

Does Foreign Direct Investment Improve National Competitiveness? Dynamic Panel Evidence from Upper- and Lower-Middle-Income Countries

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ABSTRACT

This study examines whether FDI improves national competitiveness in upper-middle-income and lower-middle-income countries. Using panel data from 24 countries during 2007-2023, the study applies a dynamic panel approach using Arellano-Bond Generalized Method of Moments (GMM). The sample is divided into 11 upper-middle-income countries and 13 lower-middle-income countries. The results show that FDI has a positive and statistically significant effect on national competitiveness in upper-middle-income countries, while the effect in lower-middle-income countries is positive but weaker. The diagnostic tests indicate that the GMM models are acceptable based on instrument validity and the absence of second-order autocorrelation. These findings suggest that FDI contributes to competitiveness upgrading mainly when host economies have sufficient capacity to absorb and transform foreign investment into productivity, innovation, and institutional improvement. The study contributes to the literature by showing that the FDI-competitiveness relationship is dynamic and development-stage dependent.

INTRODUCTION

Foreign direct investment (FDI) has long been viewed as an important source of external capital, technology transfer, managerial knowledge, and access to international production networks for developing and middle-income countries. In development policy, FDI is often expected to strengthen productivity and improve national competitiveness. This expectation is consistent with the view that multinational enterprises do not only bring financial resources, but also introduce advanced technology, production standards, organizational routines, and global market linkages into host economies (Dunning & Lundan, 2008), (Javorcik, 2004), (Keller & Yeaple, 2009).

Nevertheless, the relationship between FDI and national competitiveness is not automatic. Countries may attract foreign investors without being able to transform foreign capital into stronger productivity, innovation, institutional improvement, or competitiveness upgrading. Empirical studies show that the benefits of FDI depend on the ability of host economies to absorb foreign knowledge and link it with domestic firms, industries, and institutions (Alfaro et al., 2004), (Borensztein et al., 1998), (Crespo & Fontoura, 2007), (Meyer & Sinani, 2009)

This issue is particularly relevant for middle-income countries. These countries are no longer concerned only with attracting foreign capital, but also with transforming investment inflows into productive capability, innovation, and competitiveness. Upper-middle-income countries generally have stronger infrastructure, better institutional quality, more advanced human capital, and more developed industrial networks than lower-middle-income countries. Lower-middle-income countries may still face structural constraints that reduce the spillover effect of FDI on productivity and national competitiveness (Bengoa & Sanchez-Robles, 2003), (Busse & Hefeker, 2007), (Durham, 2004), (Globerman & Shapiro, 2002).

The contribution of this paper is threefold. First, it examines the effect of FDI on national competitiveness by focusing on middle-income countries, which represent a critical stage of development transition. Second, it compares upper-middle-income and lower-middle-income countries to capture development-stage heterogeneity in the FDI-competitiveness relationship. Third, it applies a dynamic panel approach using Arellano-Bond GMM to account for persistence in competitiveness and potential endogeneity in the relationship between FDI and competitiveness.

The novelty of this study lies in its argument that FDI does not automatically improve national competitiveness. Instead, its effect depends on the development stage and absorptive capacity of the host country. By comparing upper-middle-income and lower-middle-income countries, this paper provides a more nuanced interpretation of FDI as a competitiveness-enhancing factor. FDI may become a driver of competitiveness upgrading when it is supported by human capital, institutional quality, technological capability, financial development, and domestic industrial linkages.

This study aims to examine whether FDI improves national competitiveness in upper-middle-income and lower-middle-income countries

and whether the effect differs between the two groups. By addressing this question, the paper seeks to explain whether FDI can serve as a driver of competitiveness upgrading or whether its effect remains conditional on domestic capacity and development stage.

THEORETICAL REVIEW

Endogenous Growth Theory and FDI-Based Competitiveness Upgrading

Endogenous growth theory explains that long-term economic progress is driven by knowledge accumulation, innovation, human capital, and technology diffusion. In this perspective, FDI can support national competitiveness because multinational enterprises may bring not only financial capital, but also technology, managerial capability, organizational knowledge, and access to global production networks. These factors can strengthen productivity and improve the ability of host countries to compete in international markets (Li & Liu, 2005).

FDI may improve national competitiveness through several channels. First, it expands production capacity through additional capital. Second, it facilitates technology transfer and managerial upgrading. Third, it strengthens export capability and global value chain participation. Fourth, it creates competitive pressure that encourages domestic firms to improve efficiency, product quality, and innovation. These mechanisms are consistent with the competitiveness framework that emphasizes productivity, innovation, factor conditions, and firm rivalry as important sources of national competitive advantage (Fagerberg et al., 2018), (Porter, 1990), (Siggel, 2006).

However, previous empirical studies do not fully agree that FDI always generates positive spillovers. Borensztein, et al. show that the growth-enhancing effect of FDI depends on the availability of human capital in the host economy (Borensztein et al., 1998). (Alfaro et al., 2004) and (Hermes & Lensink, 2003) find that financial market development strengthens the ability of countries to benefit from FDI. (Javorcik, 2004) shows that FDI spillovers are more likely to occur through backward linkages, while (Crespo & Fontoura, 2007) and (Meyer & Sinani, 2009) emphasize that FDI spillovers vary across countries depending on domestic absorptive conditions.

Other studies also provide caution against assuming a uniform FDI effect. (Herzer et al., 2008) find mixed evidence for FDI-led growth in developing countries, while (Iamsiraroj & Ulubaşoğlu, 2015) show that the FDI-growth relationship depends on country characteristics and model specification. These findings suggest that the effect of FDI on national competitiveness should be understood as conditional rather than automatic.

Investment Development Path Theory and Development-Stage Heterogeneity

Investment Development Path (IDP) theory explains that the role of FDI changes according to a country's stage of economic development (Dunning, 1981). At earlier stages, countries tend to receive FDI mainly because of natural resources, low labor costs, or basic market opportunities. At more advanced

stages, FDI is more likely to be associated with technology upgrading, industrial transformation, innovation, and competitiveness improvement.

This theory is relevant for comparing upper-middle-income and lower-middle-income countries. Upper-middle-income countries generally have stronger infrastructure, more advanced human capital, more reliable institutions, and broader domestic industrial networks. These conditions enable them to transform FDI into competitiveness gains more effectively. Lower-middle-income countries may also benefit from FDI, but the effect may be weaker because they often face constraints in infrastructure, institutional quality, technological capability, and domestic firm linkages (Bengoa & Sanchez-Robles, 2003), (Busse & Hefeker, 2007), (Globerman & Shapiro, 2002), (Jude & Levieuge, 2017).

Previous studies also support the view that FDI produces heterogeneous outcomes across countries. (Makki & Somwaru, 2004) show that FDI and trade can support growth in developing countries, but the benefits depend on complementary factors. (Hansen & Rand, 2006) find causal links between FDI and growth, but the magnitude of the effect varies across developing economies. (Blomström & Kokko, 1998) and (Meyer & Sinani, 2009) further emphasize that FDI spillovers depend on linkages between foreign firms and domestic firms. Therefore, the comparison between upper-middle-income and lower-middle-income countries is necessary to understand whether FDI contributes to competitiveness upgrading in the same way across development stages.

Hypothesis Development

Based on endogenous growth theory, FDI is expected to improve national competitiveness through capital accumulation, technology transfer, managerial knowledge, productivity spillover, and integration into global value chains. However, based on the Investment Development Path perspective, the strength of this effect may differ across stages of development because countries have different levels of absorptive capacity. Therefore, this study proposes the following hypotheses:

- H1: Foreign direct investment has a positive effect on national competitiveness in upper-middle-income countries.**
- H2: Foreign direct investment has a positive effect on national competitiveness in lower-middle-income countries.**
- H3: The effect of foreign direct investment on national competitiveness is stronger in upper-middle-income countries than in lower-middle-income countries.**

Conceptual Framework

The conceptual framework of this study explains that FDI is expected to influence national competitiveness through technology transfer, managerial knowledge, productivity spillover, innovation, and global value chain participation. However, the strength of this effect differs between upper-middle-income and lower-middle-income countries due to differences in absorptive capacity, institutional readiness, infrastructure quality, and human capital.

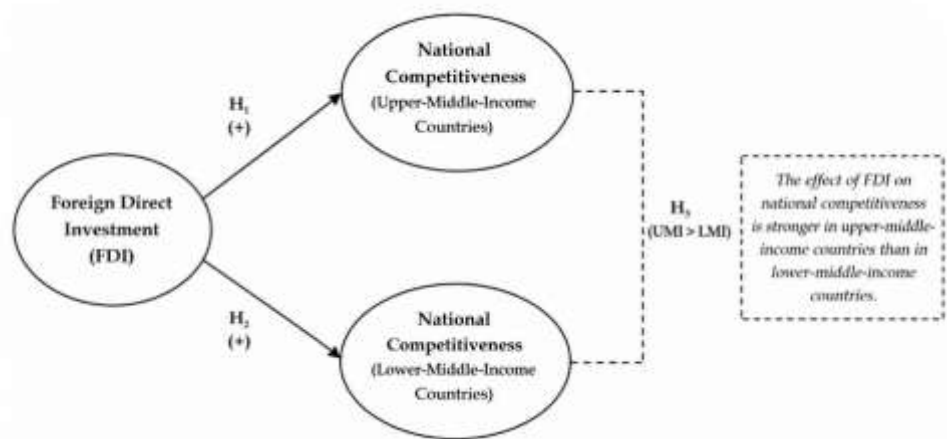


Figure 1. Conceptual Framework

METHODOLOGY

Research Design

This study applies a quantitative explanatory design using panel data. The analysis focuses on the dynamic effect of foreign direct investment (FDI) on national competitiveness by comparing upper-middle-income and lower-middle-income countries. A dynamic panel approach is used because national competitiveness tends to be persistent over time and may be influenced by previous competitiveness performance as well as current FDI inflows.

Population and Sample

The population of this study consists of middle-income countries with available panel data on FDI and national competitiveness during the observation period. The sample includes 24 middle-income countries observed from 2007 to 2023. The sample is divided into 11 upper-middle-income countries and 13 lower-middle-income countries based on the World Bank income classification and data availability criteria. This grouping enables the study to compare the FDI-competitiveness relationship across different stages of development. The sample countries are presented in Table 1.

Table 1. Sample Countries

Group	Countries
Upper-Middle-Income Countries (UMI)	Bosnia and Herzegovina, Botswana, Brazil, Bulgaria, China, Malaysia, North Macedonia, Peru, South Africa, Thailand, Turkiye
Lower-Middle-Income Countries (LMI)	Benin, Djibouti, Egypt, El Salvador, Honduras, India, Indonesia, Papua New Guinea, Philippines, Solomon Islands, Sri Lanka, Uzbekistan, Vietnam

Variables and Measurement

The dependent variable is national competitiveness, measured using a composite competitiveness indicator constructed from the Global Competitiveness Report and governance-related indicators. The main independent variable is FDI, measured by FDI net inflows as a percentage of GDP

and transformed using the inverse hyperbolic sine transformation to accommodate possible zero or negative values while maintaining interpretability. The lagged value of national competitiveness is included to capture the persistence of competitiveness performance over time.

Table 2. Variables and Measurement

Variable	Symbol	Measurement	Expected Relationship
National Competitiveness	GC	Composite competitiveness indicator	Dependent variable
Foreign Direct Investment	FDI	FDI net inflows (% of GDP), transformed using IHS_FDI	Positive
Lagged National Competitiveness	GC(-1)	One-period lag of national competitiveness	Positive persistence

Model Specification

The empirical model is specified as follows:

$$GC_{it} = \alpha + \rho GC_{i,t-1} + \beta FDI_{it} + \mu_i + \varepsilon_{it}$$

where GC_{it} denotes national competitiveness of country i in year t , $GC_{i,t-1}$ represents lagged national competitiveness, FDI_{it} represents foreign direct investment, μ_i captures country-specific unobserved effects, and ε_{it} is the error term. The model is estimated separately for upper-middle-income and lower-middle-income countries. The comparative hypothesis is assessed by comparing the magnitude and significance of the FDI coefficient across the two groups.

Estimation Technique and Diagnostic Tests

This study applies the Arellano-Bond Generalized Method of Moments (GMM) estimator. This estimator is suitable for dynamic panel data models because it accounts for unobserved country-specific heterogeneity, persistence in the dependent variable, and potential endogeneity between FDI and national competitiveness. Model validity is evaluated using the Hansen J-statistic to assess instrument validity and the Arellano-Bond AR(2) test to examine second-order serial correlation. A valid model is indicated by an insignificant Hansen probability and the absence of second-order autocorrelation.

RESULT

The empirical results are presented in four steps. First, the study provides a brief summary of the key variables used in the model. Second, the dynamic panel GMM estimation is reported separately for upper-middle-income and lower-middle-income countries. Third, the validity of the GMM model is evaluated using Hansen and Arellano-Bond AR(2) diagnostic tests. Fourth, the hypotheses are assessed based on the sign, magnitude, and statistical significance of the FDI coefficient.

Table 3. Summary of Key Variables

Group	Variable	Mean	Std. Dev.	Observations
UMI	FDI	1.7886	0.6058	187
UMI	National Competitiveness	4.7571	0.0521	187

LMI	FDI	1.6991	0.7247	221
LMI	National Competitiveness	4.7223	0.0253	221

The summary shows that upper-middle-income countries have higher average FDI and national competitiveness than lower-middle-income countries. This initial pattern indicates that countries at a higher development stage tend to have stronger investment performance and competitiveness capacity.

Dynamic Panel GMM Estimation

The dynamic panel GMM model is used because national competitiveness tends to be persistent over time. Competitiveness does not change instantly, but evolves through institutional improvement, productivity enhancement, technological learning, human capital development, and accumulated investment effects. Therefore, the empirical model includes lagged national competitiveness as part of the dynamic structure.

The dynamic model is specified as follows:

$$GC_{it} = \alpha + \rho GC_{i,t-1} + \beta FDI_{it} + \mu_i + \varepsilon_{it}$$

(1)

where GC_{it} denotes national competitiveness, $GC_{i,t-1}$ denotes lagged national competitiveness, FDI_{it} denotes foreign direct investment, μ_i captures country-specific effects, and ε_{it} is the error term. The model is estimated separately for the UMI and LMI groups.

Table 4. Dynamic Panel GMM Results: FDI and National Competitiveness

Variable	UMI Coefficient	UMI Probability	LMI Coefficient	LMI Probability	Interpretation
FDI	0.0109	0.008	0.0068	0.065	Positive effect; stronger in UMI
Constant	4.7290	0.000	4.7300	0.000	Significant intercept

Table 4 shows that FDI has a positive effect on national competitiveness in both groups. In the UMI group, the coefficient of FDI is 0.0109 with a probability value of 0.008, indicating a positive and significant effect at the 1 percent level. In the LMI group, the coefficient is 0.0068 with a probability value of 0.065, indicating a positive but weaker effect at the 10 percent level. These results suggest that FDI contributes more strongly to competitiveness upgrading in upper-middle-income countries than in lower-middle-income countries.

Table 5. GMM Diagnostic Tests

Group	Hansen Probability	AR(2) Probability	Conclusion
UMI	0.241	0.782	Valid instruments and no second-order autocorrelation
LMI	0.216	0.806	Valid instruments and no second-order autocorrelation

Table 5 confirms that the GMM models are valid. The Hansen probabilities are above 0.05, indicating that the instruments are acceptable. The AR(2) probabilities are also above 0.05, showing no evidence of second-order autocorrelation. Therefore, the GMM results can be used for hypothesis testing.

Table 6. Hypothesis Testing Summary

Hypothesis	Statement	Empirical Result	Decision
H1	FDI has a positive effect on national competitiveness in upper-middle-income countries.	Positive and significant; coefficient = 0.0109, $p = 0.008$	Accepted
H2	FDI has a positive effect on national competitiveness in lower-middle-income countries.	Positive and weakly significant; coefficient = 0.0068, $p = 0.065$	Weakly supported
H3	The effect of FDI on national competitiveness is stronger in upper-middle-income countries than in lower-middle-income countries.	UMI coefficient is larger and more significant than LMI coefficient.	Supported

Overall, the results indicate that FDI improves national competitiveness more strongly in upper-middle-income countries. Although the effect in lower-middle-income countries is positive, it remains weaker and less stable. This finding supports the argument that the competitiveness effect of FDI depends on domestic absorptive capacity, including infrastructure readiness, institutional quality, human capital, and the ability to transform foreign investment into productivity gains.

DISCUSSION

The findings show that FDI improves national competitiveness, but its effect is not equally strong across development stages. In upper-middle-income countries, FDI produces a clearer contribution to national competitiveness. This finding supports endogenous growth theory, which argues that external capital, technology transfer, managerial knowledge, and innovation can enhance productivity and competitiveness when the host economy has sufficient absorptive capacity. It is also consistent with previous studies emphasizing the importance of human capital, financial development, institutional quality, and firm linkages in converting FDI into broader economic benefits (Alfaro et al., 2004), (Borensztein et al., 1998), (Javorcik, 2004), (Meyer & Sinani, 2009).

The stronger effect in upper-middle-income countries indicates that these economies are more capable of transforming FDI into competitiveness upgrading. This may occur because UMI countries generally have better infrastructure, stronger institutions, more advanced human capital, and wider domestic industrial networks. These conditions allow foreign firms to generate stronger spillovers through supplier linkages, labor mobility, managerial learning, technology diffusion, and integration into global value chains. The finding is also consistent with the Investment Development Path theory, which explains that the role and benefit of FDI evolve as countries move to higher stages of development (Dunning, 1981).

In lower-middle-income countries, FDI also supports competitiveness, but the effect is weaker. This suggests that foreign investment can contribute to competitiveness upgrading, but its impact may be constrained by limited absorptive capacity. LMI countries may attract FDI, but the benefits can remain concentrated in specific sectors if domestic firms are not sufficiently connected to foreign investors. Weak infrastructure, limited human capital, institutional constraints, and shallow financial markets may reduce the ability of these countries to transform foreign capital into productivity and competitiveness gains (Busse & Hefeker, 2007), (Durham, 2004), (Globerman & Shapiro, 2002), (Jude & Levieuge, 2017).

These findings refine the common assumption that FDI automatically improves national competitiveness. The results suggest that the competitiveness effect of FDI is dynamic and conditional. FDI becomes more effective when it is supported by policies that strengthen technology transfer, human capital, domestic supplier linkages, institutional quality, innovation systems, and financial development. Therefore, policy should not focus only on attracting larger FDI inflows, but also on improving the quality, sectoral orientation, and embeddedness of FDI in the domestic economy.

CONCLUSIONS AND RECOMMENDATIONS

This study examines whether foreign direct investment improves national competitiveness in upper-middle-income and lower-middle-income countries using a dynamic panel GMM approach. The findings indicate that FDI contributes to national competitiveness, but its effect differs across development stages. In upper-middle-income countries, FDI provides a stronger contribution to competitiveness upgrading, while in lower-middle-income countries the effect remains positive but weaker. This shows that the benefit of FDI depends on the absorptive capacity of the host economy.

The main conclusion of this study is that FDI should not be treated as an automatic driver of national competitiveness. Foreign investment becomes more effective when the host country has the capacity to absorb technology, improve productivity, strengthen domestic industrial linkages, and support institutional quality. Upper-middle-income countries are generally better positioned to transform FDI into competitiveness gains, while lower-middle-income countries still need stronger domestic capacity before FDI can generate a more substantial competitiveness effect.

The implementation of these findings suggests that governments should not focus only on attracting larger FDI inflows, but also on improving the quality and domestic embeddedness of FDI. For upper-middle-income countries, policy should focus on deepening technology transfer, innovation collaboration, high-value industrial upgrading, and stronger participation in global value chains. For lower-middle-income countries, policy should prioritize infrastructure improvement, human capital development, institutional reform, supplier development, and stronger linkages between foreign investors and domestic firms.

Therefore, FDI policy should be integrated with broader competitiveness policy. Investment promotion needs to be supported by domestic capability-

building, innovation systems, skilled labor development, and institutional improvement so that foreign investment can generate wider productivity and competitiveness gains.

FURTHER STUDY

This study has several limitations. First, the analysis focuses only on the direct effect of FDI on national competitiveness, while other important channels such as human capital, institutional quality, innovation capability, financial development, and logistics performance are not included as mediating variables. Second, the study uses country-level panel data, so it cannot fully capture firm-level or sector-specific spillover effects of FDI. Third, the comparison between upper-middle-income and lower-middle-income countries is based on separate group estimations, so the statistical difference between the two coefficients is not tested in one pooled interaction model.

Future studies can extend this paper by incorporating additional mediating variables, such as human capital, institutional quality, innovation capability, financial development, and logistics performance. Future research may also estimate a pooled dynamic model with interaction terms between FDI and income-group dummies to formally test whether the difference between UMI and LMI coefficients is statistically significant. In addition, future studies can use firm-level or sectoral data to examine whether FDI spillovers are stronger in manufacturing, services, technology-intensive sectors, or logistics-related industries.

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