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The Impact of Ease of Doing Business on Economic Growth: Evidence from a Two-Way Fixed Effects (TWFE) Model

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ABSTRACT
This study intends to examine the linkage between ease of doing business (eodb) and economic growth within the framework of the neoclassical growth model, considering the role of capital formation. The analysis relies on a panel dataset of 111 countries covering the period 2015–2019. All data were obtained from the the World Bank. The Two-Way Fixed Effects (TWFE) estimator is applied to account for both country-specific and time-specific heterogeneity. Additionally, the hierarchical regression is utilized to assess the robustness and consistency of the estimated parameters. The findings of TWFE indicate that both gross fixed capital formation per capita and the ease of doing business index are positively associated with GDP per capita. These results confirm that capital formation and a favorable business environment serve as important drivers of economic growth. Therefore, it is pivotal continue to promote investment and implement regulatory reforms that improve the business environment in order to foster sustained economic growth.

1. INTRODUCTION

Understanding the relationship between ease of doing business and economic growth remains a crucial topic to be unraveled to provide effective policy recommendations (Messaoud & Teheni, 2014). The World Bank produces the index of ease of doing business to gauge how conducive business regulatory frameworks are in different countries to firms. It is debated that legal rules and regulations related to business may beneficially or adversely impact economic activities, depending on the nature and implementation (Oto-Peralías & Romero-Ávila, 2017). A favorable business environment improves economic efficiency by lowering transaction costs, encouraging domestic and foreign capital formation, and stimulating entrepreneurial activities, which, in turn, promotes economic growth. Furthermore, improvements in business regulations are expected to enhance firm productivity and attract both domestic and foreign investment, thus controbuting to long-term economic development.

Whilst capital and labor are necessary inputs for production procses as suggested by the Neoclassical growth model (Mankiw, 2019), formal rules are proposed as key contributing factors. Business-friendly regulation can foster economic growth since it reduces barriers to entry, attracts investment, and promotes competition. Improved ease of doing business promotes economic growth by reducing regulatory and transaction costs, which allows firms to operate more efficiently and allocate resources toward productive activities (Messaoud & Teheni, 2014). In addition, it can encourage greater domestic and foreign investment, which expands productive capacity and enhances long-term output and productivity. Udemba et al. (2025) found ease of doing business positively linked to economic growth in India. Bajra et al. (2020) rerported that countries failing to reach 72% of the EDB index no longer support economic growth.

Bétila (2021) validated the benefits of EDB in driving economic growth. However, Maiss and Taher (2024) recorded that EDB negatively affects economic growth in the Arab World. Similarly, Adhikari & Whelan (2023) unraveled that improvements in doing business scores are not positively associated with per capita GDP. L. Raimi & Hazwan Haini, 2023, analyzing 15 the Economic Community of West African States (ECOWAS) countries (2000–2019), found regulatory indicators (EDB) negatively and significantly related to growth, though governance quality showed positive effects. Therefore, it can be inferred that the favorable role of doing business policies on the economy is still up for dispute, and it is vital to address the question of whether robust business regulations drive economic development or, on the contrary, economic development may lead a better business environment (Chala, 2024).

Against this background, this study aims to examine the linakge between ease of doing business and economic growth using global panel datsets while controlling for the impact of capital formation, proxed by gross fixed capital froamtion per capita. Accordingly, the following research questions are addressed: (i) Does ease of doing business positively contribute to economic growth? and (ii) Is capital formation an effective driver of economic growth?

In terms of its contributions, this study offers several methodological novelties. First, GDP per capita (cosntant 2025 US$, rather than GDP growth, is employed to estimate the elasticity of economic performance with respect to the ease of doing business and capital formation. Second, the analysis utilizes a Two-Way Fixed Effects (TWFE) estimator to control for both country-specific and time-specific heterogeneity. Third, hierarchical regression analysis is conducted to assess the robustness and consistency of the empirical findings**.**

2. METHOD

Data

The current empirical study relies on panel data consisting of 111 countries for the period 2015 – 2019. Therefore, the number of observation are 555 units. Three variables are observed; GDP per capita (constant 2015 US$), the indxed of ease of doing business (EDB), gross fixed capital formation per capita (constant 2015 US$). For the model specification, GDP per capita serves as endogenous variables while ease of doing busines and gross fixed capital formation per capita are the exogenous variables.

The EDB index covers ten subindices: starting a business, dealing with construction permits, getting electricity, registering property, getting credit, protecting minority investors, paying taxes, trading across borders, enforcing contracts, and resolving insolvency. It spans from 0 (lowest performance) to 100 (best performance). All the panels used were gathered from the World Bank Database.

Model Specification

Following the Solow growth model, the production function can be defined as a function of capital and labor, as presented in Equation (1) (Mankiw, 2019)

$$Y_t = AK_t^{\alpha_1} L_t^{\alpha_2} \tag{1}$$

where the term Y shows national output: A denotes the level of technology that augments capital K and labor L. The production function posits a standard assumption of constant returns to scale (α_1+α_2=1). Dividing both sides by labor (L), Eq. (2) yields the intensive form of the production function.

$$\frac{Y_t}{L} = \frac{AK_t^{\alpha_1}}{L}\frac{L_t^{\alpha_2}}{L} = Ak^{\alpha}1 \tag{2}$$

Rewritten,

$$y_t = Ak^{\alpha} \tag{3}$$

Equation (3) can be augmented by integrating the role of eased doing business

$$y_t = Ak^{\alpha} edb^{\beta} \tag{4}$$

Taking the natural logarithm:

$$\ln y_t = A + \alpha \ln k_t + \beta \ln edb_t \tag{5}$$

By defining technological progress as $A = \omega$ (a constant term), adding the error term, and incorporating the panel index it, the econometric model is specified in Equation (6).

$$\ln y_{it} = \omega + \alpha \ln k_{it} + \beta \ln edb_{it} + v_i + \mu_{it} \tag{6}$$

the capital formation (k) is proxied by gross fixed capita formation per capita (capp) and Output per capita is proxed by GDP per capita; therefore, the empirical model is presented as Equattion (7).

$$\ln gdpp_{it} = \omega + \alpha \ln capp_{it} + \beta \ln edb_{it} + v_i + \mu_{it} \tag{7}$$

where gdpp denotes GDP per capita as proxy for economic growth; cap stands for per capita gross capital formation per capita; and edb represents the index of ease of doing business. ω shows the constant term. v_i denotes individual fixed effect. μ represents the idiosyncratic error term.

Estimation Method

To examine the linkage between gdpp, edbb, and capp, this study employs the Fixed Effects (FE) estimator. The FE model is considered an appropriate method given that it can handle the correlation between unobserved heterogeneity, i.e, individual fixed effects, and the regressors (Ahn et al., 2013).

$$cov(x_{it}, v_i) \neq 0 \tag{8}$$

In order to control for individual fixed effects, the FE model estimates parameters using the within-transformation (within estimator) approach (Baltagi, 2005).

$$(x_{it} - \bar{x}_i) \tag{9}$$

Using within dimenstion approach:

$$\begin{aligned} \ln(gdpp_{it} - \overline{gdpp_i}) \\ = \rho + \alpha \ln(capp_{it} - \overline{capp_i}) + \beta \ln(edb_{it} - \overline{edb_i}) + (v_i - \bar{v}_i) \\ + (\mu_{it} - \bar{\mu}_i) \end{aligned} \tag{10}$$

Since $(v_i - \bar{v}_i) = 0$, therefore,

$$\ln \widetilde{gdpp}_{it} = \rho + \alpha \ln \widetilde{capp}_{it} + \beta \ln \widetilde{edb}_{it} + \tilde{\mu}_{it} \tag{11}$$

To control time fixed effect, this study modify the FE model to become the two-way fixed effect (TWFE) as presented in Equation (1w)

$$\ln \tilde{y}_{it} = \rho + \alpha \ln \tilde{k}_{it} + \beta \ln \widetilde{edb}_{it} + \lambda_t + \tilde{\mu}_{it} \tag{12}$$

3. RESULT AND DISCUSSION

Result

To begin with results and discussion, Table 1 presents the statics descriptive of the study variables. The results denote that across 555 observations, GDP per capita has a mean of 16,003.52 with a high standard deviation of 20,185.27, denoting substantial disparities in income levels among the sampled countries. Gross fixed capital formation per capita averages 3,734.95 with considerable variation (std. dev. 4,855.34), reflecting differences in investment capacity across economies. Meanwhile, the ease of doing business index has a mean of 64.03 and a standard deviation of 13.32, ranging from 32.48 to 87.17, suggesting moderate but notable variation in the quality of business environments. Overall, these results highlight significant heterogeneity in economic performance, investment, and institutional conditions across the sample.

Table 1. Statistic descriptive of study variables

	Mean	Std. dev.	Min	Max
gdpp	16003.52	20185.27	261.75	108351.5
capp	3734.945	4855.344	23.69817	39166.13
edb	64.02615	13.32355	32.477	87.166

Table 2 presents the correlation matrix of the variables. All observed variables, namely GDP per capita (gdpp), gross fixed capital formation (capp), and ease of doing business (edb), are positively correlated with one another. GDP per capita exhibits a very strong positive correlation with gross fixed capital formation, while its correlation with the ease of doing business index is also strong. In addition, gross fixed capital formation is positively correlated with ease of doing business. These results suggest that higher levels of investment and a more favorable business environment are associated with stronger economic performance.

Table 2. Correlation Matrix

	Ln(gdpp)	Ln(capp)	Ln(edb)
Ln(gdpp)	1		
Ln(capp)	0.9781	1	
Ln(edb)	0.7077	0.6979	1

To facilitate a clearer understanding the nexus between the observed variables, Figures 1 and 2 illustrate the relationship between economic growth and gross fixed capital formation per capita, and between economic growth and the ease of doing business, respectively.

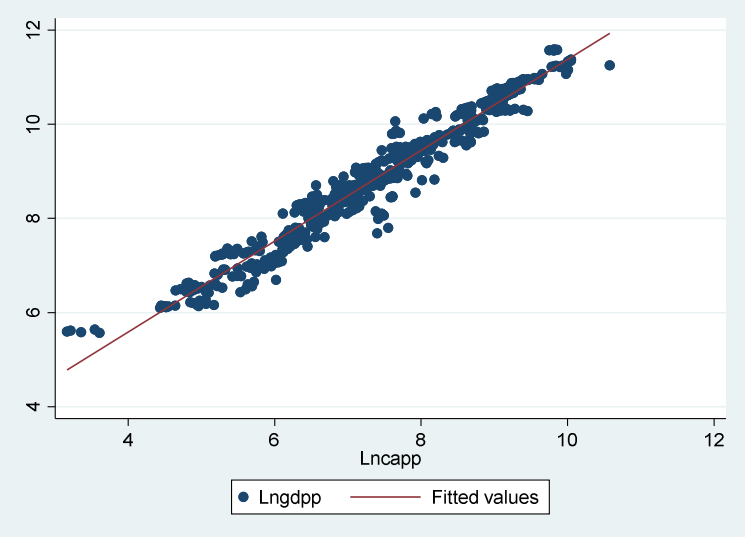

Figure 1. Plots of Ln(gdpp) and Ln(capp)

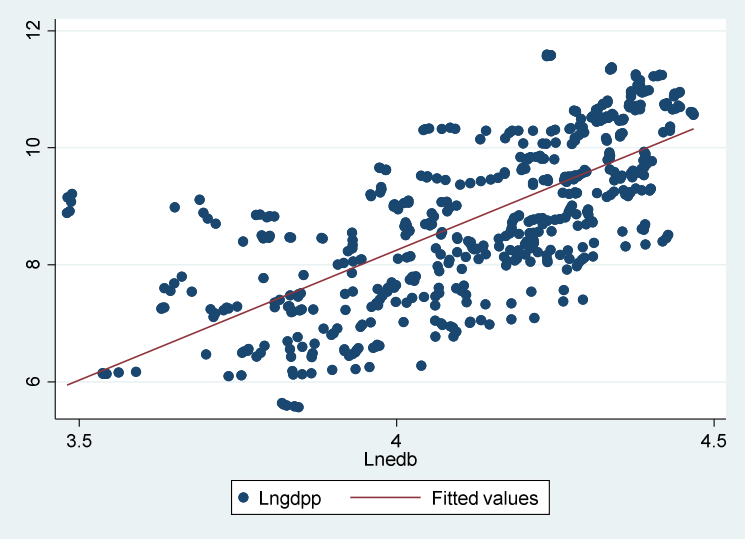

Figure 2. Plots of Ln(gdpp) and Ln(edb)

Table 3 jointly presents the estimation results. The FE estimation and Hierarchical regression models are employed to assess the robustness and consistency of the estimated parameters across alternative model specifications. Model (1) reports the baseline regression examining the effect of gross fixed capital formation per capita on GDP per capita. Model (2) incorporates the ease of doing business as an additional explanatory variable. Model (3) further controls for both country-specific and time-specific fixed effects using the Two-Way Fixed Effects (TWFE) specification.

The estimated coefficients for gross fixed capital formation per capita and the ease of doing business index remain consistent across models, indicating robust and stable findings. Focusing on model (3), gross fixed capital formation per capita exerts a positive and statistically significant effect on GDP per capita with the estimated parameter of 0.163. This evidence suggests that a 1% increase in capital formation is associated with a 0.163% increase in GDP per capita. Therefore, it can be inferred that capital accumulation remains a fundamental determinant of long-term economic growth. This empirical finding is consistent with neoclassical growth theory, which highlights the pivotal role of capital formation in expanding an economy's productive capacity. This evidene in line with previous studies (Topcu et al., 2020; Kesar et al., 2023)

Table 2. Correlation Matrix

	Estimation results		
	(1)	(2)	(3)
Ln(capp)	0.214***	0.190***	0.163***
	(-0.013)	(-0.012)	(-0.011)
Ln(edb)		0.574***	0.158*

		(-0.058)	(-0.064)
_cons	7.272***	5.078***	6.963***
	(-0.099)	(-0.240)	(-0.272)
2016.year			0.013**
			(-0.005)
2017.year			0.032***
			(-0.005)
2018.year			0.047***
			(-0.005)
2019.year			0.058***
			(-0.006)
R-squared	0.3640	0.4783	0.5949

Note: standard errors are in the perentheses. *p<10%, **p<5, ***p<1

The other variable of interest, the ease of doing business index, is positively associated with GDP per capita and is statistically significant at the 5% level, with an estimated coefficient of 0.158. This result highlights the importance of a conducive business environment in enhancing economic performance. Based on these findings, it can be stated that improvements in the business regulatory environment contribute positively to economic performance. However, the magnitude of this effect declines once time-specific factors are controlled for, suggesting that part of the observed relationship is driven by broader macroeconomic developments occurring over time. The reduction in the estimated coefficient relative to earlier model specifications further implies that the institutional effect is partially intertwined with temporal macroeconomic dynamics.

Other findings suggest that the inclusion of year fixed effects reveals a strong and statistically significant upward trend in GDP per capita across all periods (2016–2019). This indicates that unobserved time-varying factors, such as global economic conditions, technological progress, or structural transformation, play an crucial role in explaining economic growth beyond the included explanatory variables. Furthermore, the R-squared in the time-fixed effects model is higher than in the pure fixed effects model, suggesting the importance of using a TWFE specification.

Discussion

Following the confirmation of the beneficial roles of gross fixed capital formation and the ease of doing business, it can be argued that economic performance is shaped by the interaction between productive investment and the quality of the business environment. While capital formation remains a fundamental engine of economic development through its role in expanding productive capacity and supporting technological upgrading, its effectiveness depends on the institutional framework within which investment decisions are made (Lim, 2014). A conducive business environment lowers administrative barriers, improves regulatory predictability, and facilitates the efficient allocation of resources, thereby enhancing the productivity of both existing and newly created capital (Djankov et al., 2006). From this perspective, policies aimed solely at increasing investment volumes may generate suboptimal outcomes if they are not accompanied by reforms that improve the overall business climate.

The results also carry important implications for development policy. Rather than viewing investment promotion and regulatory reform as separate policy objectives, governments should pursue an integrated strategy that simultaneously encourages capital accumulation and strengthens institutional quality. This includes streamlining business regulations, reducing bureaucratic inefficiencies, improving contract enforcement, and creating a predictable environment for private-sector activities. The diminished contribution of the ease of doing business after controlling for temporal factors further suggests that institutional reforms should be embedded within broader development agendas that account for evolving macroeconomic conditions and structural transformations. Consequently, sustainable increases in income levels are likely to be achieved not only through greater investment but also through continuous improvements in the regulatory and institutional foundations of economic activity**.**

4. CONCLUSION AND RECOMMENDATION

This empirical study examines the relaionship between the ease of doing business and economic growth using a panel dataset of 111 countries over the period 2015–2019. The TWFE estimator is employed to account for both country-specific and time-specific heterogeneity. The empirical findings indicate that both capital formation and the ease of doing business exert positive and statistically significant effects on economic growth, confirming their roles as important determinants of economic performance. Although the estimated coefficient of the ease of doing business is smaller than that of capital formation, both factors are found to be important in promoting economic growth. In particular, a favorable business environment contributes to economic expansion by encouraging investment, reducing transaction costs, enhancing entrepreneurial activity, and improving overall economic efficiency.

Despite certain limitations, the study provides several policy implications. First, policymakers should continue to improve the business environment through institutional and regulatory reforms that reduce administrative burdens and enhance the efficiency of economic activities, which in turn contribute to economic growth. Such efforts can stimulate entrepreneurship, attract investment, and support sustained economic growth. Second, policies aimed at strengthening capital formation should be prioritized, given its substantial contribution to economic performance and its complementary role in maximizing the growth-enhancing effects of a favorable business environment. Put together, these measures may create a more conducive framework for achieving long-term and sustainable economic development.

Future research may extend the analysis by incorporating a longer observation period, alternative indicators of institutional quality, and additional macroeconomic variables to further explore the mechanisms through which business regulations and investment influence economic growth. Such extensions would contribute to a deeper understanding of the institutional and economic foundations of long-run growth. In addition, future investigations may apply dynamic panel data techniques, such as the Generalized Method of Moments (GMM), to address potential endogeneity concerns and capture the dynamic nature of economic growth**.**

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