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Does the Foreign Direct Investment in Emerging Asian Countries Get 'Greased' or 'Sanded' by Corruption? Evidence from GETS Model

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Abstract

Inflows of foreign direct investment (FDI) considerably boost industrialization and economic growth in emerging economies. Corruption, human capital, and the economic environment are just a few factors mentioned in the literature as influencing FDI inflow. The impact of corruption on FDI, whether FDI is greased or sanded by corruption, has received greater interest in recent empirical study. This study analysed the impact of the Corruption Perception Index (CPI) on foreign direct investment (FDI) in selected Asian emerging economies. Utilising annual panel data covering 22 selected Asian emerging economies, this study uses the General-to-specific (GETS) model to analyse the impact. The overall findings support the "grease the wheel" theory by indicating a significant negative relationship between the CPI and FDI. This indicates corruption is anticipated to speed up business processes among emerging economies. The results may suggest that the government create specific policies to speed up the regulatory process that hinders investment.

Keywords: Corruption, Foreign direct investment, Emerging economies, Asian, Panel data

1. Introduction

One of the most important variables influencing economic growth in developing countries is foreign direct investment (FDI) when capital is scarce due to a lack of private and public domestic savings (Sarker & Khan, 2020). FDI contributes to macroeconomic stability, particularly for developing countries, by providing capital, managerial expertise, technological knowledge, job opportunities, and markets for export commodities on a global scale. Therefore, emerging economies have largely loosened limitations on entering foreign money by replacing the current limits and limitations on the

entry of foreign multinational corporations with new laws and regulations that are intended to encourage and attract FDI. Developing nations expect FDI to be beneficial from incoming capital, technology-related spillover effects, modern management techniques, and corporate governance. With a 5–10% forecast growth, FDI inflows into Asia are anticipated to expand in 2021, outpacing other growing areas (Karim et al., 2018; Quazi, R. M., 2014; Zander, 2021; UNCTAD, 2021). The current Corruption Perception Index (CPI) for developing Asian nations reveals a concerning result. With an average score of 36 out of 100 on the corruption perception index (CPI), Eastern Europe and Central Asia are



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the second-worst performing regions. While Asia Pacific nations have made significant progress in reducing the use of bribes for public services, an average score of 45 out of 100 indicates that much more work needs to be done to address the region's corruption issues (Transparency International, 2022).

Corruption is typically defined as the misuse of government resources for personal gain. It is a factor in policy that influences both social and economic life. However, "corruption" has a wide range of definitions, from the general term "misuse of authority" to the strictest definition, which is an act of bribery involving a public official. It is morally repugnant and criminal conduct typically carried out in secrecy (Ali & Mohd, 2021; Qureshi et al., 2021). In addition, the Corruption Perception Index (CPI) is designed to rank countries around the world based on their perceived levels of public sector corruption. CPI calculation involves data collection from various sources, including surveys, assessments, and expert opinion, that measure the perceived level of corruption in each country's public sector (Transparency International, 2022). Corruption erodes public confidence, undermines democracy, prevents economic growth, and exacerbates social problems such as inequality, poverty, social division, and environmental crises. Corruption has historically been seen as a barrier to investment and economic development (Zheng & Xiao, 2020). According to earlier studies, if a country is perceived as corrupt, the perception of overseas investors may be damaged, resulting in perceptions of the investment's quality and the nation's political and economic stability (Hayati et al., 2015). High levels of corruption raise corporate risk and deter investors from making investments. Furthermore, because corruption significantly affects a company's operations, profitability, exports, and growth, it directly disrupts a healthy competitive market and its reputation (Lucey et al., 2023). Corruption is a major issue, especially in developing nations, where it negatively impacts FDI growth and sustainable development (Umur Tosun et al., 2014; Qureshi et al., 2021). Therefore, reducing corruption could enhance FDI (Quazi, 2014; Aswata et al., 2018; Karim et al., 2018). Additionally, corruption's effects on investments and economic growth make it more challenging to achieve the Sustainable Development Goals (SDG), especially goals on decent works and economic growth (SDG 8), and those related to infrastructure, industry, and innovation (SDG 9), quality education (SDG 4), and healthy lives (SDG 3) (United Nations, n.d.). Literature has also shown that FDI and the corruption index have a positive

association. Corruption may increase efficiency in many developing nations by enabling businesspeople to get around onerous rules (Hayati et al., 2015; Karim et al., 2018; Zheng & Xiao, 2020; Heo et al., 2021; Moustafa, 2021; Zander, 2021).

The main objective of this paper is to examine the significant relationship between CPI and FDI in selected emerging Asian countries. The rest of the paper is organised as follows. In the next section, the theoretical and empirical literature is presented. It is followed by the elaboration of models and data in Section 3. Section 4 discussed the findings, and finally, Section 5 outlined our conclusions.

2. Literature review

Both theoretical and empirical research presents a dichotomy regarding the consequences of corruption. There are two main perspectives on corruption in theoretical literature: the "sand the wheels" view and the "grease the wheels" view. The sanding-the-wheels hypothesis holds that corruption hinders the expansion and growth of businesses. Hence, corruption harms an economy and prevents it from developing positively over time. The grease wheels' hypothesis, on the other hand, holds that corruption promotes economic competition and economic investment by lowering the risks associated with political instability and by encouraging enterprises to compete for political favours, which ultimately aids the businesses in generating higher profits (Heo et al., 2021; Zander, 2021).

The relationship between corruption and FDI has been extensively studied, yet the literature remains inconclusive. Some researchers have shown that corruption sands the wheels' of, while others have supported the 'grease the wheels' hypothesis. For instance, Umur Tosun et al. (2014) found that corruption has distortive effects on FDI in Turkey both for short- and long-term periods. It is supported by Karim et al. (2018), which concluded that there is a significant relationship between corruption and the inflow of FDI in ASEAN-5 countries. Similarly, Quazi (2014) discovered that in South and East Asia, higher levels of corruption result in a decline in FDI, proving that corruption has a substantial role in FDI. Similar findings have been outlined by Zangina & Hassan (2020) and Ali & Mohd (2021). Therefore, countries must implement anti-corruption measures to promote the inflows of FDI (Aswata et al., 2018; Bardi & Hfaiedh, 2021).

Numerous research on the relationship between corruption and investment reinforced the "grease the wheels" hypothesis in emerging economies. The hypothesis was validated by Heo et al. (2021), which

discovered that corruption positively impacts investment in emerging economies. Moustafa (2021) found a long-term and short-term positive relationship between corruption and FDI. Hayati et al. (2015) discovered a significant positive association between understanding the degree of economic growth in the ASEAN-5 countries and corruption's role as a mediator for the FDI-growth nexus. Indirectly, it indicates that corruption may increase the level of FDI in the ASEAN-5 countries, which would subsequently significantly impact the economic growth rate. Due to the simplicity of obtaining licenses, permits, and contracts from public authorities through dishonest means like bribery, some overseas investors may be drawn to investing in the ASEAN-5 nations. The finding is supported by Zheng & Xiao (2020) and Hanoteau & Vial (2014).

According to Qureshi et al. (2021), higher levels of corruption encourage investment in developing countries but are negatively related to developed countries. Similarly, Krifa-Schneider, Matei and Sattar (2022) documented that in an advanced economy, less corruption translates to greater FDI; however, in emerging economies, the corruption level is less significant because countries are more tolerant of it. According to (Zander, 2021), enhanced analysis of OECD countries, corruption does have complicated implications for FDI flows. While results indicate a negative link for FDI source nations, corruption appears to be favourably connected for FDI destination countries. Despite several theoretical and empirical research, there is no consensus on the direction of corruption's influence on FDI's decisions. Hence, it draws the researcher's interest to investigate further the relationship between corruption and FDI in developed and developing countries.

Among other factors that are widely discussed in the literature to have an impact on FDI is Gross Domestic Product (GDP). According to Asiamah et al. (2019), Defung et al. (2021), Fornah & Yuehua (2017) and Singhania & Gupta (2011), FDI in several groups of countries, including low-income countries, developing countries, and ASEAN countries, was significantly influenced by GDP. The finding was further supported by Kumari, Shabbir et al. (2023) and Saini and Singhania (2018). However, Sabir, Rafique and Abbas (2019) reveals that developed countries with a greater GDP per capita do not offer better opportunities for FDI inflows.

In addition to GDP, Defung et al. (2021) and Singhania & Gupta (2011) reported that the inflation rate influences FDI in India and ASEAN countries. According to Xu, Kim, and Zhao (2022), inflation

moves in lockstep with interest rates. Earlier research by Mason and Vracheva (2017) highlighted that inflation-targeting monetary policy was found to have a significant positive influence on attracting FDI and has a more favourable effect on FDI in developed countries than in developing countries. Contrarily, Rashid et al. (2017), Asiamah et al. (2019), Agudze and Ibhagui (2021), and Izadi et al. (2022) found that inflation is one of the main factors that negatively affect FDI. Additionally, investors will profit more from a larger market (Alon, 2010). Multinational Enterprises (MNEs) anticipate investing more in nations with larger populations because they have a substantial market for their products and services, a large workforce, and a wide range of skills (Buckley et al., 2009). According to research by Defung et al. (2021), population is a significant factor in determining FDI activities in developing and ASEAN nations.

Furthermore, trade openness plays a significant role in shaping FDI inflows (Fornah & Yuehua, 2017; Rashid et al., 2017; Mayoshi et al., 2022). Theoretically, depending on the trade policies of the host country, trade openness has a positive or negative impact on foreign direct investment (Liargovas and Skandalis 2012). Studies by Lindelwa Makoni (2018), and Saini & Singhania (2018) demonstrate that there is a positive correlation between trade openness and FDI inflows. A relatively small amount of research has been done on how the unemployment rate affects foreign direct investment, and the results have been inconsistent. According to Ubokulom Jossey (2022), many unemployed young people in Nigeria participate in gangsterism, cult activities, armed robberies, kidnappings, and violence associated with elections, which negatively affects foreign direct investment. However, countries with higher unemployment rates can be benefited from abundance of available labour, at lower wages (Blanchard, 2009).

Overall, substantial empirical studies support the grease the wheels hypothesis in developing nations regarding the impact of corruption on FDI, even though all these studies differ in scope, country selection, model, and estimating approach.

3. Methodology/Materials

3.1. Empirical model

The study improvises the previous empirical model from the study by Onody et al. (2022), which studies the impacts of corruption on FDI. The basic panel regression is shown as follows:

$$y_{it} = \alpha + \beta_1 CPI_{it} + \varepsilon_{it}, \quad (1)$$

Where y is the dependent variable presented by Foreign direct investment, net inflows (% of GDP), α is the intercept, CPI is corruption perception index, β_1 is the coefficient of the CPI, ε_{it} is the error term, i represent the selected Asian emerging economies ($i = 1, 2, 3, \dots, n$), and t represent the time ($t = 1, 2, 3, \dots, n$).

Moreover, this study aims to determine the impact of the corruption perception index on FDI. As a control variable of the model in Eq. (1), this study includes other important economic indicators such as gross domestic product growth (GDP), inflation rate (INF), unemployment rate (UNM), population (POP) and trade (TRA). Therefore, the model highlighted in Eq. (1) is specified as follows:

$$FDI_{it} = \alpha + \beta_1 CPI_{it} + GDP_{it} + INF_{it} + UNM_{it} + POP_{it} + TRA_{it} + \varepsilon_{it}, \quad (2)$$

The basic panel model must postulate that the intercept (α) and (β) slope are the same across units (i) and time (t). The inconsistency of (α) and (β) may result in heterogeneity bias. Therefore, the basic panel model must fulfil the usual diagnostic process to ensure the robustness of the model parsimonious (specific) model begins. Previous studies were mostly guided by a basic panel model that includes the unspecific variable that was perceived as an explanatory variable to explain the net inflows of the FDI. However, prescribing the parsimonious model is essential to answer which variable is impactful to explain for the final model. Therefore, this study utilised the model Clarke (2014) proposed, known as general-to-specific or general-to-simple (GETS). When using GETS modeling, empirical analysis begins with a broad statistical model that congruently reflects the key features of the underlying dataset. The complexity of that general model is then decreased by removing statistically insignificant variables, with the validity of the complexity reductions being verified at each step to assure consistency of the model that is ultimately chosen. Some studies, such as Carbonel and Werner (2018) and Herzer (2012), showed the GETS model in explaining the country-specific model in other fields of study.

3.2. Data

This study utilises the annual panel data sample covering 22 selected Asian emerging economies obtained from United Nations Conference on Trade

Development (UNCTAD), Transparency International, and The World Bank Data Bank. The 12 years of data on the corruption perception index and economic factors from 2010 to 2021 comprises 264 observations. The choice of the data range and countries depends decently on the availability of a complete data series concerning all variables. The dependent variable is the foreign direct investment, net inflows (% of GDP), also presented as FDI, explained by the corruption perception index (CPI) and other important economic indicators namely, gross domestic product growth (GDP), inflation rate (INF), unemployment rate (UNM), population (POP) and trade (TRA). All variables are treated as percentages except for the corruption perception index (CPI) and population (POP). The CPI perceived public sector corruption on a scale of 0–100. Whereby 0 means highly corrupt, and 100 means very clean. United Nations (UNCTAD) and Transparency International.

4. Findings and discussion

The basic panel model was found valid without statistical problems. The dependent variable is the net inflow of FDI; the remaining variables are considered independent variables. This study treated the unobserved heterogeneity (λ_i) with two remaining basic options, random effects (RE) and fixed effects (FE). Whereby, (1) assuming the λ_i are drawn independently from some probability distribution for RE. (2) assuming λ_i are constants for FE. It can be done by considering the Breusch and Pagan Lagrangian Multiplier test (BPLM). Table 1 presents the linear models' empirical results highlighted in Eqs. (1) and (2). The empirical result revealed that the BPLM test is significant at 1% and rejects the 99% confidence interval. The rejection gives the impression that the RE model is more appropriate than the ordinary least square (OLS) model, as it exhibits a country-specific effect. Therefore, the study employed the Hausman test, which is significant at 5%. As a result, this study rejects the 95% confidence that there is a correlation between the independent variables. The significance of the Hausman test favours the FE model.

The FE model suggests that CPI negatively impacts the net inflow of FDI. A 1.00 increase in CPI score will reduce -0.15% of the net inflow of FDI. It indicates that higher levels of corruption boost foreign direct investment and support the “grease the wheel” theory (Heo et al., 2021). According to Hanoteau & Vial (2014) and Zheng & Xiao (2020), businesses that accept bribes increase their output and productivity more quickly since it speeds up the

Table 1. The basic panel and general-to-specific models.

Variable	(RE)	(FE)	GETS (FE)
cons	3.8520 (2.2811)	4.3510 (5.3558)	11.8472 (3.7222)
CPI	−0.1029 (0.0491)**	−0.1506 (0.0938)*	−0.1719 (0.0845)*
GDP	0.1012 (0.0591)*	0.0826 (0.0603)*	
INF	0.0997 (0.0809)*	0.1138 (0.0957)*	
UNM	−0.3551 (0.2090)	−1.0621 (0.3961)	−1.1883 (0.3757)
POP	0.0001 (0.0001)***	0.0001 (0.0001)***	
TRA	0.0489 (0.0120)**	0.0295 (0.0169)**	0.0358 (0.0163)**
BPLM Test		37.9800 (0.0001)***	
Hausman Test		11.1600 (0.0483)**	
No. of Country (<i>n</i>)	22	22	22
Time Period (<i>T</i>)	12	12	12
Observations (<i>N</i>)	264	264	264

Notes: Values in the parentheses are standard errors except for the BPLM test and Hausman test, which are p-values. ***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively.

business-oriented individuals' efficiency in bypassing onerous regulations in many developing countries. As a result, investors who perceive a corrupt country will be motivated to perform FDI in host countries. As highlighted by Quazi (2014), foreign operations by developed countries in developing nations may only be carried out through bribery and cultural adjustment, which may involve rampant corrupt actions.

Table 1 also revealed that the GDP growth positively contributes to the FDI net inflow. An increase in GDP growth will motivate investors to perform the FDI in the selected 22 Asian emerging economies. Increasing the residents' income will boost their demand for goods and services, indirectly stimulating the return of the business and investment circle (Defung et al., 2021; Fornah & Yuehua, 2017; Singhania & Gupta, 2011; Asiamah et al., 2019; Saini and Singhania, 2018; Kumari et al., 2023).

The inflation rate positively correlates to the net inflow of FDI in emerging Asian economies. Studies by Mason and Vracheva (2017) and Xu, Kim, and Zhao (2022) could potentially explain the positive relationship between inflation and FDI. They emphasise the role of inflation-targeting monetary policy and the connection between interest rate and inflation that may attract FDI.

The FE results revealed that the unemployment rate has an inverse relationship with the net inflow of FDI. The results indicate that an increase in the unemployment rate will not motivate investors to perform the FDI in emerging Asian economies (Ubokulom Jossey, 2022). An increase in population is expected to motivate more investors to perform the FDI. The positive relationship between the population and FDI is consistent with the study by Buckley et al. (2009), and Alon (2010). High population growth indicates rapidly growing economies with more profitable investment opportunities. In

addition, the result from the FE model indicated that the TRA significantly contributes to the net inflow of FDI at a 5% level. The result is consistent with the study by Lindelwa Makoni (2018), and Saini & Singhania (2018).

Next, this study uses the same model highlighted in Eq. (2) and simplifies them by removing insignificant variables using the GETS model. The parsimonious model, the GETS model, first ranked its variable according to its highest *t*-stats. The analysis from the GETS model identified three variables considered well-specified parsimonious equations: the corruption perception index, unemployment rate and trade openness. The result is that all these tests are passed, implying that another three variables, gross domestic product, inflation rate, and population, are removed sequentially according to the lowest *t*-stats until the remaining variables are significant at the 5% level. Finally, the parsimonious equation is constructed by taking all specifications and performing them *F*-stats to encompass the non-redundant joint model. The procedure yielded the final parsimonious equation depicted in Table 1 and derived in Eq. (3).

$$FDI_{it} = 11.8472 - 0.1719CPI_{it} - 1.1883UNM_{it} + 0.0358TRA_{it} + \varepsilon_{it}, \quad (3)$$

As observed, the final parsimonious equation passes all the diagnostic tests so that those valid inferences can be drawn from Eq. (3). An essential part of this analysis is that the GETS model highlighted the consistency sign of three well-specified variables, the (1) corruption perception index, (2) unemployment rate and (3) trade openness. The GETS model identified that the CPI significantly impacts the net inflow of FDI at a 90% confidence interval. Every 1.00 increase in CPI will significantly increase the FDI by 0.17%. The GETS model

confirmed that the investors would perform their FDI if they perceived the country as corrupt in Asian emerging economies. Moreover, the GETS model highlighted the unemployment rate as a country-specific variable in determining the net inflow of FDI. Every 1% increase in the unemployment rate will reduce about 1.19% of the net inflow of FDI. Investors perceive the increase in the unemployment rate in emerging Asian economies as less attractive. Furthermore, the GETS model revealed that trade openness significantly contributes to the net inflow of FDI. An increase of 1% in trade openness will motivate the investor to perform the FDI in Asian emerging economies for about 0.04%.

Another important finding is that the GETS model identified the GDP growth among the variables with the lowest *t*-stats. The parsimonious model omitted the variable of GDP growth, giving us the impression that it is not a country-specific variable in explaining the net inflow of FDI in emerging Asian economies. The inflation rates and population were found significant under the FE model, turned out insignificant and removed from the parsimonious model.

5. Conclusion

This study's outcome reported a significant negative relationship between the CPI and FDI, supporting the 'grease the wheel' theory. The general-to-specific variable selection approach was applied to identify the country-specific factors, confirming that the CPI is a specific model for explaining the net inflow of FDI in emerging Asian economies. Corruption is said to speed up business-oriented individuals' efficiency in avoiding onerous regulations in many developing countries. Although the reported result revealed a picture of the ethical crisis, which the study believed was becoming a norm to speed up the process in a business or some regulations in the selected countries, determining the threshold of the CPI perhaps changed the relationship between the CPI and FDI. Moreover, in the long run, corruption may frequently distort resource allocation, which often favors well-connected people or companies over those who would be more creative or productive. This inefficient use of resources may have negative effects on economic growth, hence hindering the achievement of SDG 8 (decent work and economic growth) in the long run. The research finding signifies the need for anti-corruption enforcement in emerging economies, such as strengthening the legal system by putting a comprehensive and robust legal framework in place to address corruption and encouraging transparency

in public procurement procedures and government operations to help prevent corruption. This study also reported that the unemployment rate and trade openness are considered country-specific variables in explaining the net inflow of FDI. Future regressions using more country-specific sample groups, such as separate regressions for the CPI and the net inflow of FDI, could be advantageous, especially for the cluster of countries with high CPI scores, such as Bhutan, Brunei, South Korea, and Malaysia.

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