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THE ROLE OF GREEN FOREIGN DIRECT INVESTMENT IN PROMOTING GREEN GDP

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Abstract

Green foreign direct investment (green FDI) have become l channel for financing environmentally sustainable projects such as low- carbon transition in emerging economies, At the same time, conventional GDP metrics fail to capture the environmental costs of growth, driving interest in green GDP measures which integrates natural- resource depletion and environmental degradation into national accounts. This paper uses a secondary, descriptive approach to explore how green FDI relates to green GDP in emerging economies, relying on existing studies, policy reports, and cross- country indicators. Descriptive evidence suggests that emerging economies with stronger climate and green- investment policies tend to attract higher volumes of green FDI and also display improvements in environmental performance and green- growth proxies, though data gaps and institutional weaknesses limit the ability to draw firm causal conclusions. The paper concludes that strengthening climate policy frameworks, developing robust green GDP accounting systems, and clarifying the taxonomy of green investment are essential steps for leveraging green FDI to support sustainable development in emerging economies.

Introduction

While the global focus toward clean energy is increasing, the pace of the energy transition remains uneven across regions, despite growing global emphasis on sustainability, many emerging countries still struggle to balance economic growth with environmental sustainability and social inclusion. Developing economies, in particular struggles to shift from traditional energy resource to green energy, being not able to secure sufficient green financing and attracting environmentally responsible FDI to support renewable energy infrastructure and innovation. Green finance and Foreign direct investment (FDI) play a pivotal role in overcoming these challenges and yet their roles in promoting green growth and energy transition remains underexplored. Existing studies often focus on these factors separately, overlooking the synergistic relationship between FDI, Green Finance and green growth in driving sustainable energy transition. The Global development agenda has shifted from purely economic growth to a focus on sustainable development while including social, economic and environment areas. Which has led to concept of Inclusive Green Growth (IGG), integrating economic productivity with climate protection

Literature Review

Ofori (2022) focusing on synergy between fdi and energy efficiency found that FDI may initially hamper IGG in Africa unless moderated by energy efficiency and institutional quality. **Zhu and Ye (2018)** developed an Inclusive Green Growth Index, confirming FDI's mixed outcomes in China, positive in technologically advanced and well-regulated provinces but weaker or negative in regions with low institutional efficiency. **(Adebayo, 2024)** found positive impact of fdi on green growth in Nigeria by focusing on renewable energy usage and carbon footprints **(Fu & Irfan, 2022)** found that in ASEAN the fdi positively correlates with CO2 emissions, while green finance promotes environmental sustainability but at the cost of economic growth, indicating a complex relationship where both FDI and green finance influence inclusive green growth. FDI and renewable energy consumption individually increase N_2O and CH_4 emissions, but their synergy significantly mitigates both, validating the pollution halo and energy transition theories **(Pan et al., 2025) (Caetano et al. (2022)** FDI reduces CO2 emission in developed countries but in case of developing countries it fails, as it uses more non-renewable resources because of lack of available infrastructure **Gafsi (2025)** examined the role of FDI and globalisation in D8 economies, finding that FDI significantly boosts green energy consumption through technology transfer, regulatory harmonization, and enhanced market access and Countries with higher globalization level gets more benefited from FDI in energy transition **Nhuong et al. (2024)** while in Vietnam FDI had less impact in short term leading to slight decrease in energy transformation quality but had notable increased impact in the long term, economic factors like inflation hampers sustainable energy transition **(Wani et al., 2024)** Green energy and FDI have positive contribution to green economic growth as the green technology contributes to improve green economic growth but only in long run in G7 countries. FDI helps increase the usage of renewable energy in Latin America but it varied from country to

country, though higher income per capita helps countries move faster towards green and low carbon growth thus recommending governments to encourage greener FDI (Soto, 2024). **(Yu et al., 2025).** Energy use, urbanisation significantly increased CO2 emissions, while FDI reduced them thus acting as dual role as driver for economic as well as green growth development.

Objectives of the Study

1. To investigate the synergy between FDI and Green finance in achieving Inclusive Green growth
2. To evaluate the direct and indirect effects of FDI on inclusive green growth

Research Methodology

This study adopts a qualitative exploratory research design to investigate the relationship between Foreign Direct Investment (FDI), green finance, and inclusive green growth

Trends in Green FDI to Emerging Economies

Green FDI in emerging markets has grown rapidly over the last decade, particularly in renewable energy sectors such as solar and wind power. Data based on greenfield project announcements indicate that green FDI has become one of the largest categories of FDI into emerging markets, reflecting both climate-policy incentives and falling costs of clean technologies. Policy analysis highlights that countries with more extensive climate and green-investment policies tend to receive a larger share of global green FDI, suggesting a strong link between domestic policy frameworks and the ability to attract such flows.

In many emerging economies, green FDI is concentrated in a small set of sectors—chiefly renewable power generation, grid infrastructure, and sometimes electric-vehicle and battery value chains—rather than being evenly distributed across the economy. This sectoral concentration implies that the direct contribution of green FDI to green GDP will depend on the relative importance of these sectors in national output and the extent of spillovers to other industries.

Green FDI and Green-Growth-Type Indicators

Studies suggest that less-developed and emerging economies have positive link of a green FDI and how they are attracting more greener FDI in last decade, leading to economic growth along with environmental sustainability. Green investment tends to invite cleaner technologies, better energy efficiency and less degradation which leads to lower carbon emissions. Conventional FDI leads to investment is driven by heavy use of natural resources which leads to environmental degradation and pollution, where green GDP rises at lower rate in conventions FDI because it doesn't add the environmental damage and resource depletion. Emerging economies that successfully attract green FDI particularly in areas such as renewable energy and clean infrastructure tend to make progress on both environmental protection and green growth. While it remains difficult to precisely measure how much green FDI boosts green GDP, the broader environmental gains are evident.

Mechanisms Linking Green FDI to Green GDP

The literature identifies several mechanisms through which green FDI can enhance green-GDP-type outcomes:

- **Technology transfer and capital upgrading**: Green FDI introduces low-carbon technologies and more efficient capital equipment, raising energy efficiency and reducing pollution relative to output.
- **Structural transformation**: Large-scale green FDI in renewables and sustainable infrastructure can shift the energy mix away from fossil fuels and spur development of new green industries, reducing the environmental cost of growth.
- **Spillovers to domestic firms**: Foreign green investors can diffuse environmental management standards and green innovations, enhancing local firms' capacity to comply with regulation and adopt cleaner processes.

These mechanisms collectively imply that, over time, green FDI should reduce the environmental deductions that would be applied in a green-GDP framework, bringing the growth of green GDP closer to that of conventional GDP in host countries. However, the effectiveness of these channels depends on complementary policies, such as climate regulations, innovation support, and robust environmental governance.

Policy Implications

Given the descriptive evidence, several policy implications emerge for emerging economies seeking to leverage green FDI to support green GDP:

- **Strengthen climate and green-investment policies**: Empirical work shows that expanding and stabilizing climate policies—such as renewable-energy targets, carbon pricing, and green-investment incentives—significantly increases green-FDI inflows relative to GDP.
- **Develop clear taxonomies and screening for green FDI**: Clarifying what qualifies as green FDI, consistent with international classifications, can improve transparency, reduce greenwashing, and help align inward investment with national sustainability goals.
- **Institutionalize green-GDP accounting**: Developing green-GDP or green-growth accounting systems can enable governments to better track how green FDI and other policies affect environmentally adjusted economic performance, despite current challenges in valuation and data.
- **Promote domestic green innovation and absorptive capacity**: Since green innovation moderates the impact of FDI on environmental quality, policies that build local R&D and human capital can enhance the benefits of green FDI for green GDP.

Conclusion

This paper has examined, using a secondary, descriptive approach, the role of green FDI in promoting green GDP outcomes in emerging economies and found positive impact of green FDI on GDP which will eventually lead to sustainable development. Descriptive evidence indicates that emerging economies with stronger climate policies and clearer green-investment frameworks attract greener FDI, particularly in renewable energy and low-carbon infrastructure. Existing studies denotes that emergence of green FDI in an economy can improve environmental quality and support green growth in less-developed and emerging economies, highlighting a positive link between green FDI and the environmental component of green GDP.

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