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The Role Of Institutional Quality And Cpi In The Relationship Between Fdi, Fixed Capital Formation, And Economic Growth In Asean

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Abstract

This study examines the relationship of foreign direct investment (FDI) and gross fixed capital formation (GFCF) with economic growth and tests the corruption perceptions index (CPI) as a moderating variable in seven ASEAN countries over 2012-2024. The study employs a quantitative approach using secondary panel data from the World Bank and Transparency International. Estimation is conducted using the Common Effect Model (CEM) with robust standard errors. The results show that FDI has a negative but statistically insignificant coefficient for economic growth (β = -0.3705; p = 0.134). In contrast, GFCF has a positive coefficient that is significant at the 10% level (β = 0.1954; p = 0.065). The FDI×CPI interaction is positive and statistically significant (β = 0.0201; p = 0.029), indicating that a higher CPI score which reflects a lower perceived level of public-sector corruption is associated with a stronger contribution of FDI to economic growth. Meanwhile, the GFCF×CPI interaction is negative and statistically significant (β = -0.0047; p = 0.002). These findings suggest that the effects of investment depend not only on the volume of capital flows but also on the institutional context and the effectiveness of investment management. The GFCF×CPI interaction should be interpreted cautiously and does not necessarily mean that better governance always reduces the benefits of capital formation.

Keywords: economic growth; corruption perceptions index; FDI; GFCF; institutional quality; ASEAN.

INTRODUCTION

Economic growth is an important indicator for assessing changes in a country's productive capacity. In ASEAN, cross border investment flows and fixed capital formation

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are part of strategies to raise productivity, expand employment opportunities, and strengthen regional economic ties. However, an increase in investment does not necessarily generate a commensurate increase in growth when investment is weakly connected to domestic sectors, is not accompanied by technological absorptive capacity, or operates in an ineffective institutional environment.

Foreign direct investment (FDI) can bring capital, technology, managerial practices, and access to international markets. Nevertheless, the relationship between FDI and economic growth is not uniform across countries. Li et al. (2023), in a study of nine ASEAN countries, found that the effect of FDI varies with institutional quality: below a certain institutional threshold, its effect may be negative, whereas above that threshold FDI tends to contribute positively. This finding supports the view that FDI should not be regarded as an automatically effective source of growth under all circumstances.

Institutional quality is also related to investment decisions and economic performance. Using ASEAN data for 2011-2020, Kharisma et al. (2025) found that FDI inflows and the quality of political and economic institutions were positively associated with economic growth. Chen and Jiang (2023) examined how institutional quality affects FDI through mediation and moderation mechanisms, indicating that investment and institutions should be understood as interconnected rather than as a simple one-way relationship. In addition, Asante et al. (2022) examined the interaction between anti-corruption measures and the FDI growth relationship in ECOWAS countries, highlighting the importance of incorporating governance into analyses of investment benefits.

In addition to FDI, gross fixed capital formation (GFCF) represents investment in fixed assets such as infrastructure, buildings, machinery, and production equipment. Conceptually, productive assets can expand output capacity and reduce the costs of economic activity. However, the economic benefits of capital expenditure depend on project selection, implementation quality, asset maintenance, and spending accountability. Mardiyani et al. (2023), in a study of government expenditure, institutional quality, and inclusive economic development in Indonesia, found that the effects of public spending varied by expenditure function; investment expenditure showed a positive relationship, while other spending categories produced mixed results. This highlights the importance of evaluating not only the scale of expenditure but also its effectiveness.

This study is motivated by the inconsistent findings on the direct relationship between FDI and economic growth and by the need to understand whether CPI changes that relationship. Unlike studies that estimate only the direct effects of investment or institutional quality, this study specifically treats CPI as a moderating variable in the relationships of FDI and GFCF with economic growth in seven ASEAN countries over 2012-2024. CPI is interpreted according to Transparency International's definition: a

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higher score indicates a lower perceived level of public-sector corruption. Therefore, the signs of the interaction coefficients must be interpreted in light of the direction of the index.

Research Objectives

This article intends

1. To estimate the relationship between FDI and economic growth
2. To estimate the relationship between GFCF and economic growth
3. To test whether CPI moderates the relationship between FDI and economic growth
4. To test whether CPI moderates the relationship between GFCF and economic growth

Research Method

This study uses a quantitative approach with panel data covering seven ASEAN countries Brunei Darussalam, Cambodia, Malaysia, Thailand, Vietnam, the Philippines, and Indonesia for 2012-2024. The dataset therefore consists of 91 observations (7 countries × 13 years). Data on economic growth, FDI, and GFCF are obtained from the World Development Indicators published by the World Bank, while CPI data are sourced from Transparency International. Economic growth is measured by the annual real GDP growth rate, FDI by net FDI inflows as a percentage of GDP, GFCF as a percentage of GDP, and CPI by its index score; a higher CPI score indicates a lower perceived level of public-sector corruption.

The analysis applies panel data regression using the Common Effect Model (CEM). Model selection is informed by the Chow and Lagrange Multiplier (LM) tests. The Chow test yields a probability value of 0.3765, while the LM test yields a probability value of 1.0000. Since both values exceed the 5% significance level, the CEM is selected for estimation. Data are processed using Stata. The empirical model includes FDI, GFCF, and the interaction terms FDI×CPI and GFCF×CPI to examine the moderating role of CPI in the relationship between investment and economic growth.

$$EG_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 GFCF_{it} + \beta_3 (FDI_{it} \times CPI_{it}) + \beta_4 (GFCF_{it} \times CPI_{it}) + \varepsilon_{it}$$

Before interpreting the regression results, the classical assumption checks considered include normality, multicollinearity, heteroskedasticity, and autocorrelation. Normality is assessed using skewness and kurtosis. Following the criteria applied in the thesis, the data are considered to meet the descriptive normality criteria when skewness falls between -2 and +2 and kurtosis between -3 and +3. The values reported in the appendix are as follows: economic growth has skewness of -1.5312 and kurtosis of 2.6548; CPI has 0.4779 and -0.4451; FDI has 1.6868 and 2.3439; and GFCF has 0.5047 and -0.1619. All values fall within the specified ranges; thus, the variables meet the normality criteria under this descriptive approach.

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Multicollinearity is assessed using the Variance Inflation Factor (VIF) and tolerance (1/VIF). According to the thesis appendix, the VIF values for FDI and GFCF are both 1.08, the tolerance value is 0.9217, and the mean VIF is 1.08. VIF values below 10 and tolerance values above 0.10 indicate no evidence of multicollinearity among the variables included in the reported test.

The heteroskedasticity test examines whether the residual variance is constant. The reported Prob > Chi² value is 0.7477, which exceeds the 0.05 significance level. Therefore, the null hypothesis is not rejected, and the test provides no evidence of heteroskedasticity. Autocorrelation is also considered as part of the classical assumption checking procedure because correlation between residuals across observations can affect standard errors and statistical inference. The final estimates use robust standard errors. However, conventional heteroskedasticity robust standard errors do not, by themselves, establish that autocorrelation has been eliminated; the thesis draft does not report a separate autocorrelation test statistic.

Hypotheses are evaluated using the t-test to assess the significance of individual coefficients, the F-test to assess the joint significance of the explanatory variables, and the coefficient of determination (R^2) to describe the proportion of variation in economic growth explained by the model. A 5% significance level is used, while the GFCF result is also reported as significant at the 10% level in accordance with the estimates. Interaction coefficients are interpreted as changes in the marginal relationship of FDI or GFCF with economic growth as CPI changes, rather than as an independent direct effect of CPI.

DISCUSSION

Foreign Direct Investment and Economic Growth

The FDI coefficient is -0.3705, with a t-statistic of -1.52 and a p-value of 0.134. Thus, the estimated direct relationship between FDI and economic growth is negative but statistically insignificant at the 5% level. This result does not provide sufficient statistical evidence to conclude that an increase in FDI reduces economic growth. The effect of FDI may depend on its links with domestic firms, workforce capacity, the sectoral composition of recipient industries, and the ability to absorb technology.

This finding is consistent with the view that the effect of FDI depends on institutional conditions. Li et al (2023) identified an institutional quality threshold in the relationship between FDI and growth in ASEAN, while Kharisma et al. (2025), found a positive relationship between FDI and growth when institutional quality was considered. Differences from the present findings may reflect the observation period, country coverage, model specification, and use of interaction terms. From a policy perspective, host countries should direct investment toward higher value added activities, strengthen

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links with local suppliers, and improve workforce capabilities so that foreign capital can translate more effectively into productivity.

Gross Fixed Capital Formation and Economic Growth

The GFCF coefficient is 0.1954, with a t-statistic of 1.87 and p = 0.065, indicating a positive relationship that is statistically significant at the 10% level. Differences in productivity across categories of public expenditure should be taken into account. Mardiyani et al. (2023) show that the effects of government expenditure vary by function and that investment is positively associated with inclusive economic development. This supports the interpretation that GFCF may have a greater impact when the assets created are used productively, connected to supporting infrastructure, and maintained after project completion. In this study, GFCF measures fixed capital formation across the economy and is not identical to the government budget item for capital expenditure.

CPI Moderation of the FDI–Economic Growth Relationship

The FDI×CPI interaction coefficient is 0.0201, with a t-statistic of 2.23 and p = 0.029, making it positive and statistically significant at the 5% level. This means that as the CPI score rises indicating a lower perceived level of public sector corruption the marginal relationship between FDI and economic growth becomes more positive. The result suggests that governance quality may create conditions that support the benefits of foreign investment. This interpretation is consistent with studies emphasizing the role of institutions in the FDI-growth relationship. Kharisma et al. (2025) found that the quality of political and economic institutions was positively associated with economic growth in ASEAN. Asante et al. (2022) also explicitly examined the interaction between anti-corruption and the FDI-growth relationship in ECOWAS. Accordingly, investment attraction policies should be accompanied by stronger transparency, accountability, and legal certainty, rather than relying solely on investment incentives.

CPI Moderation of the GFCF–Economic Growth Relationship

The GFCF × CPI interaction coefficient is -0.0047, with a t-statistic of -3.18 and p = 0.002, indicating a negative and statistically significant interaction. In the estimated specification, a higher CPI score is associated with a lower slope in the relationship between GFCF and economic growth. This differs from the simple expectation that improved anti-corruption perceptions will always strengthen the effect of every form of investment. However, the negative interaction does not demonstrate that better governance generally harms the benefits of capital expenditure.

The interaction coefficient should be interpreted alongside the main coefficient and the range of observed data. In an interaction model, the marginal effect of GFCF is β_2 +

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β_4CPI. Therefore, a negative β_4 means that the marginal slope declines as CPI rises; it does not mean that the effect of GFCF must be negative at every CPI level. Differences in investment composition, variation in project effectiveness across countries, changes in capital allocation, and structural factors not controlled for in the model may contribute to this result. Further research should assess robustness by calculating marginal effects at relevant CPI scores, testing specifications with country and year fixed effects, and distinguishing public from private investment.

Policy Implications

FDI strategies should prioritize investment quality and its connections with the domestic economy rather than focusing solely on the volume of inflows. Governments should improve the planning, selection, implementation, and evaluation of fixed capital formation projects so that investment raises productivity. Transparent procurement, access to information, auditing, and public oversight remain important for reducing leakage and strengthening accountability. The negative GFCF×CPI interaction should be understood as a conditional empirical finding in this model; it should not be translated into a policy recommendation to weaken anti-corruption efforts.

CONCLUSION

Based on CEM estimates with robust standard errors for seven ASEAN countries over 2012-2024, FDI has a negative but statistically insignificant coefficient for economic growth ($p = 0.134$). GFCF has a positive relationship that is significant at the 10% level ($p = 0.065$). The FDI×CPI interaction is positive and statistically significant ($p = 0.029$), indicating that a higher CPI score is associated with a stronger relationship between FDI and economic growth. Conversely, the GFCF×CPI interaction is negative and statistically significant ($p = 0.002$), indicating that the marginal relationship between GFCF and economic growth weakens as the CPI score rises in this model specification.

The central finding is that the relationship between investment and economic growth in ASEAN is context dependent. Investment flows and fixed capital formation need to be accompanied by accountable governance and policies that ensure capital is used productively. Future research could expand the country sample and observation period, test models with country and year effects, examine potential endogeneity, and estimate the marginal effects of the interaction terms.

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