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The Determinants of Foreign Direct Investment Inflows: The Case of Emerging Countries

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Abstract: *The purpose of this study is to analyse the impacts and causal associations of the digital economy, productivity, corruption, and innovation capacity on foreign direct investment (FDI) in emerging countries. A panel dataset that included 24 emerging countries from 2000 to 2020 was used in the study. The heterogeneous panel cointegration test determines the short- and long-run dynamics between the variables, which is highlighted for empirical analysis. The application of principal component analysis (PCA) in this study results in the creation of a digital economy index that contributes to the existing empirical literature and provides a more comprehensive representation. The empirical evidence indicates that overall productivity has a positive impact on FDI flow in the long run, whereas corruption has negatively impacted FDI in the short term. The FDI flows are positively impacted by the digital economy in the short term, but innovation capacity is not a significant factor in FDI. Policymakers can benefit from valuable insights from the research, which can assist them in leveraging productivity and the digital economy to positively impact FDI inflows.*

Keywords: FDI; productivity; Corruption; Digital economic; Innovation capacity
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1. Introduction

Foreign direct investment (FDI) inflows are essential catalysts in boosting economic growth through the transfer of capital and advanced technology from one country to another, often less developed ones. The productivity of domestic industries can be increased by FDI, which can lead to positive externalities. Ramírez (2000) finds that FDI negatively affects the rate of labour productivity in Mexico. The presence of FDI contributed positively to the productivity of the wood industry in China in a more recent study by Lin et al. (2020). Saini and Singhania (2018) examine the determinants of FDI in 20 developed and developing countries and discover distinct outcomes: in developed countries, FDI is based on policy-related factors, but in developing countries, it is influenced by economic factors.

The United Nations Trade and Development's (UNCTAD) *World Investment Report* (2019) shows that global FDI continued to decrease by 13% to USD$1.3 trillion in 2018. The tax revolution and the widespread repatriation of cumulated foreign profit earned by multinational enterprises (MNEs) from the United States are the major factors behind this. In developed countries, FDI flows dropped to 27%, which was the lowest since 2004, and some US MNEs experienced negative inflows. The contribution of developing countries to global FDI has increased to 54%, despite the steady increase of FDI flows to developing countries by 2% to US$706 billion. The US is the country that receives the most FDI globally, followed by China, Hong Kong, and Singapore. Global economic growth conditions and policies implemented by host countries had a major impact on the global trend of FDI flows.

In light of these trends, it is important to examine the link between productivity and FDI in emerging countries. Due to the rapid development of the internet economy, FDI is expected to increase from US$50 billion in 2017 to US$200 billion by 2025 (AIR, 2018). The capacity of FDI inflows to enhance productivity is recognised through advanced technology, financial resources, and managerial expertise. Recent studies by Makieła et al. (2021) and Negash (2020) confirm that FDI has a beneficial effect on the advancement of total factor productivity (TFP). Moreover, multiple studies have identified the digital economy as a crucial factor in attracting FDI (Tiong et al. 2022). FDI flows is predominantly perceived as a facilitator of local innovation, and it is necessary to investigate the causal relationship between FDI and innovation within emerging economies, as emphasised by

Viglioni and Calegario (2020) and Chen and Zhang (2019). Recent research has shown that FDI and corruption have an inverse correlation, with higher levels of corruption being significant barriers to FDI inflows (Jan et al., 2023). As such, the main purpose of the present study is to examine the extent of cointegration and causal connections between the digital economy, corruption, TFP, and innovation capacity, which impact the advancement of FDI in emerging countries.

This study is structured as follows: Part 2 conducts a review of the existing literature concerning previous findings, Part 3 delineates the data sources and empirical methodologies employed in this investigation, Part 4 articulates the empirical results, and Part 5 concludes the discourse with a summary of findings.

2. Literature Review

Numerous empirical studies investigate the link between productivity and FDI. Negash et al. (2020) indicate that the presence of Chinese FDI has positively impacted the efficiency of productivity in Ethiopia and reduced poverty. Habib et al (2019) also conclude that FDI has a positive relationship with TFP, and it is the main catalyst to encourage the growth of productivity in BRICS and Central and Eastern European (CEE) countries. The presence of FDI has the potential to enhance productivity and exports (Desbordes & Franseen, 2019). According to Xie and Xue (2019), the injection of FDI increases the market competition of the local industry by stimulating the TFP of Chinese industry and contributes positively to the quality of the export product indirectly. Meniago and Lartey (2020) find that FDI and TFP are in opposition in 25 countries in Sub-Saharan Africa. Inward FDI also has a favourable effect on the productivity of entrepreneurship in emerging countries, thus enhancing financial market efficiency and labour market flexibility (Su et al., 2024). Meniago and Lartey (2020) argue that FDI inflows had a detrimental impact on TFP in African nations, rather than a beneficial one. In contrast, Abdullah and Chowdhury (2020) state that there is no statistically significant correlation between FDI and TFP, and the absorptive capacity is crucial for comprehending the impact of FDI on TFP. Increasing TFP levels can be achieved by attracting more investment and reducing production costs, as demonstrated by Gál and Fazekas (2021), Adnan et al. (2020), and Herzer and Donaubauer (2017).

Various studies investigate the impact of institutional quality on FDI using different methodologies, time spans, and geographical regions. Well-functioning institutions play a significant role in the increase of FDI flows. Mina (2020) shows that FDI inflow to GCC countries is attracted by trade openness and infrastructure development. Asongu et al. (2018) also point out that trade openness is an important key in motivating the FDI in BRICS and MINT (Mexico, India, Nigeria, and Türkiye) countries. Political stability and regulatory quality have hindered Chinese FDI inflows to the African region (Shan et al., 2018). Furthermore, Su et al. (2019) find that trade openness has a positive influence on FDI flow and economic growth in Vietnam. Hammami (2019) states that middle and low-income countries can be attracted to FDI through the economic freedom index, market size, and level of human capital. The determinants of FDI flows to developing and developed countries were investigated by Saini and Singhania (2018), who conclude that there are distinct determinants for FDI flows between developed and developing countries.

There were various theoretical and empirical studies that examined the connection between corruption and FDI. Arif et al. (2020) find that corruption and FDI have a negative impact on Brazil, China, and India, but not on Russia and South Africa. Corruption was identified as an obstacle by Hamdi and Hakimi (2019) in attracting FDI, which hampers investment activities in Tunisia. The sanded theory of corruption holds true, in that Asian countries experience a negative relationship between corruption and FDI inflows (Jan et al., 2023). Qureshi et al. (2021) discover that corruption has a positive impact on inward FDI in developing countries, while it has a negative impact on FDI in developed countries. Tsamadias et al. (2018) examine the factors that affect total factor productivity (TFP) and find that FDI negatively impacts TFP in non-European states. According to Asongu et al. (2020), FDI has a positive impact on TFP in Sub-Saharan Africa. Li and Tanna (2019) point out that there is a low significant correlation between FDI and TFP growth in developing countries and recommend that the government concentrate on improving institutional quality. The critical role of FDI in translating governance quality into economic outcomes for the ASEAN region was highlighted in a recent study by Hakim and Budi (2024).

Luu et al. (2018) examine the impact of corruption on FDI and find that corruption significantly hindered foreign capital inflow in 131 countries. Brada et al. (2019) observe that host country corruption has a negative impact on FDI inflow as it raises the cost of investment for foreign investors in 151 host countries. Guha et al. (2020) indicate, however, that high corruption is not a deterrent factor for FDI inflow, with foreign investors willing to bear the high cost of business as a condition for progress in gross domestic product (GDP) growth. Such mixed results necessitate an investigation into the connection between corruption and FDI. Institutional quality is a significant factor in determining FDI inflows in high-income countries, as determined by Fakiri and Cherkaoui (2022).

The Asean Secretariat (2018) asserts that the transformation of digital technology can boost efficiency and productivity for small and medium enterprises (SMEs) by exploring traditional business on the international stage. According to the United Nations Trade and Development (UNCTAD, 2017), technology and digital economics play an essential role in encouraging multinational investment, while technology-based industries attract more investors compared to other sectors. Eden (2016) points out that digital technologies are crucial in motivating more investment inflow. In exploring the investment relationship between Russia and Germany, Kozlova et al. (2019) find that digital transformation is an incentive in attracting long-term investment in Russia.

The demand for skills by MNCs was studied by Drahokoupil and Fabo (2020), who find that Slovakian foreign investors are more interested in digital skills on the production lines. Tang et al. (2019) likewise find that there is a positive relationship between inward FDI and technology improvement in Chinese cities, while advanced technology is an essential factor in attracting foreign investors to China. Therefore, to attract foreign investors, there is a need to enhance digital skills. The digital revolution has created an investment environment, which is a crucial factor in boosting foreign capital inflow and boosting economic growth in Ukraine (Tkalenko et al., 2019). Shevelova and Plaskon (2018) recommend that the government concentrate on creating a compelling business environment and improving digital development to attract foreign investors to Ukraine. In China, digitalisation has a significant positive impact on FDI inflows in low-income urban areas, but it seems to be less effective in medium and high-income regions (Zhang et al., 2024). The digital revolution can bring more benefits to developed countries than to less developed countries who are behind in technology (Albiman & Sulong, 2017; Malikane & Chitambara, 2017). The impact of the digital economy on FDI in emerging countries is commonly not investigated due to the diverse levels of digital development.

The relationship between FDI and innovation has been examined by numerous studies. Nigeria's innovation ability has been positively impacted by FDI, and the country should prioritise innovation economics to increase FDI inflow (Nyeadi & Adjasi, 2020). FDI and trade are found to have an impact on the innovation of domestic firms in emerging countries (Gorodnichenko et al., 2020). Hammami (2019) demonstrate that innovation and human capital are the most important factors in attracting FDI in middle- and low-income countries when examining the impact of intellectual property rights. Jungmittag and Welfens (2020) demonstrate that an increase in FDI inflow will have a negative impact on promoting innovation and production in European countries. Phuc Canh et al. (2019) conclude that 84 countries have positive domestic patent applications due to increased FDI injection. Yunus (2023) points out that the continuous increase in technology absorptive capacity had a positive impact on FDI.

Innovation capacity is the primary reason foreign investors are interested in investing in Western China (Wong et al., 2020). Omidi et al. (2018) find that FDI has a positive impact on innovation in developing countries. Huang and Zhang (2019) assert that local innovation activities drive both the inflow and outflow of FDI. In terms of patents, Chen and Zhang (2019) discover that FDI can have a positive impact on innovation applications. Martins et al. (2023) also find a positive impact of innovation and technology improvement on FDI flows and recommend that host countries should strengthen policies to enhance productivity through new technology. The transmission channels of technology innovation in China were found to significantly enhance green productivity in the digital economy (Lyu et al., 2024). Jiang et al. (2020) find that there is a negative link between FDI spillover and innovation in China, as the increase of the FDI spillover effect prevents urban innovation in China. According to Barasa et al. (2018), FDI inflow has a negative impact on the innovation of manufacturing firms in Africa. Hoa et al. (2024) affirm that increasing innovation promotes FDI flows and enhances innovation capacity. In emerging countries, it is crucial to determine the relationship between FDI and innovation and the causal effect between FDI and innovation.

3. Data Source and Methodology

This study utilises a panel dataset comprising a sample of 24 selected emerging countries, and the data set spans from 2000 to 2020 depending on data availability. The MSCI Market Classification Framework (2022) is used to select countries for this study based on their unique economic characteristics and growth potential. The selected countries in this study are Brazil, Chile, China, Colombia, Czech Republic, Egypt, Greece, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Pakistan, Peru, Philippines, Poland, Qatar, Russia, Saudi Arabia, South Africa, Taiwan, Türkiye, and Thailand. The selection of countries and the time frame for the study are based on data availability from authentic sources. Investors seeking substantial returns are attracted to emerging countries, which typically experience higher growth rates and high trade volume compared to developed nations. For instance, countries like India and China have shown significant FDI inflows driven by their large consumer markets and economic reforms, and the shift in FDI from developed to emerging countries highlights their potential factors, such as market size and trade openness being critical determinants (Al-Kasasbeh et al., 2022; Jahan, 2020).

There are five variables used in the study, which are FDI, TFP, corruption (COR), digital economic index (DEI), and technology innovation (INO). The measurement of FDI is based on the annual inflow of US dollars (in millions) of FDI, which is sourced from the UNCTAD (2022b). The labour force participation rate is measured by the total percentage of the population aged 15 to 64, and TFP is derived from the World Bank's World Development Indicators (WDI). The variable COR is measured by the percentile rank of control of corruption and is obtained from the World Bank's World Governance Indicators (WGI). Meanwhile, INO is captured by the total number of patent applications by a country's residents and is sourced from the World Intellectual Property Organization (WIPO). DEI is constructed using principal component analysis (PCA), where the usage of fixed broadband subscription, fixed telephone subscription, and individual internet usage are integrated as a composite index which is collected from the International Telecommunication Union (ITU). Table 1 displays the variable specifications and data sources for this study.

Table 1: Variable Specification and Data Sources

Variables	Variable symbol	Variable specification	Data source
Foreign direct investment	FDI	Annual inflow of FDI measured in current USD dollars (millions)	United National Conference on Trade and Development (UNCTAD, 2022)
Digital economic index	DEI	The creation of this index was based on the principal component analysis (PCA) that considers the use of fixed-broadband, fixed-telephone, and individual internet usage	International Telecommunicate Union (ITU) (2022)
Total factor productivity	TFP	The labour force participation rate expressed as a percentage of the total population aged 15-64	World Bank (2022)
Corruption	COR	The percentile rank of control of corruption	World Governance Indicator (WGI, 2022)
Innovation capacity	INO	The number of patent applications submitted by citizens of the country	World Intellectual Property Organization (WIPO) (2022)

The pre-estimation test involved the use of PCA to create a composite index for the digital economy index. The dimensionality of the original variable dataset can be reduced by using PCA. In this study, there are three components: fixed broadband subscriptions, fixed telephone subscriptions, and the percentage of individuals accessing the internet. This study utilises the neoclassical economic growth theory and the fundamental Cobb-Douglas production function to examine the long-run cointegration relationship.

$$Y_{it} = A_{it} K_{it}^{\propto} L_{it}^{\beta} \tag{1}$$

where Y_{it} is the total production of country i at a time t, A_{it} is the neutral technical change, K_{it} is capital stock and L_{it} is the labour participation rate. The output elasticities of labour and capital are represented by α and β respectively. Li and Tanna (2019) and Ramasamy et al. (2017) employ the Cobb-Douglas production function by extending and including new input into the empirical estimation model. Hence, this study extends equation (1) as follows:

$$FDI_{it} = f(A_{it}, TFP_{it}^{\gamma}, COR_{it}^{\delta}, DEI_{it}^{\mu}, INO_{it}^{\varphi}) \tag{2}$$

where, TFP_{it}, COR_{it}, DEI_{it} and INO_{it} are total factor productivity, corruption, digital economy index, and innovation of country *i* at *t* in the year. To reduce heteroscedasticity issues, this study uses the natural log transformation on both sides of equation (2) as follows:

$$InFDI_{it} = \alpha_i + \gamma InTFP_{it} + \delta InCOR_{it} + \mu InDEI_{it} + \varphi InINO_{it} + \varepsilon_{it} \tag{3}$$

where αi is the intercept, γ, δ, μ and φ represent the estimation of coefficients, and ε_i is the error term. The estimation analysis begins with generating descriptive statistics followed by second-generation unit root tests, such as the cross-sectionally augmented Im-Pesaran-Shin (CIPS) and cross-section Augmented Dickey-Fuller (CADF). The data will be examined further using heteroscedasticity-robust panel unit root tests. The panel diagnostic test is the next step, which encompasses the cross-dependency test, the Pesaran-Yamagata (2008) test, and the multicollinearity test. After checking for homogeneities or heterogeneities in the panel data, this research ascertains the long-term cointegration between the variables studied using the Westerlund (2007) cointegration test. This study utilises a maximum likelihood panel test of the cointegrating rank for heterogeneous panel models proposed by Larrson et al. (2001). This model is tested by measuring the mean of the individual rank trace statistics. Larrson's heterogeneous panel cointegrating rank hypothesis can be derived as follows:

$$\begin{aligned} H(r)&: rank\ (\pi) \leq r \\ H(p)&: rank\ (\pi) = p \end{aligned} \tag{4}$$

where the LR-bar statistic as a basis for the panel cointegration rank test is formulated by computing the average of the *N* individual trace statistics as in equation (5).

$$\gamma\overline{LR} = \frac{\sqrt{N[\overline{LR}_{NT} - E(Z_K)]}}{\sqrt{VAR(Z_K)}} \tag{5}$$

where $E(Z_k)$ and $\sqrt{VAR(Z_K)}$ represent the mean and variance of asymptotic trace statistics respectively. We used the pool mean group (PMG) estimates proposed by Pesaran et al. (1999) to investigate the presence of long-term and short-term coefficients among the parameters. The formulation of the autoregressive distributed lag (ARDL) (p, q) model involves incorporating lag p on the response variable and lag q on the explanatory variables. The developed ARDL (p, q) model can be expressed as follows:

$$\begin{aligned}\Delta FDI_{i,t} = {} & \beta_0 + \beta_{1i}FDI_{i,t-1} + \beta_{2i}TFP_{i,t-1} + \beta_{3i}COR_{i,t-1} + \beta_{4i}DEI_{i,t-1} \\ & + \beta_{5i}INO_{i,t-1} + \sum_{j=1}^{q-1} \delta_{1ij}\Delta FDI_{it-j} + \sum_{j=0}^{q-1} \delta_{2ij}\Delta TFP_{i,t-j} \\ & + \sum_{j=0}^{q-1} \delta_{3ij}\Delta COR_{i,t-j} + \sum_{j=0}^{q-1} \delta_{4ij}\Delta DEI_{i,t-j} \\ & + \sum_{j=0}^{q-1} \delta_{5ij}\Delta INO_{i,t-j} + \sigma ECT_{t-1} + \mu_{i,j}\end{aligned} \tag{6}$$

The subscripts i and t define countries involved and the estimated time frame of this study, respectively, while the long and short-run slope coefficients are represented by β and δ coefficients. The coefficient of the speed of ECT indicates the lagged coefficient of the error correction term, which indicates the percentage of speed from short- to long-term equilibrium condition. The term σ is used to represent the error correction coefficient term.

The DH causality test (Dumitrescu & Hurlin, 2012) is used to examine the causal link between the variables. The hypothesis for the DH test can be formulated as follows:

$$\begin{aligned} & \mathrm{H}_0: \beta_i = 0 \ \forall i = 1, \dots, N, \text{ while} \\ & \mathrm{H}_1: \beta_i \neq 0 \ \forall i = 1, \dots, N_1 \end{aligned} \tag{7}$$

It can be inferred from the null hypothesis that the non-causality effect is not present for all individual panels. The alternative hypothesis indicates that the cross-sectional groups involved in this study have a causal relationship with the Wald statistic of the DH test, which can be derived as follows:

$$W_{N,T}^{HNC} = \frac{1}{N}\sum_{i=1}^{N} W_{i,T} \tag{8}$$

where W_i is shown as independently and identically distributed for all individual panels related to the hypothesis.

4. Empirical Findings

Table 2 displays descriptive statistics for the variables used in the empirical analysis of this study. The standard deviation values reveal INO is the most volatile variable with a standard deviation value of 1.762, followed by DEI with a standard deviation value of 1.447. COR emerged as the least volatile variable with a standard deviation value of 0.649. The skewness values indicate that FDI, COR, and DEI have a negative skewness and are flattening to the left. The TFP and INO are tilted to the right and flattening to the right. The Shapiro-Wilk (SW) result and Shapiro-Francia (SF) results confirmed that all the variables are distributed in a normal manner.

Table 2: Summary of Descriptive Statistics

	FDI	**TFP**	**COR**	**DEI**	**INO**
Mean	22.979	22.593	3.737	0.182	8.665
Maximum	26.396	25.960	4.520	2.999	14.248
Minimum	18.557	20.410	0.375	-4.757	4.110
Std. dev.	1.289	1.062	0.649	1.447	1.762
Skewness	-0.040	0.576	-2.041	-0.948	0.866
Kurtosis	3.591	3.204	8.375	3.525	3.545
JB test	5.756*	22.151***	736.634***	62.594***	53.415***
	(0.056)	(0.000)	(0.000)	(0.000)	(0.000)
S-W test	0.462***	0.979***	0.690***	0.936***	0.855***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
S-F test	0.447***	0.979*	0.682***	0.937***	0.850***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

Notes: *, **, and *** are significant at 10, 5, and 1% level respectively. Values in the ( ) represent the p-value.

Table 3 shows the results of the second-generation unit root test based on Pesaran's CADF and CIPS. According to all tests, there are several series that exhibit mixed stationary at the level and first difference stage. This study used the heteroscedasticity robust panel unit root tests proposed by Herwartz and Siedenburg (2008) to examine trends in heteroskedastic panels. Strong evidence was provided by the outcome to show that all variables are not stationary at the level. At first, all the variables become stationary, unlike the linear trend. This result implies that all the variables at the level have a unit root, but they do not have a unit root at first difference.

Table 3: Second-Generation and Heterogeneous Panel Unit Test Results

Variable	FDI	TFP	COR	DEI	INO
(a) At level					
CADF	-2.002	-2.183**	-1.337	-2.072	-2.498***
CIPS	-3.537	-4.194***	-1.764	-4.194***	-2.661***
Herwartz and Siedenburg	-1.242	0.472	0.299	2.696	-1.8532**
(b) At first difference					
CADF	-3.943***	-2.569***	-3.575***	-3.647***	-3.194***
CIPS	-5.277***	-3.397***	-4.733***	-4.810***	-4.029***
Herwartz and Siedenburg	-2.628***	-1.3192***	-2.362***	-2.553***	-2.667***

The summary of findings from the panel diagnostic test is reported in Table 4, which includes the results of the cross-dependency (CD) test, Pesaran and Yamagata (2008) test, and multicollinearity test. Based on the outcome of the CD test, all the variables reject the null hypothesis of cross-dependency at a 1% significance level. It implies that all variables are interdependent and have different panels across all countries. The slope's homogeneity hypothesis was rejected at the 5% significance level in the Pesaran and Yamagata (2008) test. Therefore, the adoption of heterogeneous panel estimation is recommended in this study. The multicollinearity test shows tolerance is more than 0.2 and the variance inflation factor (VIF) values are less than 5, which gives strong evidence that all the variables are independent and without multicollinearity issues, as shown in Table 5.

Table 4: Panel Estimates Diagnostic Test Results

Variables	Pesaran CD test	
	Statistic	***p*-value**
FDI	24.156***	0.000
TFP	66.024***	0.000
COR	67.488***	0.000
DEI	55.399***	0.000
INO	11.884***	0.000
	Pesaran-Yamagata test	
$\tilde{\Delta}$	-2.111**	0.035**
$\tilde{\Delta}$ - adjusted	-2.586**	0.010**

Notes: *, **, and *** are significant at 10, 5, and 1% level respectively. $\tilde{\Delta}$ represents the delta statistic.

Table 5: Test for Multicollinearity Effect

Variables	Collinearity statistics	
	Tolerance	**VIF**
TFP	0.476	2.100
COR	0.862	1.160
DEI	0.779	1.280
INO	0.515	1.940

Notes: *, **, and *** are significant at 10, 5, and 1% level respectively.

After the panel diagnostic testing, we further examined whether there was long-term cointegration between the variables using the Westerlund (2007) cointegration test. The findings are reported in Table 6 and based on the *p*-values, it led to the rejection of the null hypothesis of no cointegration for the statistics G_t and P_t at least at 1% significance level. The findings were consistent with previous studies that adopted the same method in examining the long run cointegration between FDI and other variables (Chishti & Sinha, 2022; Tiba & Belaid, 2020).

Table 6: Bivariate Westerlund Cointegration Test Results

	Gt	Gα	Pt	Pα	Group	Pooled
FDI vs. TFP	-2.541*** (0.000)	-10.794*** (0.001)	-10.496*** (0.000)	-7.968*** (0.000)	Yes	Yes
FDI vs. COR	-2.643*** (0.000)	-7.098 (0.516)	-9.577** (0.006)	-5.073 (0.176)	Yes	Yes
FDI vs. DEI	-2.838*** (0.000)	-8.621* (0.092)	-10.723*** (0.000)	-7.982*** (0.000)	Yes	Yes
FDI vs. INO	-2.848*** (0.000)	-12.303*** (0.000)	-11.996*** (0.000)	-9.029*** (0.000)	Yes	Yes

Table 7 reports the results of the heterogeneous cointegration test conducted by Larsson et al. (2001) The results showed that almost all countries involved in this study experienced long-run cointegration individually, except for Chile, Indonesia, and Türkiye. This is caused by the existence of a structural break due to the policy and governance instability and ongoing pandemics in Chile, and Indonesia, which indirectly hinders the FDI inflow (UNCTAD, 2021). The structural break was caused by the economic shock of plummeting oil prices in most oil-exporting countries, including Türkiye (UCTAD, 2020). The long-run heterogeneity condition of the panel estimates for Larsson's cointegration in this study is indicated by the overall LR-test statistic. Similarly, Othman (2018), and Asghar et al. (2011) applied the Larsson et al. (2001) cointegration test to explore the FDI flows sustainability for Asian countries, and developing countries and find strong evidence of the long run relationship between the estimated series.

Table 7: Larrson et al. (2001) Panel Cointegration Test

Countries	r = 0	r = 1	r = 2	r = 3
Brazil	139.074***	25.694	12.461	4.950
Chile	44.564	22.268	7.1485	2.238
China	82.528***	24.117	10.452	4.617
Colombia	101.766***	23.742	7.479	0.594
Czech Republic	121.064***	44.039***	19.655	2.360
Egypt	105.067***	39.882***	15.027	0.778
Greece	61.265***	30.489	9.322	0.928
Hungry	62.524***	35.514***	16.452	1.738
India	78.109***	30.541	10.629	2.691

Countries	r = 0	r = 1	r = 2	r = 3
1ndonesia	53.707	17.109	6.664	0.430
South Korea	73.930***	30.706	8.522	0.454
Malaysia	88.960***	28.021	10.193	1.961
Mexico	73.436***	25.981	10.359	2.647
Pakistan	91.828***	31.718	12.583	2.137
Peru	97.483***	36.428***	17.091	4.724
The Philippines	89.517***	47.066***	18.281	1.932
Poland	78.691***	35.616***	13.461	2.331
Qatar	134.252***	41.709***	22.645***	6.040
Russia	92.870***	41.284***	6.680	0.004
Saudi Arabia	204.289***	32.734	13.788	0.921
South Africa	64.818***	36.890***	14.972	6.579
Taiwan	59.212***	20.526	8.593	0.004
Türkiye	43.779	21.376	5.473	0.121
Thailand	74.492***	25.027	7.746	2.597
Avg(TR)	45.264	24.733	10.535	2.212
E(Zk)	44.946	15.985	8.808	4.322
Var(Zk)	27.729	14.955	6.068	1.137
LR-test	88.218***	31.186	11.903	2.449

Notes: *, **, and *** are significant at 10, 5, and 1% level respectively. The critical values are based on Larsson et al. (2001). The critical values for $E(Z_K)$ and var(Z_k) are obtained from Table 1 Larsson et al., (2001). While LR-test is the Larsson test statistics and Avg(TR) is the average Trace statistics.

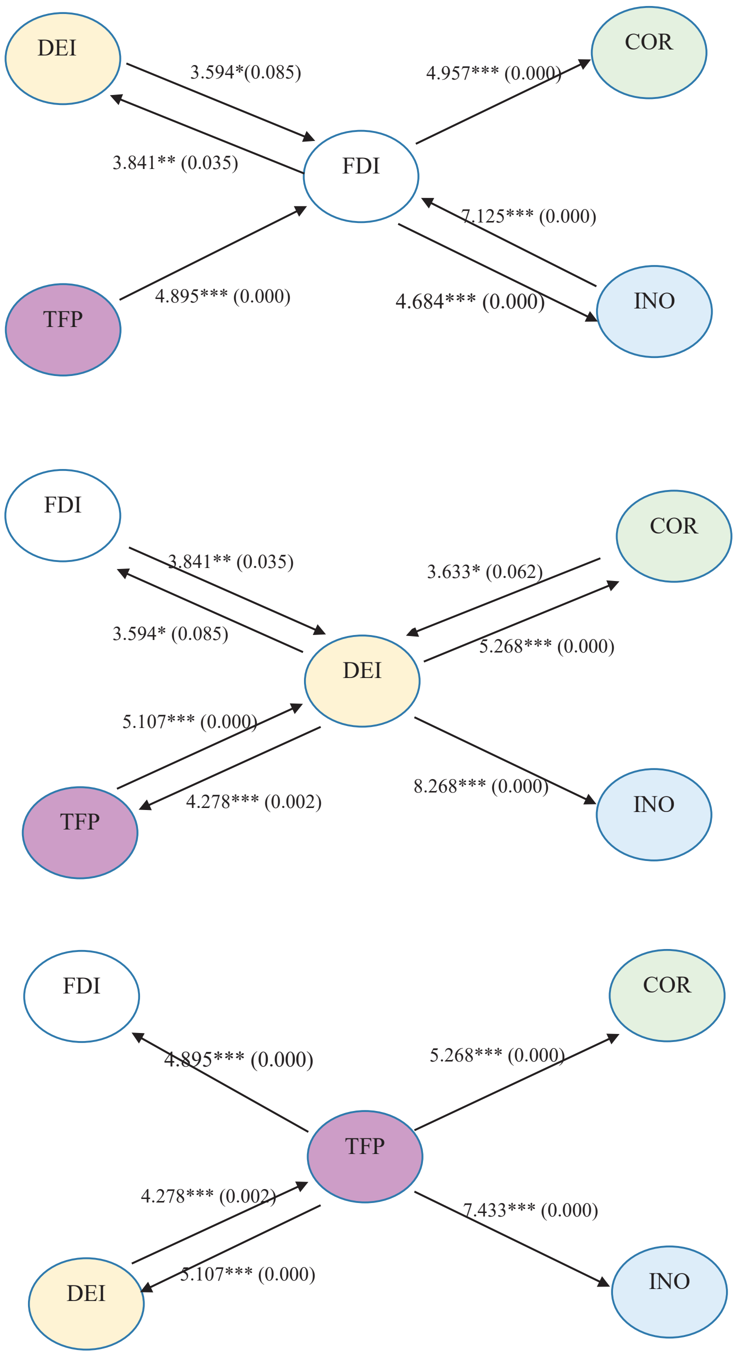
Using PMG estimation with the optimal lag order of ARDL (1,1,1,1,1), the finding reveals a strong and positive relationship between FDI and TFP in the long run, which aligns with Habib et al. (2019) and Asongu et al. (2020). The PMS estimation results are indicated by the following equation.

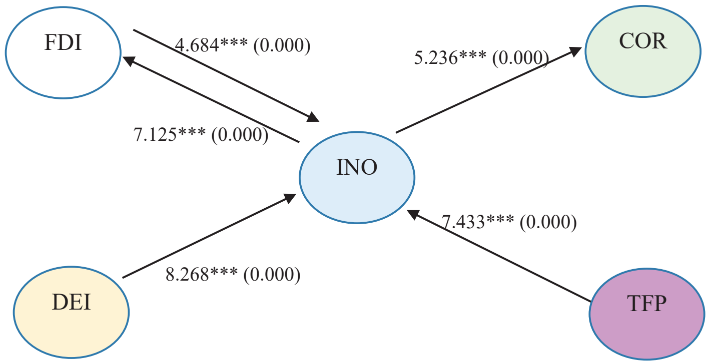
$$\begin{aligned} FDI = \; & 5.022 \underset{(0.000)^{***}}{+ 0.746TFP} \underset{(0.010)^{***}}{- 0.204COR} \underset{(0.845)}{+ 0.007DEI} \underset{(0.172)}{- 0.045INO} \underset{(0.118)}{+ 0.747\Delta TFP} \underset{(0.449)}{- 0.902\Delta COR} \\ & \underset{(0.072)^{**}}{+ 0.294\Delta DEI} \underset{(0.720)}{+ 0.161\Delta INO} \underset{(0.000)^{***}}{- 0.794\mathrm{ECT}_{t-1}} \end{aligned}$$

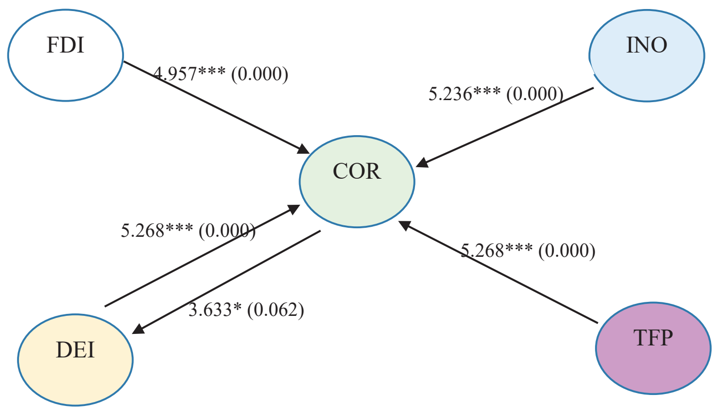
In contrast, a negative and significant correlation was found between FDI and corruption. These findings concur with Arif et al. (2020) and Hamdi and Hakimi (2019). This implies that corruption is a problem that hinders investment. The digital economy contributes a significant positive effect on FDI in the short run, which is consistent with Arvin et al. (2021), Drahokoupil and Fabo (2020), and Tang et al. (2019), suggesting that the digital economy is a crucial determinant in promoting multinational investment in emerging countries. This is due to the greenfield FDI project activity in the ICT industry which has witnessed a significant increase, with values rising by 23% to US$104 billion and the number of projects rising by 26%, reflecting the rising demand for digital services worldwide (UNCTAD, 2022).

The causal link between the relevant variables was verified using a causality test in this study. The relationship between FDI and INO is bidirectional, indicating that the enhancement of innovation can promote FDI inflow and vice versa (see Figure 1). This result is parallel with studies done by Asunka et al. (2021) and Erdal and Göçer (2015), where there is a two-way causality relationship between FDI and innovation. Moreover, there is a reciprocal causality that exists between FDI and the digital economy. Arvin (2021) reports bidirectional Granger causality between technologies and FDI, consistent with the findings here. In addition to that, this study finds a causal link between the digital economy and TFP, as well as between the digital economy and corruption. Evidence of unidirectional causal effect was confirmed from FDI to corruption and this finding is also consistent with the empirical findings of Belloumi and Alshehry (2021), Gherghina et al. (2019) and Hakimi and Hamdi (2017). This study also discovers a few groups of one-way causality from the digital economy to innovation, TFP to FDI, TFP to corruption, TFP to innovation, and finally innovation to corruption (UNCTAD, 2022a; Saleem et. al., 2019).

Figure 1: DH Panel Causality Test Causality Directions







5. Conclusion

The world's environment for international investment and the achievement of the UN's Sustainable Development Goals (SDGs) worldwide was greatly impacted by the onset of the Russo-Ukrainian War and the consequences of the pandemic. Pressure is placed on developing and emerging countries to recover from the effects of the pandemic. The study investigates the effects of productivity, corruption, the digital economy, and innovation capacity on FDI performance in developing countries. Productivity improvement in the long run was observed by PMG estimation results to be a reason for the fostering of FDI in emerging countries. This study finds that corruption has become an obstacle in encouraging investment inflows in emerging countries in the long run. The digital economy can have a positive impact on FDI for emerging countries in the short term, but this effect does not last very long. Enhancing the current level of quality in digital connectivity and platforms is crucial to attract more FDI in the long run.

In this context, it is recommended that emerging economies concentrate on the most contemporary industrial policies that emphasise the adoption of novel tax incentives to encourage investment. The primary motivations for integrating tax incentives within industrial policies are consistently linked to the reduction of operational costs for businesses, encouragement of innovative practices, facilitation of domestic production, and support of SMEs. Moreover, given the bidirectional causal relationship identified between FDI and INO, along with the rapid growth of global demand for digital infrastructure and services associated with FDI and the digital economy, emerging countries should prioritise the enhancement and refinement of digital connectivity and platforms, including broadband and networks. By implementing international trade and e-commerce initiatives, such improvements have the potential to attract a larger number of foreign investors.

It is possible that certain regions within emerging countries are facing political obstacles due to a significant negative association between FDI and corruption, as suggested by the identification of a significant negative association. It is proposed that these regions prioritise strengthening their foundational governance frameworks, especially by emphasising property and contract laws, as this is a more efficient approach than directly combating corruption. Despite this, there are some limitations to this study, such as the temporal scope being limited to the years 2000 to 2022, and the analysis being limited to a specific group of emerging countries due to data availability. A more comprehensive analysis can only be achieved by incorporating diverse perspectives in future research endeavours. Expanding the study to a larger geographic region could significantly enhance understanding of generalisability of the results and reveal regional disparities in the impact of digitalisation on FDI.

Authors' Contributory Statement

Chua Chy Ren: Conceptualization. **Nanthakumar Loganathan/ Yogeeswari Subramaniam**: Design of methodology. **Chua Chy Ren**: Data collection/curation. **Nanthakumar Loganathan**: Formal analysis.

Thirunaukarasu Subramaniam: Writing- Original draft preparation and editing.

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References

Abdullah, M., & Chowdhury, M. (2020). Foreign direct investment and total factor productivity: Any nexus? *Margin*, *14*(2), 164–190. https://doi.org/10.1177/0973801020904473

Adnan, Z., Chowdhury, M., & Mallik, G. (2020). Determinants of total factor productivity in Pakistan: A time series analysis using ARDL approach. *International Review of Applied Economics*, *34*(6), 807–820. https://doi.org/10.1080/02692171.2020.1792420

Albiman, M. M., & Sulong, Z. (2017). The linear and non-linear impacts of ICT on economic growth, of disaggregate income groups within SSA region. *Telecommunications Policy*, *41*(7-8), 555–572. https://doi.org/10.1016/j.telpol.2017.07.007

Al-Kasasbeh, O., Alzghoul, A., & Alghraibeh, K. (2022). Global FDI inflows and outflows in emerging economies post-COVID-19 era. *Future Business Journal*, *8*(1). https://doi.org/10.1186/s43093-022-00167-z

Arif, I., Khan, L., & Waqar, S. (2020). Does corruption sand or grease the wheels? A case of BRICS countries. *Global Business Review*, *24*(6), 1468–1481. https://doi.org/10.1177/0972150920927370

Arvin, M. B., Pradhan, R. P., & Nair, M. (2021). Uncovering interlinks among ICT connectivity and penetration, trade openness, foreign direct investment, and economic growth: The case of the G-20 countries. *Telematics and Informatics*, *60*, 101567. https://doi.org/10.1016/j.tele.2021.101567

ASEAN Secretariat (2018). *ASEAN Investment Report 2018: Foreign direct investment and digital economy in ASEAN*. ASEAN Secretariat. https://asean.org/book/asean-investment-report-2018-foreign-direct-investment-and-the-digital-economy-in-asean-2/

Asghar, N., Nasreen, S., & Rehman, H. U. (2011). Relationship between FDI and economic growth in selected Asian countries: A panel data analysis. *Review of Economics and Finance*, *1*(2), 84–96.

Asongu, S. A., Nnanna, J., & N., P. (2020). On the simultaneous openness hypothesis: FDI, trade and TFP dynamics in Sub-Saharan Africa. *Journal of Economic Structures*, *9*(1), 1–27. https://doi.org/10.1186/s40008-020-0189-4

Asongu, S., Akpan, U. S., & Isihak, S. R. (2018). Determinants of foreign direct investment in fast-growing economies: Evidence from the BRICS and MINT countries. *Financial Innovation*, *4*(1), 1-17. https://doi.org/10.1186/s40854-018-0114-0

Asunka, B. A., Ma, Z., Li, M., Amowine, N., Anaba, O.A., Xie, H., & Hu, W. (2021). Analysis of the causal effects of imports and foreign direct investments on indigenous innovation in developing countries. *International Journal of Emerging Markets*, *17*(5), 1315–1335. https://doi.org/10.1108/IJOEM-08-2019-0609

Barasa, L., Vermeulen, P., Knoben, J., Kinyanjui, B., & Kimuyu, P. (2019). Innovation inputs and efficiency: Manufacturing firms in Sub-Saharan Africa. *European Journal of Innovation Management*, *22*(1), 59–83. https://doi.org/10.1108/ejim-11-2017-0176

Belloumi, M., & Alshehry, A. S. (2021). The causal relationships between corruption, investments and economic growth in GCC countries. *SAGE Open*, *11*(4), 1–16. https://doi.org/10.1177/21582440211054425

Brada, J. C., Drabek, Z., Mendez, J. A., & Perez, M. F. (2019). National levels of corruption and foreign direct investment. *Journal of Comparative Economics*, *47*(1), 31–49. https://doi.org/10.1016/j.jce.2018.10.005

Chen, Z., & Zhang, J. (2019). Types of patents and driving forces behind the patent growth in China. *Economic Modelling*, *80*, 294–302. https://doi.org/10.1016/j.econmod.2018.11.015

Chishti, M. Z., & Sinha, A. (2022). Do the shocks in technological and financial innovation influence the environmental quality? Evidence from BRICS economies. *Technology in Society*, *68*,101828. https://doi.org/10.1016/j.techsoc.2021.101828

Desbordes, R., & Franssen, L. (2019). Foreign direct investment and productivity: A cross-country, multisector analysis. *Asian Development Review*, *36*(1), 54–79. https://doi.org/10.1162/adev_a_00123

Drahokoupil, J., & Fabo, B. (2020). The limits of foreign-led growth: Demand for skills by foreign and domestic firms. *Review of International Political Economy*, *29*(1), 152–174. https://doi.org/10.1080/09692290.2020.1802323

Dumitrescu, E., & Hurlin, C. (2012). Testing for Granger non-causality in heterogeneous panels. *Economic Modelling*, *29*(4), 1450–1460. https://doi.org/10.1016/j.econmod.2012.02.014

Eden, L. (2016). *Multinationals and foreign investment policies in a digital world*. International Centre for Trade and Sustainable Development, World Economic Forum. https://mnccenter.org/sites/default/files/publication_files/Multinationals%20and%20Foreign%20Investment%20Policies%20in%20a%20Digital%20World.pdf

Erdal, L., & Göçer, İ. (2015). The effects of foreign direct investment on R&D and innovations: Panel data analysis for developing Asian countries. *Procedia—Social and Behavioral Sciences*, *195*, 749–758. https://doi.org/10.1016/j.sbspro.2015.06.469

Fakiri, A. E., & Cherkaoui, K. (2022). Institutions and FDI: Impact analysis by countries' income level. *Institutions and Economies*, *14*(4), 55–81. https://doi.org/10.22452/ijie.vol14no4.3

Gál, Z., & Fazekas, G. (2021). Asian foreign direct investment (FDI) in the Visegrad countries: Relationship between investment strategies and labour productivity. *Területi Statisztika*, *61*(1), 105–130. https://doi.org/10.2478/danb-2020-0014

Gherghina, Ș. C., Simionescu, L.N., & Hudea, O. S. (2019). Exploring foreign direct investment–economic growth nexus—Empirical evidence from Central and Eastern European countries. *Sustainability*, *11*(19), 5421. https://doi.org/10.3390/su11195421

Gorodnichenko, Y., Svejnar, J., & Terrell, K. (2020). Do foreign investment and trade spur innovation? *European Economic Review*, *121*, 103343. https://doi.org/10.1016/j.euroecorev.2019.103343

Guha, S., Rahim, N., Panigrahi, B., & Ngo, A. D. (2020). Does corruption act as a deterrent to foreign direct investment in developing countries? *Organizations and Markets in Emerging Economies*, *11*(1), 18–34. https://doi.org/10.15388/omee.2020.11.21

Habib, M., Abbas, J., & Noman, R. (2019). Are human capital, intellectual property rights, and research and development expenditures really important for total factor productivity? An empirical analysis.

International Journal of Social Economics, *46*(6), 756–774. https://doi.org/10.1108/IJSE-09-2018-0472

Hakim, D. R., & Budi, S. (2024). Governance and economic growth: The mediating role of FDI inflows. *Institutions and Economies*, *16*(3), 1–25. https://doi.org/10.22452/ijie.vol16no3.1

Hakimi, A., & Hamdi, H. (2017). Does corruption limit FDI and economic growth? Evidence from MENA countries. *International Journal of Emerging Markets*, *12*(3), 550–571. https://doi.org/10.1108/IJoEM-06-2015-0118

Hamdi, H., & Hakimi, A. (2019). Corruption, FDI, and growth: An empirical investigation into the Tunisian context. *International Trade Journal*, *34*(4), 415–440. https://doi.org/10.1080/08853908.2019.1699481

Hammami, S. (2019). Foreign direct investment inflows, intellectual property rights and economic freedom: Empirical evidence from middle- and low-income countries. *African Journal of Science, Technology, Innovation and Development*, *11*(7), 861–871. https://doi.org/10.1080/20421338.2019.1587909

Herwartz, H. & Siedenburg, F. (2008). Homogenous panel unit root tests under cross sectional dependence: Finite sample modifications and the wild bootstrap. *Computational Statistics and Data Analysis*, *53*(1), 137–150. https://doi.org/10.1016/j.csda.2008.07.008

Herzer, D., & Donaubauer, J. (2017). The long-run effect of foreign direct investment on total factor productivity in developing countries: A panel cointegration analysis. *Empirical Economics*, *54*(2), 309–342. https://doi.org/10.1007/s00181-016-1206-1

Hoa, P. X., Xuan, V. N., Thu, N. T. P., & Huong, L. M. (2024). Nexus of innovation, foreign direct investment, economic growth and renewable energy: New insights from 60 countries. *Energy Reports*, *11*, 1834–1845. https://doi.org/10.1016/j.egyr.2024.01.050

Huang, Y., & Zhang, Y. (2019). The innovation spillovers from outward and inward foreign direct investment: A firm-level spatial analysis. *Spatial Economic Analysis*, *15*(1), 43–59. https://doi.org/10.1080/17421772.2019.1618484

Jahan, N. (2020). Determinants of foreign direct investment: A panel data analysis of the 24 emerging countries. *International Journal of Science and Business*, *5*(4), 57–73. https://doi.org/10.5281/zenodo.3820478

Jan, M. S., Ali, S., & Khan, T. (2023). Impact of corruption on foreign direct investment inflow to Asian countries: GMM analysis. *Global Economics Review*, *8*(1), 327–340. https://doi.org/10.31703/ger.2023(viii-i).27

Jiang, X., Fu, W., & Li, G. (2020). Can the improvement of living environment stimulate urban Innovation? Analysis of high-quality innovative talents and foreign direct investment spillover effect mechanism. *Journal of Cleaner Production*, *255*, 120212. https://doi.org/10.1016/j.jclepro.2020.120212

Jungmittag, A., & Welfens, P. J. J. (2020). EU-US trade post-trump perspectives: TTIP aspects related to foreign direct investment and innovation. *International Economics and Economic Policy*, *17*(1), 259–294. https://doi.org/10.1007/s10368-020-00459-1

Kozlova, N., Jacobsen, B., Golovkina, S., & Kupriyanova, M. (2019). Russian-German investment relations in the context of digital transformation of the state and financial sector of the economy. *IOP Conference Series: Materials Science and Engineering*, *497*, 012122. https://doi.org/10.1088/1757-899x/497/1/012122

Larrson, R., Lyhagen, J., & Löthgren, M. (2001). Likelihood-based cointegration tests in heterogeneous panels. *Econometrics Journal*, *4*(1), 109–142. https://doi.org/10.1111/1368-423X.00059

Li, C., & Tanna, S. (2019). The impact of foreign direct investment on productivity: New evidence for developing countries. *Economic Modelling*, *80*, 453–466. https://doi.org/10.1016/j.econmod.2018.11.028

Lin, B., Du, R., Dong, Z., Jin, S., & Liu, W. (2020). The impact of foreign direct investment on the productivity of the Chinese forest products industry. *Forest Policy and Economics*, *111*, 102035. https://doi.org/10.1016/j.forpol.2019.102035

Luu, H. N., Nguyen, N. M., Ho, H. H., & Nam, V. H. (2018). The effect of corruption on FDI and its modes of entry. *Journal of Financial Economic Policy*, *11*(2), 232–250. https://doi.org/10.1108/jfep-05-2018-0075

Lyu, Y., Xiao, X., & Zhang, J. (2024). Does the digital economy enhance green total factor productivity in China? The evidence from a national big data comprehensive pilot zone. *Structural Change and Economic Dynamics*, *69*, 183–196. https://doi.org/10.1016/j.strueco.2023.12.009

Makieła, K., Wojciechowski, L., & Wach, K. (2021). Effectiveness of FDI, technological gap and sectoral level productivity in the Visegrad group. *Technological and Economic Development of Economy*, *27*(1), 149–174.

https://doi.org/10.3846/tede.2020.14017

Malikane, C., & Chitambara, P. (2017). Foreign direct investment, productivity and the technology gap in African economies. *Journal of African Trade*, *4*(1), 61–74. https://doi.org/10.1016/j.joat.2017.11.001

Martins, J. M., Gul, A., Mata, M. N., Haider, S. A., & Ahmad, S. (2023). Do economic freedom, innovation, and technology enhance Chinese FDI? A cross-country panel data analysis. *Heliyon*, *9*(6), e16668. https://doi.org/10.1016/j.heliyon.2023.e16668

Meniago, C. & Lartey, E. K. K. (2020). Does FDI affect productivity and growth in Sub-Saharan Africa? *Journal of African Business*, *22*(2), 274–292. https://doi.org/10.1080/15228916.2020.1745011

Mina, W. (2020). Do GCC market-oriented labor policies encourage inward FDI flows? *Research in International Business and Finance*, *51*, 101092. https://doi.org/10.1016/j.ribaf.2019.101092

MSCI. (2022). Market classification framework MSCI. https://www.msci.com/documents/1296102/e7613c4f-f16c-b039-f69a-fbdaafed579f

Negash, E. S., Zhu, W., Lu, Y., & Wang, Z. (2020). Does Chinese inward foreign direct investment improve the productivity of domestic firms? Horizontal linkages and absorptive capacities: Firm-level evidence from Ethiopia. *Sustainability*, *12*(7), 3023. https://doi.org/10.3390/su12073023

Nyeadi, J. D., & Adjasi, C. (2020). Foreign direct investment and firm innovation in selected sub-Saharan African Countries. *Cogent Business and Management*, *7*(1), 1763650. https://doi.org/10.1080/23311975.2020.1763650

Omidi, V., Shahabadi, A., & Mehregan, N. (2018). Innovation drivers in developing countries. *Journal of the Knowledge Economy*, *11*(2), 707–720. https://doi.org/10.1007/s13132-018-0568-3

Othman, N., Andaman, G., Yusop, Z., & Ismail, M. M. (2018). Impact of public expenditures on FDI inflows into developing countries. *Social Sciences amd Humanities*, *26*(2), 751–768.

Pesaran, M. H. And Yamagata, T. (2008). Testing slope homogeneity in large panels. *Journal of Econometrics*, *142*(1), 50–93. https://doi.org/10.1016/j.jeconom.2007.05.010

Pesaran, M. H., Shin, Y., & Smith, R. P. (1999). Pooled mean group estimation of dynamic heterogeneous panels. *Journal of the American Statistical Association*, *94*(446), 621–634. https://doi.org/10.2307/2670182

Phuc Canh, N., Schinckus, C. & Thanh, S. D. (2019). Do economic openness and institutional quality influence patents? Evidence from GMM systems estimates. *International Economics*, *157*, 134–169. https://doi.org/10.1016/j.inteco.2018.10.002

Qureshi, F., Qureshi, S., Vinh, V. X., & Junejo, I. (2021). Revisiting the nexus among foreign direct investment, corruption and growth in developing and developed markets. *Borsa Istanbul Review*, *2*(1), 80–91. https://doi.org/10.1016/j.bir.2020.08.001

Ramasamy, M., Dhanapal, D., & Murugesan, P. (2017). Effects of FDI spillover on regional productivity. *International Journal of Emerging Markets*, *12*(3), 427–446. https://doi.org/10.1108/IJoEM-11-2015-0246

Ramírez, M. (2000). Foreign direct investment in Mexico: A cointegration analysis. *Journal of Development Studies*, *37*(1), 138–162. https://doi.org/10.1080/713600062

Saini, N., & Singhania, M. (2018). Determinants of FDI in developed and developing countries: A quantitative analysis using GMM. *Journal of Economic Studies*, *45*(2), 348–382. https://doi.org/10.1108/JES-07-2016-0138

Saleem, H., Shahzad, M., Khan, M. B., & Khilji, B. A. (2019). Innovation, total factor productivity and economic growth in Pakistan: A policy perspective. *Journal of Economic Structures*, *8*(1), 1–18. https://doi.org/10.1186/s40008-019-0134-6

Shan, S., Lin, Z., Li, Y., & Zeng, Y. (2018). Attracting Chinese FDI in Africa. *Critical Perspectives on International Business*, *14*(2), 139–153. https://doi.org/10.1108/cpoib-11-2016-0055

Shevelova, S., & Plaskon, S. (2018). Is the Ukrainian economy's absorptive capacity appropriate to attract foreign direct investment and facilitate economic growth? *International Journal of Emerging Markets*, *13*(6), 1928–1947. https://doi.org/10.1108/IJoEM-03-2017-0090

Su, D. T., Nguyen, P. C., & Schinckus, C. (2019). Impact of foreign direct investment, trade openness and economic institutions on growth in emerging countries: The case of Vietnam. *Journal of International Studies*, *12*(3), 243–264. https://doi.org/10.14254/2071-8330.2019/12-3/20

Su, Z., Li, J., Wei, S., & Wu, Z. (2024). Effect of inward foreign direct investment on entrepreneurship productivity in emerging markets. *Journal of International Management*, *30*(1), 101116. https://doi.org/10.1016/j.intman.2023.101116

Tang, L., Zhang, Y., Gao, J., & Wang, F. (2019). Technological upgrading in Chinese cities: The role of FDI and industrial structure. *Emerging Markets Finance and Trade*, *56*(7), 1547–1563. https://doi.org/10.1080/1540496X.2018.1562900

Tiba, S., & Belaid, F. (2020). The pollution concern in the era of globalization: Do the contribution of foreign direct investment and trade openness matter? *Energy Economics*, *92*, 104966. https://doi.org/10.1016/j.eneco.2020.104966

Tiong, K. M., Cheng, M. Y., & Choong, C. K. (2022). The roles of ICT telecommunication infrastructure on foreign direct investment in Malaysia. *Asian Academy of Management Journal*, *27*(2), 1–20. https://doi.org/10.21315/aamj2022.27.2.1

Tkalenko, S., Sukurova, N., & Honcharova, A. (2019). Determinants of the foreign direct investments in terms of digital transformation of the Ukrainian economy. *Digital Science*, 148–164. https://doi.org/10.1007/978-3-030-37737-3_14

Tsamadias, C., Pegkas, P., Mamatzakis, E., & Staikouras, C. (2018). Does R&D, human capital and FDI matter for TFP in OECD countries? *Economics of Innovation and New Technology*, *28*(4), 386–406. https://doi.org/10.1080/10438599.2018.1502394

United Nations Trade and Development (UNCTAD) (2017). *World investment report 2017: Investment and the digital economy*. United Nations. https://unctad.org/system/files/official-document/wir2017_en.pdf

United Nations Trade and Development (UNCTAD) (2019). *World investment report 2019: Special economic zones*. United Nations. https://unctad.org/publication/world-investment-report-2019

United Nations Trade and Development (UNCTAD) (2020). *World investment report 2020: International production beyond the pandemic*. United Nations. https://unctad.org/publication/world-investment-report-2020

United Nations Trade and Development (UNCTAD) (2021). *World investment report 2021: Investing in sustainable recovery*. United Nations. https://unctad.org/publication/world-investment-report-2021

United Nations Trade and Development (UNCTAD) (2022a). *Digital economy report Pacific edition. United Nations*. https://unctad.org/publication/digital-economy-report-pacific-edition-2022

United Nations Trade and Development (UNCTAD) (2022b). *World investment report 2022: International tax reforms and sustainable investment*. United Nations. https://unctad.org/publication/world-investment-report-2022

Viglioni, M. T. D., & Calegario, C. L. L. (2020). Home country innovation performance: Moderating the local knowledge and inward foreign direct investment. *Global Business Review*, *24*(4), 812–825. https://doi.org/10.1177/0972150920920778

Westerlund, J., & Edgerton, D. L. (2007). A panel bootstrap cointegration test. *Economics Letters*, *97*(3), 185–190. https://doi.org/10.1016/j.econlet.2007.03.003

Wong, W. H., Lee. H. F., Zhao. S. X., & Pei. Q. (2020). Region-specific determinants of the foreign direct investment in China. *Geographical Research*, *58*(2), 126–140. https://doi.org/10.1111/1745-5871.12398

Xie, W., & Xue, T. (2019). FDI and improvements in the quality of export products in the Chinese manufacturing industry. *Emerging Markets Finance and Trade*, *56*(13), 3106–3116. https://doi.org/10.1080/1540496X.2019.1609936

Yunus, N. M. (2023). Absorptive capacity and technology spillovers: A quantile regression approach. *Institutions and Economies*, *15*(2), 1–27. https://doi.org/10.22452/ijie.vol15no2.1

Zhang, D., Masron, T. A., & Lu, X. (2024). The impact of digitalization on foreign direct investment inflows into cities in China. *Cogent Economics and Finance*, *12*(1). https://doi.org/10.1080/23322039.2024.2330458