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National and International influential determinants with FDI Inflows: Dynamic Panel Data Method

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Abstract

The study aims to evaluate the relationship of various international and national determinants on the foreign direct investment inflow of forty-five Asian nations. A nation's ability to develop economically is dependent on foreign direct investment. It may be various kinds like brownfield FDI, greenfield FDI, vertical FDI, horizontal FDI, inward FDI and outward FDI. Moreover, FDI is not independent; it depends on various determinants that can be divided into two parts: international and national determinants. Dynamic panel data analysis has been considered over twenty-five (1989-2022) years of secondary data. Hence, globalisation, inflation, and trade openness are considered international determinants, whereas the human development index, gross capital formation, market size, and infrastructure are treated as domestic determinants. The result reveals that trade transparency, market size, gross capital formation, and infrastructure have a favourable association with the inflow of FDI. Policymakers should emphasise the promotion of these determinants for the enhancement of the inflow of FDI.

Keywords**:** *Asian Nations, International and Domestic Determinants.*

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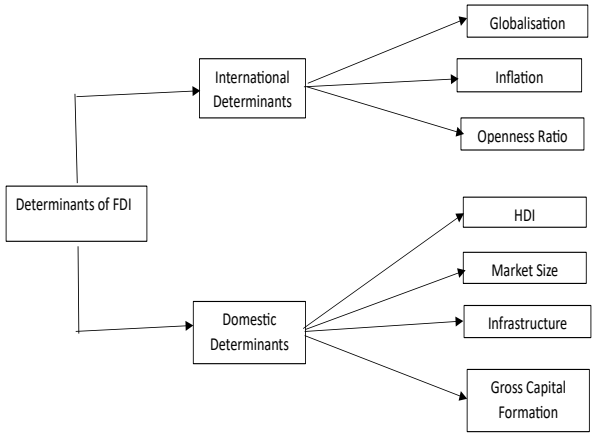
1. Introduction

Capital, quality human resources, technology, and natural resources are the key variables for economic development. Capital is treated as the nerve system of the economy, which positively affects GDP and overall growth subject to proper utilisation. A shortage of capital may be overcome by utilising FDI. It can be treated as a direct investment of a company in another company, purchasing a company, or establishing a new company in another country that contains capital, skills, and technology (Denisia, 2010). FDI takes various forms like vertical, horizontal, conglomerate FDI (based on types of activity), greenfield FDI, foreign takeover (based on type of entry), FDI inward, and FDI outward (based on flow of direction) (Kojima, 1985).

In 2022, the growth rate of FDI is 45% (OECD, Stat), whereas the GDP growth rate is 9.1% (IMF). The majority of the world utilises FDI as a driving force for economic boosts and social upliftment. But FDI inflow depends on various domestic and international determinants like human development, market size, infrastructure, gross capital formation, globalisation, inflation rate, openness ratio, etc. (Chetanbhai & Desai, 2019). So, FDI inflow is not independent; it depends on several determinants. The subsequent figure -1 reflects these.

Figure-1



Hence, globalisation, inflation, and openness ratio are marked as important factors of international determinants, whereas HDI, market size, infrastructure, and gross capital formation are noted as domestic determinants due to various reasons. Globalisation is the integration of the ingress and egress of resources among nations. Presently, it dominates the global economy (Friedman, 2005) and safeguards resource mobility and transparency for maintaining sustainable international trade (Cuterela, 2012), which is defined as the ratio between total exports and imports with respect to the GDP openness ratio. The price of resources for international trade has changed due to the imbalance situation of supply and demand, which is treated as inflation (Baum et al., 1999). So, these three factors can be evaluated as international determinants of the inflow of FDI.

Any nation (Sagar & Najam, 1998) that is capable of treating itself as a domestic element may control the "Human Development Index," which is an integrated form of health, income, and education (Datta & Shing, 2019). Suitable infrastructure is one attractive element that influences the business (Prus & Sikora, 2021). The county's economy will also be dominant in it. Hence, the GDP per capita is the indicator of market size, which depends on total GDP and the total population of the country (Mayer et al., 2014). It also highlights the domestic element. Another side of gross capital formation is the country's own stock (Ntamwiza & Masengesho, 2022), which presents the strength of the nation and can also be treated as a domestic element.

In Asia, FDI flow reached 662 billion dollars in 2022, as per the report of UNCTAD on 5th July 2023. This is also subject to determinants. Various studies (Sridharan & Rao, 2010; Sahoo, 2006) disclose that a set of explanatory variables affects the FDI inflow. But studies relating to Asia regarding this issue during this specified time period are not disclosed. The present study is devoted to seeking the association of FDI inflow and determinants in Asian nations.

The result reveals that globalisation and the openness ratio of international determinants have a positive and significant association with the inflow of FDI. Whereas market size, infrastructure, and gross capital formation of domestic determinants have a favourable and substantial correlation with FDI inflow. But inflation of international determinants has a negative and significant association with the inflow of FDI of Asian nations.

2. Literature Review and Hypotheses Development:

In 1999, Duran conducted a study during the period 1970-1995 by using time series analysis to find out the influential determinants of FDI inflow. The study discloses that market size, growth, economic stability, openness ratio, and savings act as important determinants of the inflow of FDI. In 2013, Kaur and Sharma examined the association between the rate of enhancement of GDP and the inflow of FDI from twenty-nine countries. But they are unable to find out the relationship. Nonnenberg and Mendonca (2004) analyse the thirty-three countries' data during the period 1975-2004 and find out that the size of the market, rate of economic growth, risk rating of the country, and behaviour of the stock market are vital elements of the inflow of FDI. In 2006, Bhati Usha conducted a study on various determinants and FDI inflow of sixty-two nations. The study discloses that during the periods 1989 to 1994, 1995 to 99, and 2000 to 2003, the GDP is substantially and favourably correlated with the inflow of FDI. For the periods 1989 to 1994 and 1995 to 1999, exports had a positive and significant association with FDI inflow, whereas various social and economic elements such as age, education, rate of inflation, and consumption of electric power and FDI had a negligible relationship. In 2006, Sahoo used a panel data co-integration test to look into how a few factors affect the flow of foreign direct investment (FDI). The outcomes demonstrate that trade openness, market size, and labour growth all have an equal long-term relationship with FDI inflow in South Asian countries. In 2008, Demirhan and Masca performed a study to look into the connection between various determinants and FDI inflow in thirty-eight countries that were developing during the period of 2000-2004 through panel data analysis. The result discloses that the per capita growth rate of GDP, openness ratio, and length of telephone line (per 1000 people) are positively and statistically significant associations with the FDI inflow. On the other side, inflation rate and tax rate have a negative and significant association, but political risk and labour cost have an insignificant relationship with FDI inflow. In 2010, Mottaleb and Kalirajan used 'panel data analysis' during the period 2005 to 2007 on sixty-eight developing nations for determining the elements that affect the FDI flow. The result discloses that the GDP enhancement rate, infrastructure, labour and communication system, foreign aid, and business environment are significantly and positively associated with the FDI inflows. In 2010, Sridharan and Rao explored the various elements of the FDI inflow into BRICS nations for the time frame 1975–2007 by applying panel data analysis. The outcome discloses that the size of the market, gross formation of capital, cost of labour, rate of exchange, and infrastructure are treated as important elements of FDI inflows in BRICS countries. On the other side, stable economies and openness ratios have a statistically insignificant relationship. In 2011, Ranjan and Agrawal investigated the elements of inflows of FDI into BRICS countries during 1975–2009 on thirty-five nations by using a random effect model of panel data analysis. The result discloses that openness ratio, market size, labour cost, facility of infrastructure, and economic enhancement are the elements of FDI inflows. Hence, economic growth and stability don't really affect anything, whereas labour costs and gross capital have an insignificant relationship. In 2011, Shylajan investigated the important determinants that affect the FDI inflow in India for the period 1993-2006 through the application of analysis of multiple regressions. The study reveals that the FDI inflow is positively associated with the gross domestic product, whereas it is negatively associated with FDI outflows. In 2011, Seetanah and Rojid explore the elements of FDI inflow in Mauritius. Hence, the result of the study was analysed by using the differenced vector autoregressive model. It noted that labour quality and openness ratio are the vital elements of FDI inflow in Mauritius. Another side is that size of market has a lower impact on FDI inflow. In 2012, Khachoo and Khan investigated the determinants of the inflows of FDI during the period 1982–2008 in thirty-two nations by using the OLS method, Panel Unit Root, and co-integration tests. Results reveal that the size of the market, cost of labour, openness ratio, and infrastructure have strong associations with FDI inflows. Sahni (2012) conducts a study on the elements of FDI inflow into India between 1992–1993 and 2008–2009 by using 'Time series analyses. The result discloses that inflation, GDP, and trade openness ratio have an

influential impact on FDI inflows in India, whereas the foreign exchange rate is reflected as insignificant. Jadhav (2012) conducts a study for exploring the determinants regarding institutional, economic, and political factors that attract FDI inflows through the panel data method during the tenure of 2000–2009 in BRICS nations. Natural resources, openness ratio, and market size are considered economic determinants, whereas inflation rate, stability of politics, quality of regulatory authority, effectiveness of government, rule of law, voice and accountability, and control of corruption are treated as institutional and political variables for influencing the FDI. Results disclose that the size of the market has a significant positive effect on the inflow of FDI; it implies that foreign investment is attracted due to the market size of BRICS nations. Openness ratio has a significant and positive effect on FDI inflows. Rule for law, accountability & voice, and availability of natural resources have significant impact. Hence, the result also concludes that the determinants relating to economics are more significant than political and institutional variables in BRICS nations. In 2018, Pattayat uses VAR, co-integration analysis, the augmented Dicky-Duller test for evaluating the relationship with FDI inflows, and a few variables that are independent, like GDP, inflation rate, external debt, rate of exchange, etc. Among these, the inflation rate is positively and significantly associated with the FDI inflow of India. Bandekar (2019) examines the association between various determinants and the inflow of FDI from India during 1995–2014 by using time series analysis and VAR analysis. The result reveals that exchange rate, imports, reserves, Nifty 50, and internet users are related to FDI inflows and statistically significant, whereas GDP growth, inflation rate, and labour force participation rate are statistically insignificant variables. Bandekar and Sankaranarayanan (2014) use the data for the period 1991 to 2012 by applying the OLS method of regression analysis for determining the important factors that attract FDI in India and China. It also compares the variables to find out the attractiveness. Results disclose that in India market size, high market growth, globalisation policy, and lower cost of capital attract FDI, whereas in China market size, infrastructure, and economic development are the influential variables for FDI inflows. Market size is a popular element for the FDI flows for China and India. Saini and Singhania (2018) conducted a study on eleven developed and nine developing nations during the tenure 2004–2013 by applying the panel data method to examine the impact of various elements of FDI inflows. The findings show that in developed countries, FDI is affected by increasing GDP, trade openness, and the freedom index. On the other hand, in developing countries, FDI is linked to factors that increase fixed capital formation, trade openness, and labour efficiency. In 2019, Uddin et al. examine the relationship between institutional elements and FDI inflows in Pakistan. The study considered various institutional variables, among them government size, legal structure, freedom of trade, and liberty relating to civil liberties, which are treated as influential elements for FDI inflows. The study also noted that in the post-liberalisation period, institutional determinants act as vital forces for attracting FDI inflows in Pakistan. This also adds that the government of the military is more attractive than the government of the democratic for FDI inflows in Pakistan.

Literature relating to FDI determinants has disclosed various directions of determinants for specific areas and time periods. But studies relating to international determinants like globalisation, inflation, openness ratio, and domestic determinants like HDI, market size, infrastructure, and gross capital formation for Asian nations during the period 1998 to 2022 are not accessible. The present study will try to reveal the relationship of these determinants with FDI inflow for the said nations and time. It may add to the value of existing literature.

Among various international determinants, globalisation plays a vital role for economic growth. In 2016, Zekarias conducted a study on Portugal during the period 1990–2008 by using the GMM model for identifying the association between FDI and globalisation. The result reveals that a positive relationship between these two elements exists. Coulibaly (2018) also finds a positive association between FDI and globalisation. In 2008, Dreher et al. argued in their study that globalisation promotes FDI. Incekara and Savrul (2012) find a positive association between FDI and globalisation. A study by Aluko et

al. (2021) used the Dumitresu-Hurlin panel Granger causality test on 50 countries from 1996 to 2016 to find out how globalisation affected FDI and found that there is a positive relationship. Bitzenis (2012) describes how globalisation is positively associated with FDI. Dima (2016) conducted a study on Romania over 25 years to identify the association between FDI and globalisation. The study reveals the positive relationship. Singh (2019) also examines the positive association between FDI and globalisation. So, there should be an association between FDI inflow and globalisation.

Hypothesis 1 (H_1): *There is an association between globalisation and the inflow of FDI.*

The inflation rate indicates the stability of the price. It acts as a determinant of the inflows of FDI. In 2010, Kaur and Sharma conducted a study on India and revealed that the inflation rate has a significant impact on the inflows of FDI. In another study, Sharma and Rishad (2020) prove that the inflation rate has a significant impact on FDI inflow by using the ARIMA model. But in the study of Shylajan (2011), the reverse result is reflected between these two variables. In 2015, Malik investigated the positive relationship between the inflow of FDI and inflation in Pakistan. Sahni (2012) investigates the positive association of FDI inflows and inflation rate in India by applying the time series analysis method. He also noted that it is the most attractive variable for FDI inflows. In Pakistan, this is also positively associated (Jawaid & Saleem, 2017). In India, Parul (2021) noted that these are positively and insignificantly related. In the study of Madaan and Chowdhry (2016), a positive and insignificant association was reflected between FDI inflows and the inflation rate. So, based on these arguments, the following hypothesis can be drawn.

Hypothesis 2 (H_2): *There is an association between inflation and FDI inflow.*

Openness ratio is the combined form of export, import, and GDP, which has a relationship with FDI inflows. In 2002, Asiedu proved that openness ration acts as a statistically significant element for promoting the inflows of FDI. It depicts the positive effect on the inflows of FDI in the study of Addison and Heshmati in 2003. Quazi and Mahmud (2006) argue in their study that economic freedom and openness affect the inflows of FDI positively. According to a study by Moreira (2009) that used literature as its foundation, the openness ratio favourably affects FDI inflows. Seetanah and Rojjd (2011) conducted their study on Mauritius and found that the openness ratio is the most vital element for the flows of FDI. Additionally, Singh's 2019 study shows that the openness ratio in BRICS countries affects FDI inflows. In 2023, Wang et al. disclose the long-term positive association between inflows of FDI and the openness ratio. Saini and Singhania (2018) examine the association between the inflows of FDI and openness ration in developing nations. Kumar and Ramana (2023) investigate the positive and significant association between these two in India. These arguments can help to establish the hypothesis as follows:

Hypothesis 3 (H_3): *FDI inflow and openness ratio are related to each other.*

All activities relating to development depend on human development. It measures through an index, which is the combination of income, education, and health. Offiong (2020) establishes the association of HDI and FDI in his study, which was conducted between 1995 and 2019 by using the ARDL and other appropriate tests. Two-fold results highlight the relationship. These are long term positive relationships that exist between them, but in the short run there is a negative relationship. Gokmenoglu et al. (2018) conduct a study for identifying the association between FDI and HDI during the period 1972–2013 of Nigeria. The cointegration test of Johansen reveals the long-run association between these two elements. Kaukab and Surwandono (2021) conduct a study on ASEAN countries to find out the relationship between HDI and FDI through panel data analysis during the period 2013-2017. They investigate the positive relationship between these two elements. Mahmood (2012) finds out a positive relationship between HDI and FDI by using the ordinary least squares method during the period 1975 to 2008 in Pakistan. In 2004, Sharma and Gani investigated the positive effect of HDI on FDI for lower- and middle-income countries during the period 1975 to 1999 by using panel data analysis. Tamer (2013) identifies the positive and significant effect of HDI on FDI in African nations. Mwanga

(2022) reveals a positive relationship between HDI and FDI among 124 countries during the period 2009 to 2013 by applying the GMM model. So, HDI and FDI should have a relationship, and the following hypothesis can be depicted.

Hypothesis 4 (H_4): *There is an association between the Human Development Index and FDI inflow.*

Per capita GDP is considered the market size (Vijayakumar et al., 2010). As per Hill and Munday (1992) and Lucas (1993), the size of the market is a vital element for FDI inflows. In 1994, Tsai examined that size of market has a significant and positive impact on the FDI inflow in India. Chen (2010), in his study, proves that market size is a significant element for the inflows of FDI in developing nations. In Europe, this is considered an important element for the inflow of FDI (Mateev, 2009). In 1998, Clegg and Scott-Green examined the data during the period 1951 to 1990 in their study, but the results revealed that there is no significant relationship between size and FDI inflows. The result is reversed when the data is split into two stages, i.e., 1951 to 1972 and 1973 to 1990. Market size and the inflows of FDI are positively and significantly related in the second stage, i.e., 1973-1990. In 2001, Chakrabarti investigated the association between the size of the market and the inflows of FDI in developing nations, and the results strongly supported this association. Asiedu (2002) argues that market size is not an insignificant element for promoting the inflows of FDI. In 2012, Singh and Chauhan proved in their study that market size is an important variable for attracting inflows of FDI in BRICS nations. In India, this has a long-term relationship (Bandekar, 2019). GDP per capita significantly and positively affects the FDI inflows in Pakistan (Saini, Madan, & Batra, 2016). Shaari et al. (2023) conclude in their study that the size of the market has a significant and positive association with the inflows of FDI in ASEAN +3 countries. Hence, these arguments help to draw the hypothesis as below.

Hypothesis 5 (H_5): *There is an association between the size of the market and the inflow of FDI.*

Infrastructure is another vital element of attracting the inflows of FDI. In 1966, Vernon argues that a host country should have sufficient infrastructure facilities to attract the flows of FDI. In 2014, Shah identified in their study that infrastructure has a positive and significant effect on the FDI inflows. Mottaleb and Kalirajan (2010) examine in their study that infrastructure and communication play an effective role in attracting FDI flows. In 2012, Khachoo and Khan argue that infrastructure is a vital element for the inflows of FDI. Infrastructural facilities in India are positively associated with FDI inflows (Dhanora et al., 2016). Mensah and Traore (2023) examine the effect of internet and network infrastructural facilities on FDI inflows. The result depicts the positive association. So the following hypothesis can be drawn on the basis of these arguments.

Hypothesis 6 (H_6): *There is an association between infrastructure and FDI inflow.*

Gross capital formation plays a vital role in economic development (Swamy & Narayanamurthy, 2018). In the study of Krkoska (2003) and Lipsey (2004), it was identified that the gross capital formation of developing countries has a significant effect on FDI. Tabakis et al. (2006) conducted a study based on panel integration and co-integration tests on thirty developing nations during the period 1992 to 2002. This study discloses that gross capital formation and FDI are significantly associated with each other. In 2011, Lean and Tan conducted a study on Malaysian data during the period 1970 to 2099, and they revealed that there is a positive relationship between capital formation and the flow of FDI. A study has been conducted during the period 1970 to 2000 by Al-Sadig (2013) for identifying the association between capital formation and FDI of developing nations. This reveals a positive association between these two elements. So, an association is expected between FDI and gross capital formation.

Hypothesis 7 (H_7): *An association exists between gross capital formation and FDI inflow.*

3. Data and Methodology:

3.1. Sample Design

Twenty-five years (1998-2022) of secondary data from forty-five Asian nations are considered for the study. Countries are selected based on the highest GDP.

Data relating to FDI inflow, openness ratio, size of market, inflation rate, infrastructure, and gross capital formation are collected from the official website of the World Bank Database. Whereas data relating to globalisation is collected from the KOF Swiss Economic Institute, and UNDP is considered a source of HDI-related data. Based on the availability of data, five indicators are considered for calculating the infrastructure index. These indicators are individuals using the Internet, fixed broadband subscriptions, rail lines, air transport, registered carrier departures worldwide, and electric power consumption.

3.2. Description of Variables

FDI inflows are considered a dependent variable, whereas globalisation, inflation, openness ratio, HDI, market size, infrastructure, and gross capital formation are treated as independent elements. As a result, the US Dollar serves as a proxy for FDI inflows, the index reflects globalisation and inflation, the openness ratio is the sum of export and import with respect to GDP, and HDI is a composite measure of health, income, and education (Fries, 1983). The per capita GDP is a measure of market size (Vijayakumar, 2010). The infrastructure index is calculated by using five indicators of infrastructure (Vijayakumar, 2010). Formation of gross capital is considered a percentage of GDP.

3.3. Model Specification and Econometric Estimations

Descriptive statistics have been used for determining the min value, max value, standard division, and mean value of the sample data. Tests of diagnostic statistics, i.e., multicollinearity and heteroskedasticity, are conducted. The regression model has been depicted as follows for determining the relationship between dependent and independent variables.

$FDI_{it} = \alpha + \beta_1 (GLO) + \beta_2 (INFL) + \beta_3 (OPR) + \beta_4 (HDI) + \beta_5 (MS) + \beta_6 (INF) + \beta_7 (GCF) + \varepsilon_{it}$

$LFDI_{it} = \alpha + \beta_1 (LGLO) + \beta_2 (LINFL) + \beta_3 (LOPR) + \beta_4 (LHDI) + \beta_5 (LMS) + \beta_6 (LINF) + \beta_7 (LGCF) + \varepsilon_{it}$ [Taking logs on both sides] …….(1)

…… (2)

FDI_{it} presents the foreign direct investment inflows of the *i*th country at the time t. α denotes the term of constant. β_1 to β_7 highlight the independent variable's coefficient. GLO, INFL, OPR, HDI, MS, INF, and GCF present globalisation, inflation, openness ratio, human development index, market size, infrastructure, and gross capital formation. The error term is represented by $\varepsilon_{it.}$ Equation no. 2 represents the dynamic panel model, where presents the dependent variable lag value.

Dynamic relationships among dependent and independent elements are evaluated by applying the dynamic panel data method. Arellano and Bond's (1991) dynamic panel data analysis methods have been used to find out how the independent elements affect the dependent elements as a whole, as well as the endogeneity of the independent elements and the laggedness of the dependent variable.

Hence, cross-sectional data value is larger than time series data, which is appropriate for using the dynamic panel data method as per rule of thumb. Due to the non-essentiality of a larger time series value for obtaining consistent estimators, it supports the estimation method (Mishra, 2008). The dependent variable of lagged value is considered an independent variable in this model (Altaf & Shah, 2018). Hence, the one-year lag of FDI is considered an independent variable in this model to avoid the endogeneity issue (Wooldridge, 2009).

The dynamic panel data analysis method (Arellano and Bond, 1991) is used under Generalised Method of Movement (GMM). One year lagged value of the inflow of FDI and other independent factors are used as instruments for maintaining the unbiased and consistent results (Basant & Mishra, 2013). Hence, autocorrelation is investigated by using the Arellano-Bond test, whereas validity and overidentification are tested by using the Sargan test (1958).

One- and two-step estimators' methods are being applied under the analysis of dynamic panel data. The Wald Chi-square test and the Sargan test, respectively, evaluate the significance of the overall model and over-identification. We look into this model by looking at dynamism for endogeneity issue analysis. This leads to the strongest conclusions and most reliable estimates.

4. Data Analysis and Findings:

4.1. Descriptive statistics

Basic statistical ingredients of the sample data are tested through mean, standard division, maximum, and minimum values. Table 1 has been used to depict the results of these ingredients. The mean value of the dependent variable is 9.021, which indicates the average inflows of FDI in Asian nations. However, the standard deviation of FDI inflows is 1.004, which emphasises the existence of a moderate degree of dispersion, and the data value ranges from 11.536 to 5.230. The mean value of other independent variables lies between 10.143 and 0.720. The standard deviation is various from 1.005 to 0.086, and the dispersion value of gross capital formation is higher than other independent variables.

Table 1:

Descriptive Statistics

Variable	Mean	Standard Deviation	Minimum Value	Maximum Value
LFDI	9.021	1.004	5.230	11.536
LGLO	1.728	0.118	1.371	1.926
LINFL	0.720	0.362	-0.174	2.189
LOPR	1.781	0.240	0.983	2.535
LHDI	1.834	0.086	1.509	1.974
LMS	3.590	0.664	2.015	4.991
LINF	4.623	0 .682	3.089	6.705
LGCF	10.143	1.005	7.741	12.897

Source: *Calculated by Authors*

4.2. Diagnostic Tests

Variance inflation factor (VIF) analysis is applied for detecting the multicollinearity. By the general rule of thumb, if the VIF value is less than 10, then it signifies the data set is free from multicollinearity problems. In line with Klein (1962), if VIF is more than 1/(1–R2) or the importance of tolerance is lower than (1–R2), then it can be said that the presence of multicollinearity is statistically significant.

Table- 2:

Variance Inflation Factor

Independent Variables	VIF
LGLO	3.35
LINFL	1.20
LOPR	1.29
LHDI	5.68
LGDP	4.66
LINF	1.93
LGCF	2.46

Source: Calculated by Authors

The result of the VIF is reflected in Table 2. Results of VIF disclose the numerical value less than 10 and tolerance value greater than 0.1. These results denote the multicollinearity free explanatory elements.

It is assumed that under the regression model, the term of error is not correlated, and the variance of this error term is constant that fits under the homoskedasticity condition. It can also be said that when the term of error is not constant, then it clears the existence of heteroskedasticity, which creates problems regarding the regression model. A test of heteroskedasticity has been implemented, which is reflected in Table 3.

Table- 3:

Test of Heteroskedasticity

Test	Null-hypothesis	Results
Breusch-Pagan / Cook-Weisberg test	Homoskedasticity	7.93***
White's Information Matrix test	Homoskedasticity	308.21***

Source: Calculated by Authors

*Notes: * denotes the significance level is 1 percent.*

The Breusch-Pagan/Cook-Weisberg test and White's (1980) are used to find out the existence of the heteroskedasticity problem. Both tests suggest that there is the existence of heteroskedasticity due to disproving the null hypothesis due to the probability values of both tests being not more than 1 percent level.

4.3. Dynamic panel data estimation

Arellano and Bond's (1991) dynamic data analysis method of panel (Table 6) is to be used for eliminating the problem regarding endogeneity. This dynamic panel data model considers the autocorrelation problem test and the test of validity.

Table 4:

Results of Arellano-Bond GMM-based Dynamic Panel Data Model

Variables	One Step Estimates		Two Step Estimates	
	Coefficient	**z-Stat**	**Coefficient**	**z-Stat**
Intercept	3.75	1.30	6.25***	2.90
$LFDI_{it-1}$	0.45***	4.09	0.46***	6.84
LGLO	-2.69*	-1.75	1.93*	2.25
LINFL	0.07	1.31	-0.10**	-2.71
LOPR	0.56*	2.23	0.38*	2.13
LHDI	0.08	0.03	-2.24	-1.12
LGDP	0.61*	2.14	0.49*	2.50
LINF	0.03	0.20	0 .04*	0.58
LGCF	0.28	1.38	0.34*	2.38
Wald–Chi^2	179.69***		399.57***	
Sargan Test for over-identification			25.166 (p=0.289)	
Arellano Bond Test for AR (1)	-3.85 (p=0.0001)		-3.85 (p= 0.0001)	
Arellano Bond Test for AR (2)	-0.296 (p=0.7672)		-.296 (p= 0.767)	

*Note: I. means statistically the significance level is 1 percent. indicates statistically the level of significance is 5 percent. ** signifies statistically the significance level is 10 percent. II. Robust standard error is the base z-statistic for controlling the heteroskedasticity and autocorrelation.*

Source: Calculated by the authors

Over-identification of statistics is measured through the Sargan test [25.166 (p = 0.289)]. This result signifies the model is free from over-identification related problems. The test of the null hypothesis is not rejected that clears the instruments that are used in the estimation are treated as valid. These instruments do not correlate with the disturbance term (Mahakud & Misra, 2009).

On the other side, it can be said that second-order autocorrelation is not presented in this model due to the insignificant result of the Arellano-Bond test for AR (2). This condition is favourable for the framework of system-GMM, and it can proceed (Kathavate & Mallik, 2012). It was also found that Wald Chi2 is significant for both parts of the dynamic panel data method, which is a strong sign that these models are important. Moreover, the two-step estimator is more robust regarding autocorrelation and heteroskedasticity related issues (Blundell et al., 2000), which stimulates considering a two-step estimator for the study.

5. Results and Discussion:

The study discloses the impact of international and national variables on FDI inflow in Asian nations. The dynamic panel data analysis model shows that globalisation, openness ratio, market size, Infrastructure and gross capital formation significantly and positively influence foreign direct investment (FDI). Conversely, inflation exerts a significant and detrimental impact.

In the study of Dima (2016), a positive and significant association of globalisation and FDI inflow in Romania is reflected. Hence, in Asian nations, globalisation and FDI inflow are also positively associated. Higher degree of globalisation enhances the inflow of FDI. Globalisation procedures place emphasis on various treaties among nations that stimulate the flow of FDI. Openness ratio, size of market size (GDP), and infrastructure have significant and positive effects on FDI inflows. These results were also reflected in the study of Khachoo and Khan (2012). A large number of exports and imports is a reflection of financial strength, which attracts the FDI inflow. Similarly, the market size of any country may influence the market seeking FDI inflow. Generally, sound infrastructure stimulates foreign and national investors to invest in the country. In 2016, Megbowon et al. investigated in their study that the gross capital formation positively and significantly affects the FDI inflow. The same result is reflected in this study. A better position of gross capital formation signifies a good economic environment where foreign investors easily invest

their amount. FDI inflow is adversely affected by inflation. Inflation indicates the economic level of the country. A higher degree of inflation is not good for the economic health of the country, which demotivates the investors and vice versa. In the study of Sayek (2009), this negative and significant result is reflected. Another study of Valli and Masih (2014), which is conducted on African countries during the period 1970 to 2012, reflects the same result. So, money value plays a vital role in the attraction of FDI inflow.

6. Conclusion and Policy Recommendations:

Study conducted on forty-five Asian nations for twenty-five years that discloses the relationship of international and domestic determinants with FDI inflow by using dynamic panel data analysis. International determinants like globalisation, openness ratio, market size, infrastructure, and gross capital formation are significantly and favourably correlated. effect on the FDI inflow. It reveals the enhancement of these variables promotes the inflow of FDI in Asian nations.

Policymakers should place the stress on the flow of globalisation, openness ratio, market size, infrastructure, and gross capital formation for improving the flow of FDI in Asina nations. Inflation reduces the real value of money, which signifies degradation of the real value of the host country's money and reduces the FDI inflow. In this respect, it is better to maintain the minimum inflation to safeguard the economy of a nation. Infrastructure is a vital ingredient for the attraction of FDI inflow. It has a positive effect on FDI inflow, which helps to make decisions about upgrading infrastructure. The results for openness ratio, market size (GDP per capita), and gross capital formation show that increasing the flow of FDI depends on making these variables grow. Policy regarding promotion of FDI inflow should emphasise the improvement of these explanatory variables.

Finaly, the study draws the inference based on the data of sample Asian nations and a specific time period. It provides results that may differ if another sample is used. So, these results are not universally true, and the determinants that are considered in the present study may not be enough. There are a large number of variables that may influence the inflow of FDI in Asian nations. Hence, we considered only a few important determinants that have essentiality for the promotion of FDI inflow. Further study would be based on other important determinants and for another region of the world.

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