreign Direct Investment: Who Gains?”

¹⁹ Aghion and Howitt, Peter W., *Endogenous Growth Theory*.

²⁰ Franco and Gerussi, “Trade, Foreign Direct Investments (FDI) and Income Inequality.”

Gender-Based Income Inequality

Income inequality between males and females has also been explored in the ongoing literature. Sharma (2020) finds that in India, FDI improves female employment but worsens the gender wage gap. She argues that in developing countries like India, foreign corporations can exploit both the excess supply of cheap labor and the relatively weak bargaining power among unskilled women to reduce wages.²¹ At the same time, Halaszovich and Lundan (2016) add that for foreign corporations to gain a foothold in developing markets, they need to first adopt local institutions by hiring local managers. Given the fact that local managers are disproportionately male, this need inadvertently widens the gender wage gap.²² In addition, Braunstein (2006) observes the importance of the nature of gender segmentation between various industries on the gender wage gap.²³ Braunstein and Brenner (2007) add that in urban China, gender-based income inequality is primarily driven by the demands of foreign-invested enterprises. In the 21st century, a focus on technologically advanced industries – which are dominated by men – have improved wages for males to a much greater degree than females.²⁴ On the other hand, Chen et al. (2013)²⁵ and Heyman et al. (2013)²⁶ find results in China and Sweden, respectively, that align with theories of taste-based discrimination. That is, greater competition due to foreign direct investment intensifies the labor market, thereby increasing the cost of performing wage discrimination.

²¹ Sharma, "The Impact of Foreign Direct Investment on Gender Inequality in India+."

²² Halaszovich and Lundan, "The Moderating Role of Local Embeddedness on the Performance of Foreign and Domestic Firms in Emerging Markets."

²³ Braunstein, "Foreign Direct Investment, Development and Gender Equity."

²⁴ Braunstein and Brenner, "Foreign Direct Investment and Gendered Wages in Urban China."

²⁵ Chen et al., "Globalization and Gender Wage Inequality in China."

²⁶ Heyman, Svaleryd, and Vlachos, "Competition, Takeovers, and Gender Discrimination."

Region-Based Income Inequality

Research on region-based income inequality has been predominately explored in China. Scholars in this field have generally observed a strong inverted U-curve relationship between FDI inflows and income inequality between various regions, particularly between urban and rural areas. Chen (2016) argues that FDI and its impact on trade liberalization have bolstered urban, manufacturing sectors while weakening rural, agricultural sectors. However, as China's economy continues to expand, greater economic development and knowledge spillovers will reduce urban-rural income inequality.²⁷ Lessmann (2013)²⁸ and Song et al. (2022)²⁹ corroborate this finding, arguing that capital investments, by nature, are asymmetrically distributed across various regions. The former furthers that FDI increases regional inequality among low- and middle-income countries, where less interregional mobility and governmental intervention inhibit the correction of the disparity. It is important to note, though, that FDI is only one factor that influences the complex observation of regional inequality. Indeed, Yu et al. (2011) note that FDI in China has contributed less than two percent to regional income inequality, citing educational attainment as a much greater factor.³⁰ Interestingly, when looking outside of China, we find results that support dependency theory. Nunnenkamp et al. (2007) conclude in an analysis of Bolivia that increases in FDI generally lead to widening income inequalities between urban and rural areas.³¹ Rivera and Castro (2013) find that FDI exacerbates regional inequality

²⁷ Chen, "The Impact of Foreign Direct Investment on Urban-Rural Income Inequality."

²⁸ Lessmann, "Foreign Direct Investment and Regional Inequality."

²⁹ Song et al., "The Influence of Foreign Direct Investment on the Urban-Rural Income Gap."

³⁰ Yu et al., "Foreign Direct Investment and China's Regional Income Inequality."

³¹ Nunnenkamp, Schweickert, and Wiebelt, "Distributional Effects of FDI."

in Mexico because foreign corporations prefer bigger, more developed areas.³² Thi Nguyen et al. (2020) observe a similar result in the case of Vietnam.³³

A survey of the current literature reveals that most of the research that has been done is focused on the impact of FDI on income inequality both generally and between certain groups. In this research, scholars are split on whether FDI increases income inequality in the long term or if it is only a short-term phenomenon. This literature review also reveals the clear gap in scholarly work on infrastructural inequality between regions. Therefore, this paper contributes to the literature by addressing infrastructure head-on and furthering the discussion on inequalities beyond income.

Theoretical Framework and Hypothesis

I hypothesize that in the case of developing countries, particularly India, there will be a positive relationship between FDI and regional inequality in infrastructure development. In other words, as a country receives more FDI inflows, the infrastructural gap will widen between urban and rural areas. This hypothesis aligns with the broader dependency framework that was articulated in my literature review. While scholarly work is split on the impact of FDI on income inequality, I believe the physical nature of infrastructure does not allow it to evenly distribute over time, as argued by Kuznets's inverted U-curve school of thought. Instead, the complicated nature of attracting FDI into infrastructure will allow key stakeholders to manipulate its distribution into the core over the periphery. Therefore, over time, infrastructure will become more concentrated in the areas that have already received it.

³² Juárez Rivera and Castro, "Foreign Direct Investment in Mexico Determinants and Its Effect on Income Inequality."

³³ Nguyen et al., "The Impact of International Integration on the Inequality of Income between Rural and Urban Areas in Vietnam."

Analysis

Given the lack of comprehensive quantitative data, this paper primarily uses a qualitative approach to analyze the impact of FDI on the distribution of infrastructure development. By drawing scholarly evidence from a variety of disciplines, I aim to demonstrate the multi-pronged implications of FDI on regional inequality. In addition, using the few datasets available, I visualize state and district data to analyze my hypothesis within the case of India. To do so, data was drawn from reports published by branches of the Indian government, such as the Department for Promotion of Industry and Internal Trade and the Ministry of Commerce and Industry.

To begin, I will look at the impact of FDI in infrastructure; that is, the participation of foreign investors in infrastructural projects such as transport, energy, and telecommunications. Since this form of FDI has obvious implications for infrastructure development, I will examine how mediators manipulate its delivery and ultimately create inequalities between regions. I hypothesize that given the risky nature of FDI in infrastructure, poorer and rural locations will attract less of this highly impactful investment while richer, urban areas will. Therefore, inequalities in infrastructure development will manifest between these areas. Second, I will look at how FDI in general can affect infrastructure development. By looking at factors that encourage FDI in certain areas, I aim to demonstrate how regional inequalities can be created as a result of foreign interests. Finally, I will bring evidence on how the goal of attracting FDI itself can detract away from infrastructure development and ultimately create spatial inequalities. Throughout my analysis, I will weave in data from my case study of India to provide a better picture of how my topic translates to a real-world example.

The Distortion of FDI in Infrastructure through Governmental Involvement

Infrastructural FDI encompasses investment activities in transport, energy, and telecommunications. Since this form of FDI directly inputs infrastructure into a region, it will evidently create dramatic changes to the overall landscape of a country. Indeed, regions that receive FDI in infrastructure will have greater and higher quality infrastructure than areas left in the dark. As shown in Figure 2, FDI in infrastructure, while declining, is still a sizeable portion of overall FDI in India. Therefore, it is important to consider the factors that influence its attraction to certain areas and its impact on spatial inequality in infrastructure development.

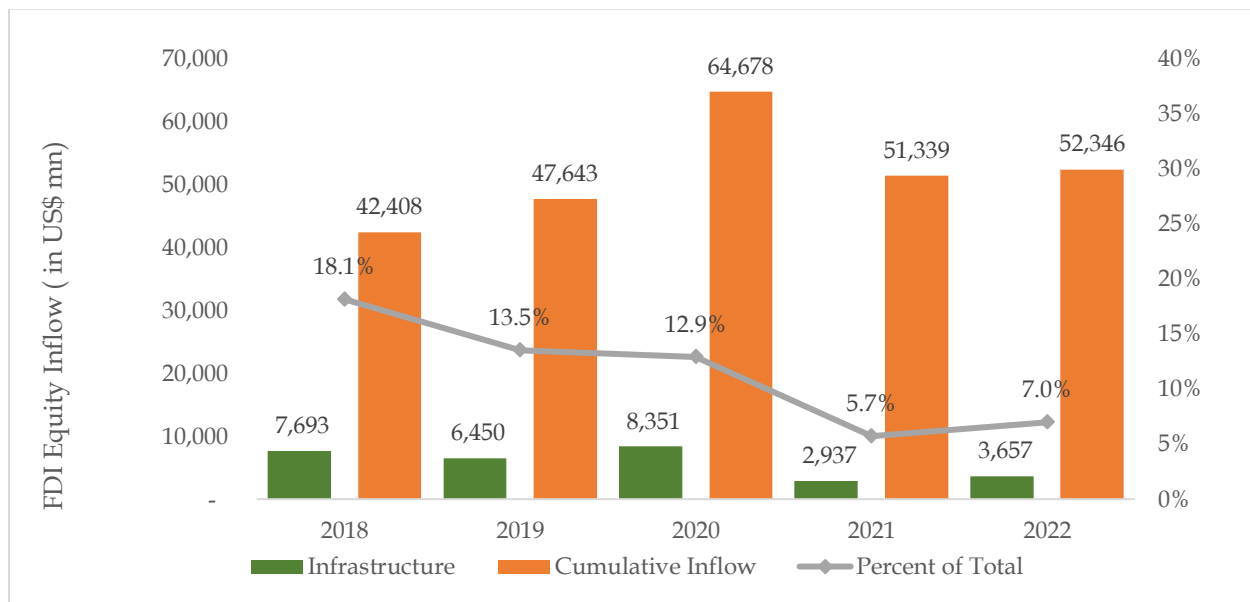


Figure 2: Infrastructural and Cumulative FDI Compared³⁴

Foreign investments in infrastructure are already very risky. The Peterson Institute of International Economics notes that investors in this high-capital sector must accumulate

³⁴ Infrastructure FDI was calculated by summing the FDI inflows to Power, Non-conventional Energy, Telecommunications, Construction (Infrastructure), Sea Transport, and Air Transport. Data was drawn from FDI Newsletters published by the Department for Promotion of Industry and Internal Trade.

revenues over many years to offset the initial investment. In addition, fluctuations in foreign currency exchange rates can add to the difficulty in justifying such an investment. Within developing countries, investors must also worry more about economic and political issues that may lead to recipients being unable or unwilling to pay back in the future.³⁵ Indeed, many factors influence a foreign investor's decision to invest in infrastructure, one of the most important being governmental regulation and involvement. Following the logic that foreign firms are risk-averse, areas that facilitate the process should have a more attractive investment climate. Using government effectiveness and the existence of independent regulators as proxies for regulatory governance, Kirkpatrick et al. (2006) observe a strong, positive correlation between foreign investment and infrastructure.³⁶ In other words, regions with good governance possess characteristics that encourage investments in key infrastructural projects.

They also find that regions with greater governmental regulation improve the impact of FDI in infrastructure. Given the monopolistic nature of transport, energy, telecommunications, and other forms of physical infrastructure, the privatization of the market through foreign investments can have negative side effects on customers. Leveraging their monopoly in the market, foreign corporations charge higher prices in a non-competitive environment, ultimately reducing customer welfare. However, areas with stronger governance are more capable of policing harmful practices and improving customer well-being.³⁷ Extending this logic, I posit that poor, rural areas are disproportionately affected by the economic power of foreign enterprises. Indeed, rural areas in developing countries are more likely to be in a market that has few, if any, existing suppliers of infrastructure. Furthermore, in poorer areas, marginal

³⁵ Moran, "FDI in Infrastructure."

³⁶ Kirkpatrick, Parker, and Zhang, "Foreign Direct Investment in Infrastructure in Developing Countries."

³⁷ Kirkpatrick, Parker, and Zhang.

increases in infrastructural prices can be a significant share of one's income. Therefore, if costs are too much, customers may choose to abandon the use of privately funded infrastructure. Thus, regional differences in governmental regulation and involvement may generate spatially unequal distributions and usages of FDI-induced infrastructure.

Areas with clear policy frameworks also facilitate FDI in infrastructure. Sader (2000) asserts that governments that improve transparency and streamline the administrative process are more likely to realize infrastructural projects that are in line with governmental objectives and public interests. This is especially important given the fact that governmentally supported FDI is one of the only ways to attract FDI into poor, rural areas. Indeed, without governmental pressure or incentive, profit-seeking foreign investors will lack the motive to invest in these areas. Furthermore, ensuring approval from public interest groups is important given the history of local environmental organizations, labor unions, and consumer coalitions blocking FDI in infrastructure that are against their interests.³⁸ Unfortunately, we notice how many developing countries, including India, have issues creating a strong regulatory policy. Mehta (2012) points out how a complicated, multi-stakeholder process has made the regulatory environment one of India's greatest challenges in attracting and completing FDI-induced infrastructure projects.³⁹ In fact, a lack of coordination of regulatory bodies ultimately delayed the development of Bangalore's Kempegowda International Airport in India.⁴⁰

I argue that the implications of this extend beyond a decrease in the absolute amount of FDI channeled into a country. Instead, it also generates a spatial difference in FDI in infrastructure inflow. Indeed, while poor, rural areas may struggle, richer, urban cities may

³⁸ Sader, *Attracting Foreign Direct Investment into Infrastructure*.

³⁹ Mehta, "THE ROLE OF FDI IN INDIAN GROWTH AND INFRASTRUCTURE DEVELOPMENT."

⁴⁰ Mehta.

nevertheless attract FDI and infrastructure development. The presence of reliable existing infrastructure, tax breaks, or other incentives within more urban and rich regions may keep the investment climate still attractive enough for some foreign investors. On the other hand, a lack of a strong regulatory framework can be the nail in the coffin for poor, rural areas that needed any form of incentive to attract FDI in infrastructure in the first place.

One way that richer, urban areas are still capable of attracting FDI in infrastructure is through the deliberate governmental policy to designate certain cities as Special Economic Zones (SEZ). These areas, which often receive tax reductions, shorter bureaucratic and administrative processes, and access to existing reliable infrastructure can further manipulate the geographical allocation of FDI in infrastructure.⁴¹ The regional distribution of SEZs in India is displayed in Figure 3 which shows how SEZs are primarily concentrated in the more urbanized, coastal South and West. The few SEZs allocated to other parts of the country are located within major population centers and capitals, not the truly poor and rural areas. This aligns with what was discovered in an analysis of China; that is, the implementation of SEZs while facilitating the spread of FDI into more inland areas, only did so into the core centers of these regions. Ultimately, this led to a greater division between the urban core and rural periphery.⁴² Chakraborty et al. (2017) add that in the case of India, operational SEZs did in fact succeed at attracting more FDI and subsequently infrastructure development. Therefore, the allocation of SEZs in India has exacerbated regional inequalities between SEZ and non-SEZ, urban and rural, and rich and poor areas.⁴³

⁴¹ Mehta.

⁴² Huang and Dennis Wei, "Spatial Inequality of Foreign Direct Investment in China."

⁴³ Chakraborty, Gundimeda, and Kathuria, "Have the Special Economic Zones Succeeded in Attracting FDI?"

In a similar vein, corruption can distort the location of infrastructural FDI delivery. Regional officials with special connections to foreign investors, whether it be through family members, business associates, or friendships, can secure key infrastructural projects that other regions may not have the privilege of experiencing.⁴⁴ It is important to note that the artificial attraction of FDI in infrastructure through corruptive practices has its downsides. The IMF finds that higher corruption leads to lower quality infrastructure since stakeholders extract greater salaries at the cost of improving operations and performing maintenance.⁴⁵ Nevertheless, I argue this inorganic form of development has concerning implications for regional inequality. Indeed, governmental officials of this nature are much more likely to live and operate in rich, urban areas. While these regions are receiving lower-quality infrastructure, it is nonetheless an addition and improvement to the area. Therefore, FDI in infrastructure is further channeled into better-off areas rather than the communities that genuinely need the development.

⁴⁴ Moran, "FDI in Infrastructure."

⁴⁵ "Economic Issues No. 12 Roads to Nowhere: How Corruption in Public Investment Hurts Growth."

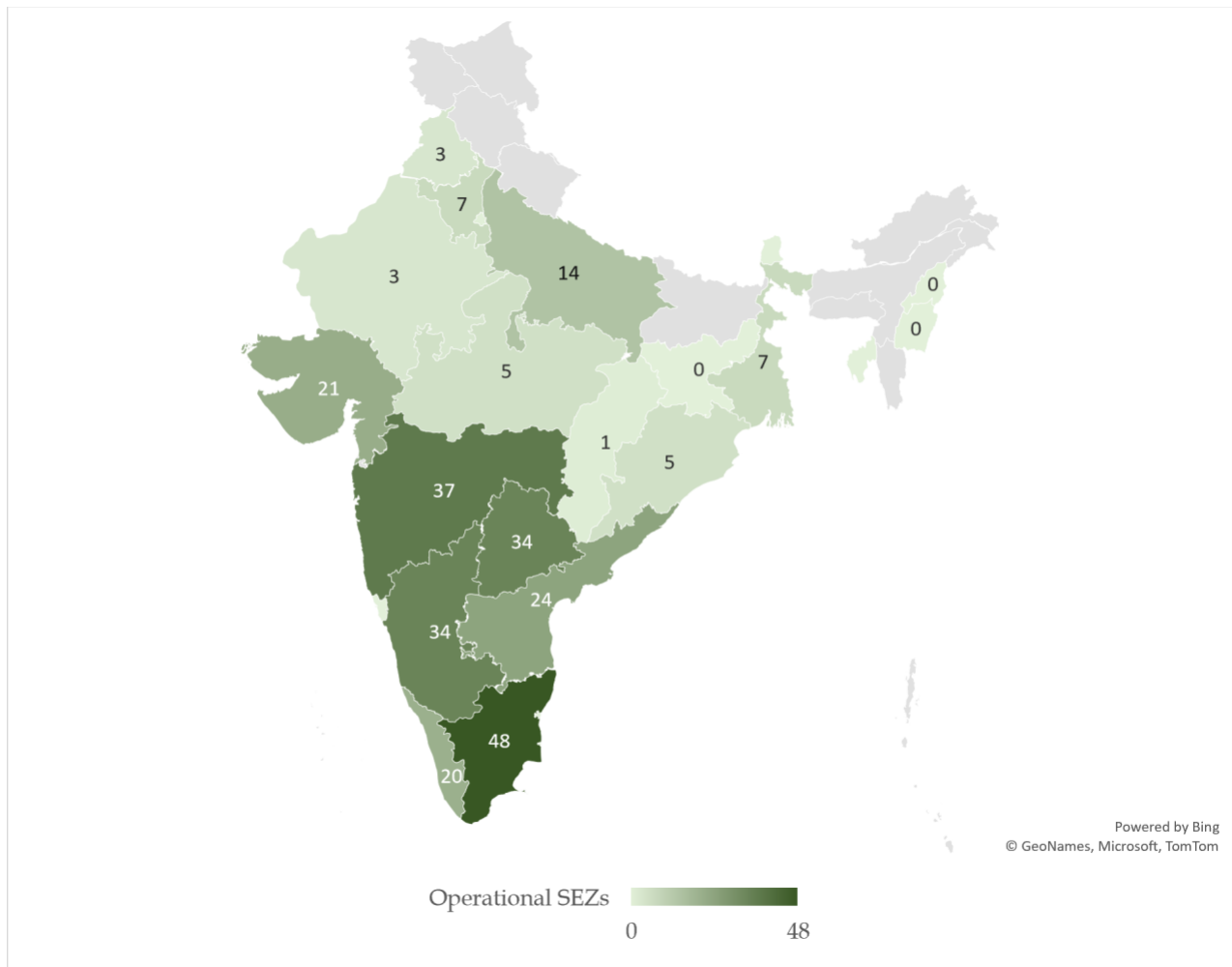


Figure 3: SEZs by Region⁴⁶

The Impact of General FDI on Infrastructural Inequality

It is clear that foreign firms investing in infrastructural projects can create regional differences in infrastructure development. However, ongoing literature has also alluded to the impact created by FDI in general. One way this occurs is when foreign investors, in an attempt to pursue a greater economic or political goal, build infrastructure. Michiels (2019) posits that a firm looking to extract raw materials from a developing country may also invest in transport

⁴⁶ Data was drawn from the Ministry of Commerce and Industry

infrastructure to facilitate the delivery of its goods.⁴⁷ This is particularly the case when it comes to China, where much of the investments done abroad is ultimately motivated by unique economic and political reasons. Kaplinsky and Morris (2009) present the Angola case, where Chinese state-owned enterprises embarked on large infrastructural projects at 20-30 percent lower costs than Western firms to facilitate exports to China and develop a long-term geopolitical presence in the region. This tactic was and is still uniquely suitable to the Chinese, where support from the central government helps reduce both the need to meet a profit objective and the risk of garnering long-term capital.⁴⁸ Indeed, for the last decade, we have seen President Xi Jinping launch the major Belt and Road Initiative (BRI). In a goal to improve its regional hegemony, China has embarked on a plethora of major infrastructural projects in transport, energy, and telecommunications along key corridors in Asia, Europe, and Africa.⁴⁹ An image of the BRI's transport corridors is documented in Figure 4.

⁴⁷ Michiels, "The Effect of Infrastructure on Foreign Direct Investment in Africa."

⁴⁸ Kaplinsky and Morris, "Chinese FDI in Sub-Saharan Africa."

⁴⁹ "China's Massive Belt and Road Initiative."

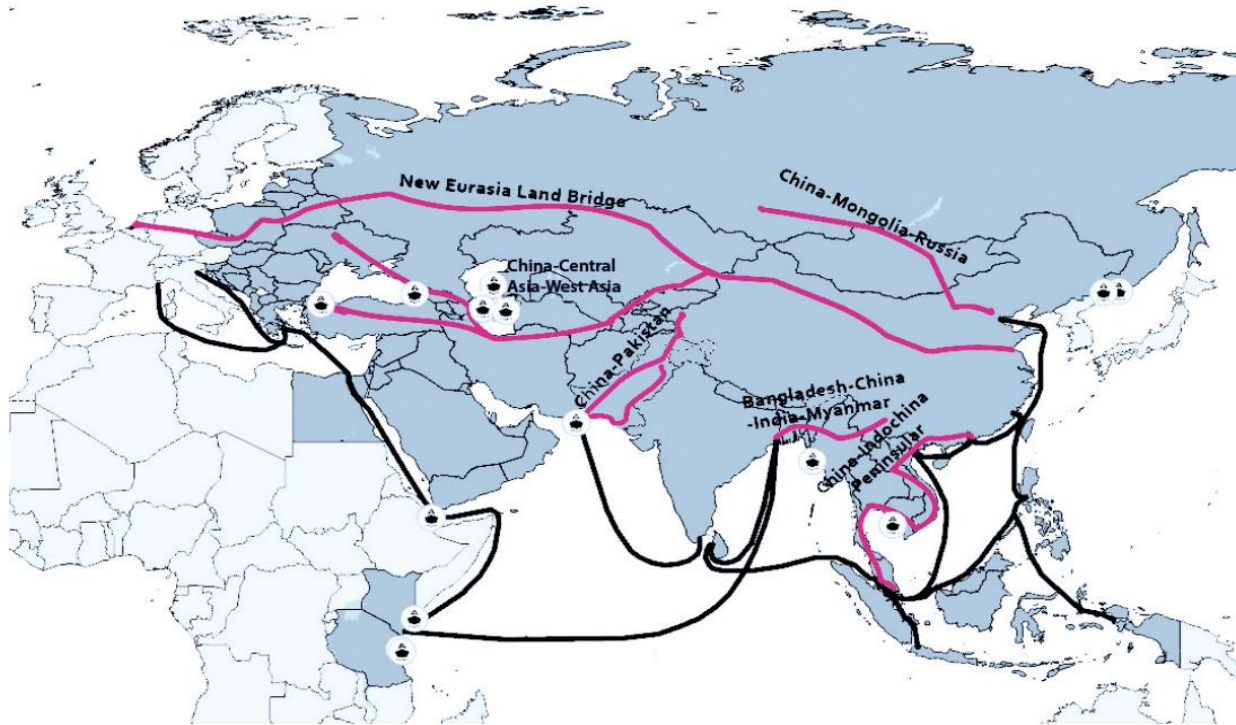


Figure 4: Belt and Road Initiative Transport Corridors⁵⁰

According to the Brookings Institute, BRI transport investments have been targeted at larger cities near border crossings. These areas, such as Almaty, Kazakhstan, will experience infrastructure development not only through Chinese BRI projects but also through complimentary investments that are built to facilitate trade between neighboring countries.⁵¹ This distinctive strategy may help explain the finding by Wang (2019) that only FDI from Chinese sources improved infrastructure level in ASEAN countries.⁵² Consequentially, when FDI is focused on urban centers, there is a disproportionate inflow of infrastructure investments in comparison to other regions. While India has been hesitant with partaking in the Belt and Road Initiative, its proximity to China has nevertheless made it a player in Xi Jinping's grand

⁵⁰ World Bank, *Belt and Road Economics*.

⁵¹ "Winners and Losers along China's Belt and Road."

⁵² Wang, "FDI and Infrastructure Improvement of ASEAN."

plan.⁵³ Therefore, a similar logic to what was asserted by the Brookings Institute can be applied to India. In particular, as shown in Figure 5, the realization of the Bangladesh-China-India-Myanmar Economic Corridor (BCIMEC) and the Nepal Belt and Road could lead to major infrastructural development in corridors leading to urban centers like Kolkata and New Delhi.⁵⁴

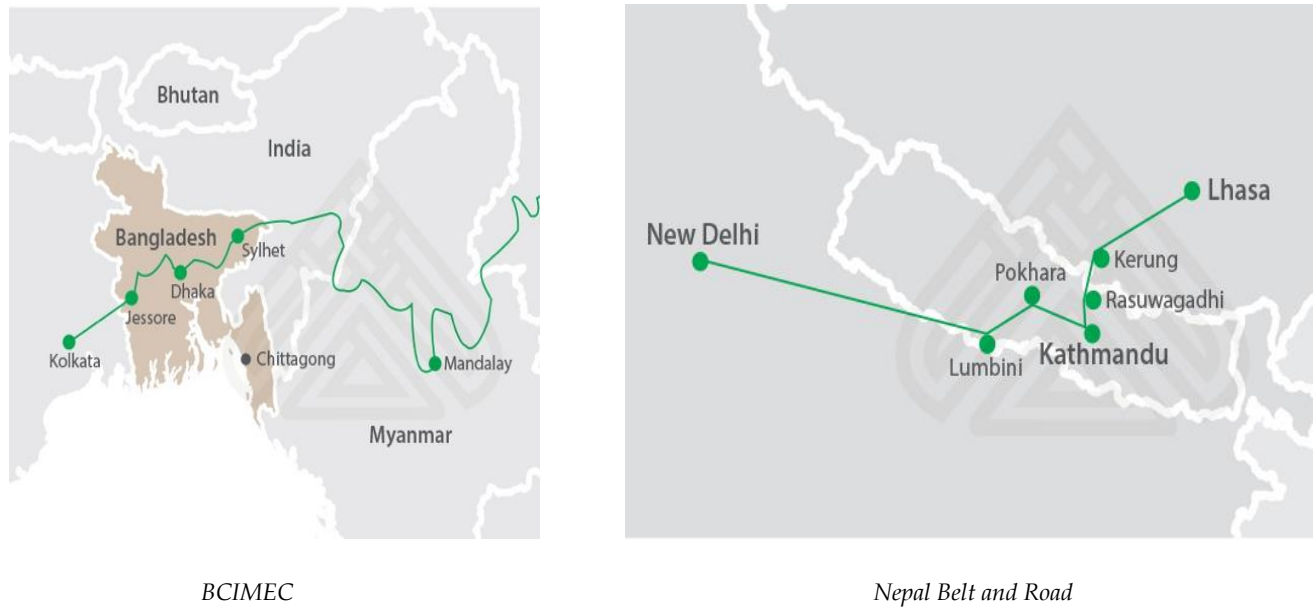


Figure 5: BCIMEC and Nepal Belt and Road Proposals⁵⁵

Rural areas in the Northeast Region that happen to be along the paths China plans to build through will experience much greater inflows of transport infrastructure than other areas. Ultimately, we see once again how FDI can manipulate the geographical distribution of infrastructure development and create spatial inequalities.

⁵³ R, "China's Belt and Road Initiative (BRI), BCIMEC and India's Gambit - How North-Eastern Region (NER) of India Should Response to It?"

⁵⁴ "India Becomes Transportation Hub Of China's Belt & Road Initiative As Co-Investments Increase."

⁵⁵ "India Becomes Transportation Hub Of China's Belt & Road Initiative As Co-Investments Increase."

Determinants of FDI and Their Impacts on Infrastructural Inequality

Several scholars have found bidirectional causality between FDI and infrastructure. In other words, a well-developed infrastructure base is a key determinant to attracting FDI that, in turn, furthers infrastructural development. Kaur et al. (2016)⁵⁶ and Rehman et al. (2020)⁵⁷ allude to this in their respective studies of India and Pakistan. The logic follows that areas with a strong physical infrastructure base facilitate foreign investments by subsidizing a portion of their cost and ultimately increasing their return on investment. In contrast, locations with weaker infrastructure may be overlooked or neglected given the additional need to build new facilities or improve existing ones.

Bellak and Leibrecht (2009) emphasize the importance of a well-developed infrastructure base by showing how even high corporate taxes will not deter FDI into areas with better infrastructure.⁵⁸ Mughal and Akram (2011) concur, discovering that corporate tax rates have no impact on FDI inflows into Pakistan in the long run.⁵⁹ Therefore, regions, particularly more poor and rural ones, that try to encourage FDI by providing tax breaks may nevertheless lose to richer and urban areas. In addition, urban areas may also be the “winners” due to their inherently larger market size. In the previously mentioned study of Pakistan, Mughal and Akram (2011), find that rather than the corporate tax rate, market size is the major determinant of FDI inflows.⁶⁰ Akin agrees that FDI is more likely to flow into areas with a greater aggregate size. This is driven by the fact that foreign investors are motivated to concentrate in locations with higher purchasing power rather than spatially distributing their investments.⁶¹

⁵⁶ Kaur, Khatua, and Yadav, “Infrastructure Development and FDI Inflow to Developing Economies.”

⁵⁷ Rehman et al., “The Causal, Linear and Nonlinear Nexus between Sectoral FDI and Infrastructure in Pakistan.”

⁵⁸ Bellak and Markus, “Improving Infrastructure or Lowering Taxes to Attract Foreign Direct Investment.”

⁵⁹ Mughal and Akram, “Does Market Size Affect FDI? The Case of Pakistan.”

⁶⁰ Mughal and Akram.

⁶¹ Akin, “How Is the Market Size Relevant as a Determinant of FDI in Developing Countries?”

Looking at inflows at the district level in India supports the existing literature on the determinants of FDI. Figure 6 portrays FDI inflows by district in 2022. Comparing this to the location of India's major cities reveals that urban areas, with greater market sizes and existing infrastructure bases, correlate to higher FDI. Indeed, the greatest districts to receive FDI in 2022 were Mumbai, urban Bangalore, Delhi, and Ahmedabad.

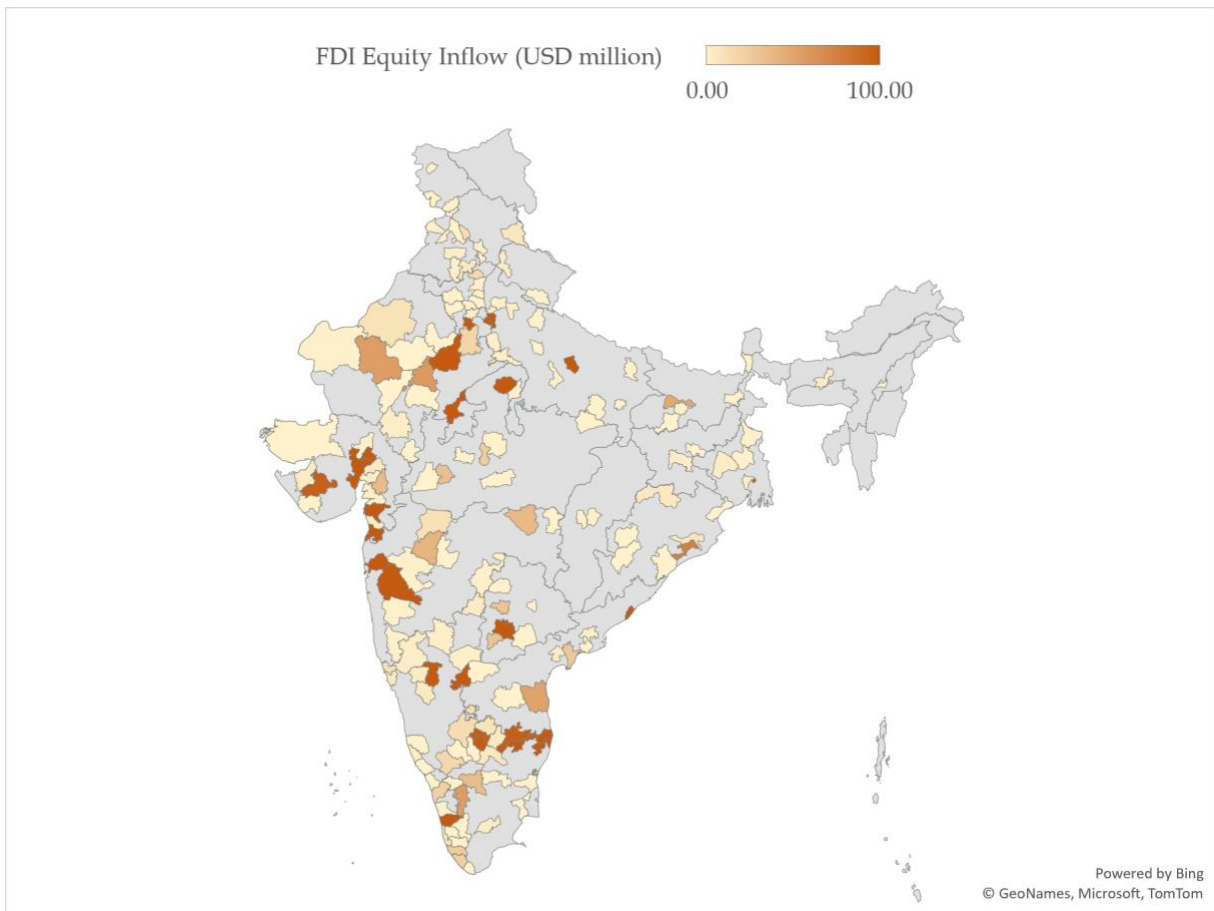


Figure 6: FDI Inflows by District, 2022⁶²

⁶² "STATEMENT ON STATE-WISE FDI EQUITY INFLOW DURING CALANDER YEAR 2022."

The Reinforcing Nature of FDI and its Impact on Infrastructural Inequality

The ability of FDI to garner infrastructure has an even greater inequality effect given its reinforcing nature. Khadaroo and Seetanah (2009) posit that past FDI can signal a promising investment climate to future investors. Therefore, areas that have received FDI in the past are more likely to secure FDI in the future.⁶³ In alignment with new economic geography models, this form of industrial agglomeration applies to infrastructural development. Zheng and Kuroda (2013) find in the case of China that increased transport infrastructure, rather than improving spatial distribution, promotes concentrated growth in one area.⁶⁴ Huang and Wei (2016) add that the agglomeration effect has had one of the most significant impacts on regional inequality.⁶⁵ Head and Reis (1996) further that early recipients of FDI attracted 30 percent more investment later due to the agglomeration effect.⁶⁶ Castro et al. (2007) observe a different perspective that nevertheless supports this idea. In an analysis of Argentina, they find that a 10 percent increase in FDI to neighboring areas reduces FDI inflows to the host region by 3.3 percent.⁶⁷ In other words, once a region has been established as a good investment climate, areas around it will suffer as FDI becomes concentrated in one area.

In addition, the industrial agglomeration effect can attract further infrastructural development through domestic ventures. Greater foreign activity within an urban area leads to a greater need for local supplies and a robust supply chain network. This, in turn, may incentivize domestic investments in infrastructure development to keep up with the demand from FDI-induced projects.⁶⁸ Therefore, the decision for an initial foreign enterprise to enter a

⁶³ Khadaroo and Seetanah, "The Role of Transport Infrastructure in FDI."

⁶⁴ Zheng and Kuroda, "The Role of Public Infrastructure in China's Regional Inequality and Growth."

⁶⁵ Huang and Dennis Wei, "Spatial Inequality of Foreign Direct Investment in China."

⁶⁶ Head and Ries, "Inter-City Competition for Foreign Investment."

⁶⁷ Castro, Regis, and Saslavsky, "Infrastructure and the Location of Foreign Direct Investment A Regional Analysis."

⁶⁸ Lehnert, Benmamoun, and Zhao, "FDI Inflow and Human Development."

region, whether for economic, political, or personal reasons, can inadvertently encourage further foreign and domestic investment within the area and widen regional inequality in infrastructure development.

The Opportunity Cost of Attracting FDI and its Impact on Infrastructural Inequality

The goal of simply attracting FDI also has profound impacts on regional inequality in infrastructure. Yamin and Sinkovics (2009) posit that by devoting funding and administrative support to attracting foreign investments, regional governments divert critical resources that could be used to support public investment in infrastructure. They argue that these costs have grown as developing countries must also now compete with poor regions of developed countries that have access to robust subsidies from their national government. Furthermore, this crowding-out effect is particularly felt in poorer and rural regions where investment agencies must work harder to convince foreign investors who are already skeptical of the investment climate.⁶⁹ This effect is especially dire when considering the impact of public infrastructural investment. Fedderke et al. (2006) find that public investments in infrastructure incentivize private investments in physical capital.⁷⁰ Therefore, the indirect impact of FDI, that is, the aim at attracting it, can inhibit infrastructural development from both the public and private sectors.

In a similar vein, governmental initiatives to attract FDI can distort infrastructure allocation. In the case of India, the federal government worked to strengthen its transport infrastructure base in an effort to create a more attractive investment climate. However, most of these domestically funded projects have been concentrated in urban centers. For example, the National Highway Development Program connected Delhi, Mumbai, Chennai, and Kolkata.

⁶⁹ Yamin and Sinkovics, "Infrastructure or Foreign Direct Investment?"

⁷⁰ Fedderke, Perkins, and Luiz, "Infrastructural Investment in Long-Run Economic Growth."

Similarly, the National Maritime Development Program and the National Railway Development Program increased capacity and therefore private sector activity in major cities.⁷¹ In a way, the goal of attracting FDI through improved transport networks inadvertently furthered infrastructural inequality between urban and rural areas.

Policy Implications

From a policy perspective, governmental officials in India should pay more attention to how their decisions impact the spatial distribution of FDI-induced infrastructure. In particular, authorities should work to support capacity building and develop a clear regulatory framework for rurally based projects. In addition, the Indian government should consider implementing SEZs or other institutional classifications in rural regions with high potential. Another policy recommendation is to actively build off major infrastructural projects such as the Belt and Road Initiative. By connecting corridors advanced by foreign interests, India can further infrastructural access among traditionally neglected areas. Finally, authorities should aim to be more efficient in attracting FDI so that critical governmental revenue streams are not diverted toward unnecessarily high bureaucratic and administrative costs. In doing so, India, and developing countries in general, may be able to improve the spatial distribution of FDI and reduce regional inequality.

⁷¹ "India Transportation."

Conclusion

This paper aimed to reveal the impact of FDI on the distribution of infrastructure development in developing countries, particularly in India. By putting a focus on infrastructure, this paper contributes to the relevant literature by highlighting how FDI can create regional inequalities beyond income. In addition, its analysis of FDI in infrastructure, FDI in general, and the opportunity cost of FDI demonstrates the importance of considering the multi-faceted implications of FDI. This analytical framework could be applied to further literature. It is also important to note the limitations of my research. First, this paper uses evidence gathered from case studies of countries across the world to support the claims made in the case study of India. In doing so, this paper largely ignores the intricacies of each host country's characteristics and their implications to the conclusions of the scholarly work. In addition, the quantitative analysis was done from a very elementary approach. Indeed, a more robust statistical analysis could yield different results. Therefore, the conclusion posed in this paper about India should be seen as a conservative estimate of the impact of FDI on regional inequality in infrastructure development.

At the very least, this paper provides grounds for future research questions. In particular, it would be interesting to do a quantitative analysis of my research question, if comprehensive data presents itself. A similarly intriguing topic would consider how infrastructural inequality manifests not only between regions but also among other groups such as class, gender, and skill. Finally, as with what was done in this paper with infrastructure, it would be interesting to consider the impact of FDI on other forms of inequality beyond income inequality, which has been the primary topic of study.

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