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Determinants of Foreign Direct Investment Inflows to the Industrial Sector in BRICS+-T Countries

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Abstract: Foreign Direct Investment (FDI), frequently used in international relations, can remain in a country or enter and exit countries under the influence of social, political, economic, and sociological factors. In the context of this study, the aim is to analyse the factors determining foreign direct investment (FDI) inflows into the industrial sector in BRICS (pre-expansion), BRICS+ (post-expansion), and BRICS+-T (including Türkiye) countries. In three models, the dependent variable is the amount of FDI entering the industrial sector of BRICS+-T countries between 2010 and 2022. The independent variables are labour costs, GDP, real effective exchange rate (REER), economic policy uncertainty, trade openness, and raw material and natural resource revenues. According to the findings, before the expansion, there was a negative and significant relationship between FDI inflows and trade openness in the BRICS countries, while there was a positive and significant relationship with raw material and natural resource revenues. After the expansion, FDI inflows were found to have a negative and significant relationship with REER and trade openness, while a positive and significant relationship was observed with GDP. After expansion, in BRICS+-T countries, there is a significant and negative relationship between FDI inflows and labour costs, trade openness, and the real effective exchange rate, while there is a significant and positive relationship with GDP. The study shows that GDP is the most dominant determinant of FDI. Additionally, economic expansion and open trade policies play a significant role in FDI flows. Therefore, Türkiye's participation in the BRICS group means the addition of a new market with high potential for attracting FDI, thus increasing the group's attractiveness.
Keywords: *BRICS, Foreign Direct Investment, Determinants, Panel Data Analysis.*

Introduction

FDIs, which are one of the main components affecting the growth and development of countries, also contribute to increasing the level of economic growth and technological development of countries. These contributions affect the economic, political, and

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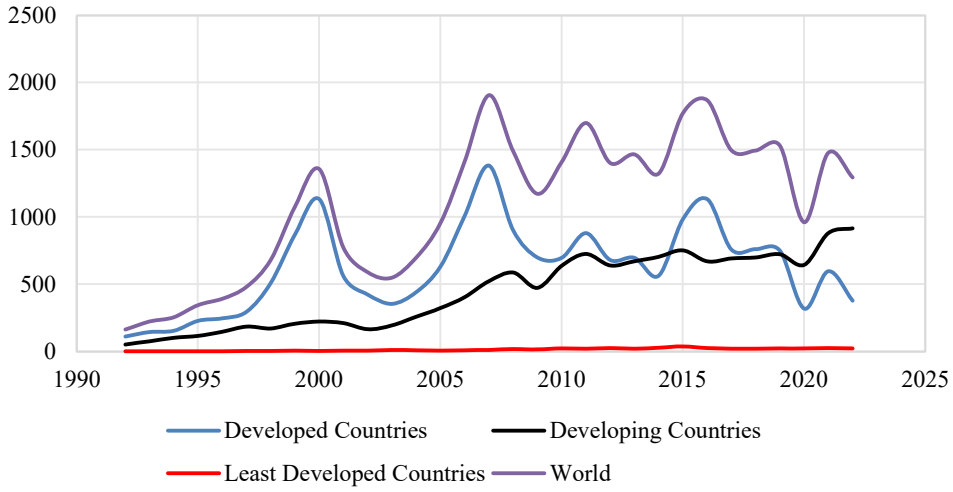
psychosocial development of countries with the sectoral realization of FDI inflows. The industrial sector, which is one of the sectors with the highest FDI inflows, plays a role in the growth and development of countries by increasing their chances of receiving investment with investment inflows in areas such as automotive, food industry, textile, pharmaceuticals, chemicals and petrochemicals (Blanton & Blanton, 2009).

The industrial sector, which has such an important role in global FDI inflows, ensures that the determinants of investments in this sector are also important. Rapidly developing countries, such as those in the BRICS+-T group (Brazil, Russia, India, China, South Africa, Iran, United Arab Emirates, Ethiopia, Egypt, Saudi Arabia, and Türkiye) are particularly interested in maintaining their FDI flows and attracting new investments. Therefore, analyzing the push and pull factors affecting these investments is of great importance. Organizations such as BRICS+-T, which bring countries together globally for specific purposes, also increase the volume of global FDI. The economic growth objectives of countries that emerge with the increase in the volume of FDI make it important to analyze the factors that encourage or restrict the inflow of FDI into the country (Blonigen, 2005).

Global FDI flows have increased with the 21st century, and developed countries have provided more FDI inflows than other countries globally, especially until 2019. In 2020 and beyond, FDI inflows from developing countries exceeded those from developed countries. In fact, in 2020, developing countries received $644 billion in FDI inflows, twice as much as developed countries, which received $319 billion in FDI inflows in the same year (UNCTAD, 2024). FDI inflows in the world between 1990 and 2022 are shown in Figure 1.

Figure 1: FDI Inflows by Economy Groups (1990-2022) (Million $)



(Source: Created by the authors using data from UNCTAD, 2024.)

Such high FDI inflows achieved by developing countries after 2020 raise the issue of analyzing the determinants of FDI, as BRICS+-T countries are also developing countries.

FDIs increase or decrease in quantity depending on many factors in the country where the investment will be made. The economic, political, and sociocultural indicators of the country to receive investment cover the main headings of the factors affecting FDIs. The most important reason for investors to invest is to make a profit. However, the desire to make a profit alone is not sufficient, and this leads to the desire of investors to have information about the factors related to the country in which they will invest. The reason for this is that

investors try to manage FDI processes effectively with the information they obtain (Bozkurt and Dursun, 2006).

Economic factors affecting FDIs include exchange rate, taxation, labor costs, trade openness, and market size; political factors include political stability, privatization, corruption, free trade zones, and sociocultural factors include moral values, cultural differences and religion (Hakro and Ghumro, 2007). Therefore, it is of great importance to evaluate the determinants underlying FDI flows to developing countries such as BRICS^{+}-T in terms of attractiveness and repulsiveness.

Since institutions such as BRICS, due to their mission, bring countries together economically in a global context, the FDI flows provided by such institutions contribute significantly to the global FDI volume and provide funds to countries experiencing capital scarcity (Nair-Reichert and Weinhold, 2001).

Theoretical expectations regarding the orientation of FDI inflows to a country are examined under three main headings. According to Dunning's Eclectic Paradigm (OLI), for a multinational corporation (MNC) to be able to make FDI, that company must possess the advantages of Ownership, Location offered by the host country, and Internalization, respectively. The theory states that for investment to occur, the host country must offer attractive location factors such as a large market, low costs, or a skilled workforce (Dunning, 1988). Institutional Theory examines the impact of institutional quality on FDI inflows. According to the theory, factors such as the rule of law, control of corruption, and political stability increase investor confidence and reduce transaction costs. This encourages FDI (Globerman & Shapiro, 2004), suggesting that countries with strong institutions will attract more investment. Finally, according to the Gravity Models of FDI, FDI is directly proportional to the economic size of the recipient and source countries and inversely proportional to the geographical or cultural distance between them. Therefore, according to the theory, countries with large domestic markets and proximity to investing countries are expected to attract more FDI (Tinbergen, 1962).

Literature Review

There are many studies on the determinants of FDI in the literature. As a result of the literature review, these factors are categorized in terms of whether their effects on FDIs are positive, negative, or insignificant and are shown in Table 1. The studies corresponding to the factors are numbered in Table 1. The related studies are listed in the appendix section with the same number.

Table 1: Literature Review

Thematic Subheadings	FACTOR	POSITIVE	NEGATIVE	INSIGNIFICANT	TOTAL
Economic Factors	**Exchange Rate**	18, 88	7, 35, 47, 49, 55, 63, 70, 71, 20, 31, 54, 62, 67, 57, 84, 72, 86, 98, 35, 99	5, 45	24
	Inflation Rate	50, 82	2, 7, 18, 22, 26, 34, 35, 49, 52, 74, 76, 79, 96, 99	5, 77	18
	Interest Rate	79, 82	7, 25, 40, 90	-	6
	GDP	3, 5, 7, 49, 77, 79, 82, 88, 90	73	-	10
	Labor Cost	25, 40, 51, 69	14, 32, 35, 43,	33	12

			74, 77, 90		
	Market Size	4, 6, 9, 10, 13, 21, 24, 33, 37, 43, 45, 46, 50, 51, 58, 59, 60, 61, 66, 74, 75, 77, 79, 80, 82, 87, 93, 99, 100	5, 14, 94	8	33
	Taxation	-	5, 18, 26, 27, 37, 39, 74, 87, 99	28, 36, 77	12
Political and Legal Factors	**Political Democracy**	15, 30	44	41, 50, 81	6
	Trade Openness	1, 4, 8, 11, 12, 16, 19, 24, 26, 32, 38, 41, 42, 43, 48, 49, 51, 53, 56, 64, 65, 68, 78, 83, 85, 89, 95, 97, 99	17, 39, 90	53	33
Social and Cultural Factors	**Language**	80, 81, 87	92	61	5
	Education	5, 18, 30, 39, 69	-	61	6
Geographic and Infrastructure Factors	**Geographical Distance**	-	14, 29, 37, 61, 81, 87	23, 77	8
	Infrastructure Facilities	26, 30, 35, 51, 75, 90	-	62	7
	Natural Sources Reveneu	9, 66	-	5, 33	4

There are numerous studies in the literature that address economic factors as determinants of FDIs. These studies frequently use exchange rates, inflation rates, market size, labor costs, and tax variables as economic factors.

The exchange rate plays a vital role in trade between countries. Therefore, the exchange rate plays a major role in influencing the value of the goods or services to be invested (Yi et al., 2019, p.82). In the literature, Bende-Nabende (2002) and Saini and Singhania (2018) argued that the exchange rate has a positive effect on FDI flows. The common idea of these studies is that as the macroeconomic stability indicator improved, the perception of exchange rate risk decreased, and the attractiveness of the domestic market increased. Arbatli (2011) and Jurcau et al. (2011), on the other hand, stated that the exchange rate does not have any significant effect on determining FDI flows. Moreover, many studies in the literature (Asiamah et al., 2019; Chen et al., 2006; El Bejaoui, 2013; Gorbunova, 2012; Kandiero and Chitiga, 2014; Kaur and Sharma, 2013; Kyereboah-Coleman and Agyire-Tettey, 2008; Koutmos and Martin, 2007; Lily et al, 2014; McKenzie, 2002; Melku, 2012; Muller and Verschoor, 2006; Ogunleye, 2009; Osinubi and Amaghionyeodiwe, 2009; Parsley and Popper, 2006; Suardi, 2008; Tan and Chong, 2008; Xing and Wan, 2006; Di Iorio et al., 2000; Koutmos and Martin, 2003; Yi et al., 2019) found a negative and significant relationship between the exchange rate and FDI inflows. These studies attribute the negative relationship between FDI and the real fffective exchange rate mainly to the decline in competitiveness, increase in export costs, decrease in investor profitability, and exchange rate volatility.

Labor costs are one of the other important factors considered in FDI inflows. The decrease in production costs in countries with low wages encourages companies to invest in these regions (Tocar, 2018, p.169). In the literature, average wages, the percentage of total change in labor

cost, the natural logarithm of wages and real unit labor costs are frequently used as labor cost variables. Most of the studies that take these variables into account (Bevan and Estrin, 2000; Galego, 2004; Gorbunova, 2012; Janicki, 2004; Plikynas, 2006; Riedl, 2010; Tri et al., 2019) have found a negative and significant relationship between labor costs and FDI inflows. These studies generally attribute the negative relationship between labor costs and FDIs to factors such as cost advantages, profitability expectations, and competitiveness in investment decisions. They reveal that multinational companies, especially those operating in labor-intensive sectors, prefer countries with low labor costs and that high labor costs have a deterrent effect on FDI. On the other hand, some studies (Cuyvers et al., 2011; Hoang and Goujon, 2014; Khachoo and Khan, 2012; Khachoo and Khan, 2012; Noorbakhsh et al., 2001) on a sectoral basis or on investments in regions with high labor costs have also observed a positive and significant relationship between FDI inflows and labor costs. A common theme across studies is that when the wage level increases along with productivity, education, and skill levels, and this increase is also supported by infrastructure and institutional quality and reflects the purchasing power of the domestic market, the idea that higher wages do not discourage FDI but rather encourage it becomes valid. In contrast to both cases, Gauselmann et al. (2011) conclude that labor costs have no significant effect on FDI inflows.

GDP is one of the most influential parameters in FDI inflows. In fact, some factors such as trade openness are calculated based on GDP and guide investment decisions. Since high GDP levels alone can be an indicator of development for a country, they are also important for FDI flows. Studies finding a positive relationship between GDP and FDI inflows (Ali et al., 2022; Arbatli, 2011; Asiamah et al., 2019; Kaur and Sharma, 2013; Riedl, 2010; Saini and Singhania, 2018; Singhania and Gupta, 2011; Thangavelu and Norjoko, 2014; Tri et al., 2019) are the majority in the literature. These studies generally attribute the positive relationship between GDP and FDI to market size and potential, signals of economic stability and sustainability, investors' expectations of profitability, and economies of scale. Nevertheless, Pearson et al. (2012) revealed that there is a negative relationship between FDI inflows and GDP. This study argues that high GDP values deteriorate the institutional quality of a country and therefore may discourage FDI. In the reviewed literature, there is no study in which GDP has an insignificant effect on FDI inflows.

There are studies in the literature that address political and legal factors as determinants of FDIs. In these studies, trade openness and political democracy variables are frequently used as political and legal factors.

Trade openness refers to the degree of integration of a country with the global economy. It is usually calculated by dividing the sum of imports and exports of a country over a certain period by the GDP for that period [(Foreign Trade Volume) / GDP]. While an increase in exports increases trade openness, an increase in imports reduces trade openness (Tri et al., 2019, p.295). In the literature, there are many studies (Addison and Heshmati, 2003; Ang, 2008; Asiedu, 2002; Awan et al., 2011; Balasubramanyam et al., 1996; Bhatt, 2008; Chantasasasawat et al, 2010; Culem, 1988; Demirhan and Masca, 2008; Galego, 2004; Helpman, 2014; Ismail and Yussof, 2003; Janicki and Wunnama, 2004; Kariuki, 2015; Kaur and Sharma, 2013; Khachoo and Khan, 2012; Kolstad and Villanger, 2008; Kravis and Lipsey, 1982; Liargovas and Skandalis, 2012; Mina, 2007; Moosa and Cardak, 2006; Ngendakumana and Kaseke, 2015; Rohra and Chawla, 2015; Srinivasan et al. , 2011; Suleiman et al., 2015; Tintin, 2013; Wahid et al., 2009; Xaypanya et al., 2015; Yi et al., 2019) that include trade openness. The vast majority of these studies indicate that trade openness has a positive and significant impact on FDI through mechanisms such as access to foreign markets, policy transparency, economic stability, and better production factor mobility. On the other hand, Busse and Hefeker (2007), Hintošová et al. (2018), and Tri et al.

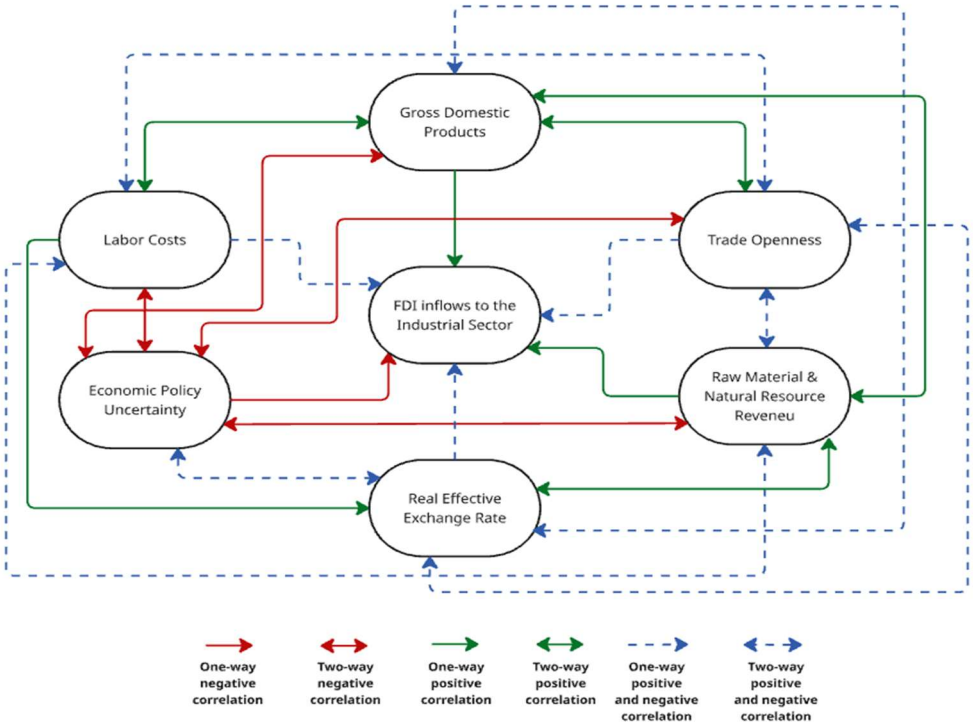
(2019) found a negative effect of trade openness on FDI flows. These studies argue that institutional weaknesses and political risk suppress the positive impact of openness, that excessive openness creates vulnerability and threatens stability, and that the unbalanced structure of openness leads to excessive import pressure and competition. Kolstad and Villanger (2008) stated that trade openness does not play a significant role in FDI flows.

Studies in the literature on the geographical and infrastructure factors determining FDI have frequently used natural resource revenues, infrastructure facilities, and geographical distance variables.

Natural resources and raw materials are important factors that increase the investment advantages of companies in terms of FDI inflows. However, this is not true for all countries. While countries with rich raw materials and natural resources have a higher advantage in terms of investment, investments in countries with insufficient raw materials and natural resources are not affected by this inadequacy in some periods. Among the studies in the literature where natural resources are considered as a variable, the studies by Asiedu (2006) and Morisset (2002) revealed that natural resources have a positive effect on FDI. According to these studies, the attractiveness of natural resources and the increase in the need for raw materials, the return potential of investment and the idea of ensuring profitability, the improvement of infrastructure and investment environment, and sectoral concentration and orientation towards FDI increase FDI flows. On the other hand, Gauselmann et al. (2011) and Arbatli (2011) argue that natural resources have no significant effect on FDI inflows.

The conceptual diagram linking dependent and independent variables is shown in Figure 2. The green lines in the figure represent only positive effects, the red lines represent only negative effects, and the blue dashed lines represent both negative and positive effects between variables.

Figure 2. Diagram of Variables



This study, which examines direct foreign investment (FDI) inflows into the industrial sector in BRICS+-T countries, presents the theoretical interactions between the independent

variables used in the study in the table above. GDP positively affects labor costs by creating increased demand; in resource-rich economies, raw material and natural resource revenues also have a positive relationship with GDP. On the other hand, economic policy uncertainty negatively affects labor costs by delaying investment decisions, thereby reducing GDP and, consequently, labor demand. It also discourages international trade, thereby reducing trade openness. The real effective exchange rate tends to have a positive relationship with the foreign exchange flows generated by raw material revenues, but this positive relationship also has the potential to increase the country's relative labor costs.

Methodology

While developing the methodological framework, the study expanded upon the Master's thesis prepared by Yaşar (2024) under the supervision of Türkmen, extending the model to cover the BRICS expansion.

Panel data analysis is preferred as the analysis method in this study. In the panel data analysis method, firstly, the suitability of the established model for the classical, fixed or random effect model is investigated. After deciding on the appropriate model, coefficient estimators are selected based on a result of the tests of descriptive statistics (Baltagi, 2008).

F Test and Likelihood (LR) Test are applied to investigate the suitability of the econometric model to the classical model. According to these tests:

$$F=\frac{(RRSS-URSS)/(N-1)}{URSS/(NT-N-K)} \; F_{\propto;\, N-1\, ;\, NT-N-K} \qquad 1$$

$$LR=-2[l(restricted)-l(unrestricted)] \qquad 2$$

If the H_0 hypothesis is rejected, the hypothesis of the unit effect is accepted and it is concluded that the classical model is not appropriate (Baltagi, 2008; Tatoğlu, 2013).

On the other hand, according to the Breusch-Pagan (1980) (LM) Test for testing the classical model:

$$LM=\frac{NT}{2(T-1)}\left[\frac{\sum_{i=1}^{n}\left[\sum_{t=1}^{N} e_{it}\right]}{\sum_{i=1}^{n}\sum_{t=1}^{T} e_{it}^2}-1\right]^2 \qquad 3$$

If the H_0 hypothesis is rejected, the hypothesis of the unit effect is accepted and it is concluded that the classical model is not appropriate (Baltagi, 2008; Tatoğlu, 2013).

In cases where the classical model is not appropriate, the Hausman (1978) Test tests the validity of the fixed effect or random effect model. According to the test:

$$H=\left(\hat{\beta}_{SE}-\hat{\beta}_{TE}\right)'\left[Avar\left(\hat{\beta}_{SE}\right)-Avar\left(\hat{\beta}_{TE}\right)\right]^{-1}\left(\hat{\beta}_{SE}-\hat{\beta}_{TE}\right) \qquad 4$$

If the H_0 hypothesis is rejected, the hypothesis suggesting that there is no correlation between the error terms and the independent variable is accepted, and the fixed effect model is considered to be appropriate. If the H_0 hypothesis cannot be rejected, the random effect model is accepted as valid (Baltagi, 2008; Tatoğlu, 2013).

After deciding on the appropriate model, descriptive tests of the model should be applied before selecting the coefficient estimator. In this case, the Baltagi-Wu's Local Best Invariant Test and the Bhargava, Franzini and Narendranathan's Durbin-Watson Test are used for the presence of autocorrelation (Baltagi, 2008; Tatoğlu, 2013). On the other hand, Frees Test, Pesaran Test and Friedman Test are used to test for the presence of horizontal cross-section

dependence. The LM Test can also be applied if the model is consistent with the fixed effects model (Baltagi, 2008; Tatoğlu, 2013). Finally, Levene's, Brown's and Forsythe's Test is applied to test for the presence of heteroskedasticity in the model (Tatoğlu, 2013).

Following the descriptive statistics, the Arellano, Froot and Rogers estimator is used as the coefficient estimator in the random effects model where autocorrelation and heteroskedasticity are simultaneously present and horizontal cross-section dependence is absent, whereas the Driscoll-Kraay Estimator is used when autocorrelation, heteroskedasticity and horizontal cross-section dependence are simultaneously present (Baltagi, 2008; Tatoğlu, 2013).

The reason for using the 2010-2022 period in the study is to ensure that analyses can be conducted using balanced panel data, as data for the variables included in the model are available for all units within this period. The reason for choosing the industrial sector is that it is a broad sector that includes areas such as automotive, energy, food industry, technological cooperation, chemicals and petrochemicals, cement, iron and steel, textiles, standardization and accreditation, SMEs, electronics and Information and Communication Technology (ICT), machinery, ceramics and glass, pharmaceuticals and medical equipment, mining, manufacturing, electricity, gas, steam, and water supply. The fact that the industrial sector covers such a wide range of areas also increases countries' opportunities for attracting investment.

There are a limited number of studies conducted specifically on FDI inflows into the BRICS-T group of countries in terms of sectoral FDI inflows. Considering the literature, there is a need for a study on the determinants of FDI inflows into the industrial sector in the BRICS-T group countries. Examining the determinants of FDI in the industrial sector in the BRICS-T group countries and including the new member countries in the analysis reflects the originality of this study.

The current 9 countries in the three models in this study constitute the horizontal cross-sectional dimension of the panel, while the period covering the years 2010-2022 constitutes the time dimension of the panel. The countries included in the study are shown in Table 2, and the model to be estimated, which is valid for all three econometric models, is shown in Equation 5.

Table 2. Countries Included in the Study

BRA	Brazil	**TUR**	Türkiye
RUS	Russian Federation	**EGY**	Egypt
IND	India	**KSA**	Kingdom of Saudi Arabia
CHI	Republic of China	**ETH**	Ethiopia
ZAF	South Africa		

$$lnind_{it} = \beta_0 + \beta_1 lnlabor_{it} + \beta_2 lngdp_{it} + \beta_3 openness_{it} + \beta_4 unc_{it} + \beta_5 reer_{it} + \beta_6 lnnat_{it} + u_{it} \quad (5)$$

$$i = 1, ..., 9 \text{ and } t = 2010, ..., 2022$$

The variable code, variable description and sources of variable data for the variables in the model are shown in Table 3. Along with variables frequently used in the literature, the variable 'Economic Policy Uncertainty,' which receives less attention in the literature, has also been included in the model for testing purposes. In the literature, there are studies that find a positive relationship between FDI inflows and uncertainty (Fang et al., 2017; Türkmen and Yarbaşı, 2023) as well as studies that argue that the relationship between uncertainty and

FDI inflows is negative (Sum, 2013; Ko and Lee, 2015; Arouri and Roubaud, 2016; Busse and Hefeker, 2007; Tang, 2012).

Table 3. Variables Used in the Study

Variables	Variable Code	Description	Data Source
Industrial FDI Inflows	**lnind**	Annual industrial sector FDI inflows to countries Million$ (logarithmic)	Central bank databases of countries
Labor Costs	**lnlabor**	Unit labor costs $ (logarithmic)	ILO, TÜİK, Africa Economic Monitor, McKinsey Global Inst., Oxford Economics, Trading Economics
Gross Domestic Product	**lngdp**	GDP Billion$ (logarithmic)	World Bank
Trade Openness	**openness**	Foreign Trade Volume / GDP	Our World in Data
Economic Policy Uncertainty	**unc**	Economic Policy Uncertainty Index	FRED
Real Effective Exchange Rate	**reer**	Real Effective Exchange Rate $	FRED
Raw Material and Natural Resource Revenue	**lnnat**	Share of Raw Materials and Natural Resources in GDP (%) (logarithmic)	World Bank

Findings

The data for the variables were treated as annual observations, and the minimum, maximum, standard deviation, number of observations, and mean values of the variables are presented in Table 4. There are a total of 65 observations for the BRICS member countries, 104 for the BRICS+ countries, and 117 for the BRICS+-T countries. When examining the mean values of the lnind, lnlabor, lngdp, openness, unc, reer, and lnnat variables, the highest and lowest means in the BRICS group were calculated for the real effective exchange rate (reer) and economic policy uncertainty (unc) variables, respectively. With the BRICS+ expansion, the variables with the highest and lowest average values remained unchanged. On the other hand, while the average value of the reer variable increased, the average value of the unc variable decreased. In the new group obtained with the inclusion of Türkiye, the variables with the highest and lowest average values remained the same. With the inclusion of Türkiye, a decrease was observed in both the reer variable and the unc variable. When standard deviation values were examined, the highest standard deviation in the BRICS group occurred in the reer variable. With the BRICS+ expansion, the deviation values of all variables increased. The highest standard deviation was again observed in the reer variable. With Türkiye's inclusion, a decrease was observed in the deviation of some variables, while the reer variable increased, again becoming the variable with the highest deviation. The minimum and maximum values were calculated in the BRICS group for raw materials and natural resource income (lnnat) and real variables, respectively. With the BRICS+ expansion, labor costs (lnlabor) were calculated at lower values, making it the variable with the lowest minimum value, while the real variable was calculated higher than in the BRICS group, making it the variable with the highest maximum value. With Türkiye's inclusion, it was observed that natural resource revenues had lower values, but the lowest minimum value was also seen in labor costs in the group including Türkiye. The highest maximum value was calculated in the reer variable, which had the same values as the BRICS+ group.

Table 4. Descriptive Statistics of Variables

Panel	Variables	Obs.	Mean	Std. Dev.	Minimum	Maximum
	lnind	65	10.13054	0.807942	8.013012	11.99823
	lnlabor	65	1.787485	0.984422	0.336472	3.401864

BRICS	**lngdp**	65	7.629578	1.099869	5.779446	9.796079
	openness	65	43.38462	10.19910	22	59
	unc	65	0.109532	0.090795	0.005910	0.417960
	reer	65	104.9231	15.77459	75.68	143.72
	lnnat	65	1.440317	0.757697	-0.1464433	2.967333
BRICS^{+}	**lnind**	104	9.518562	1.117242	7.299797	11.99823
	lnlabor	104	1.233154	1.249827	-1.386294	3.401864
	lngdp	104	6.837864	1.490104	3.398861	9.796079
	openness	104	45.05769	13.73241	22	85
	unc	104	0.088103	0.080566	0.00538	0.41796
	reer	104	111.2149	21.01293	75.68	163.31
	lnnat	104	1.844383	0.924656	-0.146443	3.916088
BRICS^{+}T	**lnind**	117	9.409207	1.106304	7.299797	11.99823
	lnlabor	117	1.377118	1.324888	-1.386294	5.227895
	lngdp	117	6.826432	1.404765	3.398861	9.796079
	openness	117	46.33333	13.67479	22	85
	unc	117	0.091614	0.077925	0.005380	0.41796
	reer	117	108.5785	22.38487	47.61	163.31
	lnnat	117	1.577218	1.165118	-1.349472	3.916088

In order to select the appropriate model, the F Test, Likelihood (LR) test, Breusch-Pagan (LM) Test and Score Test were applied to test the validity of the classical model. After these tests, the Hausman test was applied to choose between fixed or random effect models. The test results are shown in Table 5 in the appendix section. As can be seen from Table 5, based on the result of the F, LR, LM and Score tests for the appropriateness of the classical model, the test statistics for the three models are significant at all significance levels. In this case, it is concluded that the H_0 hypothesis is rejected, and the classical model is not appropriate. As a result of the Hausman test applied to choose between the fixed and random effect models, it is seen that the H_0 hypothesis cannot be rejected for the three models and the random effect model is valid.

In order to choose the appropriate estimator for the random effects model, heteroskedasticity, autocorrelation and cross-sectional dependence tests are applied to each model. The test results are shown in Table 6 in the appendix section. According to Table 6, when the test statistics of the Levene, Brown and Forsythe tests for all three models are compared with the Snedecor F table ($p<0.10$), the null hypothesis H_0, which states that variance is equal across units, is rejected and heteroskedasticity is observed in all three models. On the other hand, since the Durbin-Watson and Baltagi-Wu test statistics for autocorrelation are greater than 2 for all three models, it is concluded that there is first-order autocorrelation in the models. Finally, the Pesaran, Friedman and Frees tests are applied to all three models for horizontal cross-sectional dependence and the results of the tests show that there is horizontal cross-section dependence for the BRICS model ($P_{Friedman}<0.10$), while there is no horizontal cross-section dependence for the BRICS^{+} and BRICS^{+}-T models. Along with the descriptive tests, Driscoll-Kraay (1998) estimator, which is used when heteroskedasticity, autocorrelation and horizontal cross-section dependence coexist, is applied for the estimation of the BRICS model; the Arellano (1987), Froot (1989) and Rogers (1993) estimators, which are used when heteroskedasticity and autocorrelation coexist and horizontal cross-section dependence is

absent, are applied for the estimation of BRICS^{+} and BRICS^{+}-T models. The test results are shown in Table 7.

Table 7. Coefficient Estimates of Models

		MODEL-1	MODEL-2	MODEL-3
VARIABLES	**STATISTICS**	**BRICS**	**BRICS^{+}**	**BRICS^{+}-T**
lnlabor	**Coefficient**	*0.0094811*	*-0.1159345*	*-0.1589292*
	Std. Err.	*0.2982724*	*0.2359741*	*0.0924432*
	T statistics	*0.03*	*-0.49*	*-1.72*
	Prob.	***0.975 (n0)***	***0.623 (n0)***	***0.086****
lngdp	**Coefficient**	*0.2362332*	*0.7915315*	*0.8296527*
	Std. Err.	*0.5830803*	*0.1684808*	*0.1762377*
	T statistics	*0.41*	*4.70*	*4.71*
	Prob.	***0.692 (n0)***	***0.000******	***0.000******
openness	**Coefficient**	*-0.0781858*	*-0.031704*	*-0.0264249*
	Std. Err.	*0.0212751*	*0.0180624*	*0.01378*
	T statistics	*-3.67*	*-1.76*	*-1.92*
	Prob.	***0.003******	***0.079****	***0.055****
unc	**Coefficient**	*0.068835*	*-0.776291*	*-0.3936425*
	Std. Err.	*0.5472101*	*0.7025194*	*0.6916093*
	T statistics	*0.13*	*-1.11*	*-0.57*
	Prob.	***0.902 (n0)***	***0.269 (n0)***	***0.569 (n0)***
reer	**Coefficient**	*-0.0110116*	*-0.0076486*	*-0.0069739*
	Std. Err.	*0.0111237*	*0.004107*	*0.0036221*
	T statistics	*-0.99*	*-1.86*	*-1.93*
	Prob.	***0.342 (n0)***	***0.063****	***0.054****
lnnat	**Coefficient**	*0.7098376*	*0.2045701*	*0.1639678*
	Std. Err.	*0.2288226*	*0.3359825*	*0.2369029*
	T statistics	*3.10*	*0.61*	*0.69*
	Prob.	***0.009******	***0.543 (n0)***	***0.489 (n0)***
coefficient	**Coefficient**	*11.82874*	*6.219378*	*5.723523*
	Std. Err.	*2.806803*	*1.822978*	*1.673421*
	T statistics	*4.21*	*3.41*	*3.42*
	Prob.	***0.001******	***0.001******	***0.001******
		R^2: *0.2202*	***R^2:*** *0.6670*	***R^2:*** *0.6891*
		Observation: *65*	***Observation:*** *104*	***Observation:*** *117*
		F(6,12): *6.55*	***Wald chi2 (6):*** *564.39*	***Wald chi2 (6):*** *1366.73*
		Prob.>F=*0.0029****	***Prob.>chi2=****0.0000****	***Prob.>chi2=****0.0000****
			sigma_u: *1.3068655*	***sigma_u:****0.9770735*
			sigma_e:*0.40385271*	***sigma_e:*** *0.39524743*
			rho: *0.9128287*	***rho:*** *0.85937394*
			*** %1, ** %5, * %10, n(0) insignificant*	

Table 8 demonstrates the robustness of the model using the Driscoll-Kraay robust standard error test in the Appendix section. This test aims to obtain consistent and reliable standard errors, including issues of cross-sectional dependence and autocorrelation over time in panel data regressions. Comparing the original estimates in Table 7 with the probability values and t-statistics obtained using Driscoll-Kraay standard errors in Table 8, it can be seen that the models are generally robust and the initial results are largely preserved.

Model 1, econometric model for BRICS countries before the expansion:

- lnind=11.8287 - 0.0781openness + 0.7098lnnat

For the BRICS model, a significant positive relationship is observed between FDI inflows to the industrial sector and raw material and natural resource revenues in the pre-expansion BRICS countries, while a negative and significant relationship is found between trade openness and these investments. Labor costs, GDP, economic policy uncertainty and the real

effective exchange rate variables do not have a significant effect in the model. According to the first model, when the trade openness ratio increases by 1 unit, foreign direct investment inflows to the industrial sector decrease by approximately 7.81%. When raw material and natural resource revenues increase by one percent, foreign direct investment inflows to the industrial sector increase by approximately 0.71%.
Model 2, econometric model for BRICS+ countries after the expansion:

- lnind= 6.2193 + 0.7915lngdp - 0.0317openness - 0.0076reer

For the BRICS+ model, while there is a positive and significant relationship between FDI inflows to the industrial sector and GDP in the post-expansion BRICS+ countries, trade openness and the real effective exchange rate affect these investments negatively. Labor costs, economic policy uncertainty and raw material and natural resource revenues do not have a significant effect in the model. When GDP increases by one percent, foreign direct investment inflows into the industrial sector increase by approximately 0.79%. When the trade openness ratio increases by one unit, direct foreign investment inflows into the industrial sector decrease by approximately 3.17%. When the real effective exchange rate increases by one unit, direct foreign investment inflows into the industrial sector decrease by approximately 0.76%.

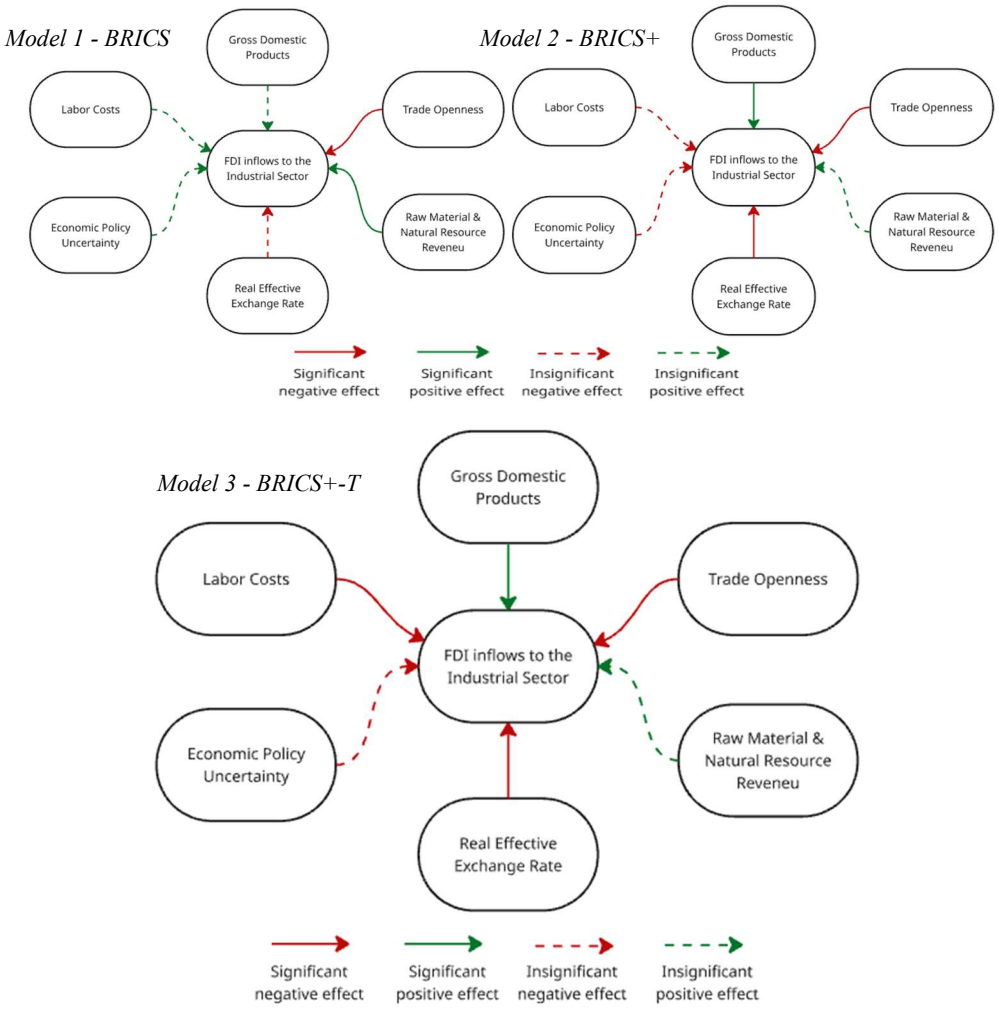
Model 3, econometric model for BRICS+-T countries including Türkiye:

- lnind= 5.7235 - 0.1589lnlabor + 0.8296lngdp - 0.0264openness - 0.0069reer

For the BRICS^{+}-T model, a positive and significant relationship is observed between FDI inflows to the industrial sector and GDP in BRICS^{+}-T countries, including Türkiye after the expansion of BRICS. In addition, there is a significant and negative relationship between the labor costs, trade openness, and real effective exchange rate variables and FDI inflows to the industrial sector in BRICS^{+}-T countries. In the model, economic policy uncertainty and raw material and natural resource revenues do not show a significant effect. When labor costs increase by 1%, direct foreign investment inflows to the industrial sector decrease by approximately 0.16%. When GDP increases by one percent, foreign direct investment inflows to the sector increase by approximately 0.83%. When the trade openness ratio increases by one unit, foreign direct investment inflows to the sector decrease by approximately 2.64%. When the real effective exchange rate increases by one unit, foreign direct investment inflows to the sector decrease by approximately 0.69%.

The conceptual diagram showing the estimated effects of the determinants on the three models is presented in Figure 3. The green lines in the figure represent significant positive effects, the red lines represent significant negative effects, the blue solid lines represent insignificant positive effects, and the blue dashed lines represent insignificant negative effects between the variables.

Figure 3. Comparison Diagram of Models



With the expansion of BRICS and the addition of new members rich in natural resources, the sole importance of raw material and natural resource revenues in explaining FDI has diminished. After the expansion, GDP has become more dominant. The fundamental effect of the expansion is seen in BRICS+, with GDP becoming the main factor in attracting FDI. With the addition of Türkiye, this effect (0.7915 - 0.8296) has been further strengthened. This indicates an increase in market seeking within the new group that includes Türkiye. Trade openness is negative and significant in all models. As openness increases, FDI decreases. This may suggest that FDI in these countries is largely domestically market-oriented or aimed at avoiding protectionist regulations. The effect weakened after the expansion and weakened further with the inclusion of Türkiye. The significant effect of REER emerged with the expansion of BRICS. Currency appreciation reduces FDI. This may indicate that FDI has lost its appeal for cost-focused investors. With Türkiye's inclusion, the effect weakened minimally, remaining consistent with the trend. The significant effect of labor costs emerged with Türkiye's inclusion in the group. Rising labor costs reduce FDI. This indicates that high labor costs are a disadvantage in the BRICS+-T group.

Conclusion and Policy Implications

This study is important for analyzing the determinants of FDI in the industrial sector in BRICS+-T countries. The study examines the impact of labour costs, GDP, trade openness,

economic policy uncertainty, real effective exchange rate, and raw material and natural resource income variables on FDI flows to the industrial sector in pre-expansion BRICS, in post-expansion BRICS+, and in post-expansion BRICS+-T (including Türkiye) countries members between 2010 and 2022,

The findings from the econometric analysis indicate that the expansion of the BRICS group has led to significant structural and motivational changes in the group's strategies for attracting FDI in the industrial sector.

The results of Model 1 (BRICS before expansion) reveal that having natural resources plays a significant role in the group's process of attracting FDI. This finding indicates investors' desire for access to resources in the original member states (Russia, South Africa, and Brazil), which are particularly rich in energy and raw materials. However, with the expansion of the Model 2 (BRICS+) structure, the variable of lnnat loses its importance and the variable of lngdp (0.7915), which has a strong positive effect, emerges, indicating that the group's FDI attraction strategy has taken on a market-seeking structure. Therefore, in terms of market integration, BRICS+ members should no longer rely solely on their resource wealth to attract more FDI, but should also consider the size of their domestic markets to maximize FDI flows. For that, countries should increase domestic market integration through regional trade agreements and joint infrastructure projects. Additionally, to increase FDI in the industrial sector by reducing dependence on raw materials and natural resources, governments need to implement structural reforms and introduce innovation incentives in sectors such as manufacturing, technology, and services, thereby ensuring sectoral diversity.

With Türkiye’s inclusion, two new and critical findings emerge. First, the increase in the GDP coefficient from 0.7915 to 0.8296 indicates that Türkiye's inclusion further enhances the overall domestic market attractiveness of the group. Second and most importantly, the labour costs variable is included in the model with a negative and significant coefficient. This finding indicates that companies investing in the BRICS+-T group are not only focussing on GDP levels but also considering low-cost requirements. The decline in FDI due to rising labour costs is affecting the group's role as a production base and export platform in the global economic environment. In Türkiye and similar countries, in order to remain competitive in terms of FDI, it is necessary to reduce labour costs by increasing labour productivity rather than suppressing nominal wages. Additionally, policymakers need to develop a two-pronged strategy to promote FDI among companies producing for both the domestic market and exports.

It is noteworthy that in all predicted models, trade openness has a negative and significant impact on FDI. Companies prefer to manufacture in these countries to avoid customs barriers or complex trade regulations (tariff jumping). As trade openness increases, direct trade becomes more attractive but FDI demand decreases. High customs barriers raise domestic market prices. This also encourages FDI by increasing the profitability of local production. The weakening of this negative effect (from Model 1 to Model 3) indicates that the trade openness policies of BRICS+-T countries are less deterrent to FDI. Policymakers should focus on reducing domestic regulations, bureaucracy, and logistics costs to ensure the continuation of FDI flows while increasing transparency. According to the analysis results, trade openness negatively affects FDI inflows to the industrial sector. This finding contradicts both the theoretical and empirical literature. Generally, both the theoretical and the empirical literature suggest that trade openness has a positive impact on FDI. Higher trade openness allows more established foreign investors to enter local markets. However, the dominance of foreign investors, in local markets, may not leave an attractive investment environment for new investors, as it narrows the market share for other investors. Additionally, the

international competition caused by high trade openness can lead to price pressures, which could cause foreign investors to lower prices and reduce profit margins. This situation leads investors to avoid sectors with low profit margins. The high trade openness levels calculated in BRICS+-T countries are import-oriented, leading to a decline in the competitiveness of domestic industries and causing investors to invest in different countries or sectors instead of making industrial investments in these markets. On the other hand, the high level of trade openness, which is largely import-oriented, indicates that foreign investors dominate these markets even without investing. Therefore, global investors who can access markets without making physical investments see foreign trade as an alternative to FDI and do not find it profitable to invest. Additionally, if barriers to entry through foreign trade are lower than the difficulties of investing, investors will still prefer trade. In this context, the implementation of tariff and quota systems to protect domestic investors in certain sectors, the promotion of domestic production, the establishment of industrial and technology zones, and the development of strategies to reduce the foreign trade openness are expected to mitigate the negative impact of trade openness on FDI. In all three models, the coefficient representing trade openness was found to be negative and statistically significant. This finding deviates from the mainstream literature, which expects a positive complementary relationship between trade openness and FDI. This negative result provides strong evidence that substitution effects are dominant in the dynamics of major emerging markets like BRICS+. As the trade policies of BRICS+-T countries liberalise, it shows that foreign multinational companies find it more cost-effective to export their goods directly rather than establish new facilities (FDI) in their own countries. This situation is perfectly consistent with the substitution hypothesis theorised by Mundell (1957) and examined by authors such as Brainard (1997) in the context of export or FDI decisions. Our findings indicate that trade has been the dominant factor in market access strategies for BRICS+ and Türkiye since 2010, rather than FDI. The negative relationship also shows that trade openness alone does not create a strong enough signal to attract FDI to BRICS+-T countries.

In Model 2 and Model 3, the negative and significant value of the real exchange rate variable indicates that exchange rate appreciation discourages FDI inflows. This situation indicates that FDI flows are largely export-oriented and that international investment competition is dependent on exchange rate sensitivity. Instead of artificially keeping the exchange rate low to promote FDI, governments should ensure macroeconomic stability to stabilise the exchange rate and develop policies that reduce exchange rate volatility. The study found that the real effective exchange rate has a negative impact on FDI in the industrial sector. This finding is consistent with both the empirical and theoretical literature. The real effective exchange rate increase indicates that the local currency is gaining value against foreign currencies. This situation leads to an increase in the price of goods the country exports. On the other hand, an increase in the real effective exchange rate also raises production costs for foreign investors operating in the country. The fact that foreign investors not only use the local market but also export from that country to neighbouring countries makes the effects of this cost increase more pronounced. This situation has a negative impact on investment as it narrows the profit margins of foreign investors producing in the country. Attempts to keep local currencies overvalued in BRICS+-T countries are diverting FDI flows to other countries. This situation supports the results of the analysis. Therefore, effective management of foreign exchange reserves, adoption of a flexible exchange rate system, implementation of appropriate monetary policies by central banks in line with inflation targets, and strengthening of export incentives can help prevent the negative impact of real effective exchange rate appreciation on FDI.

The analysis results show that the determinants of FDI within the BRICS framework have shifted from natural resources (Model 1) to market size and cost sensitivity (Model 3). Türkiye's inclusion has broadened the group's policy scope for attracting FDI and positioned it as both a consumption centre and a production base.
For future FDI attraction policies, these countries need to deepen their market integration, increase labour productivity, and maintain macroeconomic stability to ensure the continuity of FDI flows.
As a result of the study, it was found that labour costs in the industrial sector had a negative impact on FDI in all the models examined. This finding is consistent with both the theoretical and empirical literature. Cheap labour is an attractive factor for FDI. China and India, which are among the BRICS+T countries, have highly competitive labour cost structures in global markets due to their large populations. This situation supports the analysis findings. For BRICS member countries and Türkiye, the competitiveness of labour costs in the global market supports the shift of FDI inflows to these countries. On the other hand, this situation cannot be achieved solely through population size or growth rate. Because population size alone provides unskilled labour, which lowers the quality of FDI inflows. Reducing both the cost and scarcity of skilled labour in these countries will lead to the shift of investments requiring skilled labour to these countries. Therefore, governments need to plan for the skilled workforce and specialised skills required for investments, change minimum wage policies, adopt flexible working models, or provide incentives to companies for inputs other than labour costs, thereby implementing policies that will increase long-term FDI inflows.

In all the estimated models in the study, GDP has a positive effect on FDI flows to the industrial sector. This result is consistent with both the empirical and theoretical literature. Countries with high GDP levels offer significant market opportunities for investors. Therefore, the high demand brought by large markets leads to more investment in these countries. In this context, China, India, and Russia, as members of BRICS+, become high-investment destinations due to their high GDP. High GDP or high growth efforts are not the only incentives for investors. The investment climate in a country must also be attractive to investors. A good example of this is Russia, which despite its high GDP, saw many global investors leave the country after its war with Ukraine. Additionally, providing tax breaks or exemptions to investors, implementing technology and innovation incentives, participating in free trade agreements, and offering a one-stop service for all investment permits and licenses to support investors will ensure the continuity of FDI and open doors for new investment opportunities.

The most important economic and policy-oriented conclusion from our analyses is that economic size and expansion potential are the fundamental dynamics driving FDI flows. The positive coefficient of the GDP variable, which has the most statistically significant and strongest impact in all models, confirms that policymakers should prioritise long-term stable economic growth. Additionally, the strong effect of the openness variable indicates that maintaining trade and financial liberalisation is vital for promoting FDI. Finally, Türkiye's inclusion in the BRICS format demonstrates the potential to expand the group's geographical and economic scope, creating mutual investment opportunities for both existing members and Türkiye. These findings emphasise that FDI attraction strategies for BRICS countries should be built on deepening the domestic market and increasing international integration, rather than solely on financial incentives.

The limitations of this study are that the data obtained for the BRICS+-T countries are annual observations, and the analysis has a narrow time dimension because two BRICS+-T member countries, Iran and the UAE, do not have data on the variables analysed in the study.

Addressing these limitations in future studies will contribute to the literature on FDI flows to the industrial sector in Türkiye and other potential BRICS member countries.

References

Addison, T., & Heshmati, A. (2003). The new global determinants of FDI flows to developing countries. *World Institute for Development Economics Research WIDER*, Discussion Paper, (2003/45). https://doi.org/10.1016/s1567-7915(04)04007-8

Ajayi, S. I. (2008). Foreign direct investment in Sub-Saharan Africa: Origins, targets, impact and potential. https://coilink.org/20.500.12592/m9fxpr

Altomonte, C. (2000). Economic determinants and institutional frameworks: FDI in economies in transition. *Transnational Corporations*, 9(2), 75-106. https://unctad.org/system/files/official-document/iteiit21v9n2_en.pdf

Ang, J. B. (2008). Determinants of foreign direct investment in Malaysia. *Journal of Policy Modeling*, 30(1), 185-189. https://doi.org/10.1016/j.jpolmod.2007.06.014

Arbatli, E. (2011), Economic policies and FDI inflows to emerging market economies. *International Monetary Fund Working Paper*. https://doi.org/10.5089/9781462306251.001

Arellano, M. (1987). Computing robust standard errors for within-groups estimators. *Oxford Bulletin of Economics and Statistics*, 49(4), 431-434. https://doi.org/10.1111/j.1468-0084.1987.mp49004006.x

Arouri, M., & Roubaud, D. (2016). On the determinants of stock market dynamics in emerging countries: The role of economic policy uncertainty in China and India. *Economics Bulletin*, 36(2), 760-770. https://ideas.repec.org/a/ebl/ecbull/eb-14-00543.html

Artige, L., & Nicolini, R. (2006). Evidence on the determinants of foreign direct investment: The case of three European regions. https://ideas.repec.org/p/aub/autbar/655.05.html

Asiamah, M., Ofori, D., & Afful, J. (2019). Analysis of the determinants of foreign direct investment in Ghana. *Journal of Asian Business and Economic Studies*, 26(1), 56-75. https://doi.org/10.1108/jabes-08-2018-0057

Asiedu, E. (2002). On the determinants of foreign direct investment to developing countries: is Africa different? *World Development*, 30(1), 107-119. https://doi.org/10.1016/s0305-750x(01)00100-0

Asiedu, E. (2006). Foreign direct investment in Africa: The role of natural resources, market size, government policy, institutions and political instability. *World Economy*, 29(1), 63-77. https://doi.org/10.1111/j.1467-9701.2006.00758.x

Athukorala, P. C., & Waglé, S. (2011). Foreign direct investment in Southeast Asia: Is Malaysia falling behind. *ASEAN Economic Bulletin*, 115-133. https://doi.org/10.1355/ae28-2b

Awan, M. Z., Khan, B., & uz Zaman, K. (2011). Economic determinants of foreign direct investment (FDI) in commodity producing sector: A case study of Pakistan. *African Journal of Business Management*, 5(2), 537. https://doi.org/10.54784/1990-6587.1251

Balasubramanyam, V. N., Salisu, M., & Sapsford, D. (1996). Foreign direct investment and growth in EP and IS countries. *The Economic Journal*, 106(434), p92-105 https://doi.org/10.2307/2234933

Baltagi, B. H. (2008). Econometric analysis of panel data. New Jersey, *USA: John Wiley & Sons.* ISBN-13: 978-0-470-01456-1

Bende-Nabende, A. (2002). Foreign direct investment determinants in Sub-Sahara Africa: A co-integration analysis. *Economics Bulletin*, 6(4),1-19. https://ideas.repec.org/a/ebl/ecbull/eb-02f20002.html

Bevan, A. A., & Estrin, S. (2000). The determinants of foreign direct investment in transition economies. SSRN 258070.

Bhardwaj, A., Dietz, J., & Beamish, P. W. (2007). Host country cultural influences on foreign direct investment. *Management International Review*, 47, 29-50. https://doi.org/10.1007/s11575-007-0003-7

Bhatt, P. R. (2008). Determinants of foreign direct investment in ASEAN. *Foreign Trade Review*, 43(3), 21-51. https://doi.org/10.1177/0015732515080302

Blanton, S. L., & Blanton, R. G. (2009). A sectoral analysis of human rights and FDI: Does industry type matter? *International Studies Quarterly*, *53*(2), 469-493. https://doi.org/10.1111/j.1468-2478.2009.00542.x

Blonigen, B. A. (2005). A review of the empirical literature on FDI determinants. *Atlantic Economic Journal*, *33*, 383-403. https://doi.org/10.1007/s11293-005-2868-9

Bozkurt, H. ve Dursun, G. (2006). Bilgi ve iletişim teknolojileri ile yabancı doğrudan yatırım akımları arasındaki etkileşim. Türkiye için kointegresyon analizi, 1980-2004. *Journal of Knowledge Economy & Knowledge Management*, (2), 37-49. https://dergipark.org.tr/tr/pub/beyder/issue/3485/47393

Brainard, S. L. (1997). An empirical assessment of the proximity-concentration trade-off between multinational sales and trade. *The American Economic Review*, *87*(4), 520–544. https://doi.org/10.3386/w4583

Breusch, T.S., & Pagan A.R. (1980). The Lagrange multiplier test and its applications to model specification in econometrics. *Review of Economic Studies,* 47, 239-253. https://doi.org/10.2307/2297111

Busse, M., & Hefeker, C. (2007). Political risk, institutions and foreign direct investment. *European Journal of Political Economy*, 23(2), 397-415. https://doi.org/10.1016/j.ejpoleco.2006.02.003

Chanegriha, M., Stewart, C., & Tsoukis, C. (2017). Identifying the robust economic, geographical and political determinants of FDI: An extreme bounds analysis. *Empirical Economics*, 52, 759-776. https://doi.org/10.1007/s00181-016-1097-1

Chantasasawat, B., Fung, K. C., Iizaka, H., & Siu, A. (2010). FDI flows to Latin America, East and Southeast Asia, and China: Substitutes or complements? *Review of Development Economics*, 14(3), 533-546. https://doi.org/10.1111/j.1467-9361.2010.00569.x

Chen, K. M., Rau, H. H., & Lin, C. C. (2006). The impact of exchange rate movements on foreign direct investment: Market-oriented versus cost-oriented. *The Developing Economies*, 44(3), 269-287. https://doi.org/10.1111/j.1746-1049.2006.00017.x

Cleeve, E. (2008). How effective are fiscal incentives to attract FDI to Sub-Saharan Africa? *The Journal of Developing Areas*, 135-153. https://doi.org/10.1353/jda.0.0015

Coşkun, R. (2001). Determinants of direct foreign investment in Turkey. *European Business Review*, 13(4), 221–227. https://doi. org/10.2307/1937913

Crespo, N., & Fontoura, M. P. (2007). Determinant factors of FDI spillovers–what do we really know? *World Development*, 35(3), 410-425. https://doi.org/10.1016/j.worlddev.2006.04.001

Culem, C. G. (1988). The locational determinants of direct investments among industrialized countries. *European Economic Review*, 32(4), 885-904. https://doi.org/10.1016/0014-2921(88)90051-7

Cuyvers, L., Soeng, R., Plasmans, J., & Van Den Bulcke, D. (2011). Determinants of foreign direct investment in Cambodia. *Journal of Asian Economics*, 22(3), 222-234. https://doi.org/10.1016/j.asieco.2011.02.002

Demirhan, E., & Masca, M. (2008). Determinants of foreign direct investment flows to developing countries: a cross-sectional analysis. *Prague Economic Papers*, 17(4), 356-369. doi: https://doi.org/10.18267/j.pep.337

Desai, M. A., Foley, C. F., & Hines Jr, J. R. (2004). Foreign direct investment in a world of multiple taxes. *Journal of Public Economics*, 88(12), 2727-2744. https://doi.org/10.1016/j.jpubeco.2003.08.004

Devereux, M. P., & Freeman, H. (1995). The impact of tax on foreign direct investment: empirical evidence and the implications for tax integration schemes. *International Tax and Public Finance*, 2, 85-106. https://doi.org/10.1007/bf00873108

Driscoll JC, Kraay AC (1998) Consistent covariance matrix estimation with spatially dependent panel data. *Rev Econ Statis 80*, 549–560. https://doi.org/10.1162/003465398557825

Drogendijk, R., & Martín, O. M. (2015). Relevant dimensions and contextual weights of distance in international business decisions: Evidence from Spanish and Chinese outward FDI. *International Business Review*, 24(1), 133-147. https://doi.org/10.1016/j.ibusrev.2014.07.003

Du, J., Lu, Y., & Tao, Z. (2012). Institutions and FDI location choice: The role of cultural distances. *Journal of Asian Economics*, 23(3), 210-223. https://doi.org/10.1016/j.asieco.2010.11.008

Elbejaoui, H. J. (2013). Asymmetric effects of exchange rate variations: An empirical analysis for four advanced countries. *International Economics*, (135-136), 29-46. https://doi.org/10.1016/j.inteco.2013.10.001

Fang, J., Collins, A., & Yao, S. (2021). On the Global COVID-19 Pandemic and China's FDI. *Journal of Asian Economics*, 74, 101300. https://doi.org/10.1016/j.asieco.2021.101300

Froot, K. A. (1989). Consistent covariance matrix estimation with cross-sectional dependence and heteroskedasticity in financial data. *Journal of Financial and Quantitative Analysis*, 24(3), 333-355. https://doi.org/10.2307/2330815

Galego, A., Vieira, C., & Vieira, I. (2004). The CEEC as FDI attractors: A menace to the EU periphery? *Emerging Markets Finance and Trade*, 40(5), 74-91. https://doi.org/10.1080/1540496x.2004.11052585

Gauselmann, A., Knell, M., & Stephan, J. (2011). What drives FDI in Central–Eastern Europe? Evidence from the IWH-FDI-Micro database. *Post-Communist Economies*, 23(3), 343-357. https://doi.org/10.1080/14631377.2011.595148

Glaister, K. W., & Atanasova, H. (1998). Foreign direct investment in Bulgaria: Patterns and prospects. *European Business Review*, 98(2), 122-134. https://doi.org/10.1108/09555349810205699

Gorbunova, Y., Infante, D., & Smirnova, J. (2012). New evidence on FDI determinants: An appraisal over the transition period. *Prague Economic Papers*, 2, 129-149. https://doi.org/10.18267/j.pep.415

Gorter, J., & Parikh, A. (2003). How sensitive is FDI to differences in corporate income taxation within the EU? *De Economist*, 151(2), 193-204. https://doi.org/10.1023/a:1023913618978

Hakro, A. N., & Ghumro, A. A. (2007). Foreign direct investment, determinants and policy analysis: Case study of Pakistan. *University of Glasgow, Department of Economics.* https://files.core.ac.uk/download/pdf/6627721.pdf

Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica: Journal of the econometric society*, 1251-1271. https://doi.org/10.2307/1913827

Hayakawa, K., Lee, H. H., & Park, D. (2013). The role of home and host country characteristics in FDI: Firm-level evidence from Japan, Korea and Taiwan. *Global Economic Review*, 42(2), 99-112. https://doi.org/10.1080/1226508x.2013.791470

Helpman, E. (2014). Foreign trade and investment: Firm-level perspectives. *Economica*, 81(321), 1-14. https://doi.org/10.1111/ecca.12064

Hintošová, A. B., Bruothová, M., Kubíková, Z., & Ručinský, R. (2018). Determinants of foreign direct investment inflows: A case of the Visegrad countries. *Journal of International Studies* (2071-8330), 11(2). https://doi.org/10.14254/2071-8330.2018/11-2/15

Hoang, H. H., & Goujon, M. (2014). Determinants of foreign direct investment in Vietnamese provinces: a spatial econometric analysis. *Post-Communist Economies*, 26(1), 103-121. https://doi.org/10.1080/14631377.2014.874658

Holmes, R., Miller, T., Hitt, M., & Paz Salmador, M. (2013), The interrelationships among informal institutions, formal institutions, and inward foreign direct investment. *Journal of Management*, Vol. 39, 531-566. https://doi.org/10.1177/0149206310393503

Ismail, R., & Yussof, I. (2003). Labour market competitiveness and foreign direct investment: The case of Malaysia, Thailand and the Philippines. *Papers in Regional Science*, 82, 389-402. https://doi.org/10.1007/s10110-003-0170-2

Janicki, H. P., & Wunnava, P. V. (2004). Determinants of foreign direct investment: empirical evidence from EU accession candidates. *Applied Economics*, 36(5), 505-509. https://doi.org/10.1080/00036840410001682214

Jimenez, A., Durán, J. J., & de la Fuente, J. M. (2011). Political risk as a determinant of investment by Spanish multinational firms in Europe. *Applied Economics Letters*, 18(8), 789-793. https://doi.org/10.1080/13504851.2010.500269

Jurcau, A. S., Andreicovici, I., & Matis, D. (2011). The macroeconomic determinants of Romanian cross-border mergers and acquisitions. *International Journal of Business Research*, 11(2), 224-229. https://law-journals-books.vlex.com/vid/macroeconomic-determinants-mergers-336267362

Kalyoncu, H., Tuluce, N., & Yaprak, Z. (2015). Determinants of foreign direct investment: An empirical analysis for Turkey. *Journal of Economic and Social Studies*, 5(2). https://doi.org/10.14706/jecoss15524

Kandiero, T. & Chitiga, M. (2014). Trade openness and foreign direct investment in Africa. *South African Journal of Economic and Management Sciences*, Vol.9 No.3, 355-357. https://doi.org/10.4102/sajems.v9i3.1093

Kariuki, C. (2015). The determinants of foreign direct investment in the African Union. *Journal of Economics, Business and Management*, 3(3), 346-351. https://doi.org/10.7763/joebm.2015.v3.207

Kaur, M., & Sharma, R. (2013). Determinants of foreign direct investment in India: An empirical analysis. *Decision*, 40, 57-67. https://doi.org/10.1007/s40622-013-0010-4

Kersan-Škabić, I. (2013). Institutional development as a determinant of FDI attractiveness in Southeast Europe. *Društvena Istraživanja*, 22(2), 215-235. https://doi.org/10.5559/di.22.2.01

Khachoo, A. Q., & Khan, M. I. (2012). Determinants of FDI inflows to developing countries: A panel data analysis. *Munich Personal RePEc Archive.* https://mpra.ub.uni-muenchen.de/37278/1/MPRA_paper_37278.pdf

Kok, R., & Acikgoz Ersoy, B. (2009). Analyses of FDI determinants in developing countries. *International Journal of Social Economics*, 36(1/2), 105-123. https://doi.org/10.1108/03068290910921226

Kolstad, I., & Villanger, E. (2008). Determinants of foreign direct investment in services. *European Journal of Political Economy*, 24(2), 518-533. https://doi.org/10.1016/j.ejpoleco.2007.09.001

Kravis, I. B., & Lipsey, R. E. (1982). The location of overseas production and production for export by US multinational firms. *Journal of International Economics*, 12(3-4), 201-223. https://doi.org/10.1016/0022-1996(82)90036-8

Ko, J. H., & Lee, C. M. (2015). International economic policy uncertainty and stock prices: Wavelet approach. *Economics Letters*, 134, 118-122. https://doi.org/10.1016/j.econlet.2015.07.012

Koutmos, G., & Martin, A. D. (2007). Modeling time variation and asymmetry in foreign exchange exposure. *Journal of Multinational Financial Management*, 17(1), 61-74. https://doi.org/10.1016/j.mulfin.2006.03.004

Kyereboah-Coleman, A., & Agyire-Tettey, K. F. (2008). Effect of exchange-rate volatility on foreign direct investment in Sub-Saharan Africa: The case of Ghana. *The Journal of Risk Finance*, 9(1), 52-70. https://doi.org/10.1108/15265940810842410

Liargovas, P. G., & Skandalis, K. S. (2012). Foreign direct investment and trade openness: The case of developing economies. *Social Indicators Research*, 106, 323-331. https://doi.org/10.1007/s11205-011-9806-9

Lily, J., Kogid, M., Mulok, D., Thien Sang, L., & Asid, R. (2014). Exchange rate movement and foreign direct investment in ASEAN economies. *Economics Research International*, 2014. https://doi.org/10.1155/2014/320949

Lim, E.G. (2001). Determinants of, and the relation between, foreign direct investment and growth: A summary of the recent literature. *IMF Working Paper,* No. 01/175. https://doi.org/10.5089/9781451858754.001

Lim, S. H. (2008). How investment promotion affects attracting foreign direct investment: Analytical argument and empirical analyses. *International Business Review*, 17(1), 39-53. https://doi.org/10.1016/j.ibusrev.2007.09.001

Luiz, J. M., & Charalambous, H. (2009). Factors influencing foreign direct investment of South African financial services firms in Sub-Saharan Africa. *International Business Review*, 18(3), 305-317. https://doi.org/10.1016/j.ibusrev.2009.02.008

Lunn, J. (1980). Determinants of US direct investment in the EEC: Further evidence. *European Economic Review*, 13(1), 93-101. https://doi.org/10.1016/0014-2921(80)90048-3

Mateev, M. (2009). Determinants of foreign direct investment in Central and Southeastern Europe: New Empirical Tests. *Oxford Journal*, 8(1). https://mateevfinance.com/re_pdfs/1440238611_pdf_Determinants%20of%20Foreign%20Direct%20Investment%20in%20Central%20and%20Southeastern%20Europe_2009.pdf

McKenzie, M. (2002). The economics of exchange rate volatility asymmetry. *International Journal of Finance & Economics*, 7(3), 247-260. https://doi.org/10.1002/ijfe.189

Melku, S. S. (2012). Exchange rate volatility and foreign direct investment: A panel data. *Södertörns Högskola*, 4-43. https://www.diva-portal.org/smash/get/diva2:548365/FULLTEXT01.pdf

Mina, W. (2007). The location determinants of FDI in the GCC countries. *Journal of Multinational Financial Management*, 17(4), 336-348. https://doi.org/10.1016/j.mulfin.2007.02.002

Moosa, I. A., & Cardak, B. A. (2006). The determinants of foreign direct investment: An extreme bounds analysis. *Journal of Multinational financial management*, 16(2), 199-211. https://doi.org/10.1016/j.mulfin.2005.07.002

Morisset, J. (2002). Foreign direct investment in Africa: Policies also matter. New horizons for foreign direct investment, *World Bank Publications,* 548, 167. https://doi.org/10.1596/1813-9450-2481

Muller, A., & Verschoor, W. F. C. (2006). Asymmetric foreign exchange risk exposure: Evidence from U.S. multinational firms. *Journal of Empirical Finance*, 13(4–5), 495–518. https:// doi.org/10.1016/j.jempfin.2006.01.003

Mundell, R. A. (1957). International trade and factor mobility. *The American Economic Review*, *47*(3), 321–335. https://doi.org/10.2307/1810487

Nair-Reichert, U., & Weinhold, D. (2001). Causality tests for cross-country panels: New look at foreign direct investment and economic growth in LDCs. *Oxford Bulletin of Economics and Statistics*, 2, 153-172. https://doi.org/10.1111/1468-0084.00214

Ngendakumana, L., & Kaseke, C. (2015). An analysis of factors affecting foreign direct investment in Zimbabwe (1980-2011). *Academic Research International*, 6(2), 114. https://psa.pastic.gov.pk/SearchArticleView.aspx?articledetailId=35952&S_id=96885

Noorbakhsh, F., Paloni, A., & Youssef, A. (2001). Human capital and FDI inflows to developing countries: New empirical evidence. *World Development*, 29(9), 1593-1610. https://doi.org/10.1016/s0305-750x(01)00054-7

Ogunleye, E. K. (2009). Exchange rate volatility and foreign direct investment in sub-Saharan Africa: Evidence from Nigeria and South Africa. Applied econometrics and macroeconomic modelling in Nigeria. *Ibadan University Press.* https://www.scirp.org/reference/referencespapers?referenceid=2591794

Osinubi, T. S., & Amaghionyeodiwe, L. A. (2009). Foreign direct investment and exchange rate volatility in Nigeria. *International Journal of Applied Econometrics and Quantitative Studies*, 6(2), 83-116 https://www.usc.es/economet/reviews/ijaeqs926.pdf

Parsley, D. C., & Popper, H. A. (2006). Exchange rate pegs and foreign exchange exposure in East and South East Asia. *Journal of International Money and Finance*, 25(6), 992-1009. https://doi.org/10.1016/j.jimonfin.2006.07.009

Pearson, D., Nyonna, D., & Kim, K. J. (2012). The relationship between economic freedom, state growth and foreign direct investment in US states. *International Journal of Economics and Finance*, 4(10), 140-146. https://doi.org/10.5539/ijef.v4n10p140

Plikynas, D., & Akbar, Y. H. (2006). Neural network approaches to estimating FDI flows: Evidence from Central and Eastern Europe. *Eastern European Economics*, 44(3), 29-59. https://doi.org/10.2753/eee0012-8755440302

Reenu, J. & Sharma, A.K. (2015). Trends and determinants of foreign direct investment in India: a study of the post-liberalization period. *South Asian Journal of Management*, Vol.22 No. 3, 96-98. ISSN: 0971-5428

Reinhart, C. M., & Rogoff, K. S. (2004). The modern history of exchange rate arrangements: a reinterpretation. *The Quarterly Journal of Economics*, 119(1), 1-48. https://doi.org/10.1162/003355304772839515

Riedl, A. (2010). Location factors of FDI and the growing services economy 1: Evidence for transition countries. *Economics of Transition*, 18(4), 741-761. https://doi.org/10.1111/j.1468-0351.2010.00391.x

Rogers, W. H. (1993). Regression Standard Errors in Clustered Samples. *Stata Technical Bulletin*, 13: 19-23.

Rohra, N., & Chawla, K. (2015). Motives behind mergers & acquisitions: theory & critical review of literature. *EPRA International Journal of Economic and Business Review*, 3(4). e-ISSN : 2347 - 9671

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

Sharma, K., & Bandara, Y. (2010). Trends, patterns and determinants of Australian foreign direct investment. *Journal of Economic Issues*, 44(3), 661-676. https://doi.org/10.2753/jei0021-3624440305

Siegel, J. I., Licht, A. N., & Schwartz, S. H. (2013). Egalitarianism, cultural distance, and foreign direct investment: A new approach. *Organization Science*, 24(4), 1174-1194. https://doi.org/10.1287/orsc.1120.0776

Singhania, M., & Gupta, A. (2011). Determinants of foreign direct investment in India. *Journal of International Trade Law and Policy,* 10(1), 64-82. https://doi.org/10.1108/14770021111116142

Srinivasan, P., Kalaivani, M., & Ibrahim, P. (2011). An empirical investigation of foreign direct investment and economic growth in SAARC nations. *Journal of Asia Business Studies*, 5(2), 232-248. https://doi.org/10.1108/15587891111152366

Suardi, S. (2008). Central bank intervention, threshold effects and asymmetric volatility: Evidence from the Japanese yen–US dollar foreign exchange market. *Economic Modelling*, 25(4), 628-642. https://doi.org/10.1016/j.econmod.2007.10.002

Suleiman, N. N., Kaliappan, S. R., & Ismail, N. W. (2015). Determinants of foreign direct investment: Empirical evidence from Southern Africa Customs Union (SACU) countries. *International Journal of Economics and Management*, 9(1). http://www.ijem.upm.edu.my/vol9no1/1.%20Determinants%20of%20Foreign%20Direct%20Investment.pdf

Sum, V. (2013). The ASEAN stock market performance and economic policy uncertainty in the United States. *Economic Papers: A Journal of Applied Economics and Policy*, 32(4), 512-521. https://doi.org/10.1111/1759-3441.12049

Tan, H. B., & Chong, L. L. (2008). Choice of exchange rate system and macroeconomic volatility of three Asian emerging economies. *Macroeconomics and Finance in Emerging Market Economies*, 1(2), 167-179. https://doi.org/10.1080/17520840802252217

Tang, L. (2012). The direction of cultural distance on FDI: Attractiveness or incongruity? *Cross Cultural Management: An International Journal*, 19(2), 233-256. https://doi.org/10.1108/13527601211219919

Tatoğlu, Y., F. (2013). Panel Veri Ekonometrisi. Stata Uygulamalı (2. Baskı). *Beta Yayıncılık*, İstanbul, 2013. ISBN : 978-605-242-691-3

Thangavelu, S. M., & Narjoko, D. (2014). Human capital, FTAs and foreign direct investment flows into ASEAN. *Journal of Asian Economics*, 35, 65-76. https://doi.org/10.1016/j.asieco.2014.11.002

Tintin, C. (2013). The determinants of foreign direct investment inflows in the Central and Eastern European Countries: The importance of institutions. *Communist and Post-Communist Studies*, 46(2), 287-298. https://doi.org/10.1016/j.postcomstud.2013.03.006

Türkmen, A. & Yarbaşı, İ. Y. (2023). The Relationship between foreign direct investments and cncertainty at the sectoral level: The case of Türkiye. In: Eroğlu Sevinç, D. & Yüce Akıncı, G. (eds.), Studies on Economic and Financial Policies. *Özgür Publications*. https://doi.org/10.58830/ozgur.pub68.c317

Tri, H. T., Nga, V. T., & Duong, V. H. (2019). The determinants of foreign direct investment in ASEAN: New evidence from financial integration factor. *Business and Economic Horizons*, 15(2), 292-303. https://ideas.repec.org/a/ags/pdcbeh/301149.html

Vidal-Suárez, M., & López-Duarte, C. (2013). Language distance and international acquisitions: A transaction cost approach. *International Journal of Cross-Cultural Management*, 13(1), 47-63. https://doi.org/10.1177/1470595812452634

Voka, I., & Dauti, B. (2015). Institutional determinants of foreign direct investment in Macedonia: Evidence from panel data. *European Journal of Business, Economics and Accountancy*, 3(4), 35-44. ISSN: 2056-6018

Wafure, O. G., & Nurudeen, A. (2010). Determinants of foreign direct investment in Nigeria: An empirical analysis. *Global Journal of Human Social Science*, 10(1), 26-34. https://globaljournals.org/GJHSS_Volume10/ghss_vol10_issue1_ver1_paper10.pdf#page=8.07

Wahid, A. N., Sawkut, R., & Seetanah, B. (2009). Determinants of foreign direct investments (FDI): Lessons from the African economies. *The Journal of Applied Business and Economics*, 9(1), 70. https://www.scirp.org/reference/referencespapers?referenceid=2214482

Wint, A. G., & Williams, D. A. (2002). Attracting FDI to developing countries: A changing role for government? *International Journal of Public Sector Management*, 15(5), 361-374. https://doi.org/10.1108/09513550210435719

Xaypanya, P., Rangkakulnuwat, P., & Paweenawat, S. W. (2015). The determinants of foreign direct investment in ASEAN: The first differencing panel data analysis. *International Journal of Social Economics*, 42(3), 239–250. https://doi. org/https://doi.org/10.1108/MIP-05-2017- 0088

Xing, Y., & Wan, G. (2006). Exchange rates and competition for FDI in Asia. *The World Economy*, 29(4), 419–434. https://doi. org/10.1111/j.1467-9701.2006.00791.x

Yi, C. F., Idris, ,S., & Lily, J. (2019). Determinants of foreign direct investment (FDI) in ASEAN-5 Countries: A review. *Malaysian Journal of Business and Economics (MJBE)*, 6(2), 77-77. https://doi.org/10.51200/mjbe.v0i0.2174

Zenasni, S., & Benhabib, A. (2013). The determinants of foreign direct investment and their impact on growth: Panel data analysis for AMU countries. *International Journal of Innovation and Applied Studies*, 2(3), 300-313. https://ijias.issr-journals.org/abstract.php?article=IJIAS-13-026-

APPENDIX
Studies Corresponding to the Numbers Listed in the Literature Review Section

Addison & Heshmati (2003)	1	Cleeve (2008)	21	Holmes et al. (2013)	41	Mateev (2009)	61	Siegel et al. (2013)	81
Ajayi (2008)	2	Coşkun (2001)	22	Ismail & Yussof (2003)	42	McKenzie (2002)	62	Singhania & Gupta (2011)	82
Altomonte (2000)	3	Crespo & Fontura (2007)	23	Janicki & Wunnava (2004)	43	Melku (2012)	63	Srinivasan et al. (2011)	83
Ang (2008)	4	Culem (1988)	24	Jimenez et al. (2011)	44	Mina (2007)	64	Suardi (2008)	84
Arbatli (2011)	5	Cuyvers et al. (2011)	25	Jurcau et al. (2011)	45	Moosa & Cardak (2006)	65	Suleiman et al. (2015)	85
Artige & Nicolini (2006)	6	Demirhan & Masca (2008)	26	Kalyoncu et al. (2015)	46	Morisset (2002)	66	Tan & Chong (2008)	86
Asiamah et al. (2019)	7	Desai et al. (2004)	27	Kandiero & Chitiga (2014)	47	Muller & Verschoor (2006)	67	Tang (2012)	87
Asiedu (2002)	8	Devereux & Freeman (1995)	28	Kariuki (2015)	48	Ngendakumana & Kaseke (2015)	68	Thangavelu (2014)	88
Asiedu (2006)	9	Drogendijk & Martin (2015)	29	Kaur & Sharma (2013)	49	Noorbakhsh et al. (2001)	69	Tintin (2013)	89
Athukorala & Wagle (2011)	10	Du et al. (2012)	30	Kersan-Škabić (2013)	50	Ogunleye (2009)	70	Tri et al. (2019)	90
Awan et al. (2011)	11	Elbejaoui (2013)	31	Khachoo & Khan (2012)	51	Osinubi & Amaghionyeodiwe (2009)	71	Türkmen & Yarbaşı (2023)	91
Balasubramanyam et al. (1996)	12	Galego et al. (2004)	32	Kok & Acikgoz Ersoy (2009)	52	Parsley & Popper (2006)	72	Vidal-Suárez & López-Duarte (2013)	92
Bende-Nabende (2002)	13	Gauselmann et al. (2011)	33	Kolstad & Villanger (2008)	53	Pearson et al. (2012)	73	Voka & Dauti (2015)	93
Bevan & Estrin (2000)	14	Glaister & Atanasova (1998)	34	Koutmos & Marrtin (2007)	54	Plikynas & Akbar (2006)	74	Wafure & Nurudeen (2010)	94
Bhardwaj et al. (2007)	15	Gorbunova et al. (2012)	35	Kyereboah-Coleman & Agyire-Tettey (2008)	55	Reenu & Sharma (2015)	75	Wahid et al. (2009)	95
Bhatt (2008)	16	Gorter & Parikh (2003)	36	Liargovas & Skandalis (2012)	56	Reinhart & Rogoff (2004)	76	Wint & Williams (2002)	96
Busse & Hefeker (2007)	17	Hayakawa et al. (2013)	37	Lily et al. (2014)	57	Riedl (2010)	77	Xaypanya et al. (2015)	97
Chanegriha et al. (2017)	18	Helpman (2014)	38	Lim (2008)	58	Rohra & Chawla (2015)	78	Xing & Wan (2006)	98
Chantasasawat et al. (2010)	19	Hintošová et al. (2018)	39	Luiiz & Charalambous (2009)	59	Saini & Singhania (2018)	79	Yi et al. (2019)	99
Chen et al. (2006)	20	Hoang & Goujon (2014)	40	Lunn (1980)	60	Sharma & Bandara (2010)	80	Zenasni & Benhabib (2013)	100

Table 5. Validity Tests of the Classical Model and Hausman Test

	TESTS	BRICS	BRICS^{+}	BRICS^{+}-T
F Test	**rho**	*0.83334634*	*0.78310572*	*0.80633719*
	F	*2.54*	*26.50*	*8.93*
	Prob>chibar2	***0.0000******	***0.0000******	***0.0000******
LR Test	**chibar2(01)**	*14.16*	*79.60*	*82.93*
	Prob>chibar2	***0.0000******	***0.0000******	***0.0000******
LM Test	**chibar2(01)**	*0.00*	*213.65*	*218.63*
	Prob>chibar2	***1.0000 (n0)***	***0.0000******	***0.0000******
Score Test	**chibar2(01)**	*2912.59*	*4113.78*	*4040.01*
	Prob>chibar2	***0.0000******	***0.0000******	***0.0000******
Hausman Test	**Chi2(6)**	*2.68*	*0.58*	*1.667*
	Prob>chi2	***0.8481 (n0)***	***0.9968 (n0)***	***0.9480 (n0)***
**** %1, ** %5, * %10, n(0) insignificant.*				

Table 6. Descriptive Tests in Random Effects Model

	TESTS	BRICS		BRICS^{+}		BRICS^{+}-T	
Heteroskedacity	**W0**	*2.6896*	*P=0.0394*	*2.7325*	*P=0.0124*	*4.4480*	*P=0.0178*
	W50	*2.0337*	*P=0.1010*	*2.1483*	*P=0.0456*	*2.7545*	*P=0.0665*
	W10	*2.6032*	*P=0.0446*	*2.5816*	*P=0.0175*	*3.8901*	*P=0.0230*
Auto Correlation	**Durbin-Watson**	*0.9042790*		*0.8266430*		*0.87442573*	
	Baltagi-Wu	*1.3685797*		*1.1586165*		*1.21943810*	
Cross-sectional Correlation	**Pesaran**	*-1.222*	*P=0.2217*	*0.005*	*P=0.9961*	*0.2550*	*P=0.7987*
	Friedman	*8.360*	*P=0.0792*	*10.055*	*P=0.1855*	*10.168*	*P=2534*
	Frees	*0.5170*		*0.7480*		*0.9000*	
	%10	*0.1984*		*0.1984*		*0.1984*	
	%5	*0.2620*		*0.2620*		*0.2620*	
	%1	*0.3901*		*0.3901*		*0.3901*	

Table 8. Regression with Driscoll-Kraay Standard Errors

		MODEL-1	MODEL-2	MODEL-3
VARIABLES	**STATISTICS**	**BRICS**	**BRICS^{+}**	**BRICS^{+}-T**
lnlabor	**Coefficient**	*0.0094811*	*-0.1159345*	*-0.1589292*
	Std. Err.	*0.1102208*	*0.0574002*	*0.0889231*
	T statistics	*1.66*	*0.52*	*-1.79*
	Prob.	***0.122 (n0)***	***0.614 (n0)***	***0.099****
lngdp	**Coefficient**	*0.2362332*	*0.7915315*	*0.8296527*
	Std. Err.	*0.1827962*	*0.1429196*	*0.2788443*
	T statistics	*4.24*	*6.25*	*2.98*
	Prob.	***0.001******	***0.000******	***0.012****
openness	**Coefficient**	*-0.0781858*	*-0.031704*	*-0.0264249*
	Std. Err.	*0.0117721*	*0.0084602*	*0.0122097*
	T statistics	*1.85*	*-0.66*	*-2.16*
	Prob.	***0.088****	***0.521 (n0)***	***0.051****
unc	**Coefficient**	*0.068835*	*-0.776291*	*-0.3936425*
	Std. Err.	*1.49766*	*0.7145105*	*0.7099833*
	T statistics	*0.88*	*2.75*	*-0.55*
	Prob.	***0.399 (n0)***	***0.018****	***0.589 (n0)***
reer	**Coefficient**	*-0.0110116*	*-0.0076486*	*-0.0069739*
	Std. Err.	*0.0032142*	*0.0026419*	*0.0052586*
	T statistics	*0.80*	*0.11*	*-1.33*
	Prob.	***0.437 (n0)***	***0.917 (n0)***	***0.209(n0)***
lnnat	**Coefficient**	*0.7098376*	*0.2045701*	*0.1639678*
	Std. Err.	*0.2407846*	*0.0730583*	*0.1385466*
	T statistics	*0.59*	*3.42*	*1.18*
	Prob.	***0.567 (n0)***	***0.005******	***0.260 (n0)***
coefficient	**Coefficient**	*11.82874*	*6.219378*	*5.723523*
	Std. Err.	*1.527413*	*1.580431*	*1.837224*
	T statistics	*1.52*	*1.74*	*3.12*
	Prob.	***0.153 (n0)***	***0.108 (n0)***	***0.009******
		***R^2:** 0.6605*	***R^2:** 0.7433*	***R^2:** 0.6246*
		***Observation:** 65*	***Observation:** 104*	***Observation:** 117*
		***Wald chi2 (6):** 499.79*	***Wald chi2 (6):** 2286.64*	***Wald chi2 (6):** 575.16*
		Prob.>F=**0.0000*	***Prob.>chi2=**0.0000****	***Prob.>chi2=**0.0000****
			***sigma_u:** 0..11495702*	***sigma_u:**0.9770735*
			***sigma_e:** 0.40957032*	***sigma_e:** 0.39524743*
			***rho:** 0.07302663*	***rho:** 0.85937394*
			**** %1, ** %5, * %10, n(0) insignificant*	